DRURY

QFCI

Date: 19/05/11 JM

Exhibit Number: 430

IN THE MATTER OF
THE QUEENSLAND FLOODS COMMISSION OF INQUIRY

A COMMISSION OF INQUIRY UNDER THE
COMMISSIONS OF INQUIRY ACT 1950
AND PURSUANT TO THE
COMMISSIONS OF INQUIRY ORDER (No. 1) 2011

STATEMENT OF ROBERT JOHN DRURY

On the 6th day of May 2011, I, Robert John Drury of c/- 240 Margaret Street, Brisbane state on oath:

Introduction

1. I am employed by Queensland Bulk Water Supply Authority (***Seqwater***) in the position of Dam Operations Manager. I have held this position since about October 2007. Before this, I held a similar position with SEQWater Corporation from December 2004. In that role, I was largely responsible for the same matters as I am responsible for in my current role, although the number of assets I managed was much smaller.

2. As Dam Operations Manager, I am now responsible for the management of Seqwater's 25 dams, 48 weirs, 5 irrigation schemes and several other minor water sources. I report to Jim Pruss.

3. My role includes:

   (a) the management of budgets and expenditure relating to the dams, weirs and irrigation schemes;

   (b) managing staff and resource allocations to the abovementioned assets;

   (c) coordinating and reporting on Seqwater's compliance with regulatory requirements relating to the abovementioned assets;

   (d) reporting to Mr Pruss and Seqwater's Chief Executive Officer; and

   (e) managing Seqwater's performance in relation to the the 5 irrigation schemes.

Filed on behalf of: Queensland Bulk Water Supply Authority trading as Seqwater

Allens Arthur Robinson
Lawyers
Riverside Centre
123 Eagle Street
Brisbane QLD 4000

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Ref MGI:120128021

4. My role does not include making decisions regarding releases of flood waters during flood events.

5. Prior to being employed by Seqwater, my previous employer was the Queensland Government (in the then Department of Natural Resources and Water) in the area of water regulation.

6. I have worked in various Departments since 1977 in the areas of water supply, sewerage schemes planning, water and sewerage treatment, irrigation supply, dam operations, water management and general operation and maintenance.

7. I hold a Bachelor of Civil Engineering and a Masters of Engineering Science from the University of Queensland.

8. This statement is provided to the Queensland Floods Commission of Inquiry pursuant to a "Requirement to Provide Statement" issued by the Commission dated 21 April 2011 (the ***Requirement***), a copy of which is **Annexure RD1**. The statements I make below are my best recollections of the significant matters referred to in the Requirement which I have been able to prepare in the short time since I received the Requirement.

My role in relation to the creation of the draft 'Protocol for the Communication of Flooding Information for the Brisbane River catchment – including Floodwater Releases from Wivenhoe and Somerset Dams' (*Draft Protocol*)

9. During October 2010, releases of flood water were made from Wivenhoe Dam. This was the first time this had occurred for many years.

10. My understanding is that, at the time, concerns were raised by the Queensland Government that there were different communications to the public regarding the potential impacts of the releases from various agencies and organisations.

11. As a result, the Queensland Government, through the Department of Environment and Resource Management (***DERM***) and Emergency Management Queensland (***EMQ***) initiated the development of the Draft Protocol.

12. DERM and EMQ involved the Brisbane, Ipswich and Somerset Councils, Seqwater, the Bureau of Meteorology (***BoM***), the Water Grid Manager, the Dam Safety Regulator, the Queensland Police Service and the Department of the Premier and Cabinet in the process.

13. My understanding is that the process was led by EMQ and generally involved the following:

    (a) there was an initial meeting I attended with EMQ, DERM and representatives of some of the agencies referred to above. I cannot now remember when that initial meeting occurred;

    (b) EMQ circulated an initial draft of the proposed protocol;

[redacted]

(c) there was a further meeting in late October 2010 which was attended by representatives of most of the agencies referred to above. I attended that meeting for Seqwater. In the meeting, the initial draft was discussed along with the process for finalising the draft;

(d) the various agencies provided comments on the initial draft to EMQ;

(e) EMQ circulated further drafts;

(f) the various agencies provided further comments on the further drafts; and

(g) EMQ finalised the Draft Protocol and sent it to the relevant agencies.

14. I led Seqwater's involvement in the Draft Protocol. As part of this, I:

(a) reviewed the drafts;

(b) consulted with various Seqwater personnel on the term of the drafts. These people included John Tibaldi, Mike Foster, Jim Pruss and Peter Borrows; and

(c) provided comments back to EMQ on the drafts.

15. There were significant changes from the initial draft to the final Draft Protocol.

16. In the time available since receiving the Requirement I have not been able to locate and retrieve all of emails which were sent in relation to the development of the Draft Protocol given they occurred over some months. However, I have provided the Commission separately with several documents showing the development of the Draft Protocol which I have been able to locate in the time available.

17. The Draft Protocol was circulated by the Premier to the Brisbane City Council, Ipswich City Council and Somerset Regional Council on 22 November 2010. Annexed and marked **RD2** is a copy of the Premier's letters and the Draft Protocol.

18. On 23 November 2010, the Councils provided feedback on the Draft Protocol. Annexed and marked **RD3** is a copy of an email I received from EMQ attaching the marked up version of the Draft Protocol.

19. Although the protocol was not finalised, since 1 December 2010, I have acted as though the Draft Protocol is operational and I have sought to comply with the version shown in **Annexure RD3**.

20. One practical effect of the Draft Protocol is that when releases from Wivenhoe Dam are to be made, Seqwater is to issue to the Water Grid Manager, which is the State's designated lead public communication agency in respect of such releases of floodwaters from Wivenhoe Dam, Technical Situation Reports (***TSRs***).

[redacted]

21. My understanding is that the Water Grid Manager treats releases of water from Wivenhoe Dam as an "Alert" level incident under the Water Grid Emergency Response Plan and ordinarily assumes responsibility for public communications in respect of the releases of flood waters.

22. Seqwater has provided further information in relation to the Grid Emergency Response Plan in paragraphs 112 – 131 of Seqwater's supplementary submission to the Commission dated 4 April 2011. I believe the matters referred to in those paragraphs to be true.

23. My understanding is that it was initially envisaged that the BoM and the Councils would incorporate information into the TSR. Accordingly, the form of the TSR attached to the Draft Protocol referred to the inclusion, where practicable, of information from BoM and the Councils regarding releases from Wivenhoe Dam in addition to information provided by Seqwater.

24. I had a number of communications with Daniel Spiller and other officers of the Water Grid Manager after the Draft Protocol was circulated on 22 November 2010 by the Premier, in relation to the form of the TSR. The intended content of the TSR changed from that referred in the Draft Protocol as I understood (from discussions at the Protocol meetings held by EMQ) that the BoM and the Councils had not agreed to ordinarily incorporate their information into a TSR, unless they decided otherwise. In practical terms, the TSR became solely an update from Seqwater to the Water Grid Manager and did not include information incorporated into the TSR by BoM and the Councils.

25. This form of the TSR is the form I used during the January 2011 Flood Event, which I discuss below.

26. Following the January 2011 Flood Event, I became aware that Mr Brian Cooper, who had been engaged by the Water Grid Manager to review the event, suggested further changes to the form of the TSR.

27. Since that time, I have proposed a new format for the TSR in consultation with the Water Grid Manager and the Dam Safety Regulator and this new form is now under discussion with these agencies. Annexed and marked **RD4** is the form of the new TSR I have proposed.

28. Additionally, there have been further discussions in relation to the Draft Protocol and a further draft has been circulated by EMQ. This further draft is annexed and marked **RD4A**. My understanding is that a new draft will be circulated shortly.

[redacted]

Communications with the staff of the Flood Operations Centre between 6 January 2011 and 19 January 2011 and my role in relation to the Flood Operations Centre's communications with external agencies between 6 January 2011 and 19 January 2011

29. During the January 2011 Flood Event, my principal roles were as follows:

    (a) I was emailed situation reports issued by the Flood Operations Centre;

    (b) I prepared the TSRs and emailed them to Mr Daniel Spiller of the Water Grid Manager. In preparing the TSRs I would copy and paste matters detailed in the situation reports prepared by the Flood Operations Centre, into the relevant column headings in the TSR template;

    (c) generally, I emailed the information in the situation reports to Tony Trace of the Ipswich City Council, Chris Lavin of the Brisbane City Council and Tony Jacobs of the Somerset Regional Council at about the same time as sending the TSRs to the Water Grid Manager;

    (d) I spoke regularly with the flood operations engineers to seek information, request clarification of information they had provided or provide assistance as requested. I deal with these discussions further below. On 11 January 2011, I also spent the afternoon in the Flood Operations Centre because I was concerned Seqwater's Margaret Street premises might be affected by loss of power;

    (e) I spoke regularly with Mr Daniel Spiller in relation to the information in the TSRs;

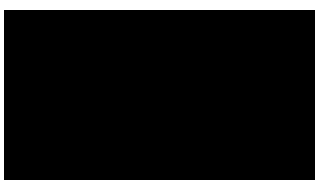
    (f) I checked scripts for the 1800 number operated by the Water Grid;

    (g) I had many discussions with internal Seqwater personnel in relation to the event generally;

    (h) to assist in the preparation of a brief to the Minister following the event.

30. As required by the Commission, annexed and marked **RD5** is a bundle of emails I sent or received during the period 6 January 2011 to 19 January 2011.

31. In relation to my discussions with the flood operations engineers, I am not now able to recall verbatim the discussions I had. I have reviewed the flood event log and to the extent the log records discussions with me, my best recollection is that the log is, with one exception, a reasonable reflection of the calls I made or received.



32. The one exception is the call recorded at 12.55am on 10 January 2011. I do not recall Mr Ruffini referring to fuse plugs at that time and do not believe he did refer to the fuse plugs.

SWORN by **Robert John Drury** in the presence of:

Witness Signature

Signature

GOBIND GARY SINGH KALSI - SOLICITOR

Print Name

IN THE MATTER OF
THE QUEENSLAND FLOODS COMMISSION OF INQUIRY

A COMMISSION OF INQUIRY UNDER THE
COMMISSIONS OF INQUIRY ACT 1950
AND PURSUANT TO THE
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STATEMENT OF ROBERT JOHN DRURY

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RD3	Email from EMQ and Draft Protocol	23/11/2010	19-30
RD4	Proposed new form of TSR	22/02/2011	31-33
RD4A	Email from EMQ and further draft protocol	24/03/2011	34-48
RD5	Bundle of emails during the period 6 January 2011 to 19 January 2011	Various	

Filed on behalf of: Queensland Bulk Water Supply Authority trading as Seqwater

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Queensland Floods Commission of Inquiry

Our ref: Doc 1573371

21 April 2011

Mr Robert Drury
Seqwater
PO BOX 16146
CITY EAST QLD 4002

REQUIREMENT TO PROVIDE STATEMENT TO COMMISSION OF INQUIRY

I, Justice Catherine E Holmes, Commissioner of Inquiry, pursuant to section 5(1)(d) of the *Commissions of Inquiry Act 1950* (Qld), require Mr Robert Drury to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry, in which the said Mr Drury:

- provides all information in his possession and identifies the source or sources of that information;
- makes commentary and provides opinions he is qualified to give as to the appropriateness of particular actions or decisions and the basis of that commentary or opinion;

In respect of the following:

1. his role in relation to the creation of the draft 'Protocol for the Communication of Flooding Information for the Brisbane River catchment- including Floodwater Releases from Wivenhoe and Somerset Dams';

2. an account of his communications, with staff of the Flood Operations Centre between 6 January and 19 January 2011, with reference to the Flood Event Log, and verbatim where possible. Copies of any emails or documents sent or received by him in connection with such communication should be attached to his statement; and

3. his role in relation to the Flood Operations Centre's communications with external agencies between 6 January and 19 January 2011. Copies of any emails or other documents sent or received by him in connection with such communication should be attached to his statement.

Mr Drury may also address other topics relevant to the Terms of Reference of the Commission in the statement, if he wishes.

The statement is to be provided to the Queensland Floods Commission of Inquiry by Tuesday 2 May 2011.

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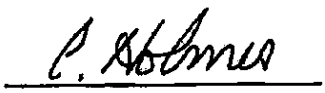
Telephone 1300 309 634
Facsimile +61 7 3405 9750
www.floodcommission.qld.gov.au

The statement can be provided by post, email or by arranging delivery to the Commission by emailing info@floodcommission.qld.gov.au.



Commissioner
Justice C E Holmes

Premier of Queensland

For reply please quote: *ES/BS - TF/10/27097 - DOC/10/153018*

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22 NOV 2010

The Right Honourable the Lord Mayor of Brisbane
Councillor Campbell Newman
Office of the Lord Mayor
GPO Box 2287
BRISBANE QLD 4001

I refer to my letter of 15 October 2010 concerning the development of a protocol concerning the release of flood waters from Wivenhoe Dam.

I am pleased to note the collaborative spirit in which the attached draft protocol dealing with the *Communication of Flooding Information for the Brisbane River Catchment - including Floodwater Releases from Wivenhoe and Somerset Dams* has been developed. The cooperation and input from Brisbane City Council officers, together with the input from other councils, the Bureau of Meteorology and Queensland Government agencies have enabled the development of a protocol to help ensure that robust and consistent information can be provided to the community in relation to possible flooding in the Brisbane River catchment.

Recent comments received from the Somerset Regional Council are still to be incorporated and the draft protocol recirculated to all parties. I appreciate that the Brisbane City Council may have additional comments to make to the protocol following consideration of these additional comments. However, given the predictions for the forthcoming summer storm and cyclone season by the Bureau of Meteorology, I suggest that the protocol should be implemented on an interim basis pending its finalisation and formal sign-off by the four parties to the protocol.

The implementation of the draft protocol as an interim measure will provide a framework for the communication of flood information to the community pending the protocol's formal finalisation.

Queensland Government

Once again I would like to thank you and the officers from the Brisbane City Council for their cooperation and input into the development of the interim protocol. Should you have any questions in relation to this mater please do not hesitate to contact Mr Ken Smith, Director-General, Department of the Premier and Cabinet on telephone [redacted]

Yours sincerely

ANNA BLIGH MP
PREMIER OF QUEENSLAND

***Encl**

Premier of Queensland

For reply please quote: *ES/BS – TF/10/27097 – DOC/10/153031*

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22 NOV 2010

Councillor Paul Pisasale
Mayor
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

I refer to my letter of 15 October 2010 concerning the development of a protocol concerning the release of flood waters from Wivenhoe Dam.

I am pleased to note the collaborative spirit in which the attached draft protocol dealing with the *Communication of Flooding Information for the Brisbane River Catchment - including Floodwater Releases from Wivenhoe and Somerset Dams* has been developed. The cooperation and input from Ipswich City Council officers, together with the input from other councils, the Bureau of Meteorology and Queensland Government agencies have enabled the development of a protocol to help ensure that robust and consistent information can be provided to the community in relation to possible flooding in the Brisbane River catchment.

Recent comments received from the Somerset Regional Council are still to be incorporated and the draft protocol recirculated to all parties. I appreciate that although the Ipswich City Council has agreed to the draft protocol, you may have additional comments to make following consideration of the issues raised by Somerset Regional Council. However, given the predictions for the forthcoming summer storm and cyclone season by the Bureau of Meteorology, I suggest that the protocol should be implemented on an interim basis pending its finalisation and formal sign-off by the four parties to the protocol.

The implementation of the draft protocol as an interim measure will provide a framework for the communication of flood information to the community pending the protocol's formal finalisation.

Queensland Government

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Yours sincerely

ANNA BLIGH MP
PREMIER OF QUEENSLAND

*Encl

Premier of Queensland

For reply please quote: *ES/BS - TF/10/27097 - DOC/10/153046*

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22 NOV 2010

Councillor Graeme Lehmann
Mayor
Somerset Regional Council
PO Box 117
ESK QLD 4312

I refer to my letter of 15 October 2010 concerning the development of a protocol concerning the release of flood waters from Wivenhoe Dam.

I am pleased to note the collaborative spirit in which the attached draft protocol dealing with the *Communication of Flooding Information for the Brisbane River Catchment - including Floodwater Releases from Wivenhoe and Somerset Dams* has been developed. The cooperation and input from Somerset Regional Council officers, together with the input from other councils, the Bureau of Meteorology and Queensland Government agencies have enabled the development of a protocol to help ensure that robust and consistent information can be provided to the community in relation to possible flooding in the Brisbane River catchment.

Comments recently received from your council are still to be incorporated and the draft protocol recirculated to all parties. I appreciate that there are a number of capacity issues that need to be addressed from the perspective of the Somerset Regional Council, and that the other parties to the protocol may have additional comments to make following consideration of these issues. However, given the predictions for the forthcoming summer storm and cyclone season by the Bureau of Meteorology, I suggest that the protocol should be implemented on an interim basis pending its finalisation and formal sign-off by the four parties to the protocol.

The implementation of the draft protocol as an interim measure will provide a framework for the communication of flood information to the community pending the protocol's formal finalisation.

Queensland Government

Once again, I would like to thank you and the officers from the Brisbane City Council for their cooperation and input into the development of the interim protocol. Should you have any questions in relation to this mater please do not hesitate to contact Mr Ken Smith, Director-General, Department of the Premier and Cabinet on telephone [redacted].

Yours sincerely

ANNA BLIGH MP
PREMIER OF QUEENSLAND

***Encl**

Protocol for the Communication of Flooding Information for the Brisbane River Catchment - Including Floodwater Releases from Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the arrangements to be followed by the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies and the Bureau of Meteorology, which will ensure the provision of consistent and robust information to the community, concerning potential flooding impacts for the Brisbane River catchment, including release of floodwater from Wivenhoe and Somerset Dams.

The intent is to ensure that consistent, harmonised information, based on an agreed single point of truth, is communicated to the public in a way that contributes to resilient communities.

BACKGROUND

Queensland's disaster management arrangements, based on disaster management groups at local, district and state level, ensure the collaborative and effective coordination of information for all hazards.

Existing local, district and state disaster management and hazard-specific plans outline arrangements and structures for disaster management, or the hazard, and amongst other things, identify the need for coordination of public communications.

This protocol adds to such plans by outlining specific arrangements necessary when advice to the community needs to be based on technical assessments from hazard-specific primary agencies and other complementary stakeholders across federal, state and local governments.

Factors such as storm surges, tides, creek flooding, flooding from the lower Brisbane River, including Bremer Creek and the Bremer River, will influence inundation levels in Brisbane.

Wivenhoe Dam controls approximately half of the Brisbane River catchment above Brisbane City. The operational strategy for water release from Wivenhoe and Somerset Dams is governed by the *Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam*, henceforth referred to as the Flood Mitigation Manual.

This protocol also covers the possibility that, during an above-average wet season, the water supply level of the dams may be marginally reduced, on a temporary basis, by small water releases. The water supply level would be returned to normal prior to the conclusion of the wet season, to avoid affecting water supply security. These changes, if they proceed, will ultimately be incorporated into the Flood Mitigation Manual.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both this Protocol and the Flood Mitigation Manual;

- Impact on the community upstream or downstream is a legitimate consideration of any risk assessment;
- Regular and consistent communications within government and to the public, in relation to flooding impacts, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events.
- This Protocol does not infringe the right of any party to issue information in line with their responsibilities.

PROCESS OF COMMUNICATION

There are three stages in the process of communication:

- Monitoring and Assessment
- Briefing and Activation
- Public Communications

Monitoring and Assessment

Communications with the public on flooding information, including floodwater releases, are based on a continuous process of monitoring and technical assessment. The process is dynamic and evolves according to the event, but will normally contain the following steps:

- Routine monitoring of weather events and dam levels by relevant agencies via established systems and procedures;

- The Bureau of Meteorology (BoM) provides weather forecasts and warnings (e.g. Tropical Cyclone, Severe Weather, Severe Thunderstorm, Flood). In the event of heavy rain and runoff in the Wivenhoe and/or Somerset Dam catchments, BoM and the Seq Water Bulk Water Supply Authority (Seqwater) discuss modelled inflows to Wivenhoe and/or Somerset Dam, and downstream flood levels.

- Councils monitor creek levels, local runoff and flash flooding, consult with BoM and Seqwater on other potential events upstream that may contribute to and aggravate the situation.

- Seqwater discusses and models implications of the inflows on the necessary floodwater releases from Wivenhoe Dam and/or Somerset Dam. The floodwater release strategy is a balance between releasing the water quickly enough so that the flood storage capacity is available if another major rain event occurs, versus minimising downstream flooding impacts (human safety and property damage) from the releases.

- Seqwater calculates the releases according to dam levels and predicted weather events in accordance with the Flood Mitigation Manual. A fundamental principle is that all floodwater should be released from the dams within seven days of the flood event peaking in Wivenhoe or Somerset Dam. This ensures the dams can cope with closely spaced major rain events.

- Seqwater shares predicted floodwater releases with BoM and with the Councils.

- Councils share information on the status of the Brisbane River catchment and its

river systems with BoM and Seqwater.

- BoM undertakes modelling of the Brisbane River catchment and its river systems using Seqwater advice of actual and projected Wivenhoe Dam and/or Somerset Dam releases when these are, or are expected, to occur.

- BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results. The discussions aim to establish technical agreement on the flood situation, on which public communications should be based.

- Councils undertake modelling, form predictions, identify flood inundation areas and assess impacts for their communities, and regularly share this information with all relevant parties.

During this continuous process, it may become apparent to either BoM, local governments or Seqwater that the situation is likely to result in public safety issues.

These public safety issues may arise from a decision to release floodwater, a significant change in the severity and scope of the event, or a pre-agreed trigger-point being reached.

Any of the agencies may initiate the public communications process and engage with the disaster management arrangements as appropriate.

The initiating agency will instigate a technical staff teleconference. Decisions from the teleconference will be distributed to senior management and media representatives of each agency.

In these circumstances all agencies agree that technical advice will form the basis of public communications messages.

- In the case of floodwater release it considers significant, Seqwater coordinates the completion of the Technical Situation Report - TSR (Appendix C) and provides this Report to the SEQ Water Grid Manager (according to their Emergency Response Plan), and to relevant local governments.

- In other circumstances where a formal technical statement would enhance clarity, the initiating local or state agency may coordinate the completion of a TSR. If initiated, the TSR should be circulated to all parties.

Briefing and Activation

Consideration will be given to the activation of the disaster management arrangements, if not already activated.

1. Councils will consider activating their Local Disaster Management Groups (LDMGs);

2. LDMGs will inform the relevant District Disaster Coordinators (DDCs);

3. The Queensland Police Service (QPS) will consider initiating disaster management actions as provided for under the *Disaster Management Act 2003*;

4. In the case of floodwater release, the SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG

Department of Environment and Resource Management (DERM), and the local governments;

5. DG DCS will inform the DG of the Department of Premier and Cabinet (DPC) - the Chair of the State Disaster Management Group (SDMG) and will activate the State Disaster Coordination Centre (SDCC). DG DCS will also inform the Minister for Police, Corrective Services and Emergency Services;.

6. DG DERM will inform the Minister for Natural Resources, Mines and Energy;

7. DG DPC will inform the Premier;

8. In the case of an extreme event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the SDMG Chair to coordinate public messaging from BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol.

9. In the case of a non-disaster, public communications will be in accordance with existing arrangements, supported where appropriate by this protocol.

Public Communications Issues

Each agency has its own responsibilities to issue information commensurate with their role without prior approvals. The obligation under this protocol is to share that information with other agencies and operate in a fully consultative process to ensure consistent public information.

The BoM, Local Governments and relevant State Government agencies are to maintain continual discussions, to ensure that conflicting information is not released to the public at any time. Genuine efforts should be made to ensure consistency by basing public communications on technical reports. Inter-agency consultation should not cause delays in the issuance of public warnings. All agencies must exchange public communications at time of release. No power of veto is implied under this protocol.

Harmonised public communications messages will be released from the following agencies:

- **Bureau of Meteorology** - concentrating on Flood Warnings which are widely disseminated to the BoM website, agencies and the media. BoM also participates in media (radio, television, newspaper) interviews to provide factual information regarding observed and forecast weather conditions, rainfalls and water levels;

- **Local Governments /Local Disaster Management Groups** - concentrating on the effects of weather related events and safety for their local communities and residents. Local governments have primacy of public communications within their community. Pre-agreed community service announcements from local governments will be shared with the relevant agencies prior to public release;

- **SEQ Water Grid Manager** - if significant floodwater releases from Wivenhoe and Somerset dams are involved, the SEQ Water Grid Manager concentrates on the communication aspects of release timings and duration of effects as the State's lead communication agency on floodwater release. Seqwater operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated), the SEQ Water Grid Communications Unit and relevant local governments.

If necessary these will be augmented by:

- **Queensland Police Service** - concentrating on specific community safety messaging during operations;

- **Department of Community Safety** - concentrating on general safety matters regarding flooding;

- **Department of Premier and Cabinet (extreme events only)** - concentrating on consistent messages to media and agencies concerned.

Event-specific information will be released to the public as frequently as required by the severity and scope of the event. Timings of media releases will be dependent on the event, guided by the frequency of technical reports and may range from once a day to once an hour.

In the case of floodwater release considered significant, SEQ Water Grid Communications Unit will centrally track all communications and ensure they are shared. The unit will liaise with the following or their representatives over pubic safety messages:

- BoM;
- Seqwater;
- Councils' Media Directors;
- QPS Media Director; and
- DCS Media Director.

Questions from the Public

All questions from the public should be directed to the relevant local government in the first instance. Questions expressly relating to the event should be directed to the hazard-specific primary agency. Any questions relating to the release of water should be directed to the SEQ Water Grid Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintenance

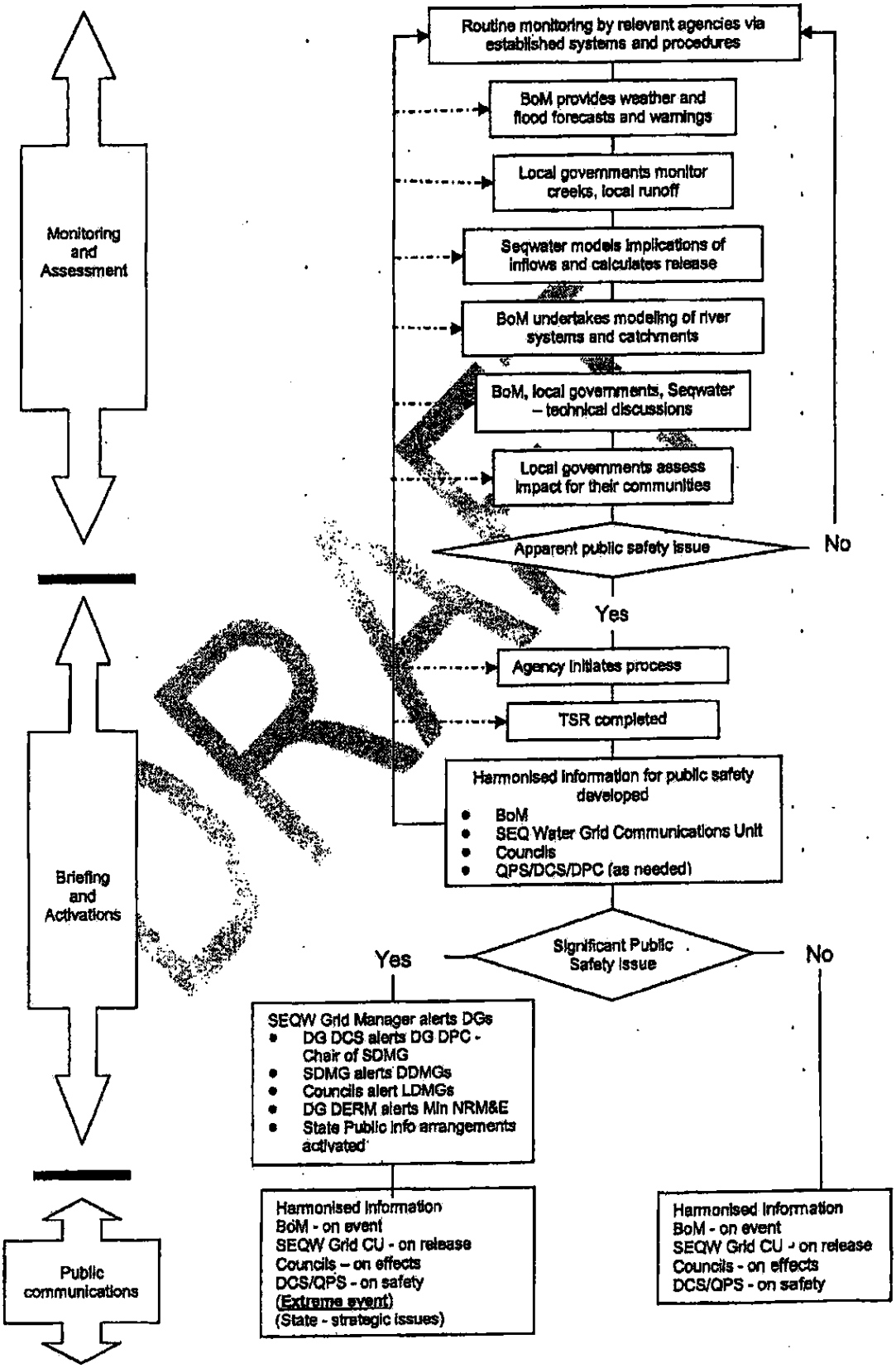
This protocol will be reviewed annually by agencies involved and exercised, during non-operational season, under DDMG arrangements.

The protocol should provide for a review after each event of what worked and could be improved for management of future events, to be led by DCS.

DRAFT

Appendix A

Communications process for the release of floodwater from Wivenhoe and Somerset Dams



DRAFT

Appendix B

ROLES AND RESPONSIBILITIES

- The Bureau of Meteorology (BoM) is the agency responsible for issuing flood warnings for the Brisbane River and its major tributaries. These, when required, include rainfall forecasts for the Brisbane catchment and predicted river heights for Brisbane City, Ipswich, Jindalee and Moggill according to established procedures.

  River height predictions are agreed in consultation with Seqwater, Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

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  It informs BoM and other agencies on the status of dams, and actual and projected releases from Wivenhoe and Somerset dams. It consults BoM regarding inflows to Wivenhoe and Somerset dams and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed reviews or updates to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders. Seqwater coordinates the production of the TSRs relating to floodwater releases from the Wivenhoe and Somerset dams.

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- Department of Environment and Resource Management (DERM) consults with the stakeholders prior to the approval of any updates to the Flood Mitigation Manual. DERM also approves any necessary variations to the strategies in the manual if required during the course of a flood event.

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- Emergency Management Queensland (EMQ) provides support and general community safety advice on flooding issues, during non-operational times.

- SEQ Water Grid Communications Unit tracks the general harmonisation, but not specific detail of public messaging relating to floodwater releases, with BoM; SEQ Water Grid, Councils and DCS, as required. It does this by ensuring that each agency understands the extent of the release and that there is a general consensus as to the level of potential impacts.

Appendix C

TECHNICAL SITUATION REPORT

TSR Number		Date of TSR release		Time of TSR release	

This report is as at the time of assessment, and may quickly become out of date, depending on the current events. It relies on timely information provided by Seqwater, BoM and Councils. A reply will be required by a specified time and if not received by that time no information will be included. If any information is not provided, the section will remain blank. There will be no follow up requests.

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In floodwater releases Seqwater will email advices of releases to the organisations email address provided. Once a flood event is initiated, at any time a council or agency can contact Seqwater to discuss if they have a serious concern regarding the information on releases provided. This would normally be by phone and followed by email. However, the ability to respond to any queries depends on the event. The frequency of advices will depend on the severity of the event and the needs of each agency.

Seqwater will also request at that time a situation assessment from each agency as per details outlined in this document. Each agency will then email in return the requested information if possible or advice that it has not changed. If it is not received within the specified timeframe, it is assumed it is not being provided.

TRIGGERS	
These illustrative triggers provide guidance to initiation of this report	
BoM	
Seqwater	
Local Government	

DRAFT

Seqwater status of inflows and dam operations

(to include information on the current and/or predicted levels of Somerset and Wivenhoe Dams and the probable or planned release strategy with assessment as governed under the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam)

This is Seqwater's status report on the dam levels, probable inflows and planned releases.

.....

This has been supplied to
BCC on .....
ICC on .....
SRC on .....

Issues raised by Councils were .....

Actions taken were .....

Seqwater Technical Officer name	
Seqwater Technical Officer position title	
Seqwater Technical Officer contact details	

BoM assessment

(consisting of references to latest Flood Warnings for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM is to provide either a copy of, or link to, their current information and other updates or comments if needed. This will be their current set of warnings and may be updated or changed at any time.

BoM Technical Officer name	
BoM Technical Officer position title	
BoM Technical Officer contact details	

DRAFT

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by BCC. A request for this information will be sent to the email address provided by BCC.

BCC Technical Officer name	
BCC Technical Officer position title	
BCC Technical Officer contact details	

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by ICC. A request for this information will be sent to the email address provided by ICC.

ICC Technical Officer name	
ICC Technical Officer position title	
ICC Technical Officer contact details	

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by SRC. A request for this information will be sent to the email address provided by SRC.

SRC Technical Officer name	
SRC Technical Officer position title	
SRC Technical Officer contact details	

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	
Contact Officer position title	

Next TSR due	Date		Time		AM/PM

DRAFT

From: Michael Shapland [mailto:Michael.Shapland[redacted]]
Sent: Tuesday, 23 November 2010 6:10 PM
To: ttrace[redacted]; vicki.pethybridge[redacted]; Tony Jacobs; Tammy Anderson for Vicki Pethybridge
Cc: bob.reilly[redacted]; peter.allen[redacted]; Rob Drury; Jim Pruss; scott.denner[redacted]; mfoster[redacted]; michael.lyons[redacted]; chris.lavin[redacted]; qunderwood[redacted]; p.baddiley[redacted]; Brad Smith; Bruce Grady; Irina Stankovska
Subject: Draft Protocol for the Communication of Flooding Information

Following councils feedback on the draft protocol, I attach a revised version for your final approval.

The revisions, shown as tracked changes - try to reflect the various views received. The additional comments below give some of the reasons.

- The protocol does not attempt to repeat existing arrangements or responsibilities; just those that require clarification under these circumstances.
- The flow chart has been amended to reflect the stages set out in the main document. It is intended that the paragraphs in that document remain the authoritative version of the two.
- The technical situation report has been amended to remove any trigger information – reflecting the views that judgement of individuals concerned play a more significant role in triggering the protocol.
- Similarly no definition of a public safety issue is attempted; the judgement of those involved in the protocol is again relied on to define this.
- Finally, the protocol reflects DERM's view that the TSR will be initiated at every release of flood water from dams, on the basis that this will be an occasional event.

I'd be grateful for any final changes to Irina Stankovska by COB Friday 26 November.

Regards
Mike
Mike Shapland MBE | Director, Disaster Management
Emergency Management Queensland | Department of Community Safety
Level 2, Block E, Emergency Services Complex, Kedron, Queensland
[redacted] | [redacted] | [redacted] | Michael.Shapland[redacted]

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider
This correspondence is for the named persons only. It may contain confidential or

All reasonable precautions will be taken to respect the privacy of individuals in

4/04/2011

Protocol for the Communication of Flooding Information for the Brisbane River Catchment - Including Floodwater Releases from Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the arrangements ~~to be followed by~~for the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies and the Bureau of Meteorology, which will ensure the provision of consistent and robust information to the community, concerning potential flooding impacts for the Brisbane River catchment, including release of floodwater from Wivenhoe and Somerset Dams.

The intent is to ensure that consistent, harmonised information, based on an agreed single ~~point of truth~~technical report, is communicated to the public in a way that contributes to resilient communities.

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BACKGROUND

Queensland's disaster management arrangements, based on disaster management groups at local, district and state level, ensure the collaborative and effective coordination of information for all hazards.

Existing local, district and state disaster management and hazard-specific plans outline arrangements and structures for disaster management, or the hazard, and amongst other things, identify the need for coordination of public communications.

This protocol adds to such plans by outlining specific arrangements necessary when advice to the community needs to be based on technical assessments from hazard-specific primary agencies and other complementary stakeholders across federal, state and local governments.

Factors such as storm surges, tides, creek flooding, flooding from the lower Brisbane River, including Lockyer Creek and the Bremer River, will influence inundation levels in Brisbane.

Wivenhoe Dam controls approximately half of the Brisbane River catchment above Brisbane City. The operational strategy for water release from Wivenhoe and Somerset Dams is governed by the *Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam*, henceforth referred to as the Flood Mitigation Manual.

This protocol also covers the possibility that, during an above-average wet season, the water supply level of the dams may be marginally reduced, on a temporary basis, by small water releases. The water supply level would be returned to normal prior to the conclusion of the wet season, to avoid affecting water supply security. These changes, if they proceed, will ultimately be incorporated into the Flood Mitigation Manual.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both this Protocol and the Flood Mitigation Manual;
- Impact on the community upstream or downstream is a legitimate consideration of any risk assessment;
- Regular and consistent communications within government and to the public, in relation to flooding impacts, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible and highly responsive;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events.
- This Protocol does not infringe the right of any party to issue information in line with their responsibilities.

PROCESS OF COMMUNICATION

There are three stages in the process of communication:

- Monitoring and Assessment
- Briefing and Activation
- Public Communications

Monitoring and Assessment

Communications with the public on flooding information, including floodwater releases, are based on a continuous process of monitoring and technical assessment. The process is dynamic and evolves according to the event, but will normally contain the following steps:

- Routine monitoring of weather events and dam levels by relevant agencies via established systems and procedures;
- The Bureau of Meteorology (BoM) provides weather forecasts and warnings (e.g. Tropical Cyclone, Severe Weather, Severe Thunderstorm, Flood). In the event of heavy rain and runoff in the Wivenhoe and/or Somerset Dam catchments, BoM and the Queensland Bulk Water Supply Authority (Seqwater) discuss modelled inflows to Wivenhoe and/or Somerset Dam, and downstream flood levels.
- Councils monitor, to the extent that they are able, creek levels, local runoff and flash flooding, consult with BoM and Seqwater on other potential events upstream that may contribute to and aggravate the situation.
- Seqwater discusses and models implications of the inflows on the necessary floodwater release from Wivenhoe Dam and/or Somerset Dam. The floodwater release strategy is a balance between releasing the water quickly enough so that the flood storage capacity is available if another major rain event occurs, versus minimising downstream flooding impacts (human safety and property damage) from the releases.
- Seqwater calculates the floodwater releases according to dam levels and predicted weather events in accordance with the Flood Mitigation Manual. A fundamental principle is that all floodwater should be released from the dams within seven days of the flood event peaking in Wivenhoe or Somerset Dam. This ensures the dams can cope with closely spaced major rain events.
- Seqwater shares predicted floodwater releases with BoM and with the Councils.

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- Councils with the ability to monitor flooding share information on the status of the Brisbane River catchment and its river systems with each other. BoM, ~~and~~ Seqwater ~~and other councils~~.

- BoM undertakes modelling of the Brisbane River catchment and its river systems using Seqwater advice of actual and projected Wivenhoe Dam and/or Somerset Dam releases when these are occurring, or are expected, to occur.

- BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results. The discussions aim to establish a technical agreement on the flood situation, on which public communications should be based.

- Councils with the necessary resources and expertise undertake modelling, form predictions, identify flood inundation areas and assess impacts for their communities, and regularly share this information with all relevant parties. Councils without the necessary resources and expertise will rely on information from other agencies to complete the impact assessment for their communities.

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During this continuous process, it may become apparent to either BoM, local governments or Seqwater that the situation is likely to result in public safety issues.

These public safety issues may arise from a decision to release floodwater, a significant change in the severity and scope of the event, or a pre-agreed trigger-point being reached.

Any of the agencies may initiate the public communications process and engage with the disaster management arrangements as appropriate.

The trigger points for commencing public communication of flooding information are defined according to an agency's responsibilities.

The initiating agency will instigate a technical staff teleconference. Decisions from the teleconference will be distributed to senior management and media representatives of each agency.

In these circumstances all agencies agree that technical advice will form the basis of public communications messages.

- In ~~the~~ every case of floodwater release ~~it considers significant~~from Wivenhoe or Somerset Dam, Seqwater coordinates the completion of the Technical Situation Report - TSR (Appendix C) and provides the Report to the SEQ Water Grid Manager (according to their Emergency Response Plan), and to relevant local governments.

- In other circumstances where a formal technical statement would enhance clarity, the ~~initiating~~ local or state agency initiating the public communication of flooding information ~~may~~ will pull together relevant information from other agencies in the form ~~coordinate the completion~~ of a TSR. If initiated, the TSR should be circulated to all parties.

Briefing and Activation

If public safety is considered to be at risk, Cconsideration will be given to the

activation of the disaster management arrangements, if not already activated.

1. Councils will consider activating their Local Disaster Management Groups (LDMGs);

2. LDMGs will inform the relevant District Disaster Coordinators (DDCs);

3. The Queensland Police Service (QPS) will consider initiating disaster management actions as provided for under the *Disaster Management Act 2003*;

4. In the case of floodwater release~~,~~:

   (a) the SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG Department of Environment and Resource Management (DERM), and the local governments~~;~~

   ~~5.~~(b) DG DCS will inform the DG of the Department of Premier and Cabinet (DPC) - the Chair of the State Disaster Management Group (SDMG) and will activate the State Disaster Coordination Centre (SDCC). DG DCS will also inform the Minister for Police, Corrective Services and Emergency Services~~;~~

   ~~6.~~(c) DG DERM will inform the Minister for Natural Resources, Mines and Energy~~;~~

   ~~7.~~(d) DG DPC will inform the Premier;

~~8.~~5. In the case of an extreme event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the SDMG Chair to coordinate public messaging from BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol;

~~9.~~6. In the case of a non-disaster, public communications will be in accordance with existing arrangements, supported, where appropriate, by this protocol.

Public Communications Issues

Each agency has its own responsibilities to issue information commensurate with their role without prior approvals. The obligation under this protocol is to share that information with other agencies and operate in a fully consultative process to ensure consistent public information.

The BoM, Local Governments and relevant State Government agencies ~~are~~ agree to maintain continual discussions, to ensure that conflicting information is not released to the public at any time. Genuine efforts should be made to ensure consistency by basing public communications on technical reports. Inter-agency consultation should not cause delays in the issuance of public warnings. All agencies ~~must~~ agree to exchange public communications at time of release. No power of veto to any organisation is implied under this protocol.

Harmonised public communications messages will be released from the following agencies:

- **Bureau of Meteorology** - concentrating on Flood Warnings which are widely disseminated to the BoM website, agencies and the media. BoM also participates

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in media (radio, television, newspaper) interviews to provide factual information regarding observed and forecast weather conditions, rainfalls and water levels;

- **Local Governments / Local Disaster Management Groups** - concentrating on the effects of weather related events and safety for their local communities and residents, and the impacts on councils' assets. Local governments have primacy of public communications within their community. ~~Local governments that have~~ ~~Pre-agreed scripted~~ ~~c~~Community service announcements from local governments ~~from local governments~~ will be shared ~~be shared~~~~share these announcements~~ ~~w~~with the relevant agencies, prior to public release, if time allows;

- **SEQ Water Grid Manager** - if ~~significant~~ floodwater releases from Wivenhoe and Somerset dams are involved, the SEQ Water Grid Manager concentrates on the communication aspects of release timings and duration of effects as the State's lead communication agency on floodwater release. Seqwater operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated), the SEQ Water Grid Communications Unit and relevant local governments.

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If necessary these will be augmented by:

- **Queensland Police Service** - concentrating on specific community safety messaging during operations;

- **Department of Community Safety** - concentrating on general safety matters regarding flooding;

- **Department of Premier and Cabinet (extreme events only)** - concentrating on consistent messages to media and agencies concerned.

Event-specific information will be released to the public as frequently as required by the severity and scope of the event. Timings of media releases will be dependent on the event, guided by the frequency of technical reports and may range from once a day to once an hour.

In the case of floodwater release ~~considered significant~~from Wivenhoe and/or Somerset Dam, SEQ Water Grid Communications Unit will centrally track all communications and ensure they are shared. The unit will liaise with the following or their representatives over public safety messages:

- BoM;
- Seqwater;
- Councils' Media Directors;
- QPS Media Director; and
- DCS Media Director.

Questions from the Public

All questions from the public should be directed to the relevant local government in the first instance. Questions expressly relating to the event should be directed to the hazard-specific primary agency. Any questions relating to the release of floodwater should be directed to the SEQ Water Grid Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

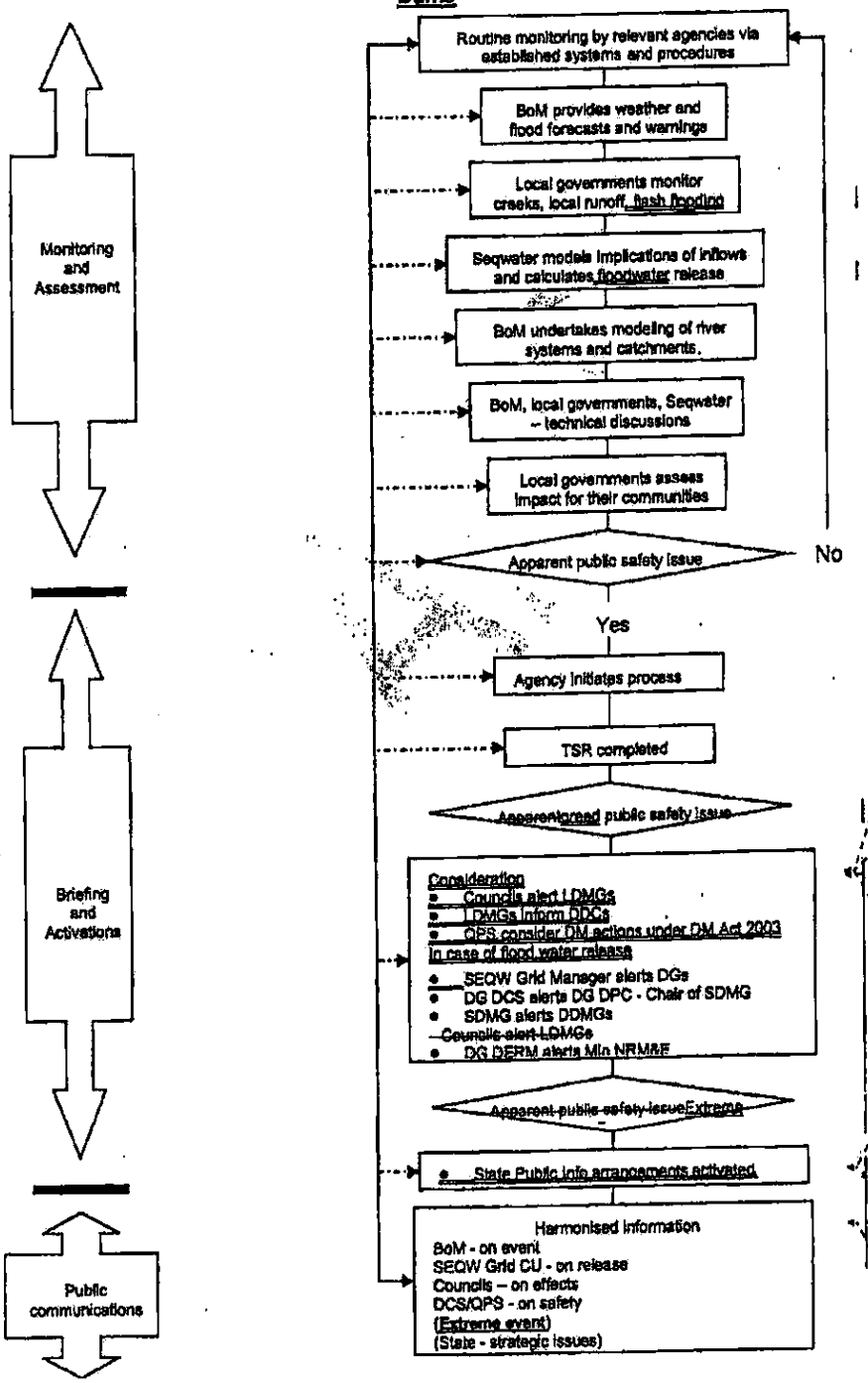
Protocol Maintenance

This protocol will be reviewed annually by agencies involved and exercised, during non-operational season, under DDMG arrangements.

The protocol should provide for a review after each event of what worked and could be improved for management of future events, to be led by DCS.

Appendix A

Communications process for the release of floodwater from Wivenhoe and Somerset Dams



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Appendix B

ROLES AND RESPONSIBILITIES

- The Bureau of Meteorology (BoM) is the agency responsible for issuing flood warnings for the Brisbane River and its major tributaries. These, when required, include rainfall forecasts for the Brisbane catchment and predicted river heights for Brisbane City, Ipswich, Jindalee and Moggill according to established procedures.

  River height predictions are agreed in consultation with Seqwater, Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

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- Queensland Police Service (QPS) assumes a legislative role, as per the disaster management system, to provide disaster management at a district level during an event, including provision of necessary community advice for public safety.

- Emergency Management Queensland (EMQ) provides support and general community safety advice on flooding issues, during non-operational times.

- SEQ Water Grid Manager in the case of floodwater release alerts the Director-General (DG) of the Department of Community Safety (DCS), DG Department of Environment and Resource Management (DERM), and the local governments.

- SEQ Water Grid Communications Unit tracks the general harmonisation, but not specific detail of public messaging relating to floodwater releases, with BoM, SEQ Water Grid, Councils and DCS, as required. It does this by ensuring that each agency understands the extent of the release and that there is a general consensus as to the level of potential impacts.

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Appendix C

TECHNICAL SITUATION REPORT

TSR Number		Date of TSR release		Time of TSR release	

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Each authority will provide an email and telephone contact for all communications. If an event escalates, there may be less time to respond or it may not be possible to respond to requests.

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Seqwater will also request at that time, a situation assessment from each agency as per details outlined in this document. Each agency will then email in return the requested information if possible or advice that it has not changed. If it is not received within the specified timeframe, it is assumed it is not being provided.

~~These illustrative triggers provide guidance to initiation of this report~~	

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Seqwater status of inflows and dam operations

(to include information on the current and/or predicted levels of Somerset and Wivenhoe Dams and the probable or planned release strategy with assessment as governed under the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam)

This is Seqwater's status report on the dam levels, probable inflows and planned releases.

.....

This has been supplied to
BCC on .....
ICC on .....
SRC on .....

Issues raised by Councils were .....

Actions taken were .....

Seqwater Technical Officer name	
Seqwater Technical Officer position title	
Seqwater Technical Officer contact details	

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM is to provide either a copy of, or links to, their current information and other updates or comments if needed. This will be their current set of warnings and may be updated or changed at any time.

BoM Technical Officer name	
BoM Technical Officer position title	
BoM Technical Officer contact details	

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by BCC. A request for this information will be sent to the email address provided by BCC.

BCC Technical Officer name	
BCC Technical Officer position title	
BCC Technical Officer contact details	

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by ICC. A request for this information will be sent to the email address provided by ICC.

ICC Technical Officer name	
ICC Technical Officer position title	
ICC Technical Officer contact details	

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

This is an assessment as provided by SRC. A request for this information will be sent to the email address provided by SRC.

SRC Technical Officer name	
SRC Technical Officer position title	
SRC Technical Officer contact details	

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	
Contact Officer position title	

Next TSR due						

From: Rob Drury
Sent: Tuesday, 22 February 2011 11:11 AM
To: 'Dan Spiller'
Cc: Mike Foster
Subject: TSR's

Dan,
Will send another TSR shortly based on last nights rain but here is a draft of one I had provided to DERM Peter Allen for comment that was considered to have more info and the same info in each one.

It will be a spreadsheet that produces the report (this is just a pdf) and may be a little too much info for what people really need.

Rob

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5/05/2011

seqwater WATER FOR LIFE

TECHNICAL SITUATION REPORT

date / time: 28-January-2011

ID: TSR20110128-1

SOMERSET DAM

FSL:	99.00	Operational trigger:	99.00	Spillway:	100.45	Dam Crest:	107.46

Current Status — date / time: 27/01/11 09:00

Level (mAHD):	99.5	Actual 24hr rainfall (mm):	107

Release Settings

Gate:	I	J	K	L	M	N	O	P
Opening:	100%	100%	100%	100%	100%	100%	100%	100%
Sluice:	closed	closed	closed	closed	closed	closed	closed	closed
Regulator:	2		3		12		13	
Opening:	50%		50%		50%		50%	

Total discharge (m3/s): 1,500 | Estimated inflow (m3/s): 1,200

Forecast status

24hr rainfall (QPF):		Rain to fill (5mm/hr):		Rain to operate (5mm/hr):	

Comments incl. future discharge: All regulators were closed at 20:00 Tuesday 18 January 2011. The dam level was 99.09 m AHD at 15:00 on Thursday and rising slowly. Further regulator releases may take place over the next few days to maintain the dam at Full Supply Level (FSL).

WIVENHOE DAM

FSL:	67.00	Operational trigger:	67.25	Fuse Plug 1:	75.70	Dam Crest:	79.90

Current Status — date / time: 27/01/11 09:00

Level (mAHD):	67.95	Actual 24hr rainfall (mm):	201

Release Settings

Gate:	1	2	3	4	5
Opening:	2.0	3.5	4.0	3.5	2.0
Regulator:		Hydro:			

Total discharge (m3/s): 2,400 | Estimated inflow (m3/s): 3,000

Bridges Inundated

Fernvale:	N	Colleges Xing:	Y	Savages Xing:	N	Twin Bridges:	Y
Kholo Bridge:	N	Burtons Bridge:	N	Mt Crosby Weir:	N		

Lockyer & Bremer Flows

Lockyer (m3/s):	800	Bremer (m3/s):	200

Forecast status

24hr rainfall (QPF):		Rain to fill (5mm/hr):		Rain to operate (5mm/hr):	

Comments incl. future discharge: All gates were closed at Wivenhoe at 12:00 on Wednesday 19 January 2011. The current lake level is just below FSL and rising slowly due to the overnight storm inflows.

NORTH PINE DAM

FSL:	39.60	Operational trigger:	39.60	Winch floor:	41.12	Dam Crest:	43.28

Current Status — date / time: 27/01/11 09:00

Level (mAHD):	39.58	Actual 24hr rainfall (mm):	50

Release Settings

Gate:	A	B	C	D	E
Opening:	2	2	2	2	2
Regulator:		River Release Value:			

Total discharge (m3/s): 1,200 | Estimated inflow (m3/s): 1,000

Bridges Inundated

Youngs Crossing:	Y

Forecast status

24hr rainfall (QPF):		Rain to fill (5mm/hr):		Rain to operate (5mm/hr):	

Comments incl. future discharge: North Pine Dam commenced gate operations at 01:00 on Thursday 20 January 2011 due to the runoff generated from the overnight storm. These gate operations ceased at 14:00 on Thursday 20 January 2011 with the lake level at 39.44 mAHD.

QFP - Quantitative Precipitation Forecast, 24hr forecast rainfall issued by Bureau of Meteorology

Seqwater status of inflows and dam operations
Current status but could change based on inflows and rainfall.

Current Strategy: (eg. W2)	The Flood Operations Centre will monitor the situation in North Pine Dam overnight, but control of the Somerset and Wivenhoe dams has reverted to normal Seqwater operations. Remote monitoring will revert to the On Call Duty Engineer (Rob Ayre) from Friday 21 January 2011.
Future Directions: (eg. possible change to W3)	
Key Considerations:	

Seqwater Technical Officer Name	Robert Drury
Seqwater Technical Officer Position Title	Dam Operations Manager
Seqwater Technical Officer Contact Details	[redacted]

BoM Assessment
(Consisting of references to latest Flood Warning for Brisbane River and other relevant Bureau forecasts and warnings (e.g. Weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed).

BoM has been advised.

BoM Technical Officer Name	Peter Baddiley
BoM Technical Officer Position Title	Regional Hydrology Manager
BoM Technical Officer Contact Details	[redacted]

Brisbane City Council (BCC) assessment
(To include predicted local inundation areas and depths of inundation based on information).
Council has been advised of the current strategy.

BCC Technical Officer Name	Chris Lavin
BCC Technical Officer Position Title	Disaster Operations Manager
BCC Technical Officer Contact Details	[redacted]

Ipswich City Council (ICC) assessment (if required)
(To include predicted local inundation areas and depths of inundation based on information).
Council has been advised of the current strategy.

ICC Technical Officer Name	Tony Trace
ICC Technical Officer Position Title	Local Disaster Response Coordinator
ICC Technical Officer Contact Details	[redacted]

Somerset Regional Council (SRC) assessment (if required)
(To include predicted local inundation areas and depths of inundation based on information).
Council has been advised of the current strategy.

SRC Technical Officer Name	Tony Jacobs
SRC Technical Officer Position Title	Local Disaster Response Coordinator
SRC Technical Officer Contact Details	[redacted]

Collated and distributed by (Agency)

Contact Officer's Signature	
Contact Officer	Rob Drury
Contact Officer Position Title	Dam Operations Manager

Next TSR due	18.1.2011 09:00 hrs

From: Michael Peach [mailto:Michael.Peach[redacted]]
Sent: Thursday, 24 March 2011 4:09 PM
To: angela.appleford[redacted]; adrian.pate[redacted]; p.baddiley[redacted]; bob.reilly[redacted]; Rob Drury; peter.allen[redacted]; scott.denner[redacted]; michael.lyons[redacted]; Mike Foster; daniel.spiller[redacted]; jpruss[redacted]; morganti.davidj[redacted]; martin.peterj[redacted]
Cc: Michael Shapland
Subject: Wivenhoe Protocol - Revised discussion draft

Greetings

Please see attached the revised flood release protocol that attempts to capture the discussion last week. The revised document (with track changes) aligns more closely with the Queensland Disaster Management Arrangements, provides for technical liaison officers (Seqwater etc) in the disaster management groups, establishes technical contact lists and a mechanism for communicating and puts rigour around the coordination of the TSR for timely information sharing.

Apologies for the late release of this draft and I look forward to your comments in the morning.

Regards, Michael

Michael Peach | Principal Program Officer | Operations Policy
Emergency Management Queensland | Department of Community Safety

GPO Box 1425 Brisbane | Emergency Services Complex 125 Kedron Park Rd, Kedron
P: [redacted] | M: [redacted] | F: [redacted] | E: Michael.Peach[redacted]

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Protocol for the Communication of Flooding Information for the Brisbane River Catchment - Including Floodwater Releases from Wivenhoe and Somerset Dams

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OBJECTIVE

The purpose of this protocol is to outline the arrangements to be followed by the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies and the Bureau of Meteorology (BoM), which will ensure the provision of consistent and robust information to the community, create an understanding in the minds of decision makers of the context and detail of releases of floodwater from Wivenhoe and Somerset Dams concerningand potential flooding impacts for the Brisbane River catchment, ~~including release of floodwater from Wivenhoe and Somerset Dams~~.

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The intent is to ensure that consistent, harmonised information, based on an agreed single point of truth, is communicated to the public in a way that contributes to resilient communities.

BACKGROUND

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Queensland's disaster management arrangements, based on disaster management groups at local, district and state level, ensure the collaborative and effective coordination of information for all hazards.

Existing local, district and state disaster management and hazard-specific plans outline arrangements and structures for disaster management, or the hazard, and amongst other things, identify the need for coordination of public communications.

This protocol adds to such plans by outlining specific arrangements to provide for Water Grid/Seqwater liaison officers in the disaster management system at local, district and state level as appropriate, and ~~necessary~~ when advice to the community needs to be based on technical assessments from hazard-specific primary agencies and other complementary stakeholders across federal, state and local governments.

~~Factors such as storm surges, tides, creek flooding, flooding from the lower Brisbane River, including Lockyer Creek and the Bremer River, will influence inundation levels in Brisbane.~~

Wivenhoe Dam controls approximately half of the Brisbane River catchment above Brisbane City. The operational strategy for water release from Wivenhoe and Somerset Dams is governed by the *Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam*, henceforth referred to as the Flood Mitigation Manual.

This protocol also covers the possibility that, during an above-average wet season, the water supply level of the dams may be marginally reduced, on a temporary basis, by small water releases. The water supply level would be returned to normal prior to the conclusion of the wet season, to avoid affecting water supply security. These changes, if they proceed, will ultimately be incorporated into the Flood Mitigation Manual.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

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- Protection of public safety is paramount throughout both this Protocol and the Flood Mitigation Manual;
- Impact on the community upstream or downstream is a legitimate consideration of any risk assessment;
- Regular and consistent communications within government and to the public, in relation to flooding impacts, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events.
- This Protocol does not infringe the right of any party to issue information in line with their responsibilities.

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PROCESS OF COMMUNICATION

There are three stages in the process of communication:

- Monitoring and Assessment
- Briefing and Activation
- Public Communications

Monitoring and Assessment

Agency / Council Core Business:
*See Appendix B for further information regarding Roles and Responsibilities

Bureau of Meteorology
- Provide weather forecasts and warnings

Seqwater
- Routine monitoring of weather events and dam levels

Councils
- Monitor creek levels, local runoff and flash flooding

Protocol Initiation
Communications with the public on flooding information, including floodwater releases, are based on a continuous process of monitoring and technical assessment. The process is dynamic and evolves according to the event, during which, it may become apparent to either BoM, Councils or Seqwater that the situation is likely to result in public safety issues. These public safety issues may arise from a decision to release floodwater, a significant change in the severity and scope of the event, or a pre-agreed trigger-point being reached.

~~but will normally contain the following steps:~~ Any of the agencies may initiate the public communications process and engage with the disaster management arrangements as appropriate, however, the initiating agency should notify the State Disaster Coordination Centre (SDCC) as soon as practicable to outline the communication strategy. Where public communication is not time-critical the initiating agency should notify the (SDCC) to activate the protocol. The SDCC will notify key stakeholders and instigate teleconferences, record minutes, drive timeframes for initial and regular technical reporting and ensure senior decision makers, senior management and media representatives of each agency receive timely briefs.

Agency / Council Collaboration:

Bureau of Meteorology
- In the event of heavy rain and runoff in the Wivenhoe and/or Somerset Dam catchments, BoM will discuss modelled inflows and downstream flood levels with Seqwater.
- Undertake modelling of the Brisbane River catchment and its river systems using Seqwater advice of actual and projected Wivenhoe Dam and/or Somerset Dam releases when these are, or are expected, to occur.
- Participate in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results. The discussions aim to establish technical agreement on the flood situation, on which public communications should be based.

Seqwater
- Discuss and model implications of the inflows on the necessary floodwater release from Wivenhoe Dam and/or Somerset Dam. The floodwater release strategy is a balance between releasing the water quickly enough so that the flood storage capacity is available if another major rain event occurs, versus minimising downstream flooding impacts (human

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safety and property damage) from the releases.

- Calculate the releases according to dam levels and predicted weather events in accordance with the Flood Mitigation Manual. A fundamental principle is that all floodwater should be released from the dams within seven days of the flood event peaking in Wivenhoe or Somerset Dam. This ensures the dams can cope with closely spaced major rain events.
- Share predicted floodwater releases with BoM and with the Councils.

Councils

- Consult with BoM and Seqwater on other potential events upstream that may contribute to and aggravate the situation.
- Share information on the status of the Brisbane River catchment and its river systems with BoM and Seqwater.
- Undertake modelling, form predictions, identify flood inundation areas and assess impacts for their communities, and regularly share this information with all relevant parties.
- Provide for more involvement (and feedback) from a wider range of Council business units i.e. road transport potentially impacted by flood waters, particularly to inform flood water release levels where appropriate.

State Disaster Coordination Centre

- The 3-person Watch Desk Office provides 24/7 all-hazards monitoring of Queensland and can offer timely activation of the centre for Whole of Government response, notification of key stakeholders and decision makers and adequate resources to support Liaison Officers deployed to the SDCC.
- Provide a venue for agency interaction and centralised information sharing.

Technical Information

- ~~Routine monitoring of weather events and dam levels by relevant agencies via established systems and procedures;~~

- ~~The Bureau of Meteorology (BoM) provides weather forecasts and warnings (e.g. Tropical Cyclone, Severe Weather, Severe Thunderstorm, Flood). In the event of heavy rain and runoff in the Wivenhoe and/or Somerset Dam catchments, BoM and the Queensland Bulk Water Supply Authority (Seqwater) discuss modelled inflows to Wivenhoe and/or Somerset Dam, and downstream flood levels;~~

- ~~Councils monitor creek levels, local runoff and flash flooding, consult with BoM and Seqwater on other potential events upstream that may contribute to and aggravate the situation.~~

- ~~Seqwater discusses and models implications of the inflows on the necessary floodwater release from Wivenhoe Dam and/or Somerset Dam. The floodwater release strategy is a balance between releasing the water quickly enough so that the flood storage capacity is available if another major rain event occurs, versus minimising downstream flooding impacts (human safety and property damage) from the releases.~~

- ~~Seqwater calculates the releases according to dam levels and predicted weather events in accordance with the Flood Mitigation Manual. A fundamental principle is that all floodwater should be released from the dams within seven days of the flood event peaking in Wivenhoe or Somerset Dam. This ensures the dams can cope with closely spaced major rain events.~~

- ~~Seqwater shares predicted floodwater releases with BoM and with the Councils.~~

- ~~Councils share information on the status of the Brisbane River catchment and its river systems with BoM and Seqwater.~~

- ~~BoM undertakes modelling of the Brisbane River catchment and its river systems using Seqwater advice of actual and projected Wivenhoe Dam and/or Somerset Dam releases when these are, or are expected, to occur.~~

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- ~~BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results. The discussions aim to establish technical agreement on the flood situation, on which public communications should be based.~~

- ~~Councils undertake modelling, form predictions, identify flood inundation areas and assess impacts for their communities, and regularly share this information with all relevant parties.~~

~~During this continuous process, it may become apparent to either BoM, local governments or Seqwater that the situation is likely to result in public safety issues.~~

~~These public safety issues may arise from a decision to release floodwater, a significant change in the severity and scope of the event, or a pre-agreed trigger point being reached.~~

~~Any of the agencies may initiate the public communications process and engage with the disaster management arrangements as appropriate.~~

~~The initiating agency will instigate a technical staff teleconference. Decisions from the teleconference will be distributed to senior management and media representatives of each agency.~~

In these circumstances all agencies agree that technical advice in the form of a Technical Situation Report (TSR) *(see Appendix C)* will form the basis of public communications messages. The SDCC will provide a robust framework for the TSR within the disaster management system by:

- Ensuring equitable input and feedback from all stakeholders;
- Ensuring regular reporting timeframes are maintained;
- Amplifying the report with information for key decision makers.

The SDCC will coordinate the collation of stakeholder information and distribution of the TSR. Authority for the TSR is as follows:

- Seqwater: Significant ~~in the case of~~ floodwater releases ~~it considers significant, Seqwater coordinates the completion of the Technical Situation Report – TSR (Appendix C) and provides the Report to the SEQ Water Grid Manager (according to their Emergency Response Plan), and to relevant local governments.~~
-
- Local or State agency: ~~In other circumstances~~ Wwhere a formal technical statement would enhance clarity~~, the initiating local or state agency may coordinate the completion of a TSR. If initiated, the TSR should be circulated to all parties~~ of potential flooding impacts for the Brisbane River catchment.

Briefing and Activation

Consideration will be given to the activation of the Queensland disaster management arrangements, if not already activated.

1. Councils will consider activating their Local Disaster Management Groups (LDMGs);
2. LDMGs will inform the relevant District Disaster Coordinators (DDCs);
3. The Queensland Police Service (QPS) will consider initiating disaster management actions as provided for under the *Disaster Management Act 2003*;
4. The SDCC will activate to support Agency / Council collaboration and information sharing;
5. Water Grid / Seqwater will deploy Liaison Officers to relevant disaster management groups as required.

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~~3.6. The Queensland Police Service (QPS) will consider initiating disaster management actions as provided for under the *Disaster Management Act 2003*;~~ DG DCS will inform the DG of the Department of Premier and Cabinet (DPC) - the Chair of the State Disaster Management Group (SDMG) of the SDCC activation. DG DCS will also inform the Minister for Police, Corrective Services and Emergency Services;

3. In the case of floodwater release, the SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG Department of Environment and Resource Management (DERM), and the local governments;

7.

~~5. DG DCS will inform the DG of the Department of Premier and Cabinet (DPC) - the Chair of the State Disaster Management Group (SDMG) and will activate the State Disaster Coordination Centre (SDCC). DG DCS will also inform the Minister for Police, Corrective Services and Emergency Services;~~

~~6.~~8. DG DERM will inform the Minister for Natural Resources, Mines and Energy;

~~7.~~9. DG DPC will inform the Premier;

~~8.~~10. In the case of an extreme event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the SDMG Chair to coordinate public messaging from BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol;

~~9.~~11. In the case of a non-disaster, public communications will be in accordance with existing arrangements, supported where appropriate by this protocol.

Public Communications Issues

Each agency has its own responsibilities to issue information commensurate with their role without prior approvals. The obligation under this protocol is to share that information with the SDCC and other agencies, and operate in a fully consultative process to ensure consistent public information.

The BoM, Local Governments and relevant State Government agencies are to maintain continual discussions, to ensure that conflicting information is not released to the public at any time. Genuine efforts should be made to ensure consistency by basing public communications on technical reports. Inter-agency consultation should not cause delays in the issuance of public warnings. All agencies must exchange public communications at time of release. No power of veto is implied under this protocol.

Harmonised public communications messages will be released from the following agencies:

- **Bureau of Meteorology** - concentrating on Flood Warnings which are widely disseminated to the BoM website, agencies and the media. BoM also participates in media (radio, television, newspaper) interviews to provide factual information regarding observed and forecast weather conditions, rainfalls and water levels;

- **Local Governments /Local Disaster Management Groups** - concentrating on the effects of weather related events and safety for their local communities and residents. Local governments have primacy of public communications within their community. Pre-agreed community service announcements from local governments will be shared with the relevant agencies prior to public release;

- **SEQ Water Grid Manager** - if significant floodwater releases from Wivenhoe and Somerset dams are involved, the SEQ Water Grid Manager concentrates on the communication aspects of release timings and duration of effects as the State's lead communication agency on floodwater release. Seqwater operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated), the SEQ Water Grid Communications Unit and relevant local governments.

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If necessary these will be augmented by:

- **Queensland Police Service** - concentrating on specific community safety messaging during operations;
- **Department of Community Safety** - concentrating on general safety matters regarding flooding;
- **Department of Premier and Cabinet (extreme events only)** - concentrating on consistent messages to media and agencies concerned.

Event-specific information will be released to the public as frequently as required by the severity and scope of the event. Timings of media releases will be dependent on the event, guided by the frequency of technical reports and may range from once a day to once an hour.

In the case of floodwater release considered significant, SEQ Water Grid Communications Unit will centrally track all communications and ensure they are shared. The unit will liaise with the following or their representatives over pubic safety messages:

- BoM;
- Seqwater;
- Councils' Media Directors;
- QPS Media Director; and
- DCS Media Director.

Questions from the Public

All questions from the public should be directed to the relevant local government in the first instance. Questions expressly relating to the event should be directed to the hazard-specific primary agency. Any questions relating to the release of water should be directed to the SEQ Water Grid Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Warnings and Consequence Management

Brisbane City Council Brisbane has partnered with the Early Warning Network (EWN) to provide households with free severe weather alerts. This opt-in system provides location-based alerts to residential addresses potentially impacted by severe weather or other hazards as appropriate. Seqwater have discussed assisting Somerset Regional Council with the costs of establishing and maintaining a similar system for flood water releases affecting the local government area.

Emergency Management Queensland, on behalf of the Queensland Disaster Management Arrangements is responsible for issuing public warnings via Emergency Alert (EA). EA is a telephone warning system that Queensland government can use to send alerts to communities via landline telephones based on the location of the handset, and to mobile phones, based on the service address of the phone. EA is operated and activated by authorised personnel from emergency services organisations. It is not an opt-in system, rather a broadcast initiative that allows for localised, community based warnings to be issued by area or geographic region.

State government might provide more support to Somerset Regional Council in both the preparation and communication of public warnings and the consequences to the public i.e. local flood level mapping, evacuation plans and contact details for further information.

State government will work with the Queensland Reconstruction Authority (QldRA) to identify funding opportunities to assist Somerset Regional Council with flood modelling and mapping, either through the Natural Disaster Resilience Program (NDRP) or other identified assistance programs.

Quality and Reliance upon shared information

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The parties to this protocol recognise that every effort will be made to ensure that information share with each other is true and correct. However, the parties acknowledge that errors or omissions in the shared information are highly likely given the variability of future flooding events.

For the avoidance of doubt, each parties agrees and acknowledges that a party providing shared information(**"the Provider"**) makes no statement, representation, or warranty about the accuracy or completeness of the information shared, and that the party receiving the information (**"the Receiver"**) should not rely on it.

To the maximum extent permitted by law, the Provider of the shared information excludes all responsibility and all liability (including, without limitation, liability in negligence) for all expenses, health effects, injuries, losses, damages and costs the Receiver might incur as a result of the information being inaccurate or incomplete in any way, and for any reason. Where any applicable law implies a warranty into these terms which may not be lawfully excluded, then to the maximum extent permitted by law, the Provider's liability for breach of such implied warranty will be limited to re-supply of the services.

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Protocol Maintenance

This protocol will be reviewed annually by agencies involved and exercised, during non-operational season, under DDMG arrangements.

The protocol should provide for a review after each event of what worked and could be improved for management of future events, to be led by DCS.

Contact Arrangements / Contact Lists

The SDCC will maintain a dynamic list of key stakeholders of this protocol, including a notification matrix for agreed trigger points related to significant flood water releases affecting Brisbane, Ipswich and Somerset Councils.

Agreed mechanism for establishing contact between technical agencies and Councils may be through the SDCC, whereby the Initiating agency notifies the SDCC and then requests the SDCC to activate the protocol and notification process. For less significant events, agencies would be encouraged to establish contact at officer level?

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See Appendix D for Contact List

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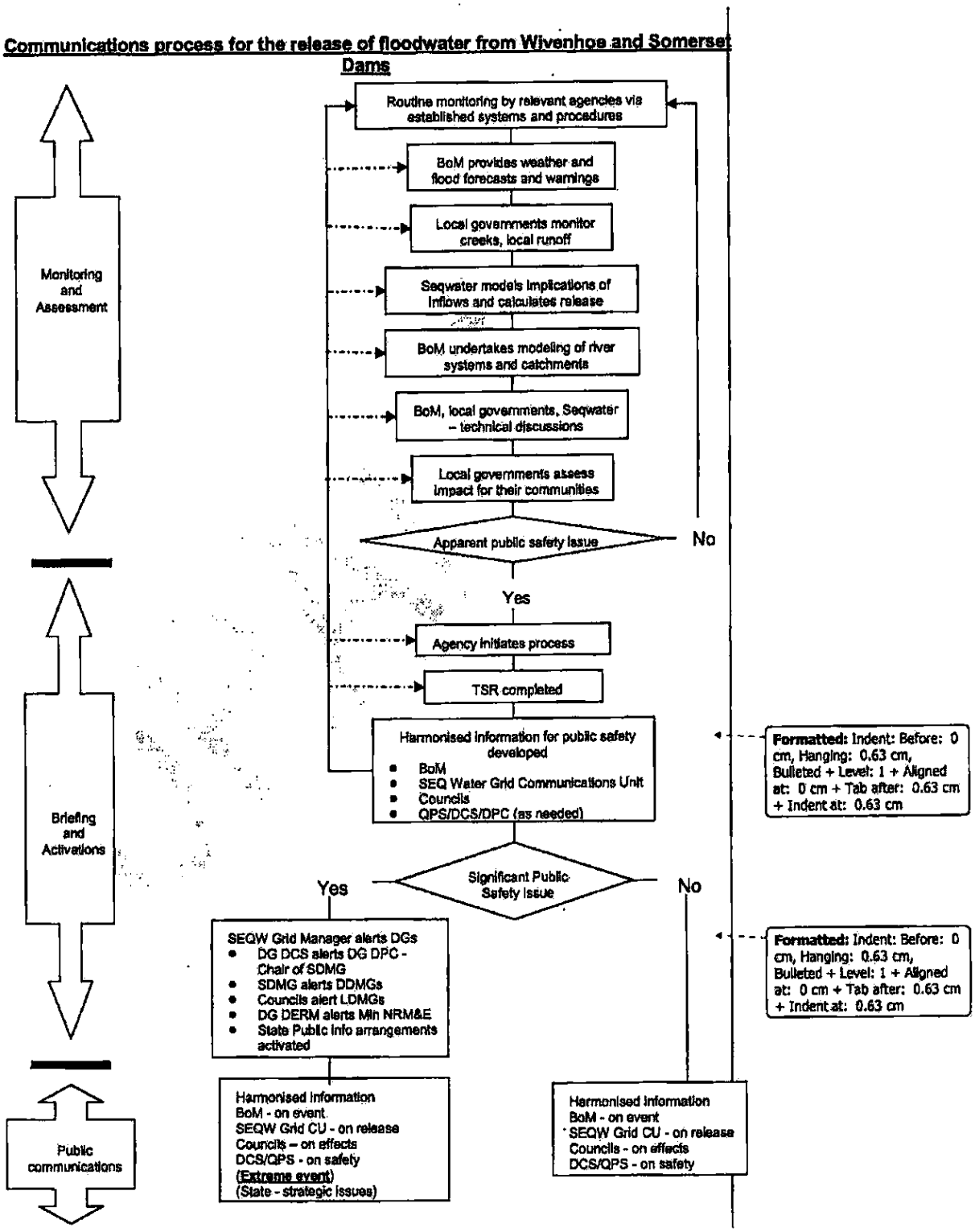
Appendix A


Communications process for the release of floodwater from Wivenhoe and Somerset Dams
Monitoring and Assessment
Briefing and Activations
Public communications
Routine monitoring by relevant agencies via established systems and procedures
BoM provides weather and flood forecasts and warnings
Local governments monitor creeks, local runoff
Seqwater models implications of inflows and calculates release
BoM undertakes modeling of river systems and catchments
BoM, local governments, Seqwater – technical discussions
Local governments assess impact for their communities
Apparent public safety issue
No
Yes
Agency initiates process
TSR completed
Harmonised information for public safety developed
BoM
SEQ Water Grid Communications Unit
Councils
QPS/DCS/DPC (as needed)
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Significant Public Safety Issue
Yes
No
SEQW Grid Manager alerts DGs
DG DCS alerts DG DPC - Chair of SDMG
SDMG alerts DDMGs
Councils alert LDMGs
DG DERM alerts Min NRM&E
State Public Info arrangements activated
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Harmonised information
BoM - on event
SEQW Grid CU - on release
Councils – on effects
DCS/QPS - on safety
(Extreme event)
(State - strategic issues)
Harmonised information
BoM - on event
SEQW Grid CU - on release
Councils - on effects
DCS/QPS - on safety

8

Appendix B

ROLES AND RESPONSIBILITIES

- The Bureau of Meteorology (BoM) is the agency responsible for issuing flood warnings for the Brisbane River and its major tributaries. These, when required, include rainfall forecasts for the Brisbane catchment and predicted river heights for Brisbane City, Ipswich, Jindalee and Moggill according to established procedures.

  River height predictions are agreed in consultation with Seqwater, Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Queensland Bulk Water Supply Authority (Seqwater) operates Wivenhoe and Somerset Dams in accordance with the Flood Mitigation Manual. It provides dam outflow information to BoM, to allow the development of Flood Warnings and to local authorities, to assist them in quantifying likely impacts within their areas.

  It informs BoM and other agencies on the status of dams, and actual and projected releases from Wivenhoe and Somerset dams. It consults BoM regarding inflows to Wivenhoe and Somerset dams and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed reviews or updates to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders. Seqwater coordinates the production of the TSRs relating to floodwater releases from the Wivenhoe and Somerset dams.

- Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC) distribute consistent, detailed local flood level information, both to their respective operational units, their senior management and their broader communities. This should include the interpretation of BoM flood warnings and river height forecasts into expected areas and depths of inundation. Councils are responsible for activating their respective Local Disaster Management Groups (LDMGs), which then undertake the disaster management responsibility for response in the community.

- Department of Environment and Resource Management (DERM) consults with the stakeholders prior to the approval of any updates to the Flood Mitigation Manual. DERM also approves any necessary variations to the strategies in the manual if required during the course of a flood event.

- Queensland Police Service (QPS) assumes a legislative role, as per the disaster management system, to provide disaster management at a district level during an event, including provision of necessary community advice for public safety.

- Emergency Management Queensland (EMQ) provides support and general community safety advice on flooding issues, during non-operational times. It also maintains the State Disaster Coordination Centre, a 24/7 whole of government resource to support inter-agency coordination during events and ensure formal reporting to senior decision makers.

- SEQ Water Grid Communications Unit tracks the general harmonisation, but not specific detail of public messaging relating to floodwater releases, with BoM, SEQ Water Grid, Councils and DCS, as required. It does this by ensuring that each agency understands the extent of the release and that there is a general consensus as to the level of potential impacts.

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Appendix C

TECHNICAL SITUATION REPORT

TSR Number		Date of TSR release		Time of TSR release	

This report is as at the time of assessment, and may quickly become out of date, depending on the current events. It relies on timely information provided by Seqwater, BoM and Councils. A reply will be required by a specified time and if not received by that time no information will be included.
If any information is not provided, the section will remain blank. There will be no follow up requests.

Each authority will provide an email and telephone contact for all communications. If an event escalates, there may be less time to respond or it may not be possible to respond to requests.

In floodwater releases Seqwater will email advices on releases to the organisations email address provided. Once a flood event is initiated, at any time a Council or agency can contact Seqwater to discuss if they have a serious concern regarding the information on releases provided. This would normally be by phone and followed by email. However, the ability to respond to any queries depends on the event. The frequency of advices will depend on the severity of the event and the needs of each agency.

Seqwater will also request at that time, a situation assessment from each agency as per details outlined in this document. Each agency will then email in return the requested information if possible or advice that it has not changed. If it is not received within the specified timeframe, it is assumed it is not being provided.

TRIGGERS	
These illustrative triggers provide guidance to initiation of this report	
BoM	
Seqwater	
Local Government	

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Seqwater status of inflows and dam operations

(to include information on the current and/or predicted levels of Somerset and Wivenhoe Dams and the probable or planned release strategy with assessment as governed under the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam)

This is Seqwater's status report on the dam levels, probable inflows and planned releases.

.....

This has been supplied to
BCC on .....
ICC on .....
SRC on .....

Issues raised by Councils were .....

Actions taken were .....

Seqwater Technical Officer name	
Seqwater Technical Officer position title	
Seqwater Technical Officer contact details	

BoM assessment

(~~consisting~~Consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

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BoM is to provide either a copy of, or links to, their current information and other updates or comments if needed. This will be their current set of warnings and may be updated or changed at any time.

BoM Technical Officer name	
BoM Technical Officer position title	
BoM Technical Officer contact details	

Brisbane City Council (BCC) assessment

(~~to~~To include predicted local inundation areas and depths of inundation based on the information)

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This is an assessment as provided by BCC. A request for this information will be sent to the email address provided by BCC.

BCC Technical Officer name	
BCC Technical Officer position title	
BCC Technical Officer contact details	

Ipswich City Council (ICC) assessment (if required)

(~~to~~To include predicted local inundation areas and depths of inundation based on the information)

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This is an assessment as provided by ICC. A request for this information will be sent to the email address provided by ICC.

ICC Technical Officer name	
ICC Technical Officer position title	
ICC Technical Officer contact details	

Somerset Regional Council (SRC) assessment (if required)

(~~to~~To include predicted local inundation areas and depths of inundation based on the information)

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This is an assessment as provided by SRC. A request for this information will be sent to the email address provided by SRC.

SRC Technical Officer name	
SRC Technical Officer position title	
SRC Technical Officer contact details	

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	
Contact Officer position title	

Next TSR due	Date		Time		Event

12

Appendix D – Contact List

Technical Agency

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Council

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Volume 1

From: Duty Engineer <[redacted]

Sent: Thursday, January 6, 2011 7:42 AM

To: Agg Dagan <adagan[redacted]>; Doug Grigg <dgrigg[redacted]>; Graham Keegan <gkeegan[redacted]u>; Graham Francis <gfrancis[redacted]>; Jayam Tennakoon <jtennakoon[redacted] Matthew O'Reilly <moreilly[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted]

Cc: Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted]

Subject: Mobilisation 06/01/2011

With Wednesday nights rainfall and further totals up to 150mm expected during the next 2 days, please mobilise staff for gate operations at North Pine, Somerset and Wivenhoe Dams.

First operations are expected later today and will continue at least until Saturday morning.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 6, 2011 8:14 AM

To: flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Preston.DavidG@[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Craig Duncan <cduncan@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Situation Report 0800 06/01/2011

---

ainfall

Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrion catchment.

The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

North Pine Dam

At 0700 Thursday, North Pine Dam was 39.60m, 0.05m below gate trigger level and having risen 0.18m since 2/1/2011 due to a combination of baseflow and runoff from rain in the last 24 hours.

Given the forecast rain, gate operations will commence tonight. MBRC will be advised this morning

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.

Wivenhoe Dam

At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the outflow from Somerset.

Impacts of Wivenhoe Dam Releases

Somerset Regional, Ipswich City and Brisbane City Councils will be advised of the potential for gate operations after a full assessment of the situation this morning. At this stage it is anticipated that peak releases from Wivenhoe will be below 500m3/s but this will depend on the forecast rain and flows downstream of the dam.

The expected Wivenhoe release and local flows will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge, Burtons Bridge or Mt Crosby Weir Bridge

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.

The next situation report will be issued at 1800 Thursday 6/1/2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 6, 2011 8:43 AM
To: Mike Foster <mfoster@[redacted]
Cc: Rob Drury <rdrury@[redacted] Paul Bird <pbird@[redacted]
Subject: RE: Situation Report 0800 06/01/2011

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You and Paul are quite welcome to visit the FOC today if you have time.

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Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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From: Mike Foster [mailto:mfoster@[redacted]
Sent: Thursday, 6 January 2011 8:22 AM
To: Duty Seq
Cc: Rob Drury; Paul Bird
Subject: RE: Situation Report 0800 06/01/2011

Tezza ..you were right once again.

Assume we have some flexibility to hold off Wiv gate openings until late this afternoon to allow for some Grid media to advise gate openings and bridge impacts etc.

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To: flood.qld@[redacted] Mike Foster; Paul Bird; Preston.DavidG@[redacted] Rob Drury; Rohan Thorogood; Craig Duncan; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini@[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
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Fax: [redacted]

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From: Rob Drury <rdrury[redacted]>
Sent: Thursday, January 6, 2011 8:52 AM
To: Duty Seq <dutyseq@[redacted] Mike Foster <mfoster[redacted]>
Cc: Paul Bird <pbird@[redacted]
Subject: Re: Situation Report 0800 06/01/2011

Then you will have to kill them to keep our secrets.

From: Duty Engineer <dutyseq@[redacted]
To: Mike Foster
Cc: Rob Drury; Paul Bird
Sent: Thu Jan 06 08:43:12 2011
Subject: RE: Situation Report 0800 06/01/2011

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Impacts of Wivenhoe Dam Releases

Somerset Regional, Ipswich City and Brisbane City Councils will be advised of the potential for gate operations after a full assessment of the situation this morning. At this stage it is anticipated that peak releases from Wivenhoe will be below 500m3/s but this will depend on the forecast rain and flows downstream of the dam.

The expected Wivenhoe release and local flows will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge, Burtons Bridge or Mt Crosby Weir Bridge

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.

The next situation report will be issued at 1800 Thursday 6/1/2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Thursday, January 6, 2011 9:02 AM
To: Mike Foster <mfoster@[redacted] Michael Lyons <Michael.Lyons@[redacted]
Cc: Rob Drury <rdrury@s[redacted]
Subject: RE: Releases - here we go again

What does this mean for Burtons? My reading is that 430 cumecs is the maximum that it will remain open with. Is the objective to keep it open?

Dan

From: Mike Foster [mailto:mfoster@[redacted]
Sent: Thursday, 6 January 2011 8:59 AM
To: Dan Spiller; Michael Lyons
Cc: Rob Drury
Subject: Releases - here we go again

Gents,

Just a quick note to advise we are releasing again and we will require a Grid operational media release.

Leslie Harrison was opened last night and will release into the weekend

North Pine will be opened overnight tonight.

Increased releases from Somerset into Wivenhoe

Likely gate opening from Wivenhoe at this stage expected to be only a one-third of the peak flows from the last event (400-500cubic metres). Councils were advised yesterday of the possibility and will be advised again this morning once timing is finalised. It will be late this afternoon/evening evening at the earliest.

Paul B will have a comms update through shortly.

Rob D will provide a technical report once final decisions on timing are made and councils advised.

Cheers Mike

Mike Foster
Manager Strategic Relations & Communication
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph (07)[redacted] | Fax (07)[redacted] | M[redacted] | E mfoster[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

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From: Mike Foster <mfoster@[redacted]
Sent: Thursday, January 6, 2011 10:04 AM
To: Jade Simmons <Jade.Simmons@[redacted] Paul Bird <pbird@[redacted]
Cc: Michael Lyons <Michael.Lyons@[redacted] Dan Spiller <Daniel.Spiller@[redacted] Rob Drury <rdrury@[redacted]
Subject: RE: Technical Report

Hi Jade

As advised to Dan earlier this morning the Technical Report will be provided once Operations makes a final decision on the timing of Wivenhoe gate releases.

Expect to see a report around lunch.

Cheers Mike

From: Jade Simmons [mailto:Jade.Simmons@[redacted]
Sent: Thursday, 6 January 2011 10:00 AM
To: Paul Bird
Cc: Michael Lyons; Mike Foster; Dan Spiller
Subject: Technical Report

Hi Paul,

Would you know if a technical report has been formulated as yet? If so, would I be able to have a copy please?

Kindest regards

Jade Simmons
Senior Correspondence Officer
SEQ Water Grid Communications Unit
SEQ Water Grid Manager
Phone: (07[redacted] | Fax: (07)[redacted]
Email: jade.simmons@[redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 6, 2011 10:27 AM
To: John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk
<Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted]
David Pokarier <david.pokarier@[redacted] John West
<jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan
<mtan@[redacted] Neville Ablitt <nablitt@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Operational Strategy

Staff Rosters

Co-ordinators are in the process of organizing rosters and Mark has organized a data collectors roster to cover to 1900 Saturday.

North Pine

Planned to commence gate opening at 1900 Thursday with the (now) usual overnight draining strategy. May be sooner depending on rain during the day. Duration of opening will depend upon rain in the next 24 to 48 hours.

Somerset

Maintain current regulator at 50% until Wivenhoe is falling. May get to 99.6m during Friday/Saturday.

Wivenhoe

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If rainfall increases and Lockyer and local runoff also increase, we can close/reduce Wivenhoe accordingly to ensure that that 450m3/s is not exceeded unless necessary.

Councils have been advised of this strategy and are contacting residents.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 10:57 AM
To: Mike Foster <mfoster@[redacted]
Subject: Fw: Operational Strategy

Terry will send no doubt

.....

From: Duty Engineer <dutyseq@[redacted]
To: John.Ruffini@[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Ken.Price@[redacted]
<Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] Al Navaruk
<Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier
<david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt
Cc: Rob Drury
Sent: Thu Jan 06 10:26:56 2011
Subject: Operational Strategy

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From: Mike Foster <mfoster@[redacted]>
Sent: Thursday, January 6, 2011 11:02 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Operational Strategy

Will you or Terry be providing the technical report to the Grid. Grid will require to send to DERM/Premier & Cabinet/Minister and Premier.

Thanks Robbie. Have a bourbon or 72 for me.

Cheers Mike

From: Rob Drury
Sent: Thursday, 6 January 2011 10:57 AM
To: Mike Foster
Subject: Fw: Operational Strategy

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From: Duty Engineer <dutyseq@[redacted]
To: John.Ruffini@[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Ken.Price@[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt
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From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 11:15 AM
To: Mike Foster <mfoster@[redacted]
Subject: Re: Operational Strategy

I will send one about 12pm

From: Mike Foster
To: Rob Drury
Sent: Thu Jan 06 11:02:02 2011
Subject: RE: Operational Strategy

Will you or Terry be providing the technical report to the Grid. Grid will require to send to DERM/Premier & Cabinet/Minister and Premier.

Thanks Robbie. Have a bourbon or 72 for me.

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To: Mike Foster
Subject: Fw: Operational Strategy

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From: Duty Engineer <dutyseq@[redacted]
To: John.Ruffini@[redacted] John Tibaldi; Rob.ayre[redacted] Terry Malone; Ken.Price@[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt
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Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Mike Foster <mfoster@[redacted]
Sent: Thursday, January 6, 2011 11:17 AM
To: Dan Spiller <Daniel.Spiller@[redacted] Jade Simmons <Jade.Simmons@[redacted] Lyons Michael <Michael.Lyons@[redacted]
Cc: Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted]
Subject: Wiv releases

Dan,

Can confirm we will commence gate openings at Wivenhoe from about 6pm tonight (suggest we stick with early evening). Looking at 300m3/s which would ensure Burton's remains open. Combined with flows from the Lockyer the releases will close Twin Bridges and nearly inundate Savages Crossing. Releases alone should not result in the closure of College's Crossing, however a combined Lockyer and local runoff may well.

Councils have been advised of this strategy and are contacting residents.

A technical report will be provided around lunch..

In relation to the Gold Coast only outstanding issue was taste and odor issues from Molindinar first raised 2-3 weeks ago. However we have been carbon dosing and levels have dropped below exceedance levels. Dosing is being switched off today. AllConnex have been in the loop and have not advised of any customer complaints etc.

Cheers Mike

Mike Foster
Manager Strategic Relations & Communication
Queensland Bulk Water Supply Authority *trading as* Seqwater

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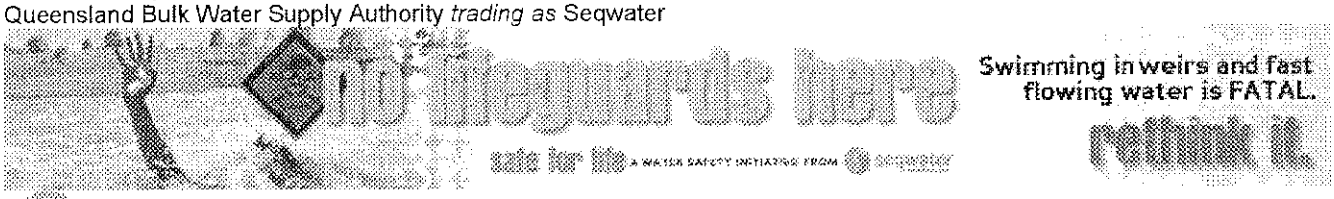
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E mfoster@[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 12:13 PM
To: 'Dan Spiller' <Daniel.Spiller@[redacted]
Cc: Peter Borrows <pborrows@[redacted] Stan Stevenson <sstevenson@seq[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] David Roberts <droberts@[redacted] 'Scott Denner' <Scott.Denner@s[redacted]
Subject: Technical Report W28
Attach: Technical Situation Report W28.docx

Attached Technical Report W28.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.[redacted]

TECHNICAL SITUATION REPORT

TSR Number	W28	Date of TSR release	6.1.2011	Time of TSR release	12.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Monitor inflows and begin releases later today depending on Lockyer flows	
Strategy	• Monitor and develop release strategy	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

Rainfall

Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrion catchment.

The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.

Wivenhoe Dam

At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the outflow from Somerset.

Impacts of Wivenhoe Dam Releases

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If rainfall increases and Lockyer and local runoff also increase, we can close/reduce Wivenhoe accordingly to ensure that that 450m3/s is not exceeded unless necessary.

Councils have been advised of this strategy and are contacting residents.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts ond warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

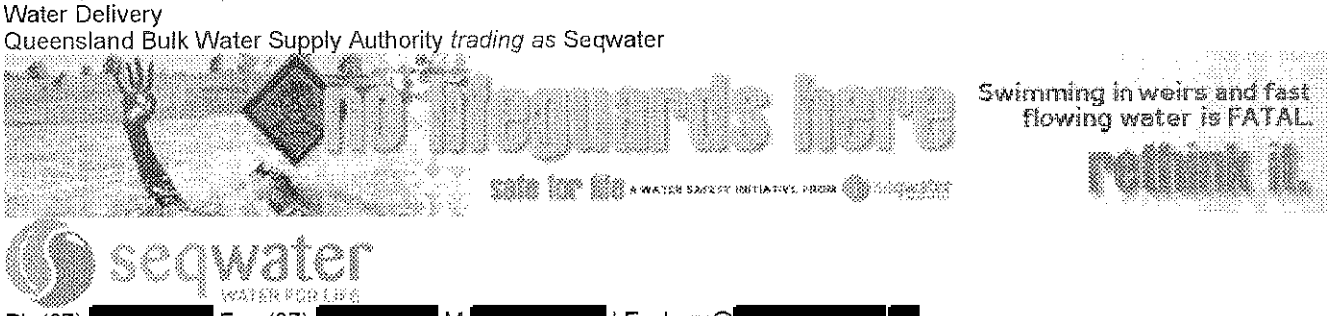
Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Gate opening

From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 12:13 PM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Operational Strategy
Attach: Technical Situation Report W28.docx

FYI

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.[redacted]

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Phone: [redacted]

Fax: [redacted]

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Strategy	• Monitor and develop release strategy	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

Rainfall

Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrion catchment.

The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.

Wivenhoe Dam

At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the outflow from Somerset.

Impacts of Wivenhoe Dam Releases

Based upon rain to date, expecting about 70,000ML from upper Brisbane. Lockyer Ck peak of about 100m3/s Friday afternoon. This will take out Twin Bridges and nearly inundate Savages Crossing. Colleges Crossing could be taken out by a combined Lockyer and local runoff.

Current strategy is to keep Burton Bridge free. On this basis, we will commence opening Wivenhoe at 1800 Thursday and ramp up to about 300m3/s by 2200. This would limit mid Brisbane flows to just

under 400m3/s (Burtons capacity 450m3/s).

If rainfall increases and Lockyer and local runoff also increase, we can close/reduce Wivenhoe accordingly to ensure that that 450m3/s is not exceeded unless necessary.

Councils have been advised of this strategy and are contacting residents.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Gate opening

From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 6, 2011 12:14 PM
To: John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Agg
Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted]
Graham Keegan <gkeegan@[redacted].au>; Graham Francis
<gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted]
Matthew O'Reilly <moreilly@[redacted] Brett Schultz
<bschultz@[redacted] Glenn Patterson <gpatterson@[redacted]
Malcolm Lane <mlane@[redacted] Murray Dunstan
<mdunstan@[redacted] Rob Gorian <rgorian@[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted]
Paul Bird <pbird@[redacted]
Subject: Gate Operating Strategy

North Pine Dam

Hopefully we can hold off opening gates until 1900 Thursday but it may be earlier depending on the rain Thursday afternoon. MBRC have been advised accordingly.

Somerset/Wivenhoe

At this stage the status quo will be maintained at Somerset – one reg open 50%.

Gates will commence to be opened at Wivenhoe at 1800 Thursday with one gate progressively opened to 2.5m by 2200. At this stage, it is aimed to keep Burtons Bridge flood free.

Further gate movements will depend on forecast rain and Lockyer flows.

Somerset, Ipswich City and Brisbane City Councils have been advised.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <rdrury@[redacted]

Sent: Thursday, January 6, 2011 12:16 PM

To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' <TJacobs@[redacted]au>; 'Tony Trace' <TTrace@[redacted] 'Lavin, Chris' <Chris.Lavin@[redacted]

Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones.

Below is the current strategy.
Any comments or assessments let me know.

ainfall

Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrison catchment.

The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

North Pine Dam

At 0700 Thursday, North Pine Dam was 39.60m, 0.05m below gate trigger level and having risen 0.18m since 2/1/2011 due to a combination of baseflow and runoff from rain in the last 24 hours.

Given the forecast rain, gate operations will commence tonight. MBRC will be advised this morning

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.

Wivenhoe Dam

At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the outflow from Somerset.

Impacts of Wivenhoe Dam Releases

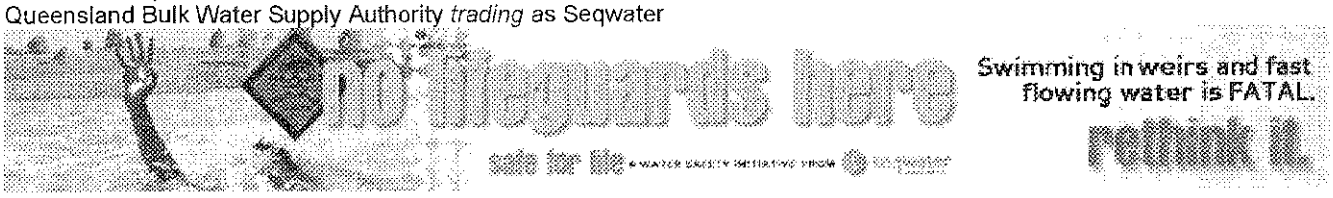
Based upon rain to date, expecting about 70,000ML from upper Brisbane. Lockyer Ck peak of about 100m3/s Friday afternoon. This will take out Twin Bridges and nearly inundate Savages Crossing. Colleges Crossing could be taken out by a combined Lockyer and local runoff.

Current strategy is to keep Burton Bridge free. On this basis, we will commence opening Wivenhoe at 1800 Thursday and ramp up to about 300m3/s by 2200. This would limit mid Brisbane flows to just under 400m3/s (Burtons capacity 450m3/s).

If rainfall increases and Lockyer and local runoff also increase, we can close/reduce Wivenhoe accordingly to ensure that that 450m3/s is not exceeded unless necessary.

Councils have been advised of this strategy and are contacting residents

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller <Daniel.Spiller@[redacted]>
Sent: Thursday, January 6, 2011 1:17 PM
To: stephen.robertson@[redacted] lance.mccallum@[redacted]
Tim.Watts@[redacted] Geoff.Stead@[redacted]
Lauren.Sims@[redacted] Best Debbie <Debbie.Best@[redacted]
'Martin.PeterJ@[redacted] 'Dunn.KerryG@[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted]
SEQWGM Media <media@[redacted] Reilly Bob
<Bob.Reilly@[redacted]
Subject: Recommencement of Wivenhoe Dam gate releases
Attach: Technical Situation Report W28.docx

All,

We expect to begin gate release from Wivenhoe Dam this evening, to release water accumulated in the dams over the last 24 hours. The technical situation report is attached.

The release rate will be about 25,000 ML/day, compared to the peak last week of about 115,000 ML/day. We will aim to manage releases so as to avoid inundating Burtons Bridge and isolating up to 50 houses. However, depending upon rainfall, the bridge may be inundated by other flows.

The release strategy will be reviewed over the next 24 hours, and may change depending upon the amount of rainfall in the catchment.

We are consulting with Councils and the BoM about the release strategy.

A short media update is being issued, in consultation with the Minister's office.

Please contact me if you require any further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: (07) [redacted] | Fax: (07) [redacted] | Mobile: [redacted]
Email: daniel.spiller@[redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W28	Date of TSR release	6.1.2011	Time of TSR release	12.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Monitor inflows and begin releases later today depending on Lockyer flows	
Strategy	• Monitor and develop release strategy	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

Rainfall

Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrion catchment.

The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.

Wivenhoe Dam

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Impacts of Wivenhoe Dam Releases

Based upon rain to date, expecting about 70,000ML from upper Brisbane. Lockyer Ck peak of about 100m3/s Friday afternoon. This will take out Twin Bridges and nearly inundate Savages Crossing. Colleges Crossing could be taken out by a combined Lockyer and local runoff.

Current strategy is to keep Burton Bridge free. On this basis, we will commence opening Wivenhoe at 1800 Thursday and ramp up to about 300m3/s by 2200. This would limit mid Brisbane flows to just

under 400m3/s (Burtons capacity 450m3/s).

If rainfall increases and Lockyer and local runoff also increase, we can close/reduce Wivenhoe accordingly to ensure that that 450m3/s is not exceeded unless necessary.

Councils have been advised of this strategy and are contacting residents.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Gate opening

From: Paul Bird <pbird@[redacted]
Sent: Thursday, January 6, 2011 1:20 PM
To: Duty Seq <dutyseq@[redacted]
Cc: Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted]
Mike Foster <mfoster@[redacted]
Subject: Update for review

Terry, please review the following for the 1800 / Grid update.

For detailed information on road and crossing closures and other potential impacts, always contact your local council.

As of 2.00 pm 6 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a regulator valve and may be increased later on 6 January.

WIVENHOE DAM:
A gate operation of around 25,000 megalitres is expected to commence during the evening of Thursday 6 January as a result of recent and forecast rainfall, plus releases from Somerset.

Local Councils are being advised that the expected Wivenhoe release and local flows may impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, Burtons Bridge or Mt Crosby Weir Bridge

NORTH PINE DAM:
Due to rainfall and runoff, plus forecast rainfall, a gate release is expected to commence later on 6 January.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until the weekend.

HINZE DAM:
No releases. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:
Access to the lakes for on-water recreation access is open; however visitors should check the website for additional information about each site.

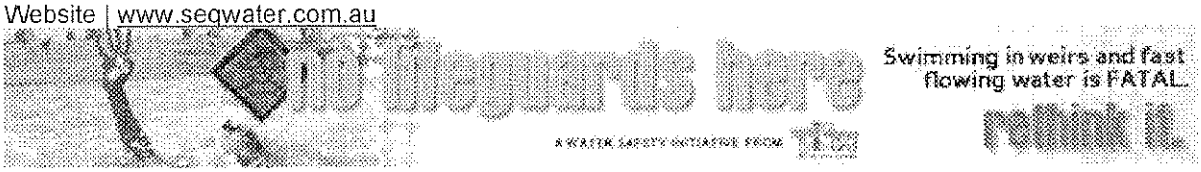
This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P 07[redacted] M[redacted] E pbird[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002

Website | www.seqwater.com.au



From: DutyEngineer <dutyseq@[redacted]

Sent: Thursday, January 6, 2011 2:47 PM

To: Albert.Navruk@[redacted] Bill.Stephens@[redacted] Louw Van Blerk <lvanblerk@[redacted] Rob.ayre@[redacted] John.Ruffini@[redacted] Terry Malone <tmalone@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] kim.hang@[redacted]

Cc: Rob Drury <rdrury@[redacted] John Tibaldi <jtibaldi@[redacted] david.pokarier@[redacted] John West <jwest@[redacted] 'Price, Ken' <Ken.Price@[redacted]

Subject: Flood Ops Centre Staffing

Attach: Duty Roster Commencing 2011-01-02.xls

Hello all,

Attached you will find an updated copy of the duty roster for the current event.

If you have any other questions please contact the FOC.

Kind regards,

Mark Tan

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	A	B	C	D	E	F	G	H	I	J	K	L
1	**Flood Event 2 Jan 2011**											
2	**Duty Roster**											
3												
4	**Start**	**Finish**			**Duty Engineer**			**Data Collector**				
5												
6	Thu 06/01/2011 07:00	Thu 06/01/2011 19:00			Terry Malone	**Confirmed**		Mark Tan	**Confirmed**			
7	Thu 06/01/2011 19:00	Fri 07/01/2011 07:00	Night		Rob Ayre	**Confirmed**		Neville Ablitt	**Confirmed**			John Ruffini
8	Fri 07/01/2011 07:00	Fri 07/01/2011 19:00			Terry Malone	**Confirmed**		Lou van Blerk	**Confirmed**			John Tibaldi
9	Fri 07/01/2011 19:00	Sat 08/01/2011 07:00	Night		John Ruffini	**Confirmed**		Mark Tan	**Confirmed**			Terry Malone
10	Sat 08/01/2011 07:00	Sat 08/01/2011 19:00			Rob Ayre	**Confirmed**		Al Navruk	**Confirmed**			Rob Ayre
11	Sat 08/01/2011 19:00	Sun 09/01/2011 07:00	Night		John Ruffini	**Confirmed**		Kim Hang	Provisional			
12	Sun 09/01/2011 07:00	Sun 09/01/2011 19:00			Terry Malone	Provisional		Neville Ablitt	Provisional			Al Navruk
13	Sun 09/01/2011 19:00	Mon 10/01/2011 07:00	Night		Rob Ayre	Provisional		Bill Stephens	Provisional			Kim Hang
14												David Pokarier
15												Neville Ablitt
16												Lou van Blerk
17												John West
18												Mark Tan
19												Bill Stephens
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6	Phone Number	
7	[redacted]	
[redacted]		N/A after 26/12. Ret 10/1
[redacted]		
[redacted]		
[redacted]		
[redacted]		N/A (09/01 night)
[redacted]		
[redacted]		N/A (07/01 night)
[redacted]		
[redacted]		
[redacted]		
[redacted]		
[redacted]		N/A. Ret 17/1
[redacted]		
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23		
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From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 6, 2011 2:54 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Preston.DavidG@[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Deb Chandler <dchandler@[redacted] Mailbox <mail@[redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted]>; Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: Situation Report 1500 06/02/2011

Rainfall

In the 6 hours since 9am Wednesday, there have been general totals around 30mm with isolated heavy falls up to 60mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been between 20 and 30mm. Falls between 20 and 30mm were recorded in the Leslie Harrison catchment.

The forecast for the next 24 to 48 hours is for totals up to 100mm in SE Qld.

The catchments remain wet and are likely to generate additional runoff in the event of rain.

North Pine Dam

At 1400 Thursday, North Pine Dam was 39.66m, 0.01m above gate trigger level. Gate operations will commence at 1900 Thursday and will impact upon Youngs Crossing. MBRC have been advised and will confirm closure of Youngs Crossing prior to gate operations. Given the forecast rainfall during Friday, gate operations may continue into Saturday.

Somerset Dam

At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck, adding to the Somerset inflows. Further regulator/sluice operations will be required in the next 24 to 48 hours. The estimated event inflow volume into Somerset Dam is 50,000ML.

Wivenhoe Dam

At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. The estimated event inflow volume into Wivenhoe Dam is 180,000ML including Somerset Dam outflow.

There has been significant rainfalls in the Lockyer Ck catchment since 0900 Thursday and a peak of about 600m3/s is expected from the Lockyer late Friday. Wivenhoe gates will be opened after flood levels in the lower Lockyer subside. At this stage Wivenhoe releases during Saturday may be as high as 1,500m3/s and continue for a couple of days.

Impacts of Wivenhoe Dam Releases

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the potential for gate operations during the next 24 hours.

The will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days. The relatively high Lockyer flows will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days and may impact upon Burtons Bridge early Saturday. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.

The next situation report will be issued at 1800 Thursday 6/1/2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Thursday, January 6, 2011 2:56 PM
To: stephen.robertson@[redacted] lance.mccallum@[redacted]
Tim.Watts@[redacted] Geoff.Stead@[redacted]
Lauren.Sims@[redacted] Best Debbie <Debbie.Best@[redacted]
'Martin.PeterJ@[redacted] 'Dunn.KerryG@[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted]
SEQWGM Media <media@[redacted] Reilly Bob
<Bob.Reilly@[redacted]
Subject: RE: Recommencement of Wivenhoe Dam gate releases

All,

Rainfall in the Lockyer Valley over the past few hours has been heavier than initially assessed, with the prospect of further falls.

The scale of flows may be sufficient to close Burtons Bridge without any contribution from Wivenhoe Dam.

Given these flows, the Wivenhoe Dam release will be deferred until after the Lockyer Valley flows have peaked (expected to be Saturday, depending on rainfall). This strategy will minimise the impacts on downstream areas.

The media update will reflect this status. We had not advised media that a release was being considered from this evening.

We will provide more detailed advice tomorrow morning.

Regards,
Dan

From: Dan Spiller
Sent: Thursday, 6 January 2011 1:17 PM
To: 'stephen.robertson@[redacted] 'lance.mccallum@[redacted]
'Tim.Watts@[redacted] 'Geoff.Stead@[redacted] 'Lauren.Sims@[redacted] 'Best Debbie'; 'Martin.PeterJ@[redacted] 'Dunn.KerryG@[redacted]
Cc: Rob Drury; 'Mike Foster'; SEQWGM Media; 'Reilly Bob'
Subject: Recommencement of Wivenhoe Dam gate releases

All,

We expect to begin gate release from Wivenhoe Dam this evening, to release water accumulated in the dams over the last 24 hours. The technical situation report is attached.

The release rate will be about 25,000 ML/day, compared to the peak last week of about 115,000 ML/day. We will aim to manage releases so as to avoid inundating Burtons Bridge and isolating up to 50 houses. However, depending upon rainfall, the bridge may be inundated by other flows.

The release strategy will be reviewed over the next 24 hours, and may change depending upon the amount of rainfall in the catchment.

We are consulting with Councils and the BoM about the release strategy.

A short media update is being issued, in consultation with the Minister's office.

Please contact me if you require any further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: (07) [redacted] | Fax: (07) [redacted] | Mobile: [redacted]
Email: daniel.spiller@[redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 6, 2011 5:12 PM
To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: North Pine Directive #1
Attach: OPS_Directive_NorthPine #1.doc

Please find attached directive #1 for commencement of gate operations at 1900 Thursday after confirmation is received that Young Crossing is closed.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 06/01/2011 Time: 1730 Directive No: 1

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 1900 Thursday 06/01/2011, once you have confirmed that Youngs Crossing is closed.

An interval of 15 minutes is to be used between gate movements. The gates are to be opened in the following order:

- Gate C : Open 1 increment at 1900
- Gate E : Open 1 increment at 1915
- Gate A : Open 1 increment at 1930
- Gate D : Open 1 increment at 1945
- Gate B : Open 1 increment at 2000

Please also confirm by Fax once these gate operations are complete. The regulators will remain closed and the low level outlet will remain open releasing 300 L/s for fish recovery.

Terry Malone
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 6, 2011 5:33 PM

To: David Roberts <droberts@s[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Preston.DavidG@[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Deb Chandler <dchandler@[redacted] Mailbox <mail@[redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Situation Report 1800 06/01/2011

Rainfall

In the 8 hours since 9am Wednesday, there have been general totals around 30mm with isolated heavy falls up to 60mm in the Somerset and Wivenhoe catchments. There have been significant rainfalls in the Lockyer Ck catchment in the last 24 hours with widespread falls of 50mm and isolated falls up to 75mm. Totals in the North Pine catchment have generally been about 30mm. Falls between 20 and 30mm were recorded in the Leslie Harrison catchment.

The forecast for the next 24 to 48 hours is for totals up to 100mm in SE Qld.

North Pine Dam

At 1700 Thursday, North Pine Dam was 39.68m, 0.03m above gate trigger level. Gate operations will commence at 1900 Thursday and will impact upon Youngs Crossing. Moreton Bay Regional Council has been advised and will confirm closure of Youngs Crossing prior to gate operations. Given the forecast rainfall during Friday, gate operations may continue into Saturday.

Somerset Dam

At 1700 Thursday, Somerset Dam was 99.45m, 0.45m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck, adding to the Somerset inflows. Further regulator/sluice operations will be required in the next 24 to 48 hours. The estimated event inflow volume into Somerset Dam is 50,000ML.

Wivenhoe Dam

At 1700 Thursday, Wivenhoe Dam was 67.39m and rising slowly. This is 0.39m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels are still rising at the Linville and Gregors Ck gauges. The

estimated event inflow volume into Wivenhoe Dam is 180,000ML including Somerset Dam outflow.

A peak of about 600m3/s is expected from the Lockyer late Friday. At this stage there is some uncertainty associated with this estimate and it may or may not impact Burtons Bridge. Wivenhoe gates will be opened after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. At this stage Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,500m3/s, similar to recent events, and continue for a couple of days.

Impacts of Downstream of Wivenhoe

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the potential for gate operations during the next 24 hours.

The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days and may impact upon Burtons Bridge early Saturday. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.

The next situation report will be issued at 0600 Friday 7/1/2011.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 6, 2011 8:17 PM

To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] flood.qld@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]

Subject: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Attach: OPS_Directive_NorthPine #2.doc

Please find attached Directive # 2 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
[redacted]

Senior Flood Operations Engineer
Rob Ayre
[redacted]

Flood Operations Engineer
Terry Malone
[redacted]

Flood Operations Engineer
John Tibaldi
[redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 06/01/2011 Time: 20:15 Directive No: 2

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 20:30 Thursday 06/01/2011.

An interval of 15 minutes is to be used between gate movements. The gates are to be opened in the following order:

- Gate C : Open to 2 increments at 20:30
- Gate E : Open to 2 increments at 20:45
- Gate A : Open to 2 increments at 21:00
- Gate D : Open to 2 increments at 21:15
- Gate B : Open to 2 increments at 21:30

Please also confirm by Fax once these gate operations are complete.

Regards

Rob Ayre
Duty Engineer

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From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 11:02 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Rob, can I get another sit rep at 6am in the morning please? Rob

---

From: Duty Engineer <dutyseq@[redacted]
To: Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; flood.qld@bom.gov.au <flood.qld@bom.gov.au>; John.Ruffin[redacted] John Tibaldi; Rob Drury; Rob.ayre@[redacted] Terry Malone
Sent: Thu Jan 06 20:17:06 2011
Subject: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Please find attached Directive # 2 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 6, 2011 11:10 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Rob

We shall provide an update as requested. North Pine is draining but depends upon overnight rain as to when we can close off – currently looking at 6:00am shutoff but maybe sometime later tomorrow.

Somerset-Wivenhoe depends upon Lockyer Creek peak as it will be touch and go if Burtons Bridge will remain open due to Lockyer flows. Either way the gate operations will extend over the weekend and probably into middle of next week.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Thursday, 6 January 2011 11:02 PM
To: Duty Seq
Subject: Re: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Rob, can I get another sit rep at 6am in the morning please? Rob

---

From: Duty Engineer <dutyseq@[redacted]
To: Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; flood.qld@[redacted] <flood.qld@[redacted] John.Ruffini@[redacted] John Tibaldi; Rob Drury; Rob.ayre@[redacted] Terry Malone
Sent: Thu Jan 06 20:17:06 2011
Subject: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Please find attached Directive # 2 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 6, 2011 11:26 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

No problem. I assume we have fish recovery organised for north pine?

From: Duty Engineer <dutyseq@[redacted]
To: Rob Drury
Sent: Thu Jan 06 23:09:48 2011
Subject: RE: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Rob

We shall provide an update as requested. North Pine is draining but depends upon overnight rain as to when we can close off – currently looking at 6:00am shutoff but maybe sometime later tomorrow.

Somerset-Wivenhoe depends upon Lockyer Creek peak as it will be touch and go if Burtons Bridge will remain open due to Lockyer flows. Either way the gate operations will extend over the weekend and probably into middle of next week.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Thursday, 6 January 2011 11:02 PM
To: Duty Seq
Subject: Re: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Rob, can I get another sit rep at 6am in the morning please? Rob

---

From: Duty Engineer <dutyseq@[redacted]
To: Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; flood.qld@[redacted] <flood.qld@[redacted] John.Ruffini@[redacted]; John Tibaldi; Rob Drury; Rob.ayre@[redacted] Terry Malone
Sent: Thu Jan 06 20:17:06 2011
Subject: North Pine Dam Directive # 2 at 20:15 on Thursday 6 January 2011

Please find attached Directive # 2 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Friday, January 7, 2011 6:07 AM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@s[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@s[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@s[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@s[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@s[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@s[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Evan Caswell <Evan.Caswell[redacted] James Charalambous <James.Charalambous[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted] Deb Chandler <dchandler[redacted] Mailbox <mail[redacted]

Subject: FOC Situation Report at 06:00 on Friday 7 January 2011

Rainfall

There have been general totals around 30 to 50 mm with isolated heavy falls up to 75mm in the Somerset and Wivenhoe catchments since the event commenced on Wednesday 5 January 2011. There have been significant rainfalls in the Lockyer Ck catchment in the last 72 hours with widespread falls of 50mm and isolated falls up to 100mm.

Totals in the North Pine catchment have generally been about 35mm.

Falls between 20 and 30mm were recorded in the Leslie Harrison catchment.

The forecast for the next five days is for totals between 100 and 200mm in SE Qld. Given the saturated condition of the catchments further runoff will most likely be generated from this rainfall.

North Pine Dam

At 0600 Friday, North Pine Dam was at 39.48m, 0.12m below FSL. Gate operations commenced at 1915 on Thursday 6 January and are expected to continue until at least mid-day Friday 7 January when North Pine Dam is expected to be at 39.40m. These releases have impacted upon Youngs Crossing. Moreton Bay Regional Council was advised and they closed Youngs Crossing prior to gate operations commencing. Based upon the forecast rainfall, gate operations may continue into Saturday, but at this stage it is anticipated that gate operations will cease at around mid-day on Friday 7 January 2011.

Somerset Dam

At 0600 Friday, Somerset Dam was at 99.59m, 0.59m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the Upper Stanley but there have been significant rises in Kilcoy Creek, contributing to the Somerset inflows. Somerset Dam is currently releasing at a rate of 35 cumecs and further

regulator/sluice operations will be required in the next 24 to 72 hours.

The estimated event inflow volume into Somerset Dam is around 50,000ML.

Wivenhoe Dam

At 0600 Friday, Wivenhoe Dam was at 67.64m and rising slowly. This is 0.64m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels have peaked at the Linville and Gregors Ck gauges. The estimated event inflow volume into Wivenhoe Dam is 230,000ML including Somerset Dam outflow.

A peak of about 470 cumecs is expected from Lockyer Creek by mid-afternoon on Friday 7 January. At this stage there is some uncertainty associated with this estimate but it may be of sufficient magnitude to inundate Burtons Bridge.

Wivenhoe gate releases will occur after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. It is proposed that Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,200 cumecs, (similar but slightly smaller to recent events), and the releases are expected to continue over the weekend though to Monday or Tuesday.

Impacts of Downstream of Wivenhoe

Somerset Regional Council, Ipswich City Council and Brisbane City Council have been advised of the potential for gate operations during the next 24 hours.

The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, and Colleges Crossing for several days and may impact upon Burtons Bridge from Friday mid-day and Kholo Bridge later on Friday evening. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.

The next situation report will be issued at 1800 Friday 7 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <rdrury[redacted]
Sent: Friday, January 7, 2011 6:39 AM
To: 'Tony Jacobs' <TJacobs[redacted] 'Tony Trace' <TTrace@[redacted] 'Lavin, Chris' <Chris.Lavin@[redacted]
Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones.

Below is the current strategy.
Any comments or assessments let me know.

Rainfall

There have been general totals around 30 to 50 mm with isolated heavy falls up to 75mm in the Somerset and Wivenhoe catchments since the event commenced on Wednesday 5 January 2011. There have been significant rainfalls in the Lockyer Ck catchment in the last 72 hours with widespread falls of 50mm and isolated falls up to 100mm.

Totals in the North Pine catchment have generally been about 35mm.

Falls between 20 and 30mm were recorded in the Leslie Harrison catchment.

The forecast for the next five days is for totals between 100 and 200mm in SE Qld. Given the saturated condition of the catchments further runoff will most likely be generated from this rainfall.

North Pine Dam

At 0600 Friday, North Pine Dam was at 39.48m, 0.12m below FSL. Gate operations commenced at 1915 on Thursday 6 January and are expected to continue until at least mid-day Friday 7 January when North Pine Dam is expected to be at 39.40m. These releases have impacted upon Youngs Crossing. Moreton Bay Regional Council was advised and they closed Youngs Crossing prior to gate operations commencing. Based upon the forecast rainfall, gate operations may continue into Saturday, but at this stage it is anticipated that gate operations will cease at around mid-day on Friday 7 January 2011.

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The estimated event inflow volume into Somerset Dam is around 50,000ML.

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At 0600 Friday, Wivenhoe Dam was at 67.64m and rising slowly. This is 0.64m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels have peaked at the Linville and Gregors Ck gauges. The estimated event inflow volume into Wivenhoe Dam is 230,000ML including Somerset Dam outflow.

A peak of about 470 cumecs is expected from Lockyer Creek by mid-afternoon on Friday 7 January. At this stage there is some uncertainty associated with this estimate but it may be of sufficient magnitude to inundate Burtons Bridge.

Wivenhoe gate releases will occur after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. It is proposed that Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,200 cumecs, (similar but slightly smaller to recent events), and the releases are expected to continue over the weekend though to Monday or Tuesday.

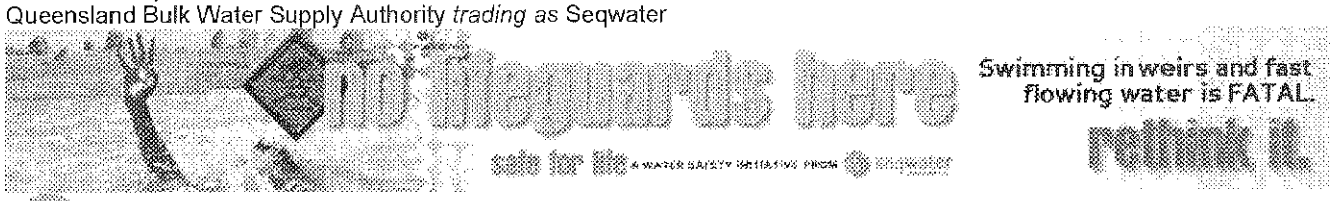
Impacts of Downstream of Wivenhoe

Somerset Regional Council, Ipswich City Council and Brisbane City Council have been advised of the potential for gate operations during the next 24 hours.

The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, and Colleges Crossing for

several days and may impact upon Burtons Bridge from Friday mid-day and Kholo Bridge later on Friday evening. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



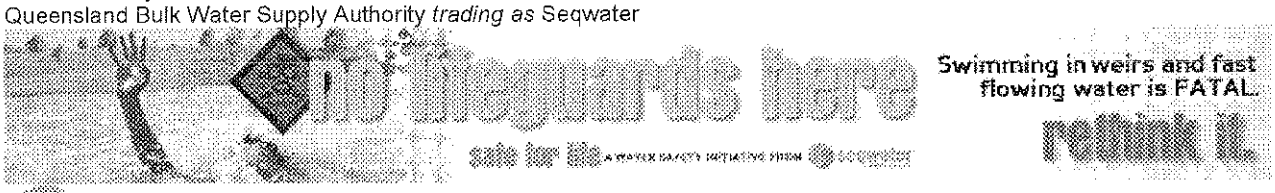
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E rdrur[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury <rdrury[redacted]
Sent: Friday, January 7, 2011 6:41 AM
To: 'Dan Spiller' <Daniel.Spille[redacted]
Cc: Peter Borrows <pborrows[redacted]; Stan Stevenson <sstevenson@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird[redacted] David Roberts <droberts[redacted]
Subject: RE: Technical Report W29
Attach: Technical Situation Report W29.docx

Attached is Report W29

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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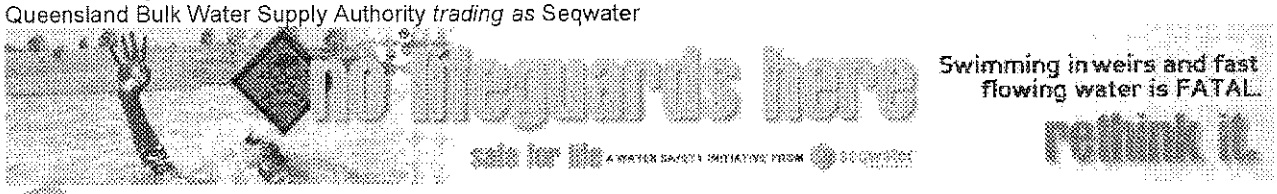
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 6 January 2011 12:13 PM
To: 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; 'Scott Denner'
Subject: Technical Report W28

Attached Technical Report W28.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W29	Date of TSR release	7.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Monitor inflows and begin releases later today depending on Lockyer flows	
Strategy	• Monitor and develop release strategy, possible Wivenhoe releases later today or early Saturday • Due to high inflows, may need to impact Burtons which could be impacted purely by Lockyer flows later today anyway.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

Rainfall

There have been general totals around 30 to 50 mm with isolated heavy falls up to 75mm in the Somerset and Wivenhoe catchments since the event commenced on Wednesday 5 January 2011. There have been significant rainfalls in the Lockyer Ck catchment in the last 72 hours with widespread falls of 50mm and isolated falls up to 100mm.

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The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, and Colleges Crossing for several days and may impact upon Burtons Bridge from Friday mid-day and Kholo Bridge later on Friday evening. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Councils have been advised of this strategy and are contacting residents.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. It is possible operations may cease later today with no further rainfall however, given the forecast rainfall, gate operations are expected to continue for some time.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Gate opening decision

From: Duty Engineer <dutyseq@[redacted]

Sent: Friday, January 7, 2011 8:05 AM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Craig Duncan <cduncan@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Operating Strategy over the next week

Advice from BoM indicates that SE Qld can expect some high rainfall totals over the next 5 days.

Friday:	Rain at times 15-50mm with higher falls along the coast
Saturday:	Rain light at times 15-50mm with higher falls along the coast
Sunday:	Widespread rain with totals between 50-100mm
Monday:	Widespread rain again with totals between 50-100mm
Tuesday:	Rain easing with totals between 25-50mm

Given the saturated conditions of the dam catchments, significant volumes of inflows to our dams will be generated.

On this basis, the operating strategy for Somerset, Wivenhoe and North Pine needs to consider the current state of the storages and the project inflows.

North Pine

North Pine currently has 5 gates open releasing runoff from rain on Wed/Thursday. Given the very high likelihood of significant runoff during the next 5 days, it is recommended to keep gates open for the period, rather than opening and closing at various times with short notice. It will not be practical or may not be possible to adopt the usual strategy of opening and closing overnight to minimise the impact on Youngs Crossing.

Somerset

Somerset Dam currently has a regulator open 50%. At this stage, it is expected to open 1 or 2 sluices on Saturday. However, this may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Wivenhoe

As outlined in this morning's SitRep, it is intended to ramp up the release from Wivenhoe to about 1,200m3/s later today. However, given the high likelihood of significant inflows in the next week, this may be increased to 1,500m3/s in order to drain the current temporarily stored flood waters as soon as possible.

This will mean that all of the crossing downstream of Wivenhoe with the exception of Fernvale and Mt Crosby Weir Bridge will be adversely impacted.

Leslie Harrison

Given its proximity to the coast Leslie Harrison is likely to be most impacted by the forecast rain over the next 5 days.

It is likely that the releases from North Pine and Leslie Harrison will continue until the middle of next week and from Wivenhoe until next Friday. Staffing for the Flood Operations Centre will be arranged accordingly. Co-originators should start to plan for prolonged operations at dams.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird <pbir[redacted]
Sent: Friday, January 7, 2011 8:12 AM
To: Duty Seq <dutyseq@[redacted] Rob Drury <rdrury[redacted]
Cc: Mike Foster <mfoster[redacted]
Subject: Update for review

Rob / Terry, for review please.

As of 9.00 am 7 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a regulator valve and may be increased to manage rainfall and inflows. Sluice gates may be operated during the weekend.

WIVENHOE DAM:
Gate operations will commence when flood levels in the lower Lockyer Creek subside. Releases may be around 130,000 megalitres per day.

Local Councils are being advised that local flows, and the expected Wivenhoe release, may impact upon Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge

NORTH PINE DAM:
Gate operations commenced during the evening of Thursday 6 January and may continue until next week.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
No releases. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:
Due to water levels, Wivenhoe is closed to all water based recreational activities as from this morning, and this will most likely extend over the weekend.
At this point, Somerset is open to water based recreational activities, however this could change at short notice.
Moogerah is open to water based recreational activities, while Maroon remains open, but swimming and skiing should be avoided.
The following recreation sites are closed to the public –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing

Lake Baroon has been closed to on-water recreation activities due to the current lake level.

The recreation areas at Lake Baroon are open for land based activities, such as picnicking and barbequing. Care

should be taken at the recreation sites, as the ground may be very wet. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E pbird[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury <[redacted]
Sent: Friday, January 7, 2011 8:15 AM
To: Paul Bird <pbird@[redacted] Duty Seq <dutyseq@[redacted]
Cc: Mike Foster <mfoster@[redacted]
Subject: Re: Update for review

Looks fine to me.

From: Paul Bird
To: Duty Seq; Rob Drury
Cc: Mike Foster
Sent: Fri Jan 07 08:12:16 2011
Subject: Update for review

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Sent: Friday, January 7, 2011 8:16 AM
To: Rob Drury <rdrury@[redacted] Duty Seq <dutyseq@[redacted]
Cc: Mike Foster <mfoster[redacted]
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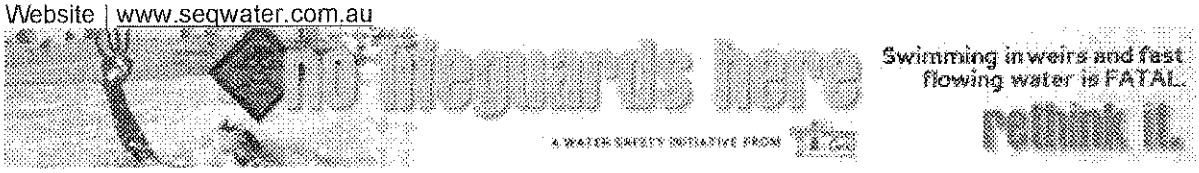

From: Dan Spiller <Daniel.Spiller[redacted]
Sent: Friday, January 7, 2011 8:27 AM
To: stephen.[redacted] lance.[redacted]
Tim.Watts[redacted] Geoff.[redacted]
Lauren.[redacted] Best Debbie <Debbie.Best[redacted]
'Martin.PeterJ[redacted]; 'Dunn.KerryG[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted]
SEQWGM Media [redacted] Reilly Bob
<Bob.Reilly[redacted]
Subject: Update on dam gate releases
Attach: Technical Situation Report W29.docx

All,

Attached is the updated technical situation report.

There has been widespread rainfall in most of the dam catchments. These inflows have triggering the need for gate releases, with forecasts of between 100 and 200 mm of further rainfall over the next five days.

For Wivenhoe and Somerset dams, key points are:

- There has been general falls of around 30 to 50 mm since Wednesday, with isolated peaks of up to 75mm. About 230,000 ML will need to be released, based on estimated flows into the dam.
- There has been heavier rainfall in the Lockyer Creek catchment, which flows into the Brisbane River below the dam wall. Without dam releases, these flows are likely to result in Burtons Bridge being inundated by mid afternoon today – again isolating up to 50 households.
- Dam releases are expected to commence late tonight or early tomorrow, once existing Lockyer Valley flows have peaked – minimising downstream impacts and deferring the inundation of Burtons Bridge.
- At this stage, releases are expected to be at a similar rate to the recent events (up to about 105,000 ML/day) and continue until Monday or Tuesday next week (depending on further rainfall).

North Pine and Leslie Harrison dams are also making gate releases. Youngs Crossing has been inundated.

Councils have been advised. Somerset is contacting key affected residents.

We will provide an update once the timing of releases has been fixed.

Please contact me if you require any further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: (07)[redacted] Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

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	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

Rainfall

There have been general totals around 30 to 50 mm with isolated heavy falls up to 75mm in the Somerset and Wivenhoe catchments since the event commenced on Wednesday 5 January 2011. There have been significant rainfalls in the Lockyer Ck catchment in the last 72 hours with widespread falls of 50mm and isolated falls up to 100mm.

Totals in the North Pine catchment have generally been about 35mm.

Falls between 20 and 30mm were recorded in the Leslie Harrison catchment.

The forecast for the next five days is for totals between 100 and 200mm in SE Qld. Given the saturated condition of the catchments further runoff will most likely be generated from this rainfall.

North Pine Dam

At 0600 Friday, North Pine Dam was at 39.48m, 0.12m below FSL. Gate operations commenced at 1915 on Thursday 6 January and are expected to continue until at least mid-day Friday 7 January when North Pine Dam is expected to be at 39.40m. These releases have impacted upon Youngs Crossing. Moreton Bay Regional Council was advised and they closed Youngs Crossing prior to gate operations commencing. Based upon the forecast rainfall, gate operations may continue into Saturday, but at this stage it is anticipated that gate operations will cease at around mid-day on Friday 7 January 2011.

Somerset Dam

At 0600 Friday, Somerset Dam was at 99.59m, 0.59m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the Upper Stanley but there have been significant rises in Kilcoy Creek, contributing to the Somerset inflows. Somerset Dam is currently releasing at a rate of 35 cumecs and further regulator/sluice operations will be required in the next 24 to 72 hours.

The estimated event inflow volume into Somerset Dam is around 50,000ML.

Wivenhoe Dam

At 0600 Friday, Wivenhoe Dam was at 67.64m and rising slowly. This is 0.64m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels have peaked at the Linville and Gregors Ck gauges. The estimated event inflow volume into Wivenhoe Dam is 230,000ML including Somerset Dam outflow.

A peak of about 470 cumecs is expected from Lockyer Creek by mid-afternoon on Friday 7 January. At this stage there is some uncertainty associated with this estimate but it may be of sufficient magnitude to inundate Burtons Bridge.

Wivenhoe gate releases will occur after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. It is proposed that Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,200 cumecs, (similar but slightly smaller to recent events), and the releases are expected to continue over the weekend though to Monday or Tuesday.

Impacts of Downstream of Wivenhoe

Somerset Regional Council, Ipswich City Council and Brisbane City Council have been advised of the potential for gate operations during the next 24 hours.

The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, and Colleges Crossing for several days and may impact upon Burtons Bridge from Friday mid-day and Kholo Bridge later on Friday evening. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge.

Councils have been advised of this strategy and are contacting residents.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. It is possible operations may cease later today with no further rainfall however, given the forecast rainfall, gate operations are expected to continue for some time.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Gate opening decision

From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 8:29 AM
To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: North Pine Dam

Brett

A this stage we will maintain the current gate settings of 5 gates open 2 increments until 1400 Friday. However, we will constantly review the situation.

Please ring the FOC if you have any concerns or queries at any time.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 8:56 AM
To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian <rgorian@[redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted]
Subject: North Pine Dam

I have advised Moreton Bay Regional Council of our intention to keep the North Pine gates open until further advised. This may be until Tue morning.

They (Kerry) are happy with this approach, rather than opening and closing at short notice.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Mike Foster <mfoste[redacted]
Sent: Friday, January 7, 2011 9:47 AM
To: Dan Spiller [redacted] bob.reilly[redacted]
Cc: Peter Borrows <pborrows@[redacted] Bill Andrew [redacted] Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted] Stan Stevenson <sstevenson@[redacted]
Subject: Seqwater assistance to councils for residents stranded/cut off by Wivenhoe gate releases etc

---

Dan,

As per your discussions with Bob Reilly, Peter B is comfortable for the Water Grid to make the offer on behalf of Seqwater – letter via John Adcock channels is the way to go.

Peter is keen to ensure the flavour of the letter is

- offer is to cover reasonable costs associated with assistance of stranded residents, with the council to provide an estimate prior to incurring the cost where possible as well as a description of services provided. (A pre agreed level of service may be the best approach).
- Service costs covered to include council expenses to access stranded residents (boats etc) as well as supplies required
- Offer would kick in from when council decides they are required to assist – with an understanding that in most cases it would be for residents stranded for more than xxx days (more than 3 or 5 days???)
- The responsibility for delivering the service remains with Council.

Bob R may also have some suggestions for the letter of offer, particularly around when assistance kicks in.

Peter agrees that it is more appropriate for the offer to come out from the Water Grid on behalf of Seqwater.

If you can send through copy of final letter for review that'd be greatly appreciated.

Cheers Mike

Mike Foster
Manager Strategic Relations & Communication
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph (07)[redacted] | Fax [redacted] | M [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Friday, January 7, 2011 11:03 AM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: North Pine Dam

Terry, can you send me another status when you have decided on opening times please? Rob

---

From: Duty Engineer <dutyseq@[redacted]
To: Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; John.Ruffin[redacted] John Tibaldi; Rob.ayre[redacted] Terry Malone
Cc: Rob Drury; Mike Foster; Paul Bird
Sent: Fri Jan 07 08:56:11 2011
Subject: North Pine Dam

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Terry Malone

Duty Engineer
Flood Operations Centre

Phone[redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 11:06 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: North Pine Dam

For North Pine???

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Friday, 7 January 2011 11:03 AM
To: Duty Seq
Subject: Re: North Pine Dam

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Flood Operations Centre

Phon[redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 11:14 AM
To: John.Ruffini@derm.qld.gov.au; John Tibaldi[redacted] Rob.ayre@sunwater.com.au; Terry Malone <[redacted] Ken.Price@sunwater.com.au; kim.hang[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@sunwater.com.au>; David Pokarier <david.po[redacted]>; John West [redacted]; Louw Van Blerk <[redacted] Mark Tan [redacted]>; Neville Ablitt[redacted]
Cc: Rob Drury [redacted]; Mike Foster [redacted]; Paul Bird <[redacted]
Subject: Wivenhoe Operations

Please note that Wivenhoe releases will commence at 1500 Friday and be slowly increased to about 1,200 m3/s by 1400 Saturday. It will initially be held around this level until Sunday morning at which time the release strategy will be reviewed and be dependent upon further rainfall.

This will mean that all of the crossings downstream of Wivenhoe with the exception of Fernvale and Mt Crosby Weir Bridge will be adversely impacted.

Terry Malone

Duty Engineer
Flood Operations Centre

Phon[redacted]

Fax:

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From: Paul Bird <pbird[redacted]
Sent: Friday, January 7, 2011 2:10 PM
To: Rob Drury [redacted] Duty Seq <dutyseq@[redacted] Dom Courtney <dcourtney@[redacted]
Cc: Mike Foster <mfoster@[redacted]
Subject: Update for review

Folks for review, please

As of 3.00 pm on 7 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a regulator valve and may be increased to manage rainfall and inflows. Sluice gates may be operated during the weekend.

WIVENHOE DAM:
Gate operations have commenced and release levels are expected to reach around 100,000 megalitres a day by the afternoon of Saturday 8 January. Release levels will be reviewed and may change according to rainfall, inflows and river flows.

Local Councils are being advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge

NORTH PINE DAM:
Gate operations commenced during the evening of Thursday 6 January and may continue until next week.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
A release through the emergency gates is expected during the weekend. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.
The following recreation sites at Lake Wivenhoe are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing

Other recreation areas at Lake Wivenhoe are open for land based recreation activities, such as picnicking and barbequeing. Care should be taken at the recreation sites that are open, with the ground being totally saturated.

Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

The Spillway Lookout recreation area is open, however visitors are advised that there may be long delays (30 minutes or longer) due to the numbers of people on site. Seqwater will have security staff and traffic controllers on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Somerset
Lake Somerset will be temporarily closed to water based recreation activities from 6.00pm Friday 7 January due to the high water levels.
Lake Somerset is expected to remain closed over the weekend, and possibly into next week, depending upon the conditions.

Lake Borumba
Seqwater has been advised that Yabba Creek Road between Imbil and Borumba Dam is currently closed, meaning that access to the lake is not available. Even if there is no further rain, it is expected that access to Borumba Dam will be closed for several days.
Recreation users should contact Gympie Regional Council for updates on road conditions. Recreation users are reminded about the dangers involved in crossing flooded roads.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. Seqwater will reassess this temporary closure as conditions change at the lake. The recreation areas at Lake Baroon are open for land based activities, such as picnicking and barbequeing. Care should be taken at the recreation sites, as the ground may be very wet. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

Lake Maroon
Lake Maroon remains closed to water skiing and swimming due to water quality issues. Lake Maroon is open to boating and fishing, however primary contact with the lake water (swimming or skiing) should be avoided for health reasons. Users are advised that if they do swim or ski in the lake, they will be doing so at their own risk. Seqwater will provide updated information as further water quality test results become available.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Friday, January 7, 2011 2:31 PM
To: Paul Bird [redacted] Duty Seq [redacted] Dom Courtney <dcourtney@[redacted]
Cc: Mike Foster <mfoster@[redacted]
Subject: Re: Update for review

Looks fine. Terry, can email once we start releasing and I will do another tech report.

From: Paul Bird
To: Rob Drury; Duty Seq; Dom Courtney
Cc: Mike Foster
Sent: Fri Jan 07 14:10:22 2011
Subject: Update for review

Folks for review, please

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Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

no lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Paul Bird [redacted]
Sent: Friday, January 7, 2011 2:36 PM
To: Rob Drury <rdrury@[redacted] Duty Seq <dutyseq@[redacted] Dom Courtney <dcourtney@[redacted]
Cc: Mike Foster <mfoster@[redacted]
Subject: RE: Update for review

Thanks Rob,

I will send to Grid as soon as release is confirmed.

Cheers,

Paul

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Sent: Friday, 7 January 2011 14:31
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Cc: Mike Foster
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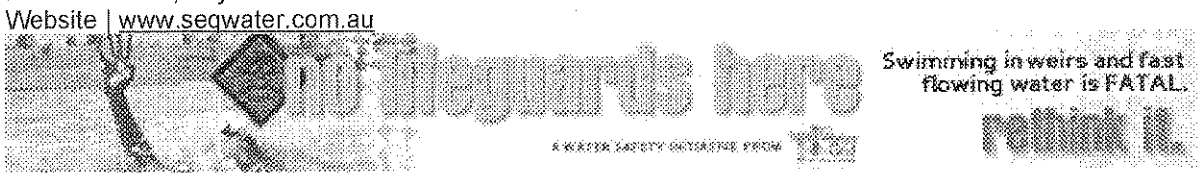

From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 2:38 PM
To: Rob Drury [redacted] Paul Bird <pbird@[redacted] Dom Courtney <dcourtney@[redacted]
Cc: Mike Foster [redacted]
Subject: RE: Update for review

Looks OK but releases instead of release levels

All this before 3pm! Perhaps we need to get you guys in the FOC to do a spot of forecasting

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Friday, 7 January 2011 2:31 PM
To: Paul Bird; Duty Seq; Dom Courtney
Cc: Mike Foster
Subject: Re: Update for review

Looks fine. Terry, can email once we start releasing and I will do another tech report.

From: Paul Bird
To: Rob Drury; Duty Seq; Dom Courtney
Cc: Mike Foster
Sent: Fri Jan 07 14:10:22 2011
Subject: Update for review

Folks for review, please

As of 3.00 pm on 7 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a regulator valve and may be increased to manage rainfall and inflows. Sluice gates may be operated during the weekend.

WIVENHOE DAM:
Gate operations have commenced and release levels are expected to reach around 100,000 megalitres a day by the afternoon of Saturday 8 January. **Releases will** be reviewed and may change according to rainfall, inflows and river flows.

Local Councils are being advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge

NORTH PINE DAM:
Gate operations commenced during the evening of Thursday 6 January and may continue until next week.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
A release through the emergency gates is expected during the weekend. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.
The following recreation sites at Lake Wivenhoe are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing

Other recreation areas at Lake Wivenhoe are open for land based recreation activities, such as picnicking and barbequeing. Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

The Spillway Lookout recreation area is open, however visitors are advised that there may be long delays (30 minutes or longer) due to the numbers of people on site. Seqwater will have security staff and traffic controllers on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Somerset
Lake Somerset will be temporarily closed to water based recreation activities from 6.00pm Friday 7 January due to the high water levels.
Lake Somerset is expected to remain closed over the weekend, and possibly into next week, depending upon the conditions.

Lake Borumba
Seqwater has been advised that Yabba Creek Road between Imbil and Borumba Dam is currently closed, meaning that access to the lake is not available. Even if there is no further rain, it is expected that access to Borumba Dam will be closed for several days.
Recreation users should contact Gympie Regional Council for updates on road conditions. Recreation users are reminded about the dangers involved in crossing flooded roads.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. Seqwater will reassess this temporary closure as conditions change at the lake. The recreation areas at Lake Baroon are open for land based activities, such as picnicking and barbequeing. Care should be taken at the recreation sites, as the ground may be very wet. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

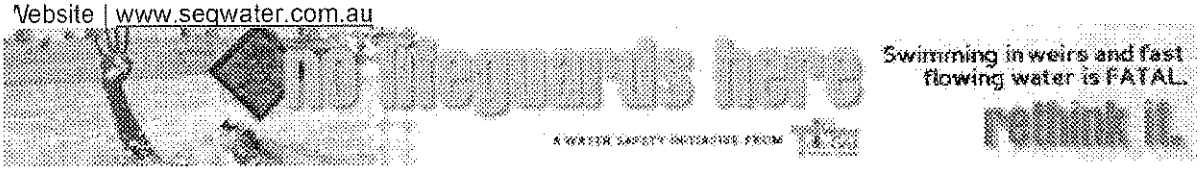
Lake Maroon
Lake Maroon remains closed to water skiing and swimming due to water quality issues. Lake Maroon is open to boating and fishing, however primary contact with the lake water (swimming or skiing) should be avoided for health reasons. Users are advised that if they do swim or ski in the lake, they will be doing so at their own risk. Seqwater will provide updated information as further water quality test results become available.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



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From: DutyEngineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 2:40 PM
To: flood.qld@[redacted] John.Ruffini[redacted]
John Tibaldi [redacted] Rob Drury [redacted]
Rob.ayre[redacted] Terry Malone [redacted]
Subject: Crestbrook Dam levels

All

It looks like Toowoomba has fixed the level recorder at Crestbrook on Thursday 6 Jan at 11:30 (a jump of +16.6m)

At about 7AM today 7 Jan, the FloodCol level was at 270.6

According to Toowoomba RC website the dam had at 44 100 ML (assuming 7AM observation), and finding the level for that on the calibration curve comes to RL ± 270 so the correlation is not too bad.

Keep an eye on this to see if it is correct.

Louw Van Blerk

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For more information regarding this service, please contact your service provider.

From: Duty Engineer [redacted]
Sent: Friday, January 7, 2011 3:09 PM
To: flood.qld@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris [redacted] Robert McGlinn [redacted] Santina Pennisi [redacted] don.carroll@[redacted]
Cc: Rob Drury [redacted] Mike Foster [redacted] Paul Bird [redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre [redacted] Terry Malone <tmalone@[redacted]
Subject: Impact of Wivenhoe Releases on water levels in the Lower Brisbane River

---

Conversations have just taken place between BCC, Seqwater and BoM re impact of flows in the lower Brisbane R

Seqwater and BoM concur that a flow of a 1,500m3/s in the lower Brisbane R will only add about 50mm to the expected water levels in the City Reach on the recorded high tides. This has been demonstrated by a comparison of the recorded water levels at Whyte Is and Brisbane City gauges during periods of no flow and periods of higher flows in the last few months.

However, it should be noted that this impact varies during the tidal cycle and is more pronounced on the low tide level that the high tide level.

It is recognized that current recorded high tide levels are 0.4 to 0.5 metres higher than predicted tides due to atmospheric conditions.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

From: Paul Bird [redacted]
Sent: Friday, January 7, 2011 3:27 PM
To: Rob Drury <rdrury@[redacted]
Subject: Wivenhoe

Hi Rob,

Can you confirm if we have opened the Wivenhoe gates yet?

Cheers

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]

Sent: Friday, January 7, 2011 3:28 PM

To: Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Evan Caswell <Evan.Caswell[redacted] James Charalambous [redacted] Ken Morris [redacted] Robert McGlinn [redacted] Santina Pennisi [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted]

Cc: Rob Drury <rdrury@[redacted] Mike Foster <mfoster@[redacted] Paul Bird [redacted]

Subject: Wivenhoe Operations

Please be advised that the first gate was opened at Wivenhoe at 1500 Friday 7/1/2011 and more gates will be progressively opened during the next 24 hours.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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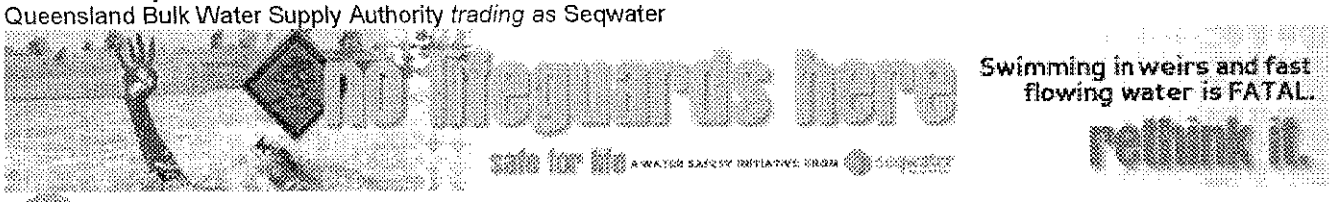
From: Rob Drury [redacted]
Sent: Friday, January 7, 2011 4:05 PM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Cc: Peter Borrows [redacted] Stan Stevenson [redacted] Mike Foster [redacted] Paul Bird [redacted] David Roberts [redacted]
Subject: RE: Technical Report W30
Attach: Technical Situation Report W30.docx

Attached is report W30.
Basically advising the first gate is opened at Wivenhoe as at 3.00pm.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



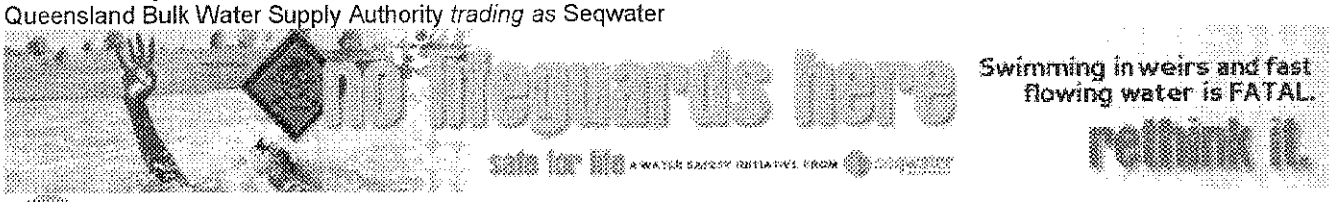
seqwater
[redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Friday, 7 January 2011 6:41 AM
To: 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W29

Attached is Report W29

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



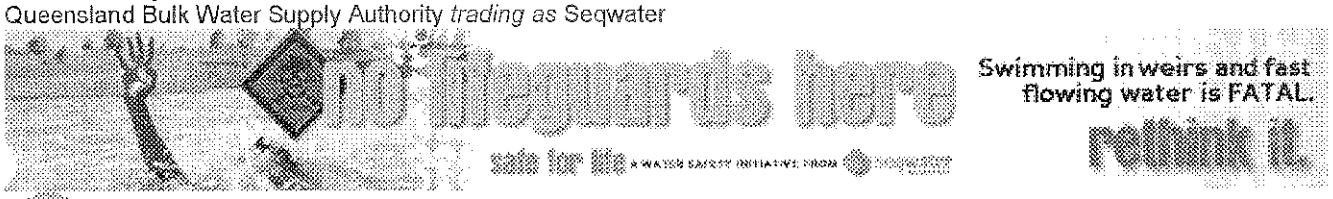
seqwater
Ph [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 6 January 2011 12:13 PM
To: 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; 'Scott Denner'
Subject: Technical Report W28

Attached Technical Report W28.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W30	Date of TSR release	7.1.2011	Time of TSR release	3.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Begin discharging stored floodwaters	
Strategy	• Start releasing at 3pm today and increase up to 1200cumecs.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	No impact as yet

North Pine Dam

Ongoing operations.

Somerset Dam

Somerset Dam is currently releasing at a rate of 35 cumecs and further regulator/sluice operations will be required in the next 24 to 72 hours.

The estimated event inflow volume into Somerset Dam is around 50,000ML.

Wivenhoe Dam

Wivenhoe releases commenced at 1500 Friday and will be slowly increased to about 1,200 m3/s by 1400 Saturday. It will initially be held around this level until Sunday morning at which time the release strategy will be reviewed and be dependent upon further rainfall.

Impacts of Downstream of Wivenhoe

This will mean that all of the crossings downstream of Wivenhoe with the exception of Fernvale and Mt Crosby Weir Bridge will be adversely impacted.

Councils have been advised of this strategy and are contacting residents.

Conversations have just taken place between BCC, Seqwater and BoM re impact of flows in the lower Brisbane R

Seqwater and BoM concur that a flow of a 1,500m3/s in the lower Brisbane R will only add about 50mm to the expected water levels in the City Reach on the recorded high tides. This has been demonstrated

by a comparison of the recorded water levels at Whyte Is and Brisbane City gauges during periods of no flow and periods of higher flows in the last few months.

However, it should be noted that this impact varies during the tidal cycle and is more pronounced on the low tide level that the high tide level.

It is recognized that current recorded high tide levels are 0.4 to 0.5 metres higher than predicted tides due to atmospheric conditions.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	8.1.2011	Time		or Event	

From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 4:13 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <[redacted] Matthew O'Reilly <moreilly@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Somerset Directive #1
Attach: OPS_Directive_Somerset #1.doc

Please find attached Somerset Directive #1, opening a regulator 100%

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date: 07/01/2011 Time: 17:00 Directive No: 01

This transmission comprises of this page and 0 other pages.

Message:

Please open a regulator 100%

Terry Malone

Duty Engineer

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From: Dan Spiller [redacted]
Sent: Friday, January 7, 2011 4:24 PM
To: [redacted]
Tim.W [redacted] Geoff. [redacted]
[redacted] Best Debbie [redacted]
'Martin. [redacted]
Cc: Rob Drury <rdrury@ [redacted] Mike Foster <mfoster@ [redacted]
SEQWGM Media [redacted] Reilly Bob
[redacted]
Subject: Update on Wivenhoe Dam releases
Attach: Technical Situation Report W30.docx

All,

Attached is the updated technical situation report.

For Wivenhoe Dam, key points are:

- The first of the gates has opened. The release rate is planned to be increased to about 1,200 m3/s by 1400 Saturday. This is a similar release rate to last week.
- Burtons Bridge is again inundated, isolating some residents.
- Councils have been advised of this strategy and are contacting residents as necessary.
- The releases will have a minimal impact on the level of the Brisbane River in the City Reach. Seqwater and BoM concur that a total flow of a 1,500m3/s adds about 50mm to the expected water levels at that location.
- Due to atmospheric conditions, current recorded high tide levels are 0.4 to 0.5 metres higher than predicted tides.

North Pine and Leslie Harrison dams are also making gate releases. Releases from Hinze Dam are likely to be required over the weekend.

Please contact me if you require any further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundotion areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	8.1.2011	Time		or Event	

From: DutyEngineer <dutyseq@[redacted]

Sent: Friday, January 7, 2011 5:22 PM

To: Albert.Navruk@[redacted] Bill.Stephens@[redacted] david.pokarier@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] John West <jwest@[redacted] kim.hang@[redacted] 'Price, Ken' <Ken.Price@[redacted] Lisa Cecchi <lisa.cecchi@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] boggom[redacted] Louw Van Blerk <lvanblerk@[redacted] Neville Ablitt <nablitt@[redacted] Rob Ayre (optusnet) [redacted] Rob Drury <rdrury@[redacted] 'Peter MacTaggart' <peter.mactaggart@[redacted] 'Sean Fleming' <sean.fleming@[redacted]

Subject: Flood duty roster for FOC up to Tues 11/1/11

Attach: Duty Roster Commencing 2011-01-02.xls

----------Safe Stamp----------
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	A	B	C	D	E	F	G	H	I	J	K	L
1	**Flood Event 2 Jan 2011**											
2	**Duty Roster**											
3												
4	**Start**	**Finish**			**Duty Engineer**			**Data Collector**				
5												
6	Thu 06/01/2011 07:00	Thu 06/01/2011 19:00			Terry Malone	**Confirmed**		Mark Tan	**Confirmed**			
7	Thu 06/01/2011 19:00	Fri 07/01/2011 07:00	Night		Rob Ayre	**Confirmed**		Neville Ablitt	**Confirmed**			John Ruffini
8	Fri 07/01/2011 07:00	Fri 07/01/2011 19:00			Terry Malone	**Confirmed**		Lou van Blerk	**Confirmed**			John Tibaldi
9	Fri 07/01/2011 19:00	Sat 08/01/2011 07:00	Night		John Ruffini	**Confirmed**		Mark Tan	**Confirmed**			Terry Malone
10	Sat 08/01/2011 07:00	Sat 08/01/2011 19:00			Rob Ayre	**Confirmed**		Al Navruk	**Confirmed**			Rob Ayre
11	Sat 08/01/2011 19:00	Sun 09/01/2011 07:00	Night		John Tibaldi	**Confirmed**		Kim Hang	**Confirmed**			
12	Sun 09/01/2011 07:00	Sun 09/01/2011 19:00			Terry Malone	**Confirmed**		Neville Ablitt	**Confirmed**			Al Navruk
13	Sun 09/01/2011 19:00	Mon 10/01/2011 07:00	Night		Rob Ayre	Provisional		Bill Stephens	**Confirmed**			Kim Hang
14	Mon 10/01/2011 07:00	Mon 10/01/2011 19:00			Terry Malone	**Confirmed**		Lou van Blerk	**Confirmed**			David Pokarier
15	Mon 10/01/2011 19:00	Tue 11/01/2011 07:00	Night		John Tibaldi	Provisional		John West	**Confirmed**			Neville Ablitt
16												Lou van Blerk
17												John West
18												Mark Tan
19												Bill Stephens
20												Ken Price
21												
22												
23												
24												
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26												
27												
28												
29												

	M	N
1		
2		
3		
4		
5		
6	Phone Number	
7	[redacted]	
8		N/A after 26/12. Ret 10/1
9		
10		
11		
12		
13		
14		
15		N/A (07/01 night)
16		
17		
18		
19		
20		N/A. Ret 17/1
21		
22		
23		
24		
25		
26		
27		
28		
29		

From: Duty Engineer <dutyseq@[redacted]

Sent: Friday, January 7, 2011 5:57 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: Situation Report 1800 Friday 07/01/2011

Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday:	Rain light at times 15-50mm with higher falls along the coast
Sunday:	Widespread rain with totals between 50-100mm
Monday:	Widespread rain again with totals between 50-100mm
Tuesday:	Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday

North Pine (Full Supply Level 39.60 m AHD)

At 1700 Friday, North Pine currently has 5 gates open releasing runoff from rain on Wed/Thursday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 1700 Friday, Somerset Dam level was 100.04m AHD and rising steadily with one regulator open 100%. However, as the Wivenhoe headwater level is rising and may impact upon the operation of the regulator, this will be closed in

the next few hours and a sluice gate opened. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Since the commencement of the event on 02/01/2011, approximately 55,000ML has flowed into Somerset Dam with a further 25,000ML expected based on the recorded rainfall to date. Approximately 16,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 1700 Friday, Wivenhoe Dam was 68.10 m AHD and rising steadily with one gate open to 1.5 metres and releasing about 168m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to about 1,200m3/s during the next 18 hours. However, given the high likelihood of significant inflows in the next week, this may be increased later on the weekend.

Since the commencement of the event on 02/01/2011, approximately 140,000ML has flowed into Wivenhoe Dam with a further 160,000ML expected (including Somerset release) based on the recorded rainfall to date. Approximately 24,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected.

Discussions were held with Brisbane City Council and BoM with all agencies agreeing that the combined flow in the lower Brisbane R will only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison

Given its proximity to the coast Leslie Harrison is likely to be most impacted by the forecast rain over the next 4 days.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 6:59 PM
To: flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: SitRep Clarification

BCC pointed out that they have not done any analysis and do not necessarily agree with the 50 to 100mm but have accepted the BoM and Seqwater estimate.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Peter Baddiley <P.Baddiley@[redacted]
Sent: Friday, January 7, 2011 8:57 PM
To: Duty Seq <dutyseq@[redacted] flood.qld@[redacted]
John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury [redacted]
Subject: RE: SitRep Clarification [SEC=UNCLASSIFIED]

Thank you for advice. The protocol needs some tweaking. The Bureau is constantly being asked by BCC to approve information that they are proposing to release. My understanding is that there was an explicit intention not to have this occur ... that the technical staff would agree in principle & each agnecy would develop its own messages.

For further discussion when things quieten .....

Peter Baddiley
Regional Hydrology Manager
Climate & Water Division
Bureau of Meteorology
Level 21, 69 Ann Street
GPO Box 413, BRISBANE, QLD, AUSTRALIA 4001
Phone: (+61) [redacted] Fax : (+61) [redacted]
EMAIL: [redacted]

EMAIL for flood matters: flood.qld@[redacted]
WWW : www[redacted]

From: Duty Engineer [[redacted]
Sent: Friday, 7 January 2011 6:59 PM
To: flood.qld@[redacted] john.ruffini[redacted] jtibaldi@[redacted] rob.ayre@[redacted]

Cc: rdrury@[redacted]
Subject: SitRep Clarification

BCC pointed out that they have not done any analysis and do not necessarily agree with the 50 to 100mm but have accepted the BoM and Seqwater estimate.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 10:02 PM
To: Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted]
Graham Keegan [redacted] Graham Francis
<gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted]
Matthew O'Reilly <moreilly@[redacted]
Cc: [redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre[redacted] Rob Drury <[redacted]
Subject: OPS_Directive_Wivenhoe #2.doc

Please find attached a copy Wivenhoe Gate Directive #2

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 07/01/2011**
	Time: 21:45
	Directive No: 02

This transmission comprises of this page and 0 other pages.

Message:

The following gate operations should be undertaken commencing at 22:00 07/01/2011

07/01/2011 22:00	Open Gate	2	from	0.0	metres	to	0.5	metres
07/01/2011 23:00	Open Gate	4	from	0.0	metres	to	0.5	metres
08/01/2011 00:00	Open Gate	2	from	0.5	metres	to	1.0	metres
08/01/2011 01:00	Open Gate	4	from	0.5	metres	to	1.0	metres
08/01/2011 02:00	Open Gate	1	from	0.0	metres	to	0.5	metres
08/01/2011 03:00	Open Gate	5	from	0.0	metres	to	0.5	metres
08/01/2011 04:00	Open Gate	2	from	1.0	metres	to	1.5	metres

It is noted that the hydro will continuing releasing 13 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

John Ruffini
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 7, 2011 11:57 PM
To: Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane [redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted]
Cc: [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Rob Drury <rdrury@[redacted]
Subject: OPS_Directive_NorthPine #4.doc

Please find attached a copy of North Pine Directive #4

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine [redacted]	**[redacted]1**
	Time: 00:00
	Directive No: 4

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 00:30 Saturday 08/01/2011.

An interval of 15 minutes is to be used between gate movements. The gates are to be closed in the following order:

- Gate B : Close to 0 increments at 00:30
- Gate D : Close to 0 increment at 00:45

Please also confirm by Fax once these gate operations are complete.

Regards

John Ruffini
Duty Engineer

----------Safe Stamp----------
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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 8, 2011 4:56 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted]
Graham Keegan <gkeegan@[redacted] Graham Francis
<gfrancis@[redacted] Jayam Tennakoon [redacted]
Matthew O'Reilly <moreilly@[redacted]
Cc: John.Ruffin[redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Rob Drury <rdrury@[redacted]
Subject: OPS_Directive_Wivenhoe #3.doc

Please find attached a copy of Wivenhoe Flood Directive #3.

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 08/01/2011**
	Time: 04:50
	Directive No: 03

This transmission comprises of this page and 0 other pages.

Message:

The following gate operations should be undertaken commencing at 05:00 07/01/2011

08/01/2011 05:00	Open Gate	4	from	1.0	metres	to	1.5	metres
08/01/2011 06:00	Open Gate	1	from	0.5	metres	to	1.0	metres
08/01/2011 07:00	Open Gate	5	from	0.5	metres	to	1.0	metres
08/01/2011 08:00	Open Gate	3	from	3.5	metres	to	4.0	metres

It is noted that the hydro will continuing releasing 13 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

John Ruffini
Duty Engineer

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From: Duty Engineer [redacted]

Sent: Saturday, January 8, 2011 6:32 AM

To: Duty Seq [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan [redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous [redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: Situation Report 0600 Saturday 08/01/2011

Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. No significant rain has fallen in the past 12 hours.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday:	Rain light at times 5-50mm with higher falls along the coast
Sunday:	Widespread rain with totals between 50-100mm
Monday:	Widespread rain again with totals between 50-100mm
Tuesday:	Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday

North Pine (Full Supply Level 39.60 m AHD)

At 0600 Saturday, North Pine Lake Level was 39. 46 m AHD and slowly rising. Currently 3 gates are open to release runoff from rain on Wed/Thursday/Friday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 0500 Saturday, Somerset Dam level was 100.42m AHD and rising. The Dam is releasing into Wivenhoe through

one open sluice gate. Water will be temporarily held in Somerset to allow the inflow from the upper Brisbane is passed through the system. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Since the commencement of the event on 02/01/2011, approximately 85,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 25,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 0600 Saturday, Wivenhoe Dam was 68.45 m AHD and rising steadily with all five gates open and releasing about 890 m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to 1,200m3/s by midday Saturday 08/01/2011. Further assessments will be undertaken to determine increases above this level. However, given the high likelihood of significant inflows in the next week, this may be increased.

Since the commencement of the event on 02/01/2011, approximately 200,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 180,000ML expected based on the recorded rainfall to date. Approximately 50,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected but they could potentially be affected if the predicted rainfall totals eventuate.

The current available assessments indicate that the combined flow in the lower Brisbane R would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane Rive. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

John Ruffini
Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Saturday, January 8, 2011 7:40 AM
To: Rob Drury <rdrury@[redacted]
Cc: Duty Seq <dutyseq@[redacted]
Subject: Update for review

Rob, update for review please

As at 8.30 on Saturday 8 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a sluice gate.

WIVENHOE DAM:
Gate operations have commenced and releases are expected to reach around 100,000 megalitres a day by the afternoon of Saturday 8 January. Releases will be reviewed and may change according to rainfall, inflows and river flows.

Local Councils are being advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge, although this may change depending on rainfall.

NORTH PINE DAM:
Gate operations commenced during the evening of Thursday 6 January and may continue until next week.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
A release through the emergency gates is expected during the weekend. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.

Lake Somerset
Lake Somerset will be temporarily closed to water based recreation activities from 6.00pm Friday 7 January due to the high water levels.
Lake Somerset is expected to remain closed over the weekend, and possibly into next week, depending upon the conditions.

The following recreation sites are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing

- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

Other recreation areas at Lake Wivenhoe are open for land based recreation activities.
The Spillway Lookout recreation area is open, however visitors are advised that there may be long delays due to the numbers of people on site. Security staff and traffic controllers will be on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Borumba
Yabba Creek Road between Imbil and Borumba Dam is currently closed, meaning that access to the lake is not available and be closed for several days.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. The recreation areas at Lake Baroon are open for land based activities.

Lake Maroon
Lake Maroon remains closed to water skiing and swimming but is open to boating and fishing.

Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

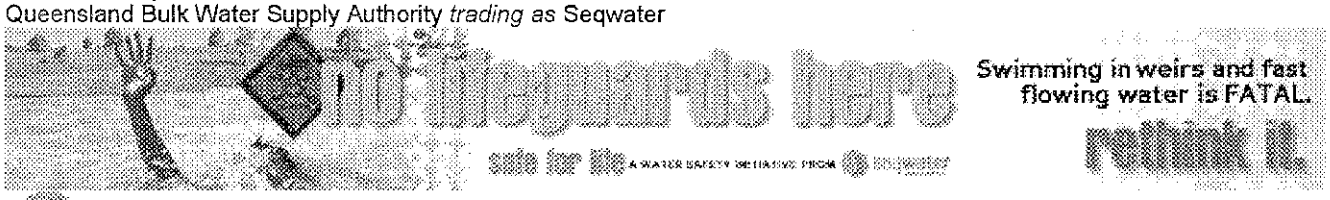
no lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Rob Drury [redacted]
Sent: Saturday, January 8, 2011 7:46 AM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Cc: Peter Borrows [redacted] Stan Stevenson <sstevenson@[redacted] Mike Foster [redacted] Paul Bird [redacted] David Roberts [redacted]
Subject: RE: Technical Report W31
Attach: Technical Situation Report W31.docx

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W31	Date of TSR release	8.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge floodwater as quickly as possible	
Strategy	• Continue to increase releases from 890cumecs this morning to 1200cumecs by lunchtime • This should keep Fernvale and Mt Crosby bridges clear however further predicted rainfall may impact.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. No significant rain has fallen in the past 12 hours.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday: Rain light at times 5-50mm with higher falls along the coast
Sunday: Widespread rain with totals between 50-100mm
Monday: Widespread rain again with totals between 50-100mm
Tuesday: Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday

North Pine (Full Supply Level 39.60 m AHD)

At 0600 Saturday, North Pine Lake Level was 39. 46 m AHD and slowly rising. Currently 3 gates are open to release runoff from rain on Wed/Thursday/Friday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 0500 Saturday, Somerset Dam level was 100.42m AHD and rising. The Dam is releasing into Wivenhoe through one open sluice gate. Water will be temporarily held in Somerset to allow the inflow from the upper Brisbane is passed through the system. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Since the commencement of the event on 02/01/2011, approximately 85,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 25,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 0600 Saturday, Wivenhoe Dam was 68.45 m AHD and rising steadily with all five gates open and releasing about 890 m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to 1,200m3/s by midday Saturday 08/01/2011. Further assessments will be undertaken to determine increases above this level. However, given the high likelihood of significant inflows in the next week, this may be increased.

Since the commencement of the event on 02/01/2011, approximately 200,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 180,000ML expected based on the recorded rainfall to date. Approximately 50,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected but they could potentially be affected if the predicted rainfall totals eventuate.

The current available assessments indicate that the combined flow in the lower Brisbane R would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane Rive. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

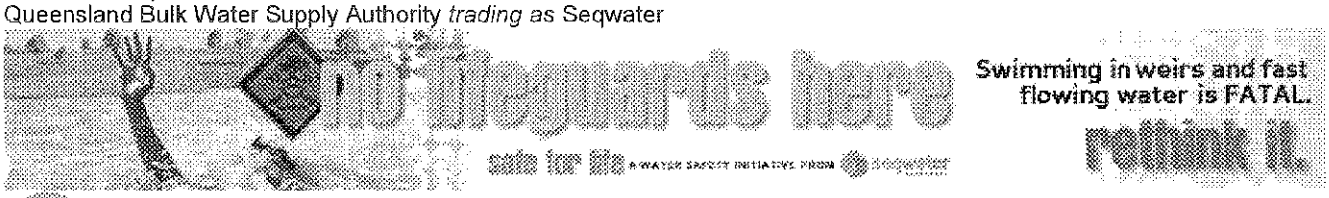
Next TSR due	Date		Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Saturday, January 8, 2011 7:47 AM
To: Paul Bird [redacted]
Cc: Duty Seq <dutyseq@[redacted]
Subject: RE: Update for review

Looks fine, Tech Report sent.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Saturday, 8 January 2011 7:40 AM
To: Rob Drury
Cc: Duty Seq
Subject: Update for review

Rob, update for review please

As at 8.30 on Saturday 8 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through a sluice gate.

WIVENHOE DAM:
Gate operations have commenced and releases are expected to reach around 100,000 megalitres a day by the afternoon of Saturday 8 January. Releases will be reviewed and may change according to rainfall, inflows and river flows.

Local Councils are being advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge, although this may change depending on rainfall.

NORTH PINE DAM:
Gate operations commenced during the evening of Thursday 6 January and may continue until next week.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:

Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
A release through the emergency gates is expected during the weekend. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.

Lake Somerset
Lake Somerset will be temporarily closed to water based recreation activities from 6.00pm Friday 7 January due to the high water levels.
Lake Somerset is expected to remain closed over the weekend, and possibly into next week, depending upon the conditions.

The following recreation sites are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

Other recreation areas at Lake Wivenhoe are open for land based recreation activities.
The Spillway Lookout recreation area is open, however visitors are advised that there may be long delays due to the numbers of people on site. Security staff and traffic controllers will be on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Borumba
Yabba Creek Road between Imbil and Borumba Dam is currently closed, meaning that access to the lake is not available and be closed for several days.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. The recreation areas at Lake Baroon are open for land based activities.

Lake Maroon
Lake Maroon remains closed to water skiing and swimming but is open to boating and fishing.

Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
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rethink it

From: Paul Bird [redacted]
Sent: Saturday, January 8, 2011 7:49 AM
To: Rob Drury [redacted]
Cc: Duty Seq <dutyseq@[redacted]
Subject: RE: Update for review

Thanks Rob

Will not update until Sunday morning unless there's a major change.

Cheers

Paul

From: Rob Drury
Sent: Saturday, 8 January 2011 7:47 AM
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Subject: RE: Update for review

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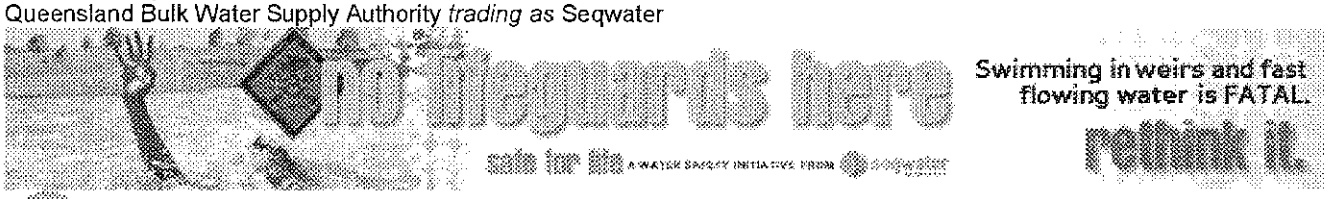

seqwater
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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
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PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

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From: Rob Drury [redacted]
Sent: Saturday, January 8, 2011 7:51 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones. Give them a call if you need further information.

Below is the current strategy.
Any comments or assessments let me know.

Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. No significant rain has fallen in the past 12 hours.

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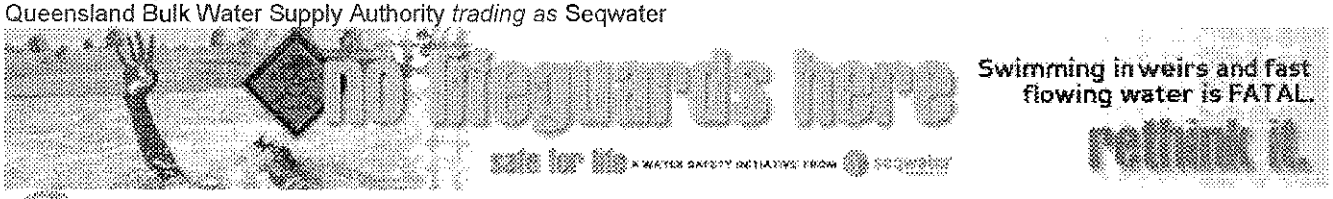
Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 8, 2011 8:08 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury [redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Dam Directive # 4 at 08:15 on Staurday 8 January 2011
Attach: OPS_Directive_Wivenhoe #4.doc

Please find attached a copy of Wivenhoe Dam Directive # 4 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 08/01/2011 Time: 08:15 Directive No: 04

This transmission comprises of this page and 0 other pages.

Message:

The following gate operations should be undertaken commencing at 09:00 07/01/2011

08/01/2011 09:00	Open Gate	2	from	1.5	metres	to	2.0	metres
08/01/2011 10:00	Open Gate	4	from	1.5	metres	to	2.0	metres
08/01/2011 11:00	Open Gate	1	from	1.0	metres	to	1.5	metres
08/01/2011 12:00	Open Gate	5	from	1.0	metres	to	1.5	metres
08/01/2011 13:00	Open Gate	2	from	2.0	metres	to	2.5	metres
08/01/2011 14:00	Open Gate	4	from	2.0	metres	to	2.5	metres

It is noted that the hydro will continuing releasing 13 m^3/s. At the completion of these gate operations the dam will be releasing 1,247 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

Rob Ayre

Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Saturday, January 8, 2011 9:00 AM
To: stephen.[redacted] Lance McCallum ([redacted] Tim Watts (tim.[redacted] Geoff Stead ([redacted] lauren.[redacted] Debbie Best ([redacted] Martin.[redacted] Dunn.[redacted]
Cc: Rob Drury <rdrury@[redacted] Mike Foster [redacted] SEQWGM Media [redacted] Damien Brown (damien.brown[redacted] bob.reilly[redacted] Madgwick.[redacted] Scott Denner <Scott.Denner[redacted]
Subject: Water Grid operations update: 8/1/11
Attach: Technical Situation Report W31.docx

All,

Dam releases

Attached is the current technical situation report.

Releases are being made from Somerset, Wivenhoe, North Pine and Leslie Harrison dams, with forecasts of high rainfall totals over the next four days.

For Wivenhoe Dam:

- All five gates are now open with the release rate planned to increase to 1200 cubic metres per second by midday today. This release rate is less than peak release from October 2010.
- The release strategy will continue to be reviewed based on actual rainfall. With significant inflows, it may need to be increased.
- As advised yesterday, a number of local birdges have been inundated by releases and local flows. The Fernvale and Mt Crosby Weir Bridges could potentially also be affected if predicted rainfall totals eventuate.
- The BoM and Seqwater concur that current releases will increase the level of the lower Brisbane River by about 50 to 100mm. There is currently a 40 to 50mm atmospheric anomaly.

Releases from North Pine and Leslie Harrison dams are continuing. Releases from Hinze Dam are expected to be required over the weekend.

Water treatment

In terms of operations, Lockyer Valley flows have again caused a turbity spike in the Brisbane River. Impacts are expected to peak today at Mt Crosby today, before being diluted by dam releases. There are similar issues at some other locations.

Despite the spike, all key plants are currently operating within critical limits with any impacts being monitored. Seqwater and Linkwater have prepared for potential issues by increasing treated water storage and staffing at some treatment plants. Desalination is at one-third capacity and ready to increase production within two hours of an instruction (but is unlikely to be required in this event).

With forecast rainfall, these type of issues are likely to recur over the remainder of the wet season.

Please call me on [redacted] if you require any further information.

Regards,
Dan

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You

understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
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Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

TECHNICAL SITUATION REPORT

TSR Number	W31	Date of TSR release	8.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge floodwater as quickly as possible	
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Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. No significant rain has fallen in the past 12 hours.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday: Rain light at times 5-50mm with higher falls along the coast
Sunday: Widespread rain with totals between 50-100mm
Monday: Widespread rain again with totals between 50-100mm
Tuesday: Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday

North Pine (Full Supply Level 39.60 m AHD)

At 0600 Saturday, North Pine Lake Level was 39. 46 m AHD and slowly rising. Currently 3 gates are open to release runoff from rain on Wed/Thursday/Friday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 0500 Saturday, Somerset Dam level was 100.42m AHD and rising. The Dam is releasing into Wivenhoe through one open sluice gate. Water will be temporarily held in Somerset to allow the inflow from the upper Brisbane is passed through the system. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Since the commencement of the event on 02/01/2011, approximately 85,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 25,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 0600 Saturday, Wivenhoe Dam was 68.45 m AHD and rising steadily with all five gates open and releasing about 890 m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to 1,200m3/s by midday Saturday 08/01/2011. Further assessments will be undertaken to determine increases above this level. However, given the high likelihood of significant inflows in the next week, this may be increased.

Since the commencement of the event on 02/01/2011, approximately 200,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 180,000ML expected based on the recorded rainfall to date. Approximately 50,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected but they could potentially be affected if the predicted rainfall totals eventuate.

The current available assessments indicate that the combined flow in the lower Brisbane R would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane Rive. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

From: Duty Engineer <dutyseq@uqconnect.net>
Sent: Saturday, January 8, 2011 10:18 AM
To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: North Pine Dam Directive # 5 at 10:15 on Saturday 8 January 2011
Attach: OPS_Directive_NorthPine #5.doc

Please find attached Directive # 5 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 08/01/2011 Time: 10:30 Directive No: 5

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 11:00 Saturday 08/01/2011.

An interval of 15 minutes is to be used between gate movements. The gates are to be closed in the following order:

- Gate A : Close to 0 increment at 11:00

Please also confirm by Fax once these gate operations are complete.

Regards

Rob Ayre
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 8, 2011 11:23 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Somerset Dam Directive # 3 at 11:30 on Saturday 8 January 2011
Attach: OPS_Directive_Somerset #3.doc

Please find attached Directive # 3 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date: 08/01/2011 Time: 11:30 Directive No: 3

This transmission comprises of this page and 0 other pages.

Message:

Somerset Dam is expected to peak at around mid-day at about EL 100.48 m. As we have exceeded EL 100.45 m (fixed crest level), but Wivenhoe Dam is still rising we will need to implement Strategy S2.

This strategy is aimed at maximising the benefits of the mitigation storage in both Somerset and Wivenhoe dams. Consequently we will endeavour to follow the target line as defined in the manual.

- Please open Sluice M to 100% at 12:00.

Please confirm this gate operation by fax once you have completed the opening.

Regards

Rob Ayre

Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Saturday, January 8, 2011 12:16 PM

To: David Roberts [redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Rob Drury [redacted] Rohan Thorogood <rthorogood@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens [redacted] David Pokarier <david.pokarier@[redacted] John West [redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Status Report at 12:00 on Saturday 8 January 2011

Rainfall

No significant rain has fallen over the dam catchments in the past 18 hours.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday:	Rain light at times 5-50mm with higher falls along the coast
Sunday:	Widespread rain with totals between 50-100mm
Monday:	Widespread rain again with totals between 50-100mm
Tuesday:	Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday.

North Pine (Full Supply Level 39.60 m AHD)

At 1200 Saturday, North Pine Lake Level was 39.46 m AHD and is steady. Currently 2 gates are open to release runoff generated from rainfall over the last three days. Given the very high likelihood of significant runoff during the next 4 days, gates will be kept open to match inflows over the next few days, rather than opening and closing at various times with short notice. Lake Kurwongbah spillway flows are also contributing to the adverse impacts experienced at Youngs Crossing.

Youngs Crossing will remain adversely impacted for the duration of the gates being open.

Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 1000 Saturday, Somerset Dam level peaked at 100.47m AHD and is now slowly falling. At 1200 it is now 100.45m. Somerset Dam is releasing into Wivenhoe through two open sluice gates and over the fixed crest at a rate of about 415 m3/s.

Since the commencement of the event on 02/01/2011, approximately 91,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 29,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 1200 Saturday, Wivenhoe Dam was 68.60 m AHD and rising steadily with all five gates open and releasing about 1,150 m3/s. River levels upstream of Wivenhoe Dam have peaked and are now receding. However the further inflows into the dam has led to elevated levels It is intended to increase the release from Wivenhoe to 1,250 m3/s by 14:00 on Saturday 08/01/2011. This will maintain flows of up to 1,600 m3/s in the mid-Brisbane River throughout the afternoon.

Further assessments will be undertaken to determine increases above this level given the high likelihood of significant inflows in the next few days. The interaction with runoff from the Bremer River and Warrill Creek catchment will also be assessed to determine an appropriate release strategy. Projections based upon the forecast rainfalls suggest flows of up to 1,200 m3/s will emanate from the Bremer River catchment.

Since the commencement of the event on 02/01/2011, approximately 202,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 210,000ML expected based on the recorded rainfall to date. Approximately 66,000ML has been released from Wivenhoe via the radial gates, hydro and regulator.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,250m3/s and combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but they could potentially be affected if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

The current available assessments indicate that the combined flow in the lower Brisbane River would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides. The tide level at the Port Office Gauge at 1200 Saturday was 1.56 m and rising.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Saturday, January 8, 2011 5:53 PM

To: David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace [redacted]

Subject: FOC Situation Report at 18:00 on Saturday 8 January 2011

Rainfall

Some rain has fallen over the dam catchments in the past 12 hours. Catchment average rainfall for this period for North Pine Dam is 6 mm; Stanley River has received 12 mm; and the Upper Brisbane River 4 mm. This has resulted in minor increases in runoff into Somerset dam.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

The forecast for the Somerset-Wivenhoe catchment for the next 24 hours is 30 to 50 mm, whilst North Pine is expected to receive 40 to 60 mm in the next 24 hours

The outlook for the following days are:-

Sunday: Widespread rain with totals between 50-100mm
Monday: Widespread rain again with totals between 50-150mm
Tuesday: Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday.

North Pine (Full Supply Level 39.60 m AHD)

At 1700 Saturday, North Pine Lake Level was 39.47 m AHD and steady. Currently two gates are open to release runoff generated from rainfall over the last three days. Given the very high likelihood of significant runoff during the next 4 days, gates will be kept open to match inflows over the next few days, rather than opening and closing at various times with short notice. Lake Kurwongbah spillway flows are also contributing to the adverse impacts experienced at Youngs Crossing.

Youngs Crossing will remain adversely impacted for the duration of the gates being open.

Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

Somerset Dam level peaked at 100.47m AHD at 10:00 today and is now slowly falling. At 1700 it is now 100.41m. Somerset Dam is releasing into Wivenhoe through two open sluice gates and over the fixed crest at a rate of about 415 m3/s.

Since the commencement of the event on 02/01/2011, approximately 95,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 38,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 1800 Saturday, Wivenhoe Dam was 68.65 m AHD and rising slowly with all five gates open and releasing about 1,250 m3/s. River levels upstream of Wivenhoe Dam have peaked and are now receding. However the further inflows may result from any additional rainfall. The current gate operation strategy will maintain flows of up to 1,600 m3/s in the mid-Brisbane River throughout the evening.

Since the commencement of the event on 02/01/2011, approximately 227,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 200,000ML expected based on the recorded rainfall to date. Approximately 93,000ML has been released from Wivenhoe via the radial gates, hydro and regulator.

Impacts downstream of Wivenhoe

The current Wivenhoe release of 1,250m3/s combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days (until Wednesday 12 January). At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but they could potentially be affected if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

The current available assessments indicate that the combined flow in the lower Brisbane River would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides. The tide level at the Port Office Gauge at 1700 Saturday was 0.06 m and falling.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Forecast Scenario – Based upon mid-range rainfall forecasts.

Assessments have been undertaken to determine possible increases to releases given the high likelihood of significant inflows in the next few days. The interaction with runoff from the Bremer River and Warrill Creek catchment is an important consideration as the event magnitude will require the application of Wivenhoe Dam flood operation strategy W2 (Transition strategy between minimizing downstream impacts and maximizing protection to urban areas).

Projections based upon the forecast rainfalls suggest flows of up to 1,200 m3/s will emanate from the Bremer River catchment. If similar rainfall magnitudes occur in the Upper Brisbane and Stanley Rivers then increased releases may be required from both Somerset Dam and Wivenhoe Dam. Preliminary projections suggest that such a forecast will extend the release duration until next Saturday 15 January, but mid-Brisbane River flows will be kept to a maximum of 1,800 m3/s. However, if falls are greater than those forecast releases from Wivenhoe Dam may need to adversely impact Mt Crosby Weir Bridge (1,900 m3/s) and possibly Fernvale Bridge (2,100 m3/s) but will be maintained below 3,500 m3/s.

The assessments will be updated as the event progresses.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Saturday, January 8, 2011 5:58 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: FOC Situation Report at 18:00 on Saturday 8 January 2011

Thanks Rob.

From: Duty Engineer <dutyseq@[redacted]
To: David Roberts; flood.qld@[redacted] <flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen <peter.aller[redacted] Rob Drury; Rohan Thorogood; Ken.Price@[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffin[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: Deb Chandler <dchandler[redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]
Sent: Sat Jan 08 17:53:25 2011
Subject: FOC Situation Report at 18:00 on Saturday 8 January 2011

Rainfall

Some rain has fallen over the dam catchments in the past 12 hours. Catchment average rainfall for this period for North Pine Dam is 6 mm; Stanley River has received 12 mm; and the Upper Brisbane River 4 mm. This has resulted in minor increases in runoff into Somerset dam.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

The forecast for the Somerset-Wivenhoe catchment for the next 24 hours is 30 to 50 mm, whilst North Pine is expected to receive 40 to 60 mm in the next 24 hours

The outlook for the following days are:-

Sunday: Widespread rain with totals between 50-100mm
Monday: Widespread rain again with totals between 50-150mm
Tuesday: Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday.

North Pine (Full Supply Level 39.60 m AHD)

At 1700 Saturday, North Pine Lake Level was 39.47 m AHD and steady. Currently two gates are open to release runoff generated from rainfall over the last three days. Given the very high likelihood of significant runoff during the next 4 days, gates will be kept open to match inflows over the next few days, rather than opening and closing at various times with short notice. Lake Kurwongbah spillway flows are also contributing to the adverse impacts experienced at Youngs Crossing.

Youngs Crossing will remain adversely impacted for the duration of the gates being open.

Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

Somerset Dam level peaked at 100.47m AHD at 10:00 today and is now slowly falling. At 1700 it is now 100.41m.

Somerset Dam is releasing into Wivenhoe through two open sluice gates and over the fixed crest at a rate of about 415 m3/s.

Since the commencement of the event on 02/01/2011, approximately 95,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 38,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 1800 Saturday, Wivenhoe Dam was 68.65 m AHD and rising slowly with all five gates open and releasing about 1,250 m3/s. River levels upstream of Wivenhoe Dam have peaked and are now receding. However the further inflows may result from any additional rainfall. The current gate operation strategy will maintain flows of up to 1,600 m3/s in the mid-Brisbane River throughout the evening.

Since the commencement of the event on 02/01/2011, approximately 227,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 200,000ML expected based on the recorded rainfall to date. Approximately 93,000ML has been released from Wivenhoe via the radial gates, hydro and regulator.

Impacts downstream of Wivenhoe

The current Wivenhoe release of 1,250m3/s combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days (until Wednesday 12 January). At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but they could potentially be affected if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

The current available assessments indicate that the combined flow in the lower Brisbane River would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides. The tide level at the Port Office Gauge at 1700 Saturday was 0.06 m and falling.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Forecast Scenario – Based upon mid-range rainfall forecasts.

Assessments have been undertaken to determine possible increases to releases given the high likelihood of significant inflows in the next few days. The interaction with runoff from the Bremer River and Warrill Creek catchment is an important consideration as the event magnitude will require the application of Wivenhoe Dam flood operation strategy W2 (Transition strategy between minimizing downstream impacts and maximizing protection to urban areas).

Projections based upon the forecast rainfalls suggest flows of up to 1,200 m3/s will emanate from the Bremer River catchment. If similar rainfall magnitudes occur in the Upper Brisbane and Stanley Rivers then increased releases may be required from both Somerset Dam and Wivenhoe Dam. Preliminary projections suggest that such a forecast will extend the release duration until next Saturday 15 January, but mid-Brisbane River flows will be kept to a maximum of 1,800 m3/s. However, if falls are greater than those forecast releases from Wivenhoe Dam may need to adversely impact Mt Crosby Weir Bridge (1,900 m3/s) and possibly Fernvale Bridge (2,100 m3/s) but will be maintained below 3,500 m3/s.

The assessments will be updated as the event progresses.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system.

QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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For more information regarding this service, please contact your service provider.

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 1:21 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Dam Directive #5
Attach: OPS_Directive_Wivenhoe #5.doc

Please find attached a copy of Wivenhoe Dam Directive # 5.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 09/01/2011** **Time: 01:00** **Directive No: 05**

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operation at 01:30 on 09/01/2011

Open Gate 3 from 4.0 metres to 4.5 metres

It is noted that the hydro will continuing releasing 13 m^3/s. Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

John Tibaldi
Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 4:41 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Dam Directive #6
Attach: OPS_Directive_Wivenhoe #6.doc

Please find attached a copy of Wivenhoe Dam Directive # 6.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 09/01/2011 Time: 04:30 Directive No: 06

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operation at 05:00 on 09/01/2011

Open Gate 1 from 1.5 metres to 2.0 metres

It is noted that the hydro will continuing releasing 13 m^3/s. Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Sunday, January 9, 2011 6:15 AM

To: Duty Seq <dutyseq@[redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Situation Report at 06:00 on Sunday 9 January 2011

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
Monday:	Rain periods.
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Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today, consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

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Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Wednesday 12 January. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but this may be revised if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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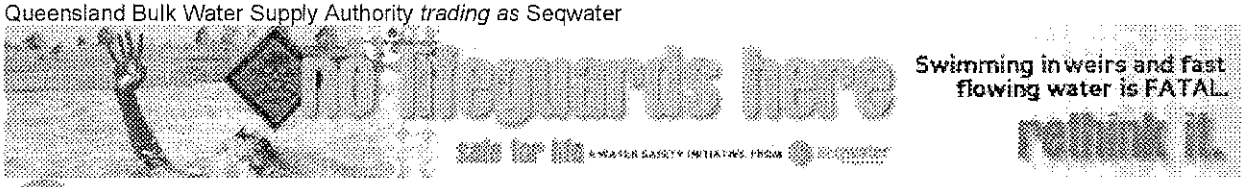
For more information regarding this service, please contact your service provider.

From: Rob Drury <rdrury@seqwater.com>
Sent: Sunday, January 9, 2011 7:26 AM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Cc: Peter Borrows [redacted] Stan Stevenson [redacted] Mike Foster [redacted] Paul Bird [redacted] David Roberts [redacted] Arminda Roberts [redacted]
Subject: RE: Technical Report W31

Please find attached Report W31.
Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



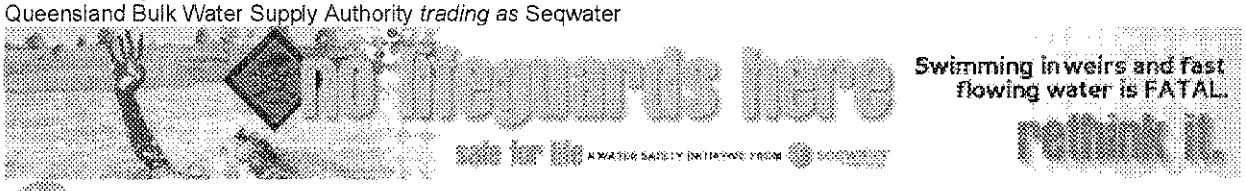
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



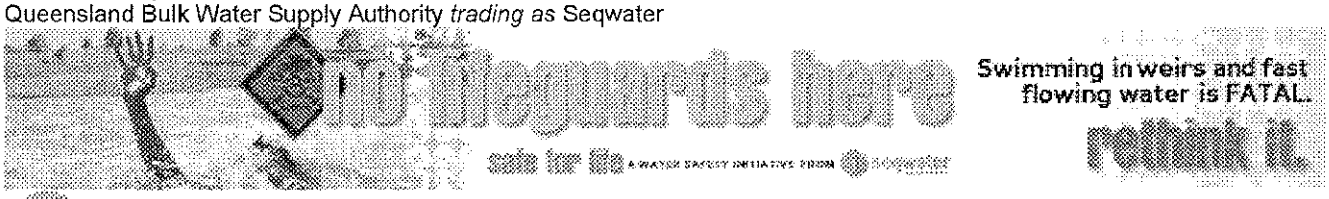
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 7:28 AM
To: Alex Fisher <afisher@[redacted] Helen Moore <hmoore@[redacted] Bill Andrew <bandrew@[redacted] Jim Pruss <jpruss@[redacted]
Cc: Brett Myatt [redacted]
Subject: FW: Technical Report W31
Attach: Technical Situation Report W32.docx

Apologies, had meant to keep sending these through but this one is a good summary of where we are at.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07)[redacted] | Fax (07)[redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
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Rob

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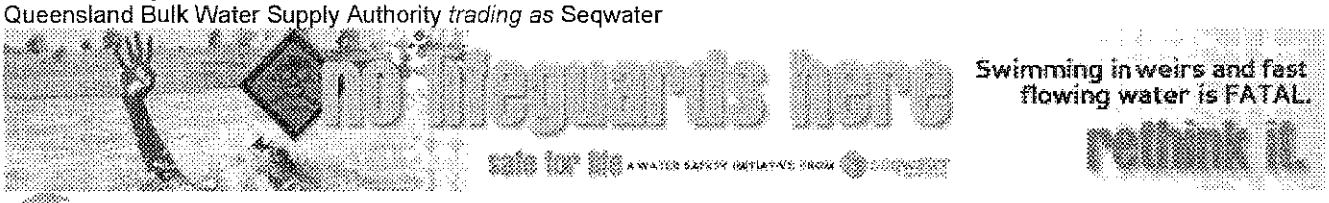
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



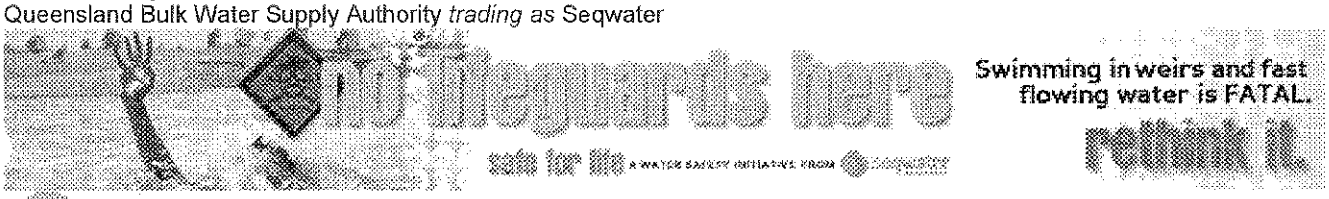
seqwater
WATER FOR LIFE
Ph (07)[redacted] | Fax (07)[redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W32	Date of TSR release	9.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases to discharge floodwater as quickly as possible	
Strategy	• Continue the current releases of around 1350cumecs or 116,000ML per day, however this may change slightly depending on other flows to maintain around 1600cumecs in the mid Brisbane River • This should keep Fernvale and Mt Crosby bridges clear however if further predicted rainfall occurs there may be impacts on these bridges too	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
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Wednesday	A few showers.
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today,

consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

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Impacts downstream of Wivenhoe Dam

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing.

Hinze Dam

The gate opening of 300mm continues today and may for several days depending on inflows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and ather updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 7:32 AM
To: Rob Drury [redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones. Give them a call if you need further information.

Below is the current strategy.
Any comments or assessments let me know.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

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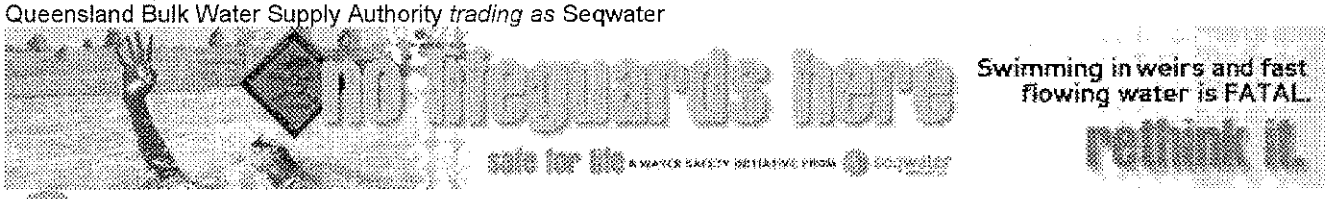
Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

The current available assessments indicate that the combined flow in the lower Brisbane R would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]au
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller <[redacted]
Sent: Sunday, January 9, 2011 7:43 AM
To: Rob Drury <[redacted]
Subject: RE: Technical Report W31

Rob,

No attachment.

Dan

From: Rob Drury [rdrury@[redacted]
Sent: Sunday, 9 January 2011 7:25 AM
To: Rob Drury; Dan Spiller
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.
Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

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Dam Operations Manager
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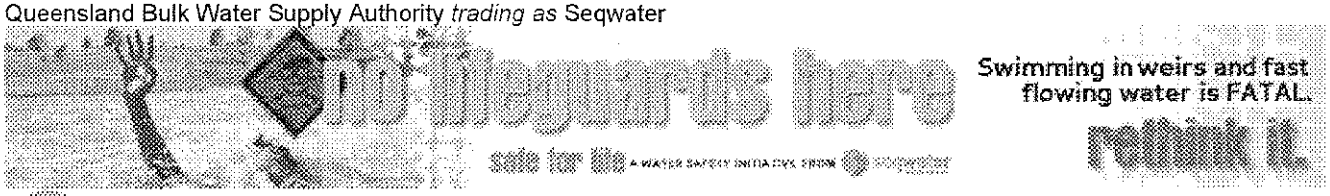

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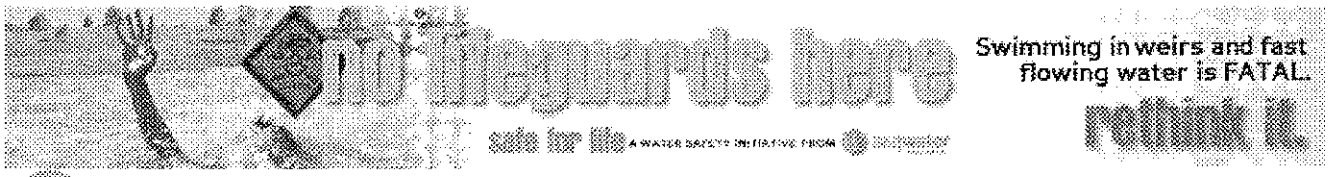
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Paul Bird [redacted]
Sent: Sunday, January 9, 2011 7:48 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update for review

Rob,

For review please

As at 8.00 on Sunday 9 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe through sluice gates and the release will continue until early next week.

WIVENHOE DAM:
Gate Releases of around 116,000 megalitres a day are underway and are likely to continue until mid next week.

Local Councils have been advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge, although this may change depending on rainfall.

NORTH PINE DAM:
Gate operations may continue until next week, depending on rainfall.

The local Council was advised prior to the gate operation commencing that Youngs Crossing may be inundated.

LESLIE HARRISON DAM:
Due to rainfall, a release is underway and may continue until next week.

HINZE DAM:
A release through the emergency gates is underway. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
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Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated if any significant changes occur.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E pbird@[redacted]
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PO Box 16146, City East QLD 4002
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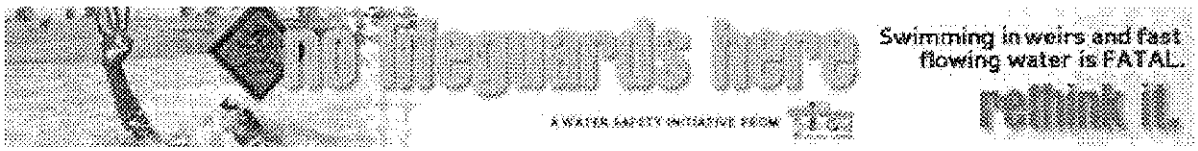
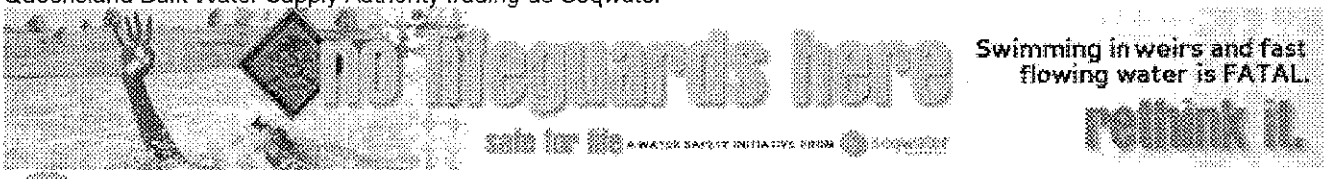


From: Rob Drury <[redacted]
Sent: Sunday, January 9, 2011 7:50 AM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Cc: Peter Borrows <pborrows@[redacted] Stan Stevenson [redacted] Mike Foster [redacted] Paul Bird [redacted] David Roberts [redacted] Arminda Roberts [redacted]
Subject: RE: Technical Report W31
Attach: Technical Situation Report W32.docx

Would like to blame the computer system but purely operator error.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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PO Box 37, Fernvale QLD 4306
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From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

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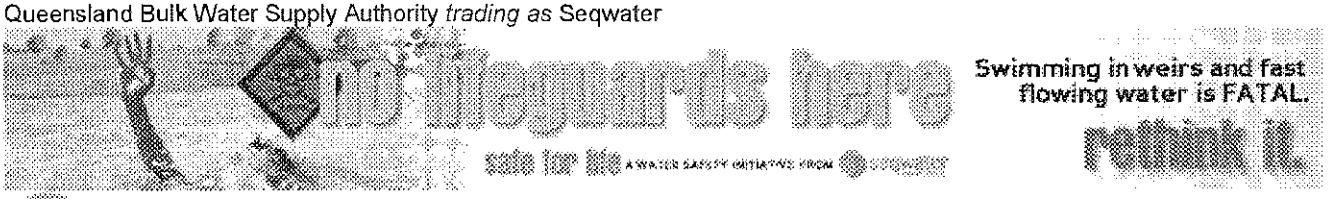

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Attached report number W31.

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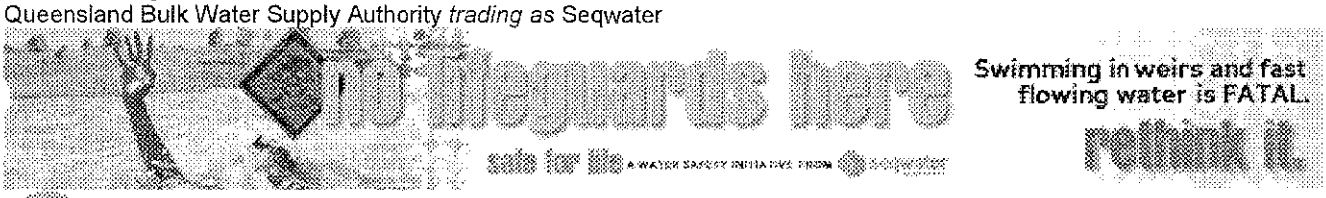

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TECHNICAL SITUATION REPORT

TSR Number	W32	Date of TSR release	9.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases to discharge floodwater as quickly as possible	
Strategy	• Continue the current releases of around 1350cumecs or 116,000ML per day, however this may change slightly depending on other flows to maintain around 1600cumecs in the mid Brisbane River • This should keep Fernvale and Mt Crosby bridges clear however if further predicted rainfall occurs there may be impacts on these bridges too	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
Monday:	Rain periods.
Tuesday:	Rain periods.
Wednesday	A few showers.
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today,

consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently falling slowly, with the current level being 68.58m AHD. River levels upstream of the dam are receding, however further inflows will result from any additional rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River. The current release rate from Wivenhoe Dam is 116,000ML/day. Since the commencement of the event on 02/01/2011approximately 150,000ML has been released from the dam, with a total of at least 450,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Wednesday.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Wednesday 12 January. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but this may be revised if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and closed late last night. However further releases are likely.

Hinze Dam

The gate opening of 300mm continues today and may for several days depending on inflows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

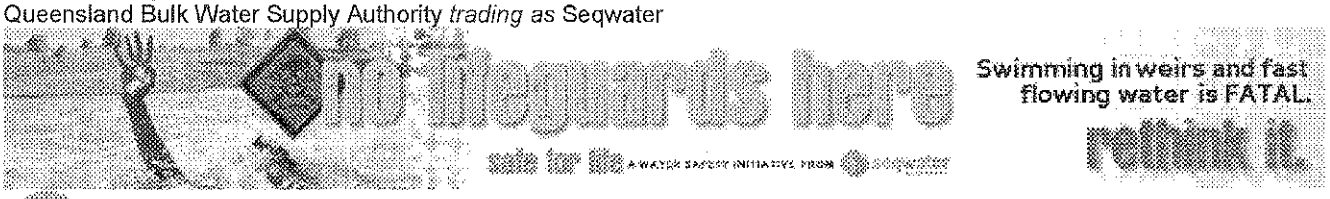
Next TSR due	Date		Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 7:55 AM
To: Paul Bird [redacted]
Subject: RE: Update for review

Slight changes re NPD, Leslie and Hinze.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Rob,

For review please

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WIVENHOE DAM:
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Local Councils have been advised that Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing may be inundated for several days.

At this stage, no adverse impacts are expected for Fernvale Bridge, or Mt Crosby Weir Bridge, although this may change depending on rainfall.

NORTH PINE DAM:
Gate operations are being reviewed and the gates may be closed today or tomorrow morning however any further rain may mean continued releases.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:

Releases ceased last night but may be required at short notice due to further inflows.

HINZE DAM:
A minor release through the emergency gates is underway. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.

Lake Somerset
Lake Somerset is closed to water based recreation activities due to the high water levels and is expected to remain closed into next week, depending upon the conditions.

The following recreation sites are currently closed due to submerged infrastructure, or dangerous conditions –

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Other recreation areas at Lake Wivenhoe are open for land based recreation activities.
The Spillway Lookout recreation area is open; however visitors are advised that there may be long delays due to the numbers of people on site. Security staff and traffic controllers will be on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Borumba
Yabba Creek Road between Imbil and Borumba Dam is currently closed; meaning that access to the lake is not available and be closed for several days.

Lake Baroon
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Lake Maroon
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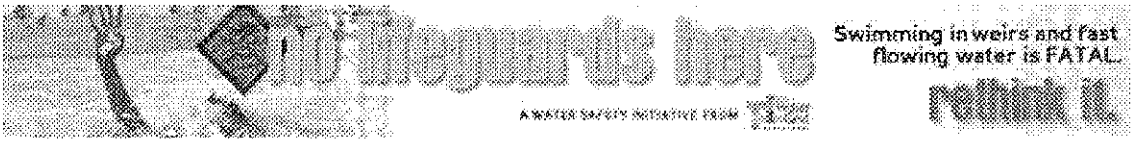

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Subject: RE: Update for review

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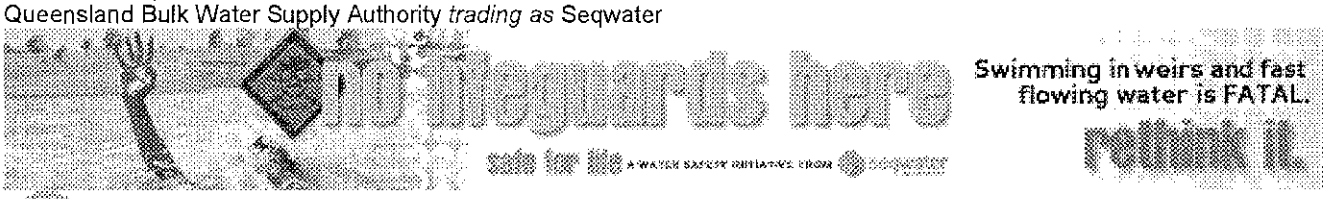

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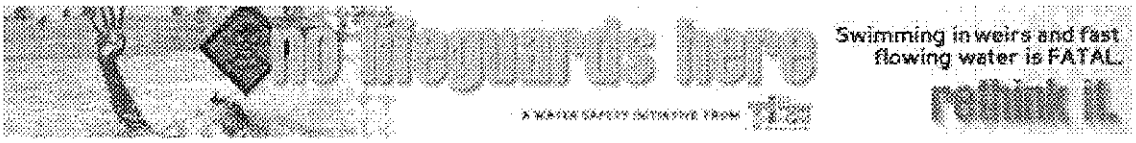

From: Duty Engineer <dutyseq@[redacted]

Sent: Sunday, January 9, 2011 8:14 AM

To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Rob Drury <rdrury@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]

Subject: Somerset Directive #4

Attach: OPS_Directive_Somerset #4.doc

Pleaser find attached Somerset Directive #4.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) (07) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date: 09/01/2011 Time: 08:15 Directive No: 4

This transmission comprises of this page and 0 other pages.

Message:

Inflows to Somerset Dam are expected to increase in the next few hours due to rain in the last 6 hours with falls up to 75mm

- Please open Sluice K to 100% at 09:00.

Please confirm this gate operation by fax once you have completed the opening.

Regards

Terry Malone

Duty Engineer

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Sunday, January 9, 2011 8:14 AM
To: [redacted] Lance McCallum ([redacted] Tim Watts ([redacted] Geoff Stead ([redacted] Debbie Best ([redacted]
Cc: Rob Drury <rdrury@[redacted] Paul Bird <pbird@[redacted] SEQWGM Media [redacted] Damien Brown ([redacted]
Subject: Water Grid operations update: 9/1
Attach: Technical Situation Report W32.docx

All,

Current technical situation report.

Key points are:

- Wivenhoe Dam is continuing releases at about 116,000 ML/day. Releases are expected to continue until at least Wednesday.
- A severe weather warning remains current for dam catchments. There has been heavy rainfall in the Somerset Dam catchment over the past two hours.
- The release strategy will continue to be reviewed based on actual rainfall.
- Releases are being made so as to avoid inundating the Fernvale and Mt Crosby Weir Bridges. Other flows may impact on the bridges, should the forecast rainfall eventuate.
- North Pine Dam may cease releases today or tomorrow morning, depending upon actual rainfall.
- Many dams and recreation areas are closed.

Please call me on [redacted] if you require any further information.

Regards,
Daniel Spiller

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TECHNICAL SITUATION REPORT

TSR Number	W32	Date of TSR release	9.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases to discharge floodwater as quickly as possible	
Strategy	• Continue the current releases of around 1350cumecs or 116,000ML per day, however this may change slightly depending on other flows to maintain around 1600cumecs in the mid Brisbane River • This should keep Fernvale and Mt Crosby bridges clear however if further predicted rainfall occurs there may be impacts on these bridges too	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
Monday:	Rain periods.
Tuesday:	Rain periods.
Wednesday	A few showers.
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today,

consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently falling slowly, with the current level being 68.58m AHD. River levels upstream of the dam are receding, however further inflows will result from any additional rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River. The current release rate from Wivenhoe Dam is 116,000ML/day. Since the commencement of the event on 02/01/2011approximately 150,000ML has been released from the dam, with a total of at least 450,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Wednesday.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Wednesday 12 January. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but this may be revised if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and closed late last night. However further releases are likely.

Hinze Dam

The gate opening of 300mm continues today and may for several days depending on inflows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation oreas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 10:21 AM
To: Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #7
Attach: OPS_Directive_Wivenhoe #7.doc

Please find attached Directive #7

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 09/01/2011 Time: 10:30 Directive No: 07

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operation at 11:00 on 09/01/2011

Open Gate 5 from 1.5 metres to 2.0 metres

It is noted that the hydro will continuing releasing 13 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

Terry Malone
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 11:02 AM
To: Craig Duncan <cduncan@[redacted] John Tibaldi <jtibaldi@[redacted] Terry Malone <tmalone@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted]
Cc: Rob Drury <rdrury@[redacted] Paul Bird [redacted]
Subject: Forecast Rainfall and Possible Runoff

Forecast Rainfall

The forecast for the next few days is for heavy rainfall, particularly for period 10pm Sunday to 10pm Monday with totals between 200-300mm. The areas mostly heavily impacted will be the North Pine, Somerset and Leslie Harrison catchments with less rain in the upper Brisbane. http://www[redacted]jsp/watl/rainfall/pme.jsp

The rain contracts to the area around North Pine for the period 10pm Monday to 10pm Tuesday with totals in the order of 100 to 150mm.

The interactive model at http://www[redacted]australia/charts/viewer/index.shtml shows the heaviest falls during the next 48 hours are likely to be overnight Sunday/Monday and overnight Monday/Tuesday.

The QPF for the period 24 hours to 9am show totals between 40- 60mm for both North Pine and Somerset/Wivenhoe catchments. Note that this is only half the period of the above forecast durations.

Recorded Runoff

To date recorded inflows to the dams since 02/01/2011 have been
North Pine 23,000ML
Somerset 120,000ML
Wivenhoe 380,000ML (including Somerset outflow)

Presently, the conversion rate between rainfall and runoff is about 0.45 for Wivenhoe, 0.60 for North Pine and 0.75 for Somerset.

Expected Runoff

Based on the approximate runoff conversion rates and the forecast rainfall, estimated runoff volumes (ML) generated could be of the order of:

Catchment	Monday	Tuesday	Wednesday	Three Day Total
North Pine	10,000-20,000	35,000-55,000	25,000-35,000	70,000-110,000
Somerset	50,000-100,000	200,000-300,000	75,000-150,000	325,000-550,000
Wivenhoe	125,000-250,000	250,000-500,00	125,000-250,000	500,000-1,000,000

The lower limit of the inflow to Somerset and Wivenhoe will be similar to the October 2010 flood while the upper limit is similar to the February 1999 floods. However, the starting level of the dams is much higher than in these historical events.

This points to continued flood operations for Somerset and Wivenhoe until at least the weekend of 15/16 Jan and

maybe a shorter time for North Pine.

It should be noted that these estimates are based upon forecast rainfall which may or may not eventuate.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 12:20 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Somerset Directive #5
Attach: OPS_Directive_Somerset #5.doc

Please find attached Somerset Directive #5

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date: 09/01/2011 Time: 12:30 Directive No: 5

This transmission comprises of this page and 0 other pages.

Message:

Inflows to Somerset Dam are expected to increase in the next few hours due to rain in the last 6 hours with falls up to 75mm

- Please open Sluice N to100% at 13:00
- Please open Sluice J to 100% at 14:00

Please confirm this gate operation by fax once you have completed the opening.

Regards

Terry Malone

Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 1:41 PM
To: Glenn Patterson [redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: RE: Lake MacDonald levels

Glenn

At this stage I'd expected LMD to get to about 96.5 m later this arvo. This is about 1.3 metres over the spillway

Terry
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Glenn Patterson [mailto:gpatterson@[redacted]
Sent: Sunday, 9 January 2011 1:20 PM
To: Duty Seq
Cc: Rob Drury
Subject: FW: Lake MacDonald levels

Hello Terry
Veolia are not on site due to local flooding of access roads. Ross Paulger has agreed to take a drive and see if he can access LMD at alland will advise me soon.

Regards
Glenn

Glenn Patterson
Acting Operations Coordinator - Northern Region
QLD Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | M [redacted] | E [redacted]
PO Box 47 Imbil 4570 Q Australia
Website | www.seqwater.com.au

From: Glenn Patterson
Sent: Sunday, 9 January 2011 12:53 PM
To: Duty Seq
Cc: Rob Drury
Subject: RE: Lake MacDonald levels

I am trying to contact Veolia without success at present. Ross Paulger has good local knowledge and reckons that it may not be possible to access Lake Mac at present, I was hoping Veolia had an operator on site. Will advise when I know more.

Regards
Glenn

Glenn Patterson
Acting Operations Coordinator - Northern Region
QLD Bulk Water Supply Authority *trading as* Seqwater

Ph (0[redacted] | Fax[redacted] | M [redacted] | E [redacted]
PO Box 47 Imbil 4570 Q Australia
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Sunday, 9 January 2011 12:23 PM
To: Glenn Patterson
Subject: RE: Lake MacDonald levels

Glenn

If you can manage to get reading from LMD over the next few days as often as is reasonable and practical, it would be appreciated. Twice a day, morning and evening if possible. I think Carolyn plans to come up tomorrow but.....

Can we get Violia to take regular readings and email them?

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Glenn Patterson [mailto:gpatterson@[redacted]
Sent: Sunday, 9 January 2011 12:05 PM
To: Duty Seq
Cc: Rob Drury
Subject: Lake MacDonald levels

Hello
Lake MacDonald recorder is obviously not working at present. Do you require a manual reading from site? There may be issues in getting someone to the site given the current rainfall. Please advise.

Regards
Glenn

Glenn Patterson
Acting Operations Coordinator - Northern Region
QLD Bulk Water Supply Authority *trading as* Seqwater

Ph (07[redacted] Fax[redacted] | M [redacted] | E [redacted]
PO Box 47 Imbil 4570 Q Australia
Website | www.seqwater.com.au

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 2:49 PM
To: Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian [redacted] John Tibaldi [redacted] Terry Malone [redacted]
Cc: Rob Drury [redacted]
Subject: North Pine Directive #6
Attach: OPS_Directive_NorthPine #6.doc

Please attached Directive #6

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 09/01/2011 Time: 14:45 Directive No: 6

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 15:00 Sunday 09/01/2011.

An interval of 15 minutes is to be used between gate movements. The gates are to be opened in the following order:

- Gate A: Open to 1 increment at 15:00
- Gate D: Open to 1 increment at 15:15
- Gate B: Open to 1 increment at 15:30

Please also confirm by Fax once these gate operations are complete.

Regards

Terry Malone
Duty Engineer

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From: Dan Spiller [redacted]
Sent: Sunday, January 9, 2011 4:19 PM
To: Rob Drury [redacted]
Subject: Re: Technical Report W31

Rob,

Seems to have been a lot of rain in the catchments, and more heading for Bris Any changes to strategy?

Dan

On 09/01/2011, at 7:50 AM, "Rob Drury" <[redacted] wrote:

Would like to blame the computer system but purely operator error.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.

Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] Fax (07) [redacted] M [redacted] E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

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<Technical Situation Report W32.docx>

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From: Rob Drury <[redacted]
Sent: Sunday, January 9, 2011 4:29 PM
To: 'Daniel.Spiller[redacted]
Subject: Re: Technical Report W31

Not yet. Duty engineers meeting this afternoon to discuss strategies. Will advise if any change but you are right, we are getting big inflows. Rob

---

From: Dan Spiller [redacted]
To: Rob Drury
Sent: Sun Jan 09 16:19:14 2011
Subject: Re: Technical Report W31

Rob,

Seems to have been a lot of rain in the catchments, and more heading for Bris Any changes to strategy?

Dan

On 09/01/2011, at 7:50 AM, "Rob Drury" <rdrury@[redacted] wrote:

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>
> Rob

Robert Drury

Dam Operations Manager

Water Delivery

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PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.

Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

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Dam Operations Manager

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From: Dan Spiller [redacted]
Sent: Sunday, January 9, 2011 4:43 PM
To: Rob Drury <rdrury@[redacted]
Subject: Re: Technical Report W31

Thanks. Appreciate any advice, especially from BCC about city flooding. Anticipate we may get asked soon.

Dan

On 09/01/2011, at 4:28 PM, "Rob Drury" <rdrury[redacted] wrote:

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> >
> > Dam Operations Manager
> >
> > Water Delivery
> >
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> > Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
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From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 5:01 PM
To: Duty Seq [redacted]
Subject: Status

Terry,
When you guys have a strategy, can you include

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- Size of event

And I guess Lockyer, Bremer and impacts downstream in Brisbane, i.e. have we reduced impacts downstream already, our strategy for managing impacts, etc as we will be asked. And so we can show what we are doing.

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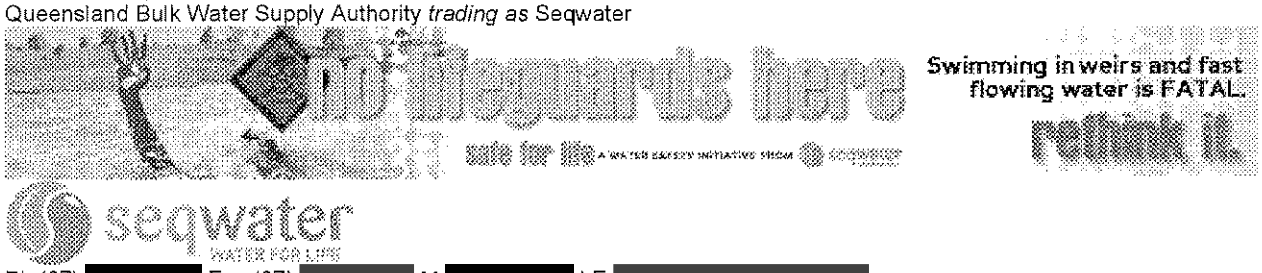
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto: [redacted]
Sent: Sunday, 9 January 2011 2:49 PM
To: Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; [redacted]au; John Tibaldi; [redacted]au; Terry Malone
Cc: Rob Drury
Subject: North Pine Directive #6

Please attached Directive #6

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]
Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 5:03 PM
To: Rob Drury <rdrury[redacted]
Subject: RE: Status

How are you off for socks and undies?

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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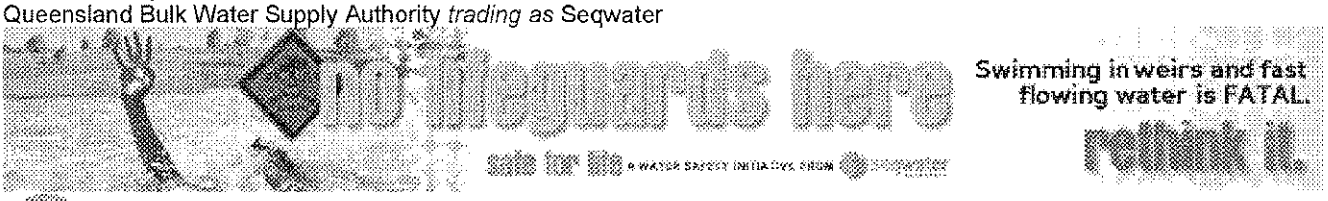

seqwater
WATER FOR LIFE

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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Tibaldi; Rob.ayre[redacted] Terry Malone
Cc: Rob Drury
Subject: North Pine Directive #6

Please attached Directive #6

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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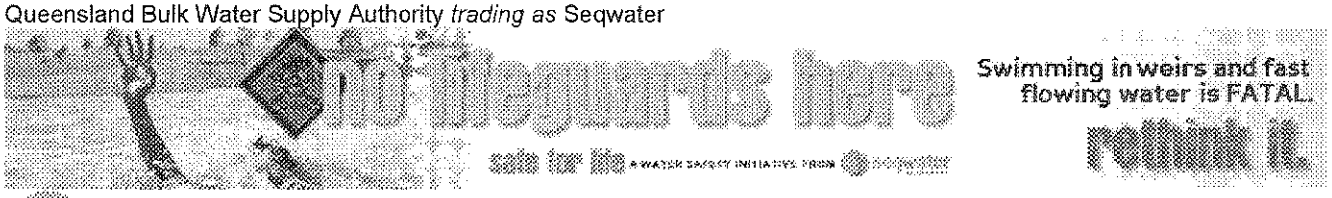
From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 5:04 PM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Status

I am a little short on dry clothes as it is still pouring at the beautiful SUNSHINE Coast.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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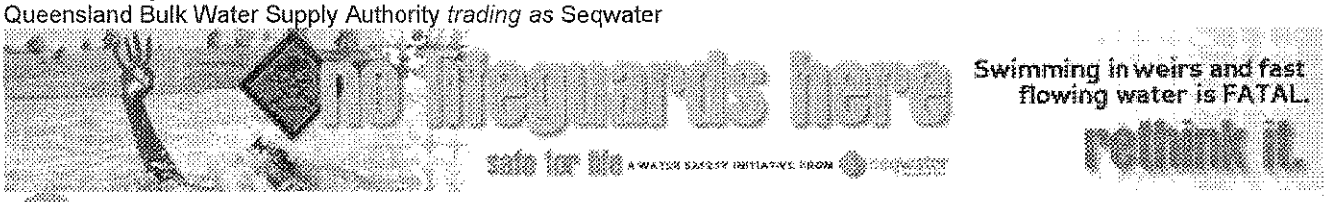

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Subject: North Pine Directive #6

Please attached Directive #6

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Sunday, January 9, 2011 5:51 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price [redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens [redacted] David Pokarier <david.pokarier@[redacted] John West [redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Peter Allen [redacted]

Subject: Situation Report 1700 Sunday 9/1/2011

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (60 mm); Somerset Dam (150 mm); Wivenhoe Dam (80 mm). The bulk of the rain that has fallen in the upper reaches of the Stanley and Brisbane Rivers.

The BOM rainfall forecast for the next few days is:-

Monday:	Very heavy rain periods with totals up to 300mm centred around North Pine.
Tuesday:	Rain periods with totals up to 150mm centred around North Pine.
Wednesday	A few showers less than 10mm
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.65 m AHD and rising at 1600. Following the rain in the 9 hours, the number of open gates has been increased from 2 to 5 which are expected to remain open for the next 12 hours. Youngs Crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 100.75 m AHD and rising quickly. Estimated peak inflow to the dam is about 3,000m3/s. Five sluice

gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 101.5 during early Tuesday morning.

Since the commencement of the event on 02/01/2011approximately 80,000ML has been released from the dam, with an event total of at least 320,000ML based on the recorded rainfall to date. The event total is expected to increase significantly due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Wednesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently rising again, with the current level being 68.70m AHD. Estimated peak inflow to the dam just from the Upper Brisbane R is about 5,000m3/s and, at this stage, the dam will reach at least 72.5 m AHD during Wednesday morning. River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River for the next 24 hours. This may mean temporarily reducing releases from Wivenhoe Dam as Lockyer flows increase. However, releases may have to be increased significantly during Monday depending on the rain in the next 12 to 24 hours. The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day).

Since the commencement of the event on 02/01/2011 approximately 210,000ML has been released from the dam, with an event total approaching 1,000,000ML (including Somerset outflow) based on the recorded rainfall to date. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Saturday 15th January 2011.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Saturday 15 January.

At this stage Fernvale and Mt Crosby Weir Bridge will not be affected for the next 24 hours but there is a strong possibility that, if the predicted rainfall totals eventuate in the next 12 to 24 hours, higher releases from Wivenhoe Dam will be necessary. This may adversely impact upon Fernvale and Mt Crosby Weir Bridges as early as Tuesday morning.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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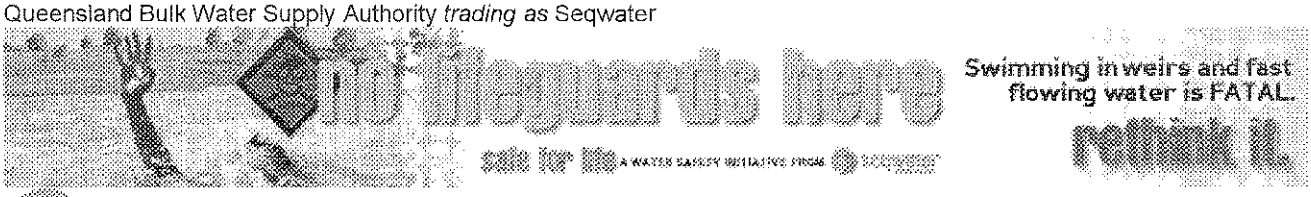
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 6:13 PM
To: 'Dan Spiller' [redacted]
Subject: RE: Technical Report W31

Will send an update in next hour or so.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto [redacted]
Sent: Sunday, 9 January 2011 4:43 PM
To: Rob Drury
Subject: Re: Technical Report W31

Thanks. Appreciate any advice, especially from BCC about city flooding. Anticipate we may get asked soon.

Dan

On 09/01/2011, at 4:28 PM, "Rob Drury" [redacted] wrote:

> Not yet. Duty engineers meeting this afternoon to discuss strategies. Will advise if any change but you are right, we are getting big inflows. Rob
>
> ---
>
> **From:** Dan Spiller [redacted]
> **To:** Rob Drury
> **Sent:** Sun Jan 09 16:19:14 2011
> **Subject:** Re: Technical Report W31
>
> Rob,
>
> Seems to have been a lot of rain in the catchments, and more heading for Bris Any changes to strategy?
>
> Dan
>
> On 09/01/2011, at 7:50 AM, "Rob Drury" <rdrury([redacted]> wrote:

Would like to blame the computer system but purely operator error.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.s[redacted]

From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.
Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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<Technical Situation Report W32.docx>

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 7:42 PM
To: Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian <rgorian@[redacted] John Tibaldi [redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject:
Attach: OPS_Directive_NorthPine #8.doc

Please find attached Directive #8

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]
Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 09/01/2011 Time: 19:30 Directive No: 8

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 19:30 Sunday 09/01/2011.

An interval of 15 minutes is to be used between gate movements. The gates are to be opened in the following order:

- Open Gate B to 2 increments 19:45
- Open Gate D to 2 increments at 20:00

Thereafter open gates according to the following level table:

Level	Gate A	Gate B	Gate C	Gate D	Gate E
39.835	2	2	3	2	2
39.850	2	2	3	2	3
39.865	3	2	3	2	3
39.880	3	2	3	3	3
39.895	3	3	3	3	3
39.910	3	3	4	3	3

Please also confirm by Fax once these gate operations are complete.

Regards

Terry Malone
Duty Engineer

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Sunday, January 9, 2011 8:56 PM
To: Rob Drury <rdrury@[redacted]
Subject: Update

Rob,

How are you tracking?

We are proposing to have a short teleconference tonight to start planning for impacts and communication. I also need to advise upwards.

Dan

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From: Duty Engineer [redacted]

Sent: Sunday, January 9, 2011 9:04 PM

To: David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll [redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous [redacted] Ken Morris [redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: Situation Report 2100 9/01/2011

Rainfall

Very heavy rainfall has been recorded in the upper reaches of the Brisbane and Stanley in the last 6 hours with totals up 100 to 140mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours, especially around the Bremer/Warrill catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 101.68 m AHD (about 500,000ML currently in storage) and rising quickly. Peak inflow to the dam is estimated to be about 4,000 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 early Tuesday morning which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 100,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This may increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 6,700m3/s and the river is still rising.

The dam level is rising again, with the current level being 69.10m AHD (1,410,000ML with about 300,00 of flood

storage). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 7,500m3/s and, at this stage, the dam will reach at least 73.0 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows is the lower Brisbane will be limited to 4,000m3/s. This is below the limit of urban damages in the City reaches.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased from noon Monday and the release is expected increase to at least 2,600m3/s during Tuesday morning.

Since the commencement of the event on 02/01/2011 approximately 220,000ML has been released from the dam, with an event total approaching 1,000,000ML without further rain and as much as 1,500,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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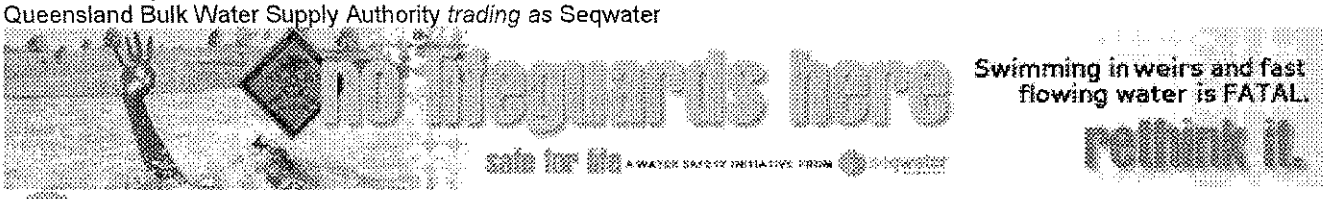
From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 9:18 PM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Cc: Peter Borrows [redacted] Stan Stevenson [redacted] Mike Foster [redacted] Paul Bird [redacted] David Roberts <droberts@[redacted] Arminda Roberts <aroberts@[redacted]
Subject: RE: Technical Report W34
Attach: Technical Situation Report W34.docx

See attached report W34.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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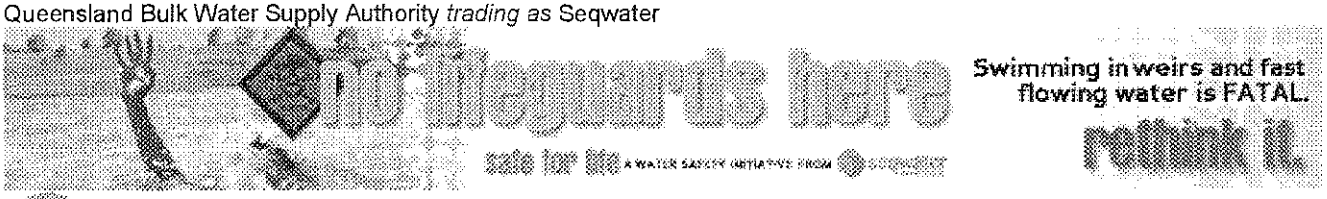

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Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
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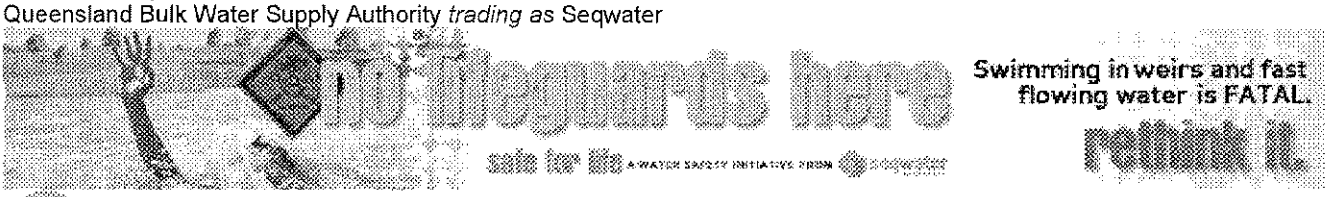
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W34	Date of TSR release	9.1.2011	Time of TSR release	9.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases however event is increasing in magnitude and will require increased releases.	
Strategy	• Continue the current releases until tomorrow noon when re4leases will be increased to impact Mt Crosby and Fernvale Bridges.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows may approach 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Very heavy rainfall has been recorded in the upper reaches of the Brisbane and Stanley in the last 6 hours with totals up 100 to 140mm. Totals for the last 24 hours range from 100 to 300mm.

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	10.1.2011	Time		or Event	Change in strategy

From: Dan Spiller [redacted]
Sent: Sunday, January 9, 2011 9:27 PM
To: Rob Drury <rdrury@[redacted] Barry Dennien [redacted] Michael Lyons [redacted] SEQWGM Media [redacted] Debbie Best ([redacted] Scott Denner [redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted]
Subject: FW: Technical Report W34
Attach: Technical Situation Report W34.docx; ATT02873.txt

Technical report below.

Teleconference at 9.30.

Details are:

Phone [redacted]
PIN: [redacted]

Regards,
Dan

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Sunday, January 09, 2011 9:18 PM
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Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
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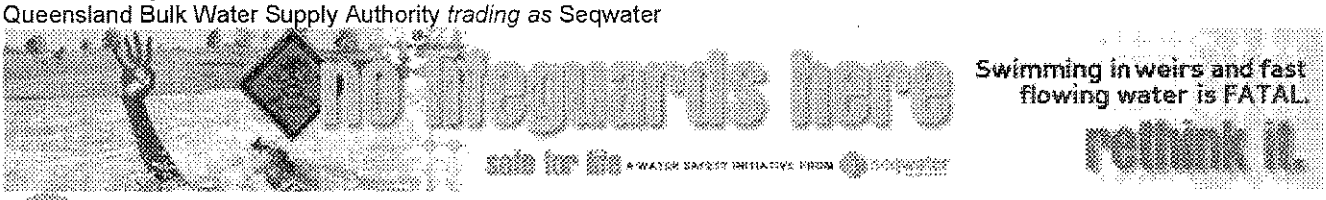

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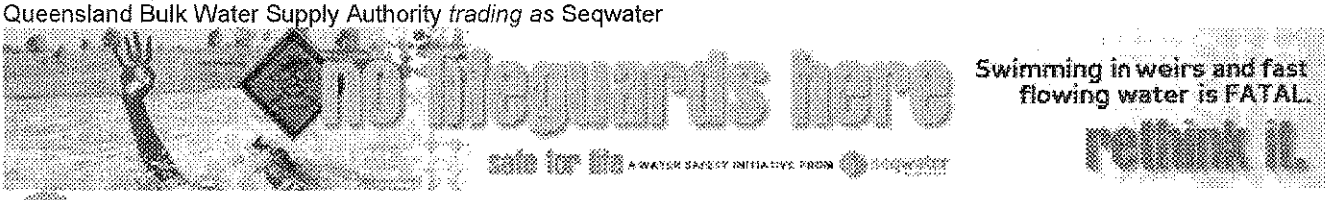
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



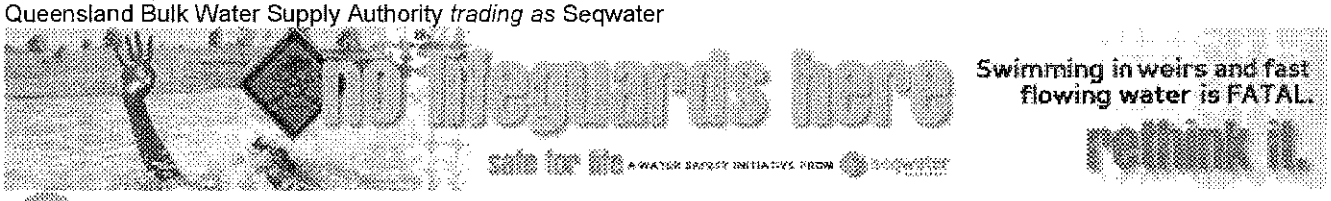
seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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TECHNICAL SITUATION REPORT

TSR Number	W34	Date of TSR release	9.1.2011	Time of TSR release	9.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases however event is increasing in magnitude and will require increased releases.	
Strategy	• Continue the current releases until tomorrow noon when re4leases will be increased to impact Mt Crosby and Fernvale Bridges.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows may approach 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Very heavy rainfall has been recorded in the upper reaches of the Brisbane and Stanley in the last 6 hours with totals up 100 to 140mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours, especially around the Bremer/Warrill catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 101.68 m AHD (about 500,000ML currently in storage) and rising quickly. Peak inflow to the dam is estimated to be about 4,000 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 early Tuesday morning which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 100,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This may increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 6,700m3/s and the river is still rising.

The dam level is rising again, with the current level being 69.10m AHD (1,410,000ML with about 300,00 of flood storage). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 7,500m3/s and, at this stage, the dam will reach at least 73.0 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows is the lower Brisbane will be limited to 4,000m3/s. This is below the limit of urban damages in the City reaches.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased from noon Monday and the release is expected increase to at least 2,600m3/s during Tuesday morning.

Since the commencement of the event on 02/01/2011 approximately 220,000ML has been released from the dam, with an event total approaching 1,000,000ML without further rain and as much as 1,500,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclane Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	10.1.2011	Time		or Event	Change in strategy

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Sunday, January 9, 2011 11:01 PM
To: Rob Drury <rdrury@[redacted]
Subject: Mt Crosby

Rob,

Got you message - thanks.

Can you please ensure that ICC is advised if the bridge is closed?

Dan

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From: Dan Spiller [redacted]
Sent: Sunday, January 9, 2011 11:07 PM
To: [redacted] Ken Smith ([redacted] Lance McCallum ([redacted] Tim Watts ([redacted] Geoff Stead ([redacted] Debbie Best ([redacted]
Cc: Rob Drury <rdrury@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] SEQWGM Media [redacted] Scott Denner [redacted] Damien Brown ([redacted]
Subject: Updated Wivenhoe Dam release strategy
Attach: Technical Situation Report W34.docx

All,

Latest advice from the Flood Control Centre attached.

There has been 100 to 300mm of rainfall in the Wivenhoe and Somerset dam catchments over the past 24 hours. Rainfall of similar magnitudes is expected over the next 12 to 24 hours.

At this time, including forecast rainfall, total inflows will exceed 1,000,000 ML and may approach 1,500,000 ML - in the order of the 1974 flood volume.

To date, the primary objective for this event has been managing to prevent inundation of the Mt Crosby Weir and Fernvale Bridges.

With the forecast volumes, this primary objective is being changed to minimizing the risk of urban inundation. This involves larger releases now, minimizing the risk of even larger releases later (were the flood compartment to reach high levels).

Urban inundation in the City reaches generally commences at total river flows of about 3,500 cubic metres per second (dam releases plus Lockyer and Bremer). At this time, and depending upon overnight rainfall, the Flood Control Centre is proposing to increase releases from around 1,200 to 2,500 cubic metres per second from midday tomorrow. This provides an allowance for other flows.

The Mt Crosby Weir and Fernvale bridges will certainly be inundated - isolating or inconveniencing many Brisbane Valley residents. The timing will depend largely on local flows, with the river having recently increased to be about one foot below the deck. Seqwater is preparing the bridge to be inundated, and may need to close it tonight. However, other flows permitting, we will delay inundating the bridge until tomorrow night - providing notice for impacted residents.

Actions to date:

- Notified Councils (up to the CEO level at BCC)
- Notified Police (Assistant Commissioner)
- Increasing treated water storage and preparing treatment plants, should there again be increased turbidity levels or other operational issues.

A media advice is being prepared now, for review and issue by 7am. The advice will address the closure of the bridges, with the intent of providing as much notice as possible to impacted residents (if not already closed). Impacts on the City reaches will be addressed following further consultation with Council (with there being a 20+ hour transit time).

It is important to note that the dams are managing impacts by delaying and reducing releases. For comparison, peak flows into the dam are forecast to reach up to 7,500 cubic metres per second - excluding any downstream flows.

Please call me on [redacted] if you require any further information.

Regards,
Daniel Spiller

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TECHNICAL SITUATION REPORT

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Rainfall

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A severe weather warning remains current for heavy rainfall in the dam catchment areas.

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Wivenhoe Dam (Full Supply Level 67.00 m AHD)

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	10.1.2011	Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Sunday, January 9, 2011 11:15 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Fw: Mt Crosby

Can you advise council if mt crosby goes put please? Rob

From: Dan Spiller [redacted]
To: Rob Drury
Sent: Sun Jan 09 23:00:48 2011
Subject: Mt Crosby

Rob,

Got you message - thanks.

Can you please ensure that ICC is advised if the bridge is closed?

Dan

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 9, 2011 11:31 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Mt Crosby

Rob

Tony Trace just advised that Mt Crosby Weir is now closed. This is due to local runoff from residual catchments and Lockyer Creek.

Also spoke to Doug Grigg about Fernvale Bridge – water up to centre line of approach and Esk Police on site. They are considering closing the road at Fernvale.

We are going to get the operators out of Fernvale and up to the dam so that they can be available for the next few days.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Sunday, 9 January 2011 11:15 PM
To: Duty Seq
Subject: Fw: Mt Crosby

Can you advise council if mt crosby goes put please? Rob

From: Dan Spiller [redacted]
To: Rob Drury
Sent: Sun Jan 09 23:00:48 2011
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From: Duty Engineer <dutyseq@[redacted]

Sent: Monday, January 10, 2011 1:14 AM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] Peter Allen <peter.allen[redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens[redacted] David Pokarier [redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan [redacted] Neville Ablitt [redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Rainfall

Very heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up 100 to 240mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.95 m and steady. Five gates are open releasing 445 m3/s. The inflow into the dam since the commencement of the event is 42,000 ML. Estimated event volume is 57,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 102.22 m AHD and rising quickly (storing 157,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 on Monday afternoon which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 115,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 7,350m3/s and the river has just peaked at 23:00 on Sunday 9 January.

The dam level is rising quickly, with the current level being 69.60m AHD (storing 301,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed or are in the process of being closed.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased during early Monday morning and the release is expected to increase to at least 2,600m3/s.

Since the commencement of the event on 02/01/2011 approximately 240,000ML has been released from the dam, with an event total approaching 1,500,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 1:28 AM
To: 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media@[redacted] 'debbie.[redacted] Scott.Denner@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Subject: Re: Technical Report W34

Since earlier discussions, further rain and local flooding have closed Mt Crosby and Fernvale bridges. Releases will now be ramped up overnight rather than tomorrow since these bridges are now closed and due to increasing inflows. Councils have been notified and are on site. Media messages in morning need to be adjusted accordingly. Rob

---

From: Dan Spiller <[redacted]
To: Rob Drury; Barry Dennien <Barry.Dennien@[redacted] Michael Lyons <[redacted] SEQWGM Media <media@[redacted] Debbie Best (debbie.best[redacted] <debbie.best@[redacted]au>; Scott Denner <Scott.Denner@[redacted] Paul Bird; Stan Stevenson
Sent: Sun Jan 09 21:27:23 2011
Subject: FW: Technical Report W34

Technical report below.

Teleconference at 9.30.

Details are:

Phone: [redacted]
PIN: [redacted]

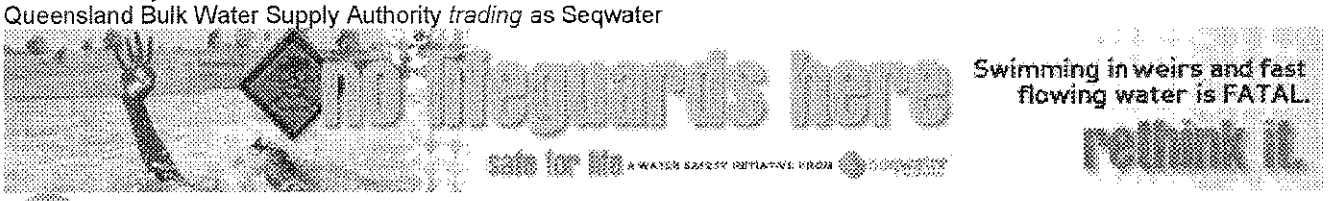
Regards,
Dan

From: Rob Drury [mailto:[redacted]
Sent: Sunday, January 09, 2011 9:18 PM
To: Rob Drury; Dan Spiller
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W34

See attached report W34.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



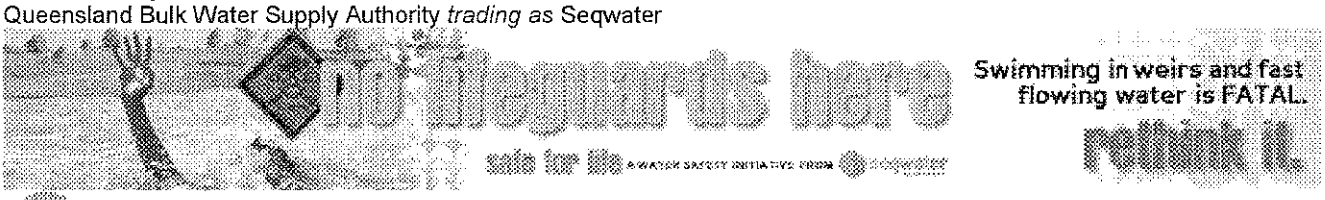
seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.
Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



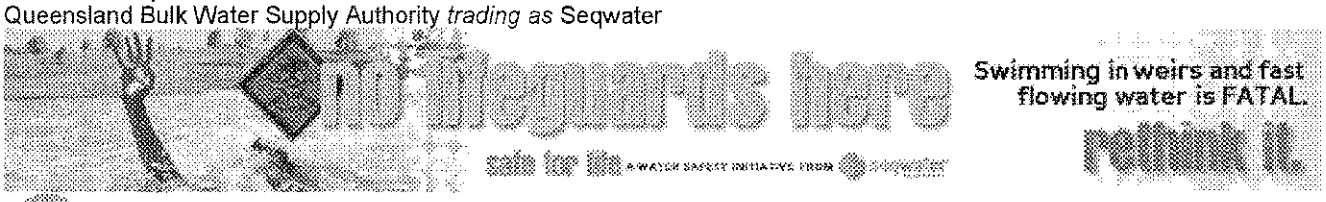
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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From: Barry Dennien [redacted]
Sent: Monday, January 10, 2011 1:28 AM
To: Rob Drury <rdrury@[redacted]
Subject: Out of Office: Technical Report W34

I am currently on leave. Please contact the Acting CEO Daniel Spiller on telephone [redacted] or mobile [redacted]

Regards
Barry Dennien

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From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 2:07 AM
To: Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Dam Directive # 8 at 02:00 on Monday 10 January 2011
Attach: OPS_Directive_Wivenhoe #8.doc

Please find attached Directive # 8 for your action.

Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 10/01/2011 Time: 02:00 Directive No: 08

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations at 02:00 on 10/01/2011

Open Gate	1	from	2.0	metres	To	2.5	metres	At 02:00
Open Gate	5	from	2.0	metres	To	2.5	metres	At 03:00
Open Gate	2	from	2.5	metres	To	3.0	metres	At 04:00
Open Gate	4	from	2.5	metres	To	3.0	metres	At 05:00
Open Gate	2	from	3.0	metres	To	3.5	metres	At 06:00

It is noted that the hydro will continuing releasing 13 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

John Ruffini
Duty Engineer

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Monday, January 10, 2011 5:31 AM
To: Dan Spiller <Daniel.Spiller@[redacted] 'stephen.[redacted] 'Ken Smith ([redacted] 'Lance McCallum ([redacted] 'Tim Watts (tim.[redacted] 'Geoff Stead (geoff.[redacted].au)'; 'lauren.[redacted] 'Debbie Best ([redacted] 'Martin.[redacted] 'Dunn.[redacted]
Cc: Rob Drury <rdrury@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] SEQWGM Media [redacted] Scott Denner <Scott.Denner@[redacted] '[redacted] 'Damien Brown ([redacted])'; 'bob.reilly[redacted]
Subject: RE: Updated Wivenhoe Dam release strategy

The Mt Crosby Weir and Fernvale Bridges were both inundated by other flows last night. Councils were advised and are on site.

Dam releases began to be increased overnight, brought forward because the bridges were already and with increasing inflows to storages.

We are preparing communications and technical information.

Regards,
Dan

From: Dan Spiller
Sent: Sunday, January 09, 2011 11:07 PM
To: stephen.[redacted] Ken Smith ([redacted] Lance McCallum ([redacted] Tim Watts ([redacted] Geoff Stead ([redacted] lauren.[redacted] Debbie Best ([redacted] Martin.[redacted] Dunn.[redacted]
Cc: 'Rob Drury'; pbird@[redacted] 'sstevenson@[redacted] SEQWGM Media; Scott Denner; Madgwick.[redacted] Damien Brown ([redacted] bob.reil[redacted]
Subject: Updated Wivenhoe Dam release strategy

All,

Latest advice from the Flood Control Centre attached.

There has been 100 to 300mm of rainfall in the Wivenhoe and Somerset dam catchments over the past 24 hours. Rainfall of similar magnitudes is expected over the next 12 to 24 hours.

At this time, including forecast rainfall, total inflows will exceed 1,000,000 ML and may approach 1,500,000 ML - in the order of the 1974 flood volume.

To date, the primary objective for this event has been managing to prevent inundation of the Mt Crosby Weir and Fernvale Bridges.

With the forecast volumes, this primary objective is being changed to minimizing the risk of urban inundation. This involves larger releases now, minimizing the risk of even larger releases later (were the flood compartment to reach high levels).

Urban inundation in the City reaches generally commences at total river flows of about 3,500 cubic metres per second (dam releases plus Lockyer and Bremer). At this time, and depending upon overnight rainfall, the Flood Control Centre is proposing to increase releases from around 1,200 to 2,500 cubic metres per second from midday tomorrow. This provides an allowance for other flows.

The Mt Crosby Weir and Fernvale bridges will certainly be inundated - isolating or inconveniencing many Brisbane Valley residents. The timing will depend largely on local flows, with the river having recently increased to be about one foot below the deck. Seqwater is preparing the bridge to be inundated, and may need to close it tonight. However, other flows permitting, we will delay inundating the bridge until tomorrow night - providing notice for impacted residents.

Actions to date:

- Notified Councils (up to the CEO level at BCC)
- Notified Police (Assistant Commissioner)
- Increasing treated water storage and preparing treatment plants, should there again be increased turbidity levels or other operational issues.

A media advice is being prepared now, for review and issue by 7am. The advice will address the closure of the bridges, with the intent of providing as much notice as possible to impacted residents (if not already closed). Impacts on the City reaches will be addressed following further consultation with Council (with there being a 20+ hour transit time).

It is important to note that the dams are managing impacts by delaying and reducing releases. For comparison, peak flows into the dam are forecast to reach up to 7,500 cubic metres per second - excluding any downstream flows.

Please call me on [redacted] if you require any further information.

Regards,
Daniel Spiller

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Monday, January 10, 2011 5:55 AM
To: Rob Drury <rdrury@[redacted]
Subject: Re: Technical Report W34

Thanks Rob.

We will need more details soon for media and stakeholders. I will be in the office in 5 minutes.

Dan

On 10/01/2011, at 1:27 AM, "Rob Drury" [redacted] wrote:

> Since earlier discussions, further rain and local flooding have closed Mt Crosby and Fernvale bridges. Releases will now be ramped up overnight rather than tomorrow since these bridges are now closed and due to increasing inflows. Councils have been notified and are on site. Media messages in morning need to be adjusted accordingly. Rob
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> ---
>
> **From:** Dan Spiller [redacted]
> **To:** Rob Drury; Barry Dennien [redacted] Michael Lyons [redacted] SEQWGM Media [redacted] Debbie Best ([redacted] Scott Denner [redacted] Paul Bird; Stan Stevenson
> **Sent:** Sun Jan 09 21:27:23 2011
> **Subject:** FW: Technical Report W34
>
> Technical report below.
>
> Teleconference at 9.30.
>
> Details are:
>
> Phone: [redacted]
>
> PIN: [redacted]
>
> Regards,
>
> Dan

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Sunday, January 09, 2011 9:18 PM
To: Rob Drury; Dan Spiller
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W34

See attached report W34.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

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Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

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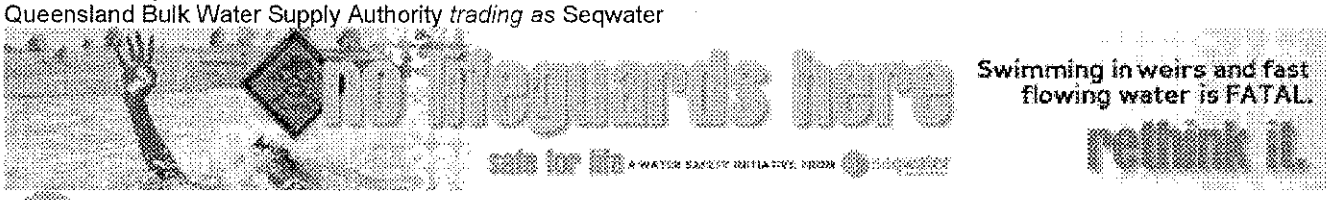
From: Rob Drury <[redacted]
Sent: Monday, January 10, 2011 6:14 AM
To: 'Dan Spiller' [redacted] Barry Dennien' [redacted]
Cc: Paul Bird [redacted] Peter Borrows <[redacted]
David Roberts <[redacted]
Subject: FW: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

See below FOC report as at 1am.
Will send a technical report in hour or so when I get an update off the FOC.

As at 6am this morning the levels are
Wivenhoe now 70.77m and 140.9% holding 1,641,685ML or 480,000Ml above FSL.
Somerset 150.9% and holding 573,067ML or 193,000ML above FSL.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 1:14 AM
To: David Roberts; [redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; Ken.Price@s[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: Andy Bickerton; Deb Chandler; Mailbox; Chris Lavin; Craig Logan; Don Carroll; Evan Caswell; James Charalambous; Ken Morris; Robert McGlinn; Santina Pennisi; Tony Trace
Subject: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Rainfall

Very heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up 100 to 240mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.95 m and steady. Five gates are open releasing 445 m3/s. The inflow into the dam since the commencement of the event is 42,000 ML. Estimated event volume is 57,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 102.22 m AHD and rising quickly (storing 157,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 on Monday afternoon which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 115,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 7,350m3/s and the river has just peaked at 23:00 on Sunday 9 January.

The dam level is rising quickly, with the current level being 69.60m AHD (storing 301,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed or are in the process of being closed.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased during early Monday morning and the release is expected to increase to at least 2,600m3/s.

Since the commencement of the event on 02/01/2011 approximately 240,000ML has been released from the dam, with an event total approaching 1,500,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 6:16 AM
To: Rob Drury <[redacted] 'Dan Spiller' [redacted]
'Barry Dennien' [redacted]
Cc: Peter Borrows <[redacted] David Roberts
<[redacted]
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Thanks Rob,

Woking on update now

Cheers

Paul

From: Rob Drury
Sent: Monday, 10 January 2011 06:14
To: 'Dan Spiller'; 'Barry Dennien'
Cc: Paul Bird; Peter Borrows; David Roberts
Subject: FW: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

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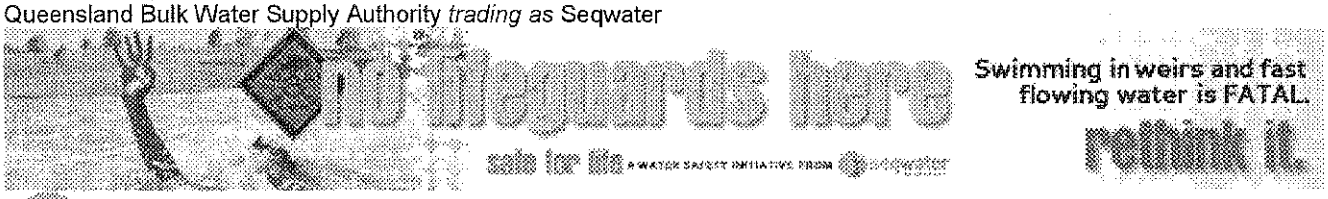
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 1:14 AM
To: David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Bierk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: Andy Bickerton; Deb Chandler; Mailbox; Chris Lavin; Craig Logan; Don Carroll; Evan Caswell; James Charalambous; Ken Morris; Robert McGlinn; Santina Pennisi; Tony Trace
Subject: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

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Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Sent: Monday, January 10, 2011 6:20 AM
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'Barry Dennien' <[redacted]>
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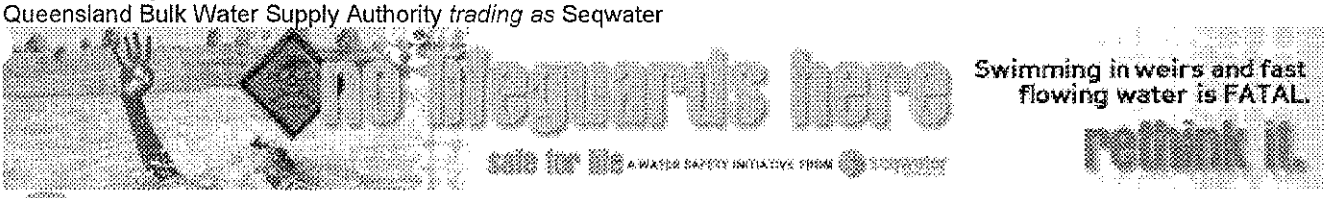

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Website | www.seqwater.com.au

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Cc: Peter Borrows; David Roberts
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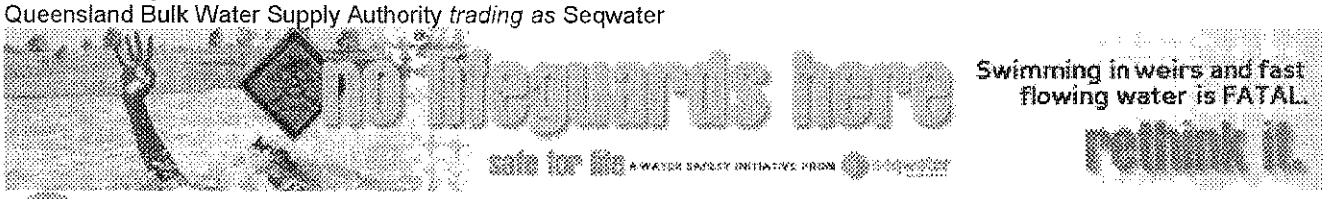

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Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 6:22 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Will we have an update on Leslie Harrison?

From: Rob Drury
Sent: Monday, 10 January 2011 06:20
To: Paul Bird; 'Dan Spiller'; 'Barry Dennien'
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

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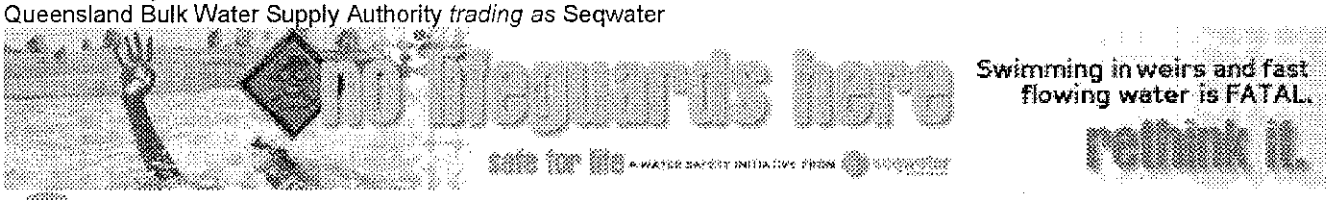

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Cc: Paul Bird; Peter Borrows; David Roberts

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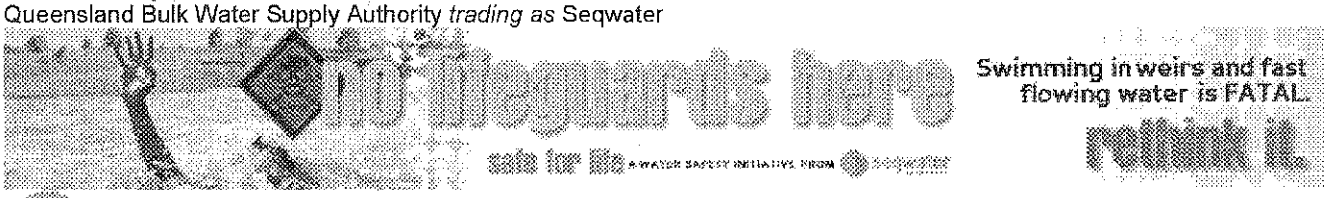

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Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 6:23 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' [redacted] 'Lavin, Chris'
[redacted]
Subject: RE: Update

The Flood Centre has kept you informed (and discussed with the BCC Flood Centre) of where we are at but below is a summary as at 1am this morning.

I will send off another Technical Report this morning so if you have any assessments or actions you are undertaking that you want included send them in.

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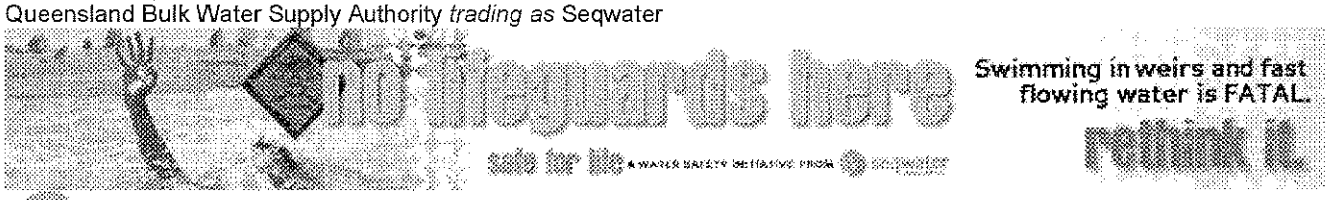

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 6:24 AM
To: Paul Bird <[redacted]
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Still operating and will for a while yet.

Robert Drury
Dam Operations Manager
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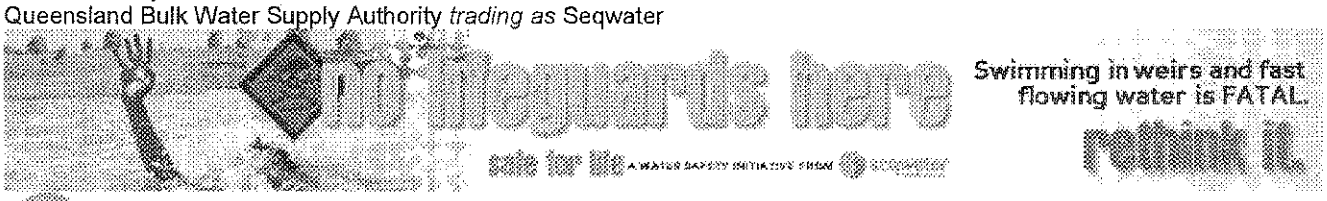

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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Monday, 10 January 2011 6:22 AM
To: Rob Drury
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

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Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

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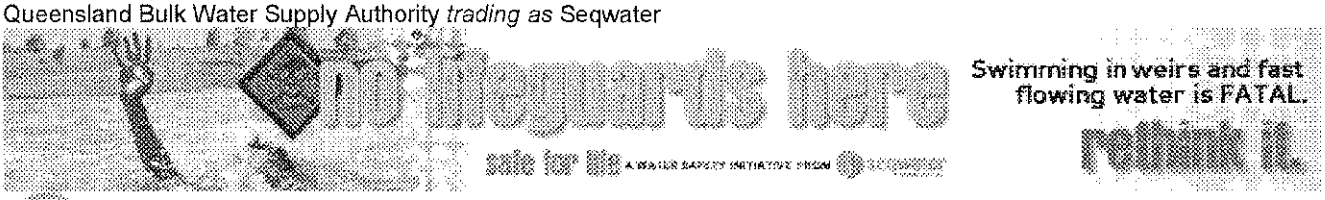
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Woking on update now

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Will send a technical report in hour or so when I get an update off the FOC.

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Wivenhoe now 70.77m and 140.9% holding 1,641,685ML or 480,000Ml above FSL.
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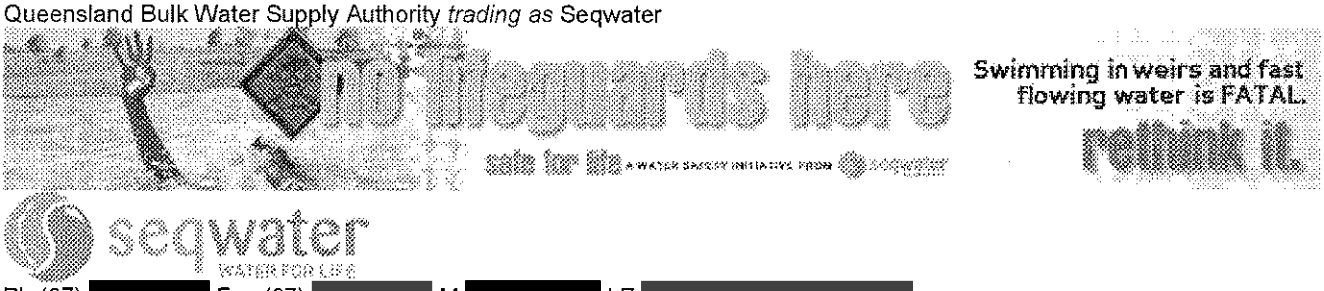

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From: Duty Engineer [mailto:dutyseq@[redacted]
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To: David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
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Rainfall

Very heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up 100 to 240mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.95 m and steady. Five gates are open releasing 445 m3/s. The inflow into the dam since the commencement of the event is 42,000 ML. Estimated event volume is 57,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 102.22 m AHD and rising quickly (storing 157,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 on Monday afternoon which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 115,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 7,350m3/s and the river has just peaked at 23:00 on Sunday 9 January.

The dam level is rising quickly, with the current level being 69.60m AHD (storing 301,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed or are in the process of being closed.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased during early Monday morning and the release is expected to increase to at least 2,600m3/s.

Since the commencement of the event on 02/01/2011 approximately 240,000ML has been released from the dam, with an event total approaching 1,500,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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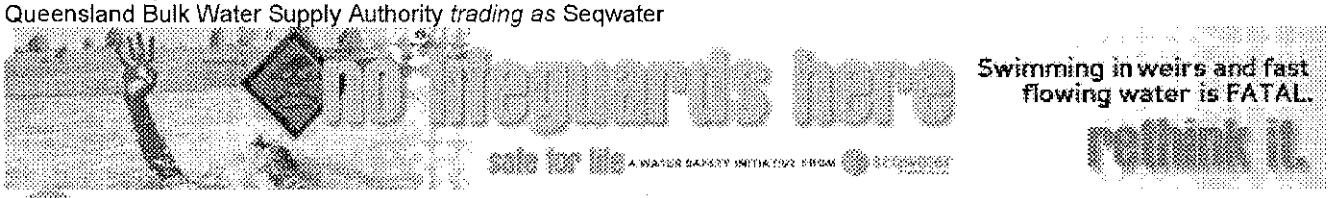
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 6:29 AM
To: Paul Bird [redacted] 'Dan Spiller' [redacted]
Subject: RE: FOC Situation Report at 01:00 hrs on Monday 10 January 2011

Paul,
Dan and Barry from WGM are doing some media stuff this morning.
We had a teleconference last night with DERM and WGM to discuss.

It would be good if you could get onto the PR group of WGM, Councils and us to see if we can get a consolidated response via Dan or WGM I'guess.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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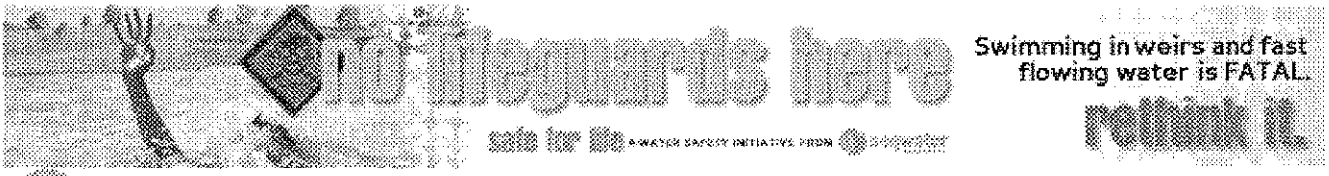

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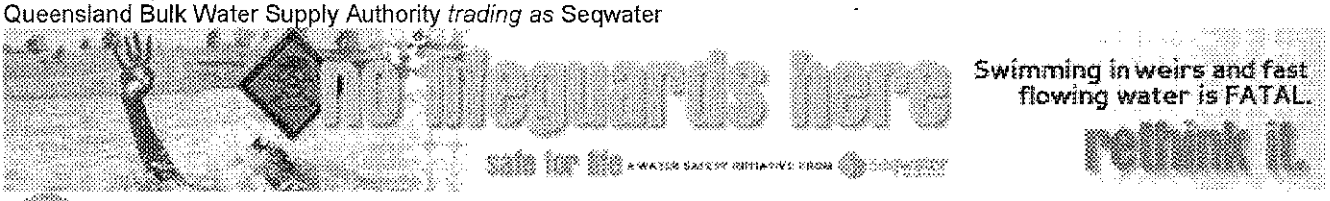

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Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@uqconnect.net>

Sent: Monday, January 10, 2011 6:30 AM

To: Ruffini [redacted] David Roberts <droberts@ [redacted] flood.qld@ [redacted] Mike Foster <mfoster@ [redacted] Paul Bird <pbird@ [redacted] Peter Allen [redacted] Rob Drury <rdrury@ [redacted] Rohan Thorogood <rthorogood@ [redacted] Ken.Price@ [redacted] kim.hang@ [redacted] Al Navaruk <Albert.Navruk@ [redacted] Bill Stephens <Bill.Stephens@ [redacted] David Pokarier <david.pokarier@ [redacted] John West <jwest@ [redacted] Louw Van Blerk <lvanblerk@ [redacted] Mark Tan <mtan@ [redacted] Neville Ablitt <nablitt@ [redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@ [redacted] Rob.ayre@ [redacted] Terry Malone <tmalone@ [redacted] Brett Schultz <bschultz@ [redacted] Glenn Patterson <gpatterson@ [redacted] Malcolm Lane <mlane@ [redacted] Murray Dunstan <mdunstan@ [redacted] Rob Gorian <rgorian@ [redacted] Agg Dagan <adagan@ [redacted] Doug Grigg <dgrigg@ [redacted] Graham Keegan <gkeegan@ [redacted] Graham Francis <gfrancis@ [redacted] Jayam Tennakoon <jtennakoon@ [redacted] Matthew O'Reilly <moreilly@ [redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@ [redacted] Chris Lavin [redacted] Craig Logan <Craig.Logan@ [redacted] Don Carroll <don.carroll@ [redacted] Evan Caswell <Evan. [redacted] .au>; James Charalambous <James.Charalambous@ [redacted] Ken Morris <Ken.Morris@ [redacted] Robert McGlinn <Robert.McGlinn@ [redacted] Santina Pennisi <Santina.Pennisi@ [redacted]

Subject: FOC Situation Report at 06:00 on Monday 10 January 2011

Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011approximately 142,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is 1,753m3/s (150,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours.

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 6:36 AM
To: Rob Drury [redacted]
Cc: Mike Foster <mfoster@[redacted]
Subject: Update for review

Rob,

For your review, please

As at 7.00 AM on Monday 10 January, the following applies:

SOMERSET DAM:
As a result of rainfall and inflows, water is being released into Wivenhoe through five sluice gates at about 95,000 megalitres per day and is likely to continue until Thursday 13 January. Areas around Kilcoy are likely to be impacted as a result of the rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Gate Releases of around 150,000 megalitres a day are underway and are likely to be increased to about 223,00 megalitres per day by late Monday 10 January.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated for several days.

If the predicted rainfall eventuates in the downstream catchments the resulting combined flows in the lower Brisbane River may impact in urban areas within the next 24 to 48 hours.

Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below the 1974 levels.

NORTH PINE DAM:
Five gates are open, releasing around 41,000 megalitres a day and will continue until at least Tuesday 11 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:

Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 1200 megaltires a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.

Lake Somerset
Lake Somerset is closed to water based recreation activities due to the high water levels and is expected to remain closed into next week, depending upon the conditions.

The following recreation sites are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

Other recreation areas at Lake Wivenhoe are open for land based recreation activities.
The Spillway Lookout recreation area is open; however visitors are advised that there may be long delays due to the numbers of people on site. Security staff and traffic controllers will be on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Borumba
Yabba Creek Road between Imbil and Borumba Dam is currently closed; meaning that access to the lake is not available and be closed for several days.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. The recreation areas at Lake Baroon are open for land based activities.

Lake Maroon
Lake Maroon remains closed to water skiing and swimming but is open to boating and fishing.

Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated during the afternoon of Monday 10 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

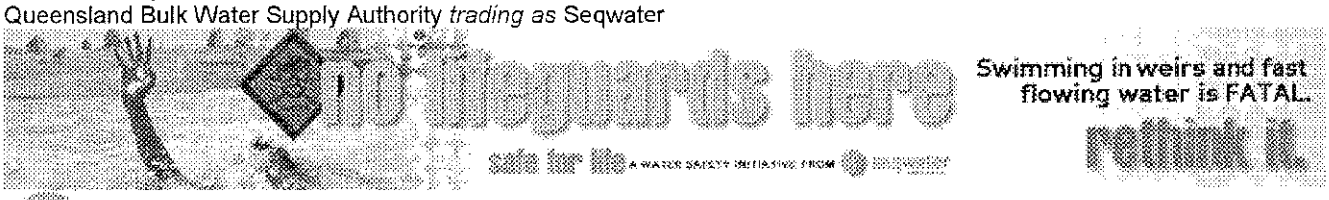
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 6:36 AM
To: Paul Bird <pbird@[redacted] 'Dan Spiller' [redacted]
Subject:

Two things

- Current release rate is 1,753m3/s (150,000ML/day) but ramping up
- Our Flood Centre has been keeping BCC flood centre informed which BCC mobilised. The only issue so far is that our manual has the threshold of damage to urban areas as around 4,000cumecs in the lower Brisbane River, they advised they think it is more like 3,500cumecs. We are aiming for the 4,000cumecs as per the approved manual so It would be good if we could still get a consolidated message out through all parties. Maybe advising flows of 3,500 to 4,000 cumecs which may cause some minor impacts downstream, of course this also depends on further rainfall in local areas. Of course if we need to go higher then the message would change.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 6:37 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #9
Attach: OPS_Directive_Wivenhoe #9.doc

Please find attached Wivenhoe Directive #9

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 10/01/2011 Time: 06:30 Directive No: 09

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations at 07:00 on 10/01/2011

Open Gate	4	from	3.0	metres	To	3.5	metres	At 07:00
Open Gate	1	from	2.5	metres	To	3.0	metres	At 08:00
Open Gate	5	from	2.5	metres	To	3.0	metres	At 09:00
Open Gate	2	from	3.5	metres	To	4.0	metres	At 10:00
Open Gate	4	from	3.5	metres	To	4.0	metres	At 11:00

It is noted that the hydro will continuing releasing 13 m^3/s. At the end of these operations the dam will be releasing around 2,180 m^3/s.

Please advise the Flood Operations Centre by fax once you have opened the radial gate to each of the required opening.

Terry Malone
Duty Engineer

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 6:38 AM
To: Rob Drury [redacted]
Subject: RE:

Rob,

Can you please advise on the accuracy of the following statement?

Significant rainfall received across catchments has lifted Wivenhoe Dam's level to above 140 per cent and Somerset Dam to above 150 per cent. Water is being held back to allow for heavy weather and runoff which has also occurred below the dam wall.

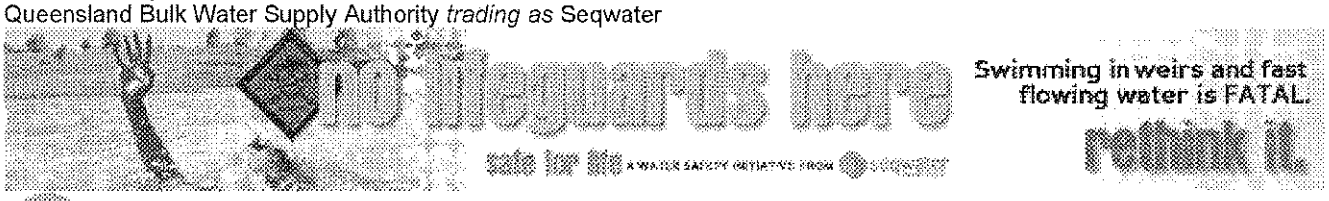
From: Rob Drury
Sent: Monday, 10 January 2011 06:36
To: Paul Bird; 'Dan Spiller'
Subject:

Two things

- Current release rate is 1,753m3/s (150,000ML/day) but ramping up
- Our Flood Centre has been keeping BCC flood centre informed which BCC mobilised. The only issue so far is that our manual has the threshold of damage to urban areas as around 4,000cumecs in the lower Brisbane River, they advised they think it is more like 3,500cumecs. We are aiming for the 4,000cumecs as per the approved manual so It would be good if we could still get a consolidated message out through all parties. Maybe advising flows of 3,500 to 4,000 cumecs which may cause some minor impacts downstream, of course this also depends on further rainfall in local areas. Of course if we need to go higher then the message would change.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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WATER FOR LIFE
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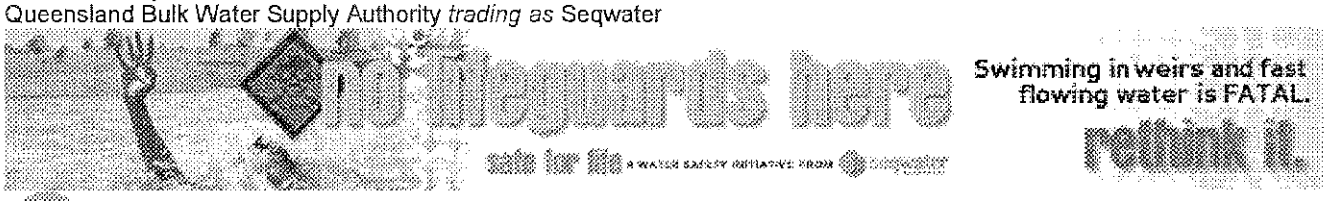
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 6:52 AM
To: Paul Bird <pbird@[redacted] Mike Foster <mfoster@[redacted]
Subject: FW: Update for review

Paul,
Took out the bit about impact on the Brisbane River as that is more Council area and would leave what we say to just our releases and impacts on bridges.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Monday, 10 January 2011 6:36 AM
To: Rob Drury
Cc: Mike Foster
Subject: Update for review

Rob,

For your review, please

As at 7.00 AM on Monday 10 January, the following applies:

SOMERSET DAM:
As a result of rainfall and inflows, water is being released into Wivenhoe through five sluice gates at about 95,000 megalitres per day and is likely to continue until Thursday 13 January. Areas around Kilcoy may be impacted as a result of the high rainfalls and rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Gate Releases of around 150,000 megalitres a day are underway and are likely to be increased to about 223,00 megalitres per day by late Monday 10 January.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated for several days.

NORTH PINE DAM:

Five gates are open, releasing around 41,000 megalitres a day and will continue until at least Tuesday 11 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:

Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 1200 megaltires a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Lake Wivenhoe
Lake Wivenhoe is currently closed to water based recreation activities, and is expected to remain closed for some days, due to the high water levels.

Lake Somerset
Lake Somerset is closed to water based recreation activities due to the high water levels and is expected to remain closed into next week, depending upon the conditions.

The following recreation sites are currently closed due to submerged infrastructure, or dangerous conditions –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

Other recreation areas at Lake Wivenhoe are open for land based recreation activities.
The Spillway Lookout recreation area is open; however visitors are advised that there may be long delays due to the numbers of people on site. Security staff and traffic controllers will be on site to assist with visitor management – all visitors must comply with the reasonable directions of security staff and traffic controllers.

Lake Borumba
Yabba Creek Road between Imbil and Borumba Dam is currently closed; meaning that access to the lake is not available and be closed for several days.

Lake Baroon
Lake Baroon has been closed to on-water recreation activities due to the current lake level. The recreation areas at Lake Baroon are open for land based activities.

Lake Maroon
Lake Maroon remains closed to water skiing and swimming but is open to boating and fishing.

Care should be taken at the recreation sites that are open, with the ground being totally saturated. Vehicles must be parked only in designated parking areas, and should not be driven onto grassed areas.

This information will be updated during the afternoon of Monday 10 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]au
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Subject: Dam release update and scenarios

Location: Teleconference

Start: 10/01/2011 8:00 AM

End: 10/01/2011 8:30 AM

Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Required Attendees: Rob Drury; Paul Bird; Stan Stevenson; Peter Borrows; Barry Dennien; Michael Lyons; Scott Denner

Resources: Teleconference

When: Monday, 10 January 2011 8:00 AM-8:30 AM (UTC+10:00) Brisbane.
Where: Teleconference

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*~*

Water Grid teleconference to discuss Wivenhoe Dam release strategy and agree related actions.

Issues include:

- Current strategy
- Potential scenarios
- Coordination with Councils
- Communications.

Details are:

Phon[redacted]
Pin: 7[redacted]

Alternatively, come to the Emergency Management Room at Level 15, 53 Albert Street.

We are likely to need other discussions later today with other entities.

Rob: In your hands as to whether any other people should be invited from Seqwater and Flood Control Centre.

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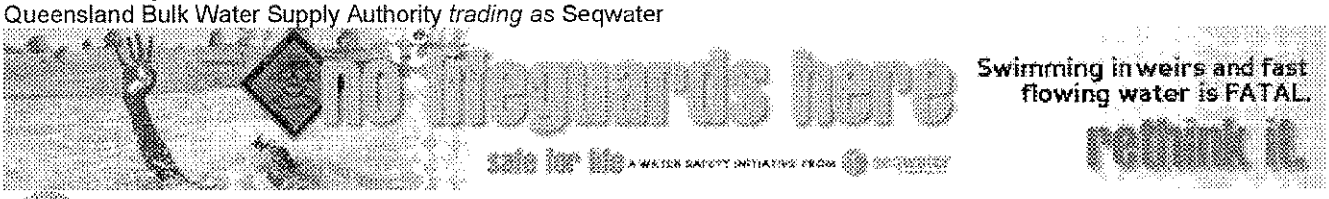
From: Rob Drury <rdrury[redacted]
Sent: Monday, January 10, 2011 7:37 AM
To: Duty Seq <dutyseq@[redacted] John Tibaldi [redacted] Terry Malone [redacted]
Subject: Status reports

Can you send through your status reports to Paul Bird as well please as he is Mike this week.

And I assume your next one is noon.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

Subject: Dam release update and scenarios

Location: Teleconference

Start: 10/01/2011 8:30 AM

End: 10/01/2011 9:00 AM

Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Required Attendees: Rob Drury; Paul Bird; Stan Stevenson; Peter Borrows; Barry Dennien; Michael Lyons; Scott Denner

Resources: Teleconference

When: Monday, 10 January 2011 8:30 AM-9:00 AM (UTC+10:00) Brisbane.
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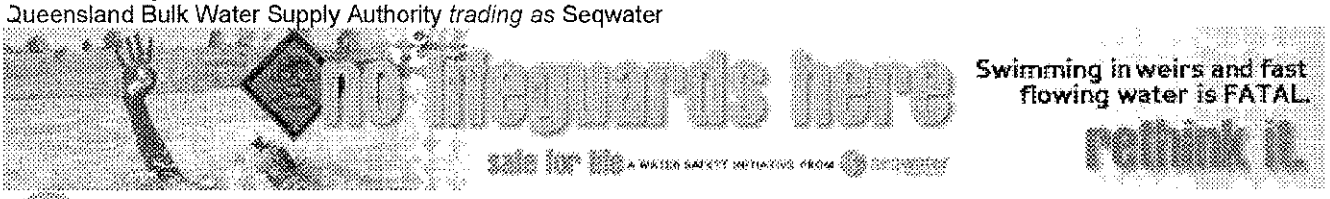
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 7:53 AM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted]
'Barry.Dennien[redacted] 'Michael.Lyons[redacted]
[redacted]; 'debbie.best[redacted]
'Scott.Denner@[redacted] Paul Bird <[redacted] Stan Stevenson
<sstevenson@[redacted] Peter Borrows <pborrows@[redacted]
'Peter.[redacted]
Subject: RE: Technical Report W35
Attach: Technical Situation Report W35.docx

Attached report W35.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W35	Date of TSR release	10.1.2011	Time of TSR release	7am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated .	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Very heavy rainfall has been recorded in the upper reaches of the Brisbane and Stanley in the last 6 hours with totals up 100 to 140mm. Totals for the last 24 hours range from 100 to 300mm.

Rainfall of similar magnitudes is expected in the 12 to 24 hours, especially around the Bremer/Warrill catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 101.68 m AHD (about 500,000ML currently in storage) and rising quickly. Peak inflow to the dam is estimated to be about 4,000 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 early Tuesday morning which will adversely impact areas around Kilcoy.

Since the commencement of the event on 02/01/2011approximately 100,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This may increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 6,700m3/s and the river is still rising.

The dam level is rising again, with the current level being 69.10m AHD (1,410,000ML with about 300,00 of flood storage). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 7,500m3/s and, at this stage, the dam will reach at least 73.0 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows is the lower Brisbane will be limited to 4,000m3/s. This is below the limit of urban damages in the City reaches.

The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased from noon Monday and the release is expected increase to at least 2,600m3/s during Tuesday morning.

Since the commencement of the event on 02/01/2011 approximately 220,000ML has been released from the dam, with an event total approaching 1,000,000ML without further rain and as much as 1,500,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

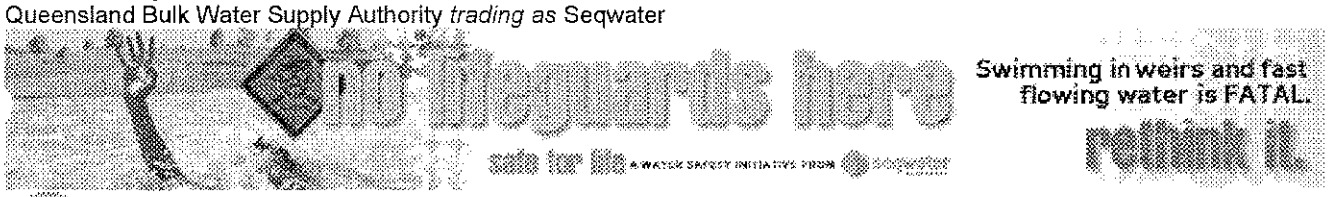
Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 8:06 AM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson [redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Subject: RE: Technical Report W36
Attach: Technical Situation Report W36.docx

Please disregard the previous report, it was based on older information, this is the latest update.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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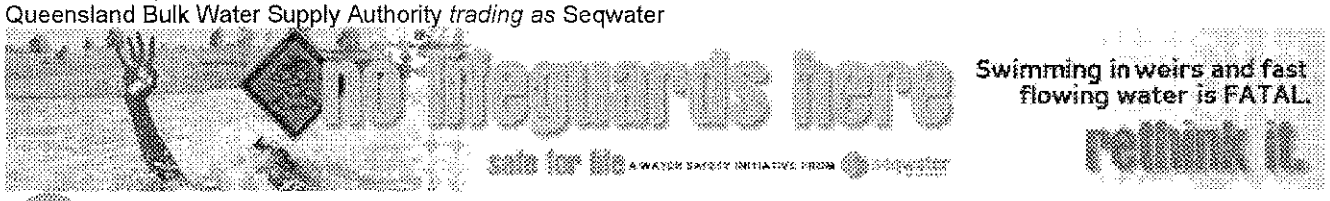
From: Rob Drury
Sent: Monday, 10 January 2011 7:53 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media[redacted] 'debbie.best[redacted]; 'Scott.Denner@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W35

Attached report W35.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated .	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011approximately 142,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is 1,753m3/s (150,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours.

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury

Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Dan Spiller [redacted]
Sent: Monday, January 10, 2011 8:08 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Technical Report W36

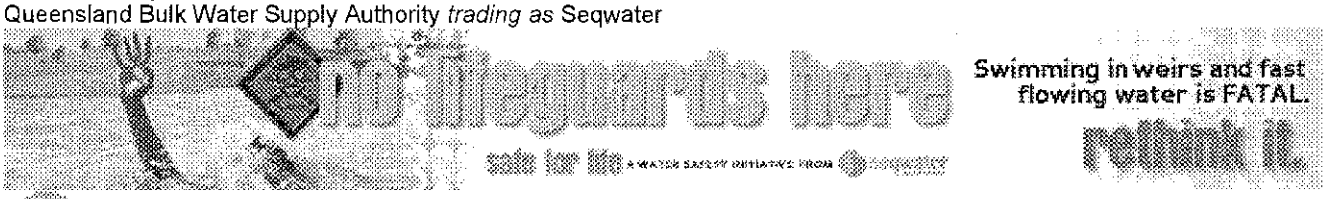
Ta. I was getting very confused.

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Monday, 10 January 2011 8:06 AM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; Peter.[redacted]
Subject: RE: Technical Report W36

Please disregard the previous report, it was based on older information, this is the latest update.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



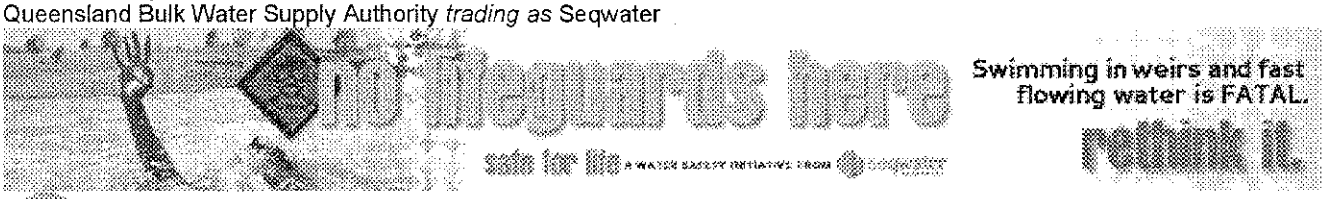
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Monday, 10 January 2011 7:53 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media@[redacted] 'debbie.best[redacted] 'Scott.Denner@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W35

Attached report W35.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.s[redacted]

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From: Dan Spiller [redacted]
Sent: Monday, January 10, 2011 8:13 AM
To: Rob Drury [redacted]
Subject: RE: Technical Report W36

Rob,

Are you now operating under release strategy W2 or W3?

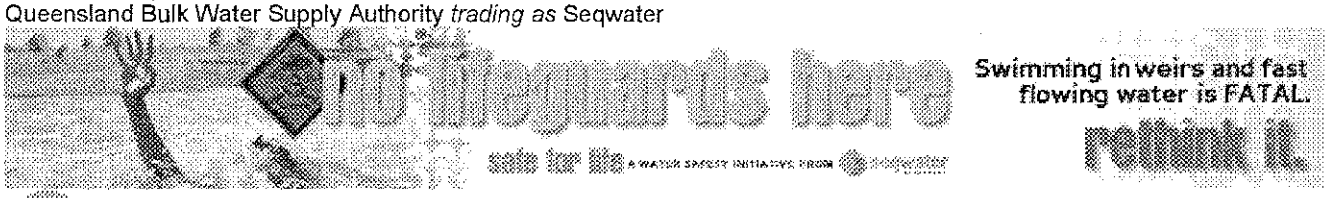
Dan

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Monday, 10 January 2011 8:06 AM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Subject: RE: Technical Report W36

Please disregard the previous report, it was based on older information, this is the latest update.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



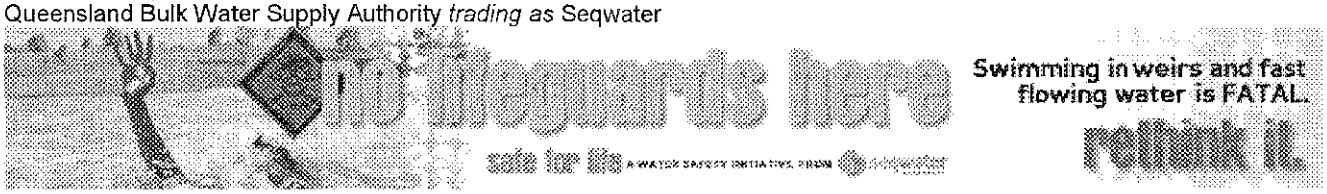
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Monday, 10 January 2011 7:53 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media@[redacted] 'debbie.best[redacted]; 'Scott.Denner@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W35

Attached report W35.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 8:23 AM
To: 'Daniel.Spiller@[redacted]
Subject: Re: Technical Report W36

W2

From: Dan Spiller [redacted]
To: Rob Drury
Sent: Mon Jan 10 08:13:29 2011
Subject: RE: Technical Report W36

Rob,

Are you now operating under release strategy W2 or W3?

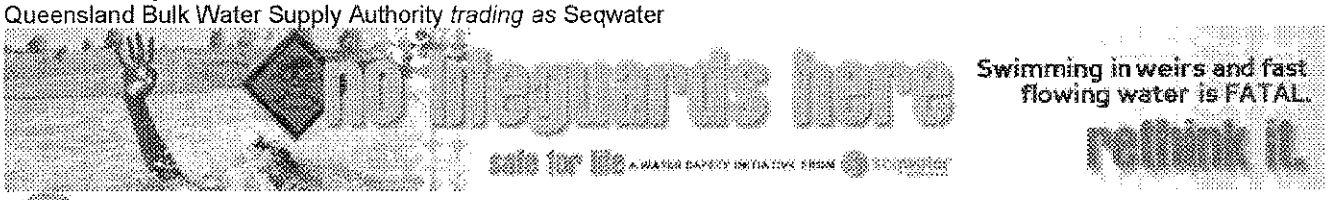
Dan

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Monday, 10 January 2011 8:06 AM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Subject: RE: Technical Report W36

Please disregard the previous report, it was based on older information, this is the latest update.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

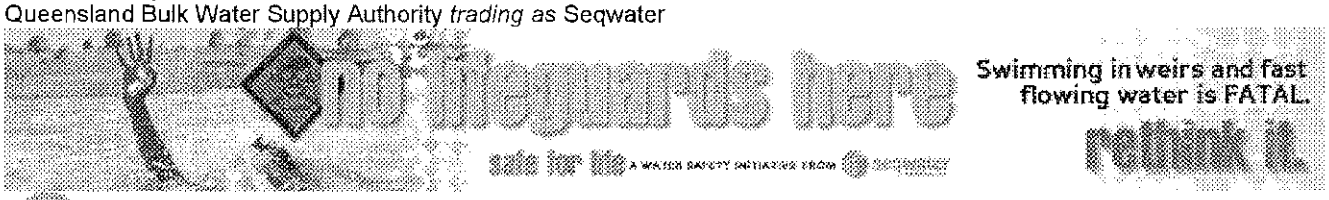
From: Rob Drury
Sent: Monday, 10 January 2011 7:53 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media@[redacted] 'debbie.best[redacted]'; 'Scott.Denner@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W35

Attached report W35.

Rob

Robert Drury

Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
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From: Paul Bird <pbird@[redacted]
Sent: Monday, January 10, 2011 9:29 AM
To: Rob Drury <rdrury@[redacted]
Cc: Peter Borrows <pborrows@[redacted]
Subject: Comms messages

Rob,

In terms of communications messages I think the key questions we will need to answer in terms of Wivenhoe are as follows:

If Wivenhoe Dam provides flood mitigation, why can't you hold water back for longer? i.e. store more water and release it longer so it doesn't push up the Brisbane river levels and cause flooding?

How much more water can Wivenhoe safely hold? And based on current inflows, how many days before Wivenhoe can't hold any more?

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

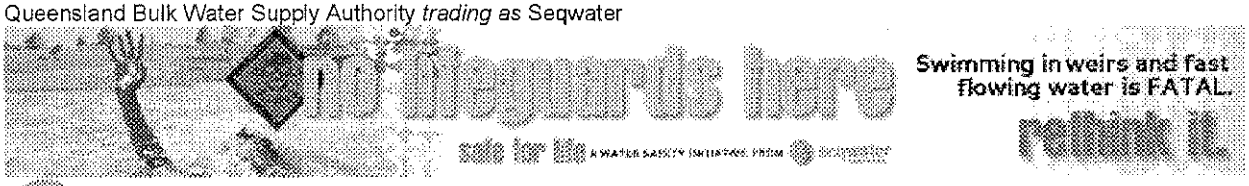
lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 9:37 AM
To: Duty Seq <dutyseq@[redacted] John Tibaldi [redacted] Terry Malone [redacted]
Subject: Notes

As discussed

- It is expected that we would require around 50 to 100mm of rain across our catchments to go beyond the 3500cumecs strategy however this depends on the spatial distribution, intensity and duration of the rainfall.
- The current intention of the FOC is to aim for a total flow of 3,500cumecs in the lower Brisbane River, to that end they are holding off ramping up for several hours today while flows downstream pass through the system. However there may be a need to go to 4,000cumecs or above if necessary.
- If there is a need to go beyond 3,500cumecs in the lower Brisbane we should be able to provide around 24 hours notice to BCC

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 6:37 AM
To: Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; John.Ruffin[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Cc: Rob Drury
Subject: Wivenhoe Directive #9

Please find attached Wivenhoe Directive #9

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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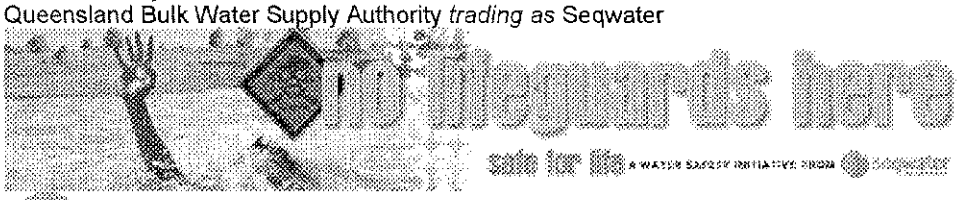
From: Rob Drury <rdrury@[redacted]
Sent: Monday, January 10, 2011 9:41 AM
To: Paul Bird <pbird@[redacted]
Cc: Peter Borrows [redacted]
Subject: RE: Comms messages

Paul,
I think we have covered the first in the need to return to FSL within around 7 days in case of further events, recent events have shown how quickly we can get large inflows with little warning.
As for the second it is not easy to answer, I think we stick to the flood storage volumes we have used however even this is a dynamic process of inflows and releases. As for number of days, again it all depends on inflows, downstream flows, etc.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Swimming in weirs and fast flowing water is FATAL.
think it.

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Monday, 10 January 2011 9:29 AM
To: Rob Drury
Cc: Peter Borrows
Subject: Comms messages

Rob,

In terms of communications messages I think the key questions we will need to answer in terms of Wivenhoe are as follows:

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Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Monday, January 10, 2011 9:46 AM
To: stephen.[redacted] ken.smith[redacted]
lance.[redacted] Tim.[redacted]
Geoff.[redacted] Lauren.[redacted] Best
Debbie [redacted] 'Martin.[redacted]
'Dunn.[redacted]
Cc: Rob Drury [redacted] Paul Bird [redacted]
SEQWGM Media [redacted] damien.brown[redacted]
Reilly Bob [redacted] Madgwick.[redacted]
Stan Stevenson [redacted]
Subject: Water Grid operations update
Attach: Technical Situation Report W36.docx

All,

Current situation report attached. We are distributing this version of the Technical Support Report to Councils and BoM now. We are seeking their formal input and endorsement by 1pm, prior to finalising and speaking publicly to our release strategy.

For dam operations, key points are:

- There is continuing heavy rainfall in catchments. Total inflows will be at least 1,500,000 ML and probably above 2,100,000 ML.
- As a result, Wivenhoe Dam is above 140% of capacity and Somerset is above 150%, with both rising fast.
- As specified in the approved Operational Procedures, the primary objective is now to minimizing the risk of urban inundation (release strategy W2). This involves larger releases now, minimizing the risk of even larger releases later (were the flood compartment to reach high levels).
- Consistent with this release strategy, dam releases have increased to 1,750 cubic metres per second (150,000 ML/day). It is expected to increase to 2,600 cubic metres per second by midday tomorrow.
- As specified in the approved Operational Manual, we are targeting maximum flow in the Brisbane River of 3,500 cumecs at Moggill. This is the levels above which urban inundation begins.
- For comparison, flows would be up to 12,000 cumecs without the dams.

For water treatment, key points are:

- Key facilities are operating and reservoir levels are high. Mt Crosby WTP is producing at 250 ML/day and desalination at one-third of capacity.
- There are a range of smaller plants that have been impacts, due to inundation of infrastructure, connections or stranding of operators. We are working through these issues and will advise if any become critical.

Please call me on [redacted] if you require any further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated .	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011approximately 142,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is 1,753m3/s (150,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours.

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury

Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 9:55 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Notes

- The current operational strategy is to aim for a flow of no greater than 3,500cumecs in the lower Brisbane River. Accordingly, the current outflow from Wivenhoe Dam will be held at its current level of 2000 cumecs for the next 12 to 24 hours to allow for potential high flows from the Lockyer, Bremer and local area catchments to pass downstream. However this strategy may need to be revised at short notice if further significant rainfall occurs.

- It would require in the order of 50mm of rain across the Brisbane River Basin (this includes the Brisbane, Stanley, Lockyer and Bremer catchments) to go beyond the current operational strategy, however this depends on the spatial distribution, intensity and duration of the rainfall. This amount of rain is possible under current BOM forecasts.

- If there is a need to go beyond 3,500cumecs in the lower Brisbane around 24 hours notice should be able to be provided to BOM and BCC.

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 6:37 AM
To: Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Cc: Rob Drury
Subject: Wivenhoe Directive #9

Please find attached Wivenhoe Directive #9

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <[redacted]
Sent: Monday, January 10, 2011 9:56 AM
To: Peter Borrows <pborrows@[redacted] Stan Stevenson <sstevenson@[redacted] Paul Bird <pbird@[redacted]
Subject: Answers to questions from teleconference

Peter, If you want to forward to the WGM. Apologies for delay but they were in discussions with Councils.

In response to the queries raised

- The current operational strategy is to aim for a flow of no greater than 3,500cumecs in the lower Brisbane River. Accordingly, the current outflow from Wivenhoe Dam will be held at its current level of 2000 cumecs for the next 12 to 24 hours to allow for potential high flows from the Lockyer, Bremer and local area catchments to pass downstream. However this strategy may need to be revised at short notice if further significant rainfall occurs.

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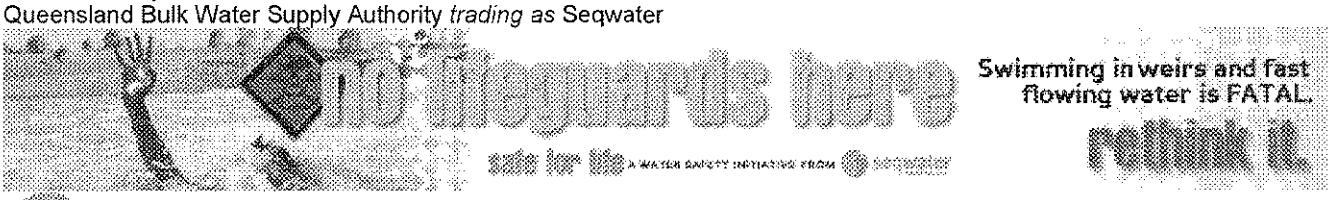
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



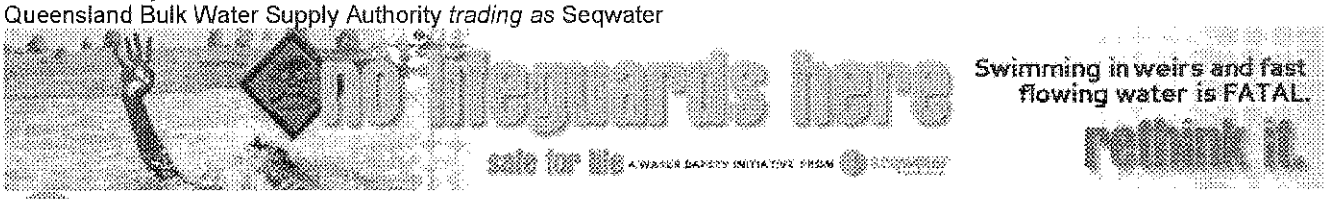
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury <[redacted]
Sent: Monday, January 10, 2011 9:57 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Notes

Thanks.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Cc: Rob Drury
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Please find attached Wivenhoe Directive #9

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller [redacted]
Sent: Monday, January 10, 2011 9:57 AM
To: Rob Drury [redacted] Peter Borrows <pborrows@[redacted]
Cc: Barry Dennien [redacted]
Subject: Technical Situation Report W36 (3)
Attach: Technical Situation Report W36 (3).docx

Rob and Peter,

I am about to send the TSR to Colin Jensen for BCC input. Before doing so, I have amended it based on my understanding of our conversation. Can you please confirm that the changes reflect your strategy?

Dan

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TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated .	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

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The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

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River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, combined flows in the lower Brisbane will be limited to 3,500m3/s if possible. Consistent with the approved Operating Procedures, these target combined flows may need to be increased to 4,000m3/s, and potentially higher. In either case, this is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is 1,753m3/s (150,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours.

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Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

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Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury

Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 10:02 AM
To: 'Daniel.Spiller@[redacted]' [redacted]
Subject: FW: Answers to questions from teleconference

Peter Borrows asked me to forward these on.

In response to the queries raised

- The current operational strategy is to aim for a flow of no greater than 3,500cumecs in the lower Brisbane River. Accordingly, the current outflow from Wivenhoe Dam will be held at its current level of 2000 cumecs for the next 12 to 24 hours to allow for potential high flows from the Lockyer, Bremer and local area catchments to pass downstream. However this strategy may need to be revised at short notice if further significant rainfall occurs.

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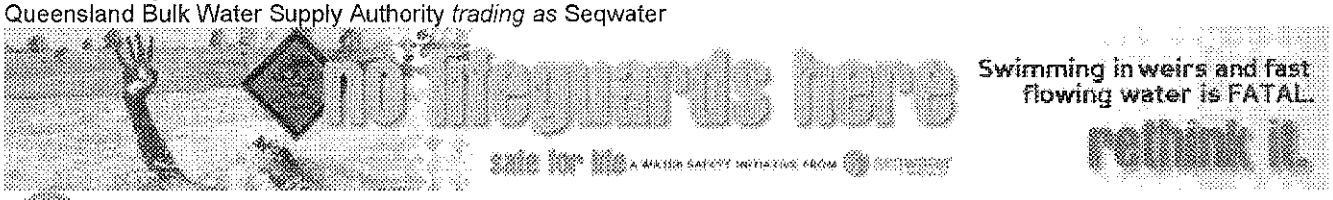
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



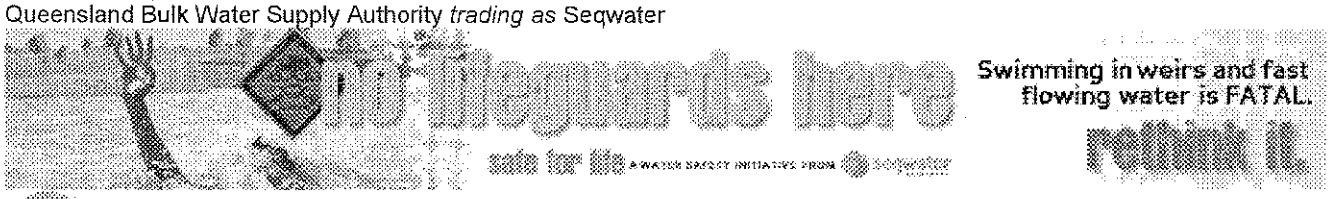
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 10:05 AM
To: 'Daniel.Spiller[redacted]'; Peter Borrows [redacted]
Subject: FW: Technical Situation Report W36 (3)
Attach: Technical Situation Report W36 (3).docx

Dan,
Some slight changes based on what I sent in response to the questions and updating the release rates as now.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Sent: Monday, 10 January 2011 9:57 AM
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Cc: Barry Dennien
Subject: Technical Situation Report W36 (3)

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TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am

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Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is around 2,000m3/s (172,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours and further depending on downstream flows..

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury

Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas ond depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted locol inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

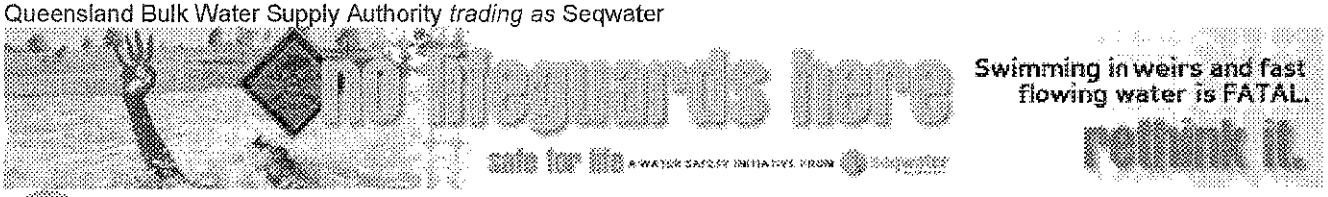
Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Rob Drury <rdrury@[redacted]
Sent: Monday, January 10, 2011 10:05 AM
To: 'Daniel.Spiller@[redacted] Peter Borrows <pborrows@[redacted]
Subject: FW: Technical Situation Report W36 (3)
Attach: Technical Situation Report W36 (3).docx

Dan,
Some slight changes based on what I sent in response to the questions and updating the release rates as now.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]au
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto:[redacted]
Sent: Monday, 10 January 2011 9:57 AM
To: Rob Drury; Peter Borrows
Cc: Barry Dennien
Subject: Technical Situation Report W36 (3)

Rob and Peter,

I am about to send the TSR to Colin Jensen for BCC input. Before doing so, I have amended it based on my understanding of our conversation. Can you please confirm that the changes reflect your strategy?

Dan

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TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change based an inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated .	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011approximately 142,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, the aim is to keep combined flows in the lower Brisbane to 3,500cumecs if possible. Consistent with the approved Operating Procedures, these target combined flows may need to be increased to 4,000m3/s, and potentially higher. In either case, this is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is around 2,000m3/s (172,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours and further depending on downstream flows..

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury

Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 10:11 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Notes

Rob

We've just down a run with 50mm in the Lockyer and 100mm in the Bremer in the next 12 hours.

LOCATION	Time of Peak	Peak Discharge cumecs
WD_OUTFLOW	Tue Jan 11 2011 09:00	2738.00
SAVAGES_XING	Tue Jan 11 2011 20:00	3387.02
MT_CROSBY_WEIR	Wed Jan 12 2011 05:00	3411.42
IPSWICH	Tue Jan 11 2011 14:00	1376.35
MOGGILL	Tue Jan 11 2011 17:00	4513.22
JINDALEE	Tue Jan 11 2011 21:00	4524.74
BRISBANE	Wed Jan 12 2011 02:00	4520.97

This utilizes our current release strategy. The inflow from the Bremer cause the big increase in the lower Brisbane

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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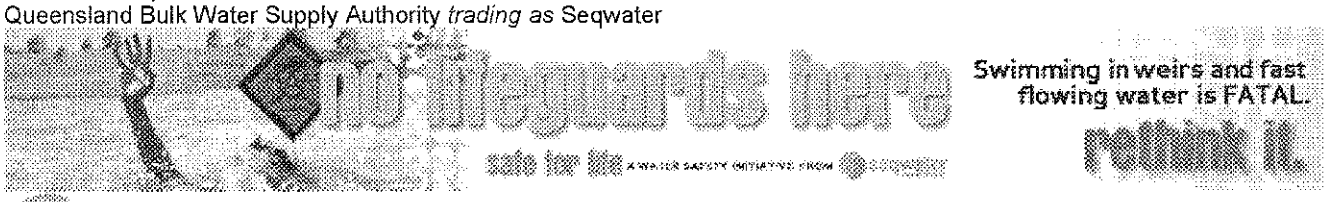
From: Rob Drury [mailto:rdrury@[redacted]
Sent: Monday, 10 January 2011 9:57 AM
To: Duty Seq
Subject: RE: Notes

Thanks.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 9:55 AM
To: Rob Drury
Subject: RE: Notes

- The current operational strategy is to aim for a flow of no greater than 3,500cumecs in the lower Brisbane River. Accordingly, the current outflow from Wivenhoe Dam will be held at its current level of 2000 cumecs for the next 12 to 24 hours to allow for potential high flows from the Lockyer, Bremer and local area catchments to pass downstream. However this strategy may need to be revised at short notice if further significant rainfall occurs.
- It would require in the order of 50mm of rain across the Brisbane River Basin (this includes the Brisbane, Stanley, Lockyer and Bremer catchments) to go beyond the current operational strategy, however this depends on the spatial distribution, intensity and duration of the rainfall. This amount of rain is possible under current BOM forecasts.
- If there is a need to go beyond 3,500cumecs in the lower Brisbane around 24 hours notice should be able to be provided to BOM and BCC.

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 6:37 AM
To: Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Cc: Rob Drury
Subject: Wivenhoe Directive #9

Please find attached Wivenhoe Directive #9

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Monday, January 10, 2011 11:10 AM
To: Rob Drury <rdrury@[redacted] Paul Bird <pbird@[redacted]
Subject: FW: contact details for BCC re water effects

Guys,

Can you please provide Greg the details of the people that you have been speaking to in BCC?

Thanks,
Dan

From: Matthies.[redacted] [mailto:Matthies[redacted]
Sent: Monday, January 10, 2011 10:54 AM
To: Dan Spiller
Subject: contact details for BCC re water effects

Dan

As per our conversation my email is attached and any further info will be great

Regards Greg Matthies

****
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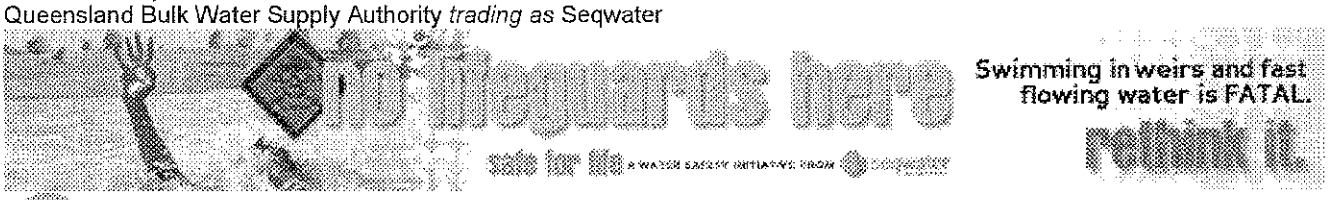
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:28 AM
To: 'Lavin, Chris' <Chris.Lavin@[redacted]
Subject: FW: contact details for BCC re water effects

Chris,
Didn't want to send without asking so if you are okay can you advise Greg of the Police as below any contact details you feel are right.

Thanks
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto[redacted]
Sent: Monday, 10 January 2011 11:10 AM
To: Rob Drury; Paul Bird
Subject: FW: contact details for BCC re water effects

Guys,

Can you please provide Greg the details of the people that you have been speaking to in BCC?

Thanks,
Dan

From: Matthies,[redacted] [mailto:Matthies[redacted]
Sent: Monday, January 10, 2011 10:54 AM
To: Dan Spiller
Subject: contact details for BCC re water effects

Dan

As per our conversation my email is attached and any further info will be great

Regards Greg Matthies

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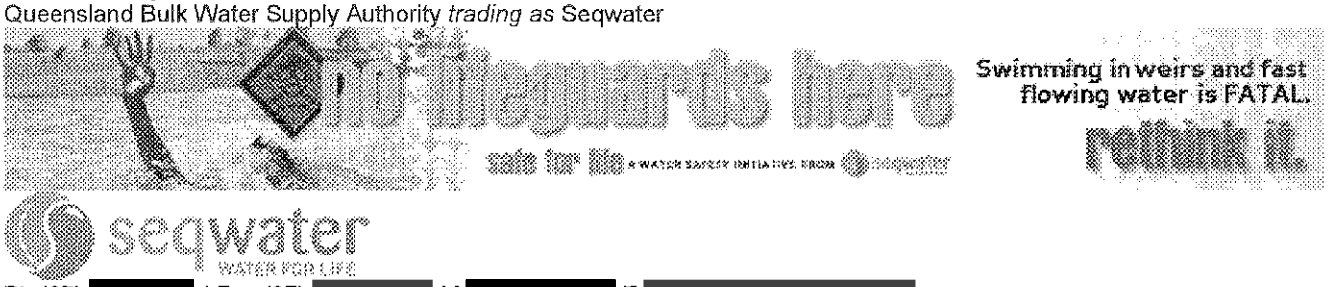
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:29 AM
To: 'Dan Spiller' [redacted] Paul Bird [redacted]
Subject: RE: contact details for BCC re water effects

Sent email to Chris Lavin of BCC for him to advise Police direct just to make sure he is okay with providing details and that they are the right people.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E [redacted]
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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Subject: FW: contact details for BCC re water effects

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Thanks,
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From: Matthies.[redacted] [mailto:Matthies [redacted]
Sent: Monday, January 10, 2011 10:54 AM
To: Dan Spiller
Subject: contact details for BCC re water effects

Dan

As per our conversation my email is attached and any further info will be great

Regards Greg Matthies

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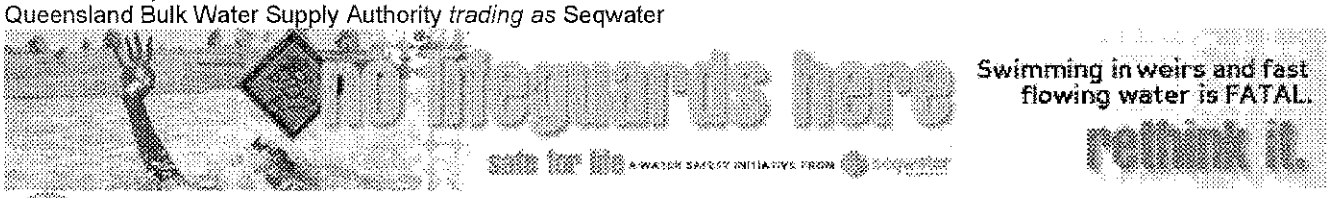
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:34 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Wivenhoe Dam Directive # 8 at 02:00 on Monday 10 January 2011

Can you give me some info on what the flows occurred in the Brisbane River downstream at Moggill during 1974. And maybe what was the Brisbane River contribution .

Just in your spare time.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 2:07 AM
To: Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi; Rob Drury; Rob.ayre[redacted]au; Terry Malone
Subject: Wivenhoe Dam Directive # 8 at 02:00 on Monday 10 January 2011

Please find attached Directive # 8 for your action.

Regards

John Ruffini

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 11:34 AM
To: Rob Drury <rdrury@[redacted]
Subject: Water height

Rob

Had a message from Bryan from a power company re high voltage lines at Colleges Crossing

He wants to know expected water height. His number is 3866 1378

Could someone call him please

Cheers.

Paul

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:38 AM
To: Duty Seq [redacted]
Cc: Terry Malone [redacted]
Subject: FW: Water height

Can we give him an estimate if we get to 3,500cumecs???
I can ring him back.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

-----Original Message-----
From: Paul Bird
Sent: Monday, 10 January 2011 11:34 AM
To: Rob Drury
Subject: Water height

Rob

Had a message from Bryan from a power company re high voltage lines at Colleges Crossing

He wants to know expected water height. His number is [redacted]

Could someone call him please

Cheers.

Paul

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 11:45 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Water height

Needs to ring Ipswich CC as we do not have that information.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:[redacted]]
Sent: Monday, 10 January 2011 11:38 AM
To: Duty Seq
Cc: Terry Malone
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Robert Drury
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

-----Original Message-----
From: Paul Bird
Sent: Monday, 10 January 2011 11:34 AM
To: Rob Drury
Subject: Water height

Rob

Had a message from Bryan from a power company re high voltage lines at Colleges Crossing

He wants to know expected water height. His number is 3866 1378

Could someone call him please

Cheers.

Paul

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----------Safe Stamp----------
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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:46 AM
To: Paul Bird <pbird@[redacted]
Subject: Fw: Water height

See below, ICC canm help.

----- Original Message -----
From: Duty Engineer <dutyseq@[redacted]
To: Rob Drury
Sent: Mon Jan 10 11:44:32 2011
Subject: RE: Water height

Needs to ring Ipswich CC as we do not have that information.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Sent: Monday, 10 January 2011 11:38 AM
To: Duty Seq
Cc: Terry Malone
Subject: FW: Water height

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I can ring him back.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] Fax (07) [redacted] | E
rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 11:47 AM
To: Rob Drury [redacted]
Subject: RE: Water height

Thanks,

Is there a contact number for Ipswich Council?

-----Original Message-----
From: Rob Drury
Sent: Monday, 10 January 2011 11:46
To: Paul Bird
Subject: Fw: Water height

See below, ICC canm help.

----- Original Message -----
From: Duty Engineer <dutyseq@[redacted]
To: Rob Drury
Sent: Mon Jan 10 11:44:32 2011
Subject: RE: Water height

Needs to ring Ipswich CC as we do not have that information.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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To: Duty Seq
Cc: Terry Malone
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Robert Drury

Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] Fax (07) [redacted] | E
rdrury[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
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Website | www.seqwater.com.au

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 11:49 AM
To: Paul Bird <pbird@[redacted]
Subject: Re: Water height

Tell them to try Tony Trace. He will probably say ring us but he may be able to help

----- Original Message -----
From: Paul Bird
To: Rob Drury
Sent: Mon Jan 10 11:47:05 2011
Subject: RE: Water height

Thanks,

Is there a contact number for Ipswich Council?

----Original Message-----
From: Rob Drury
Sent: Monday, 10 January 2011 11:46
To: Paul Bird
Subject: Fw: Water height

See below, ICC canm help.

----- Original Message -----
From: Duty Engineer <dutyseq@[redacted]
To: Rob Drury
Sent: Mon Jan 10 11:44:32 2011
Subject: RE: Water height

Needs to ring Ipswich CC as we do not have that information.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E
[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www [redacted]

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From: Paul Bird <[redacted]>
Sent: Monday, January 10, 2011 12:07 PM
To: Rob Drury <rdrury@[redacted]
Cc: Duty Seq <dutyseq@[redacted] Terry Malone [redacted]
Subject: Wivenhoe volume

Rob / Terry,

Media question via Grid.. when (if ever) was Wivenhoe last at 140% or higher? If this is a new high level, what was the previous figure (was that 1305%+ in 1999?)

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

no lifeguards here
Swimming in weirs and fast flowing water is FATAL.
think it.

From: Duty Engineer <dutyseq@[redacted]

Sent: Monday, January 10, 2011 12:16 PM

To: [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Peter Borrows <pborrows@[redacted]

Subject: FOC Situation Report at 12:00 on Monday 10 January 2011

Rainfall

Rainfall has continued in the dam catchments over the last 6 hours, with approximate catchment averages as follows: North Pine (30mm); Wivenhoe Dam (20mm); Somerset Dam (40mm). A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 40.00m AHD and relatively steady (storing 9,000ML above FSL). Five gates are open and releasing 500 m3/s. The inflow into the dam since the commencement of the event is 63,000 ML. Estimated event volume is 77,000 ML assuming no further rainfall. Gate operations will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.11m AHD and rising (storing 210,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000ML/day) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011approximately 182,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday 13 January 2011.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 71.95m AHD and rising quickly (storing 610,000 ML above FSL). Peak inflow to the dam is estimated to be about 8,800m3/s. Five radial gates are open releasing about 2000m3/s (170,000ML/day) into the Brisbane River. At this stage, the dam will reach about 73.5m AHD during Tuesday morning. Flows in the Brisbane River above the dam at Gregor's Creek peaked at 7,350m3/s and this peak is bigger than both the January 1974 and February 1999 flood events at this location.

The objective for dam operations is to minimise the impact of urban flooding in areas downstream of the dam and the current aim is to keep river flows in the lower Brisbane River below 3,500m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s.

Since the commencement of the event on 02/01/2011 approximately 325,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16 January 2011.

The volume between the expected peak (73.5m AHD) and the level at which the safety of the dam becomes the primary objective in managing flood releases (74.0m AHD) is 75,000ML. The volume between the expected peak (73.5m AHD) and initiation of the first Fuse Plug is 330,000ML.

'mpacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 12:38 PM
To: Rob Drury <rdrury@[redacted]
Subject: Update for review

Rob,

For review please – are we likely to increase much past 170,000ml? Apparently the Minister wants to put out a release that says we're increasing to avoid reach 170% in Wivenhoe

Cheers

As at 1.00 pm on Monday 10 January, the following applies:

SOMERSET DAM:
As a result of rainfall and inflows, water is being released into Wivenhoe through five sluice gates at about 95,000 megalitres per day and is likely to continue until Thursday 13 January. Areas around Kilcoy are likely to be impacted as a result of the rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Gate Releases of around 170,000 megalitres a day are underway and are likely to continue until at least Sunday 16 January.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at least the weekend.

NORTH PINE DAM:
Five gates are open, releasing around 43,000 megalitres a day and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

ESLIE HARRISON DAM:

Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 1200 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE:

Both Wivenhoe and Somerset are closed to all recreational activities, and will remain so for some days.

The following recreation sites are closed –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet

- Captain Logan Camp
- Lumley Hill
- Spillway Common/ Atkinson's Crossing
- Cormorant Bay
- Branch Creek
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh

Numerous roads are cut including the highway at Kilcoy and Fernvale, and conditions are extremely dangerous.

This information will be updated during the afternoon of Monday 10 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 1:44 PM
To: Rob Drury [redacted]
Subject: Update

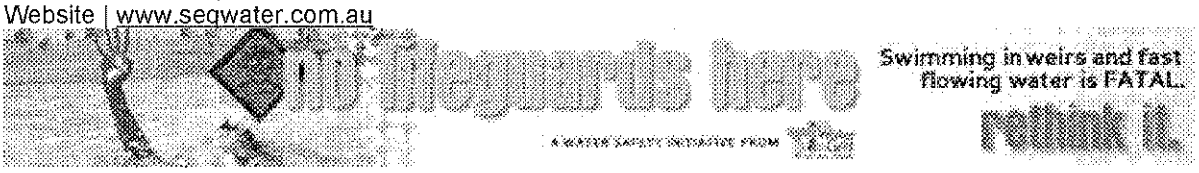
Hi Rob,

Can you please look at the update.. I think we need to get it out soon

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Duty Engineer <dutyseq@[redacted]

Sent: Monday, January 10, 2011 2:58 PM

To: Duty Seq <dutyseq@[redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury [redacted] Rohan Thorogood [redacted] Ken.Price@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens [redacted] David Pokarier [redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted]

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Subject: RE: FOC Situation Report at 12:00 on Monday 10 January 2011

Rainfall

Significant rainfall has fallen in the Wivenhoe Dam catchment over the last 3 hours, with falls exceeding 100mm. This rainfall will significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.41m AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000ML/day) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 72.41m AHD and rising quickly. The rainfall experienced over the last 2 to 3 hours will result in significant further inflows into the dam and releases from the dam will need to be increased in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

Five radial gates are currently open at the dam releasing about 2,000m3/s into the Brisbane River and this will need to

be increased steadily to an outflow of 2,800m3/s over the next 9 hours (commencing at 1500). At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 3:08 PM
To: Rob Drury <rdrury@[redacted]
Subject: Wiv Peak Inflow

Hi rob,

Can you give me a number please for current peak inflows into Wivenhoe?

It has been requested by the Premier via Grid

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 3:09 PM
To: Paul Bird [redacted] Rob Drury <rdrury@[redacted]
Subject: RE: FOC Situation Report at 12:00 on Monday 10 January 2011

Ask Mark T

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

From: Paul Bird [mailto:pbird@[redacted]
Sent: Monday, 10 January 2011 3:00 PM
To: Rob Drury
Cc: Duty Seq
Subject: FW: FOC Situation Report at 12:00 on Monday 10 January 2011

Rob,

What do these numbers make Wivenhoe & Somerset in %ages?

Cheers,

Paul

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 10 January 2011 14:58
To: Duty Seq; [redacted] David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: Andy Bickerton; Deb Chandler; Mailbox; Tony Trace; Chris Lavin; Craig Logan; Don Carroll; Evan Caswell; James Charalambous; Ken Morris; Robert McGlinn; Santina Pennisi; Peter Borrows
Subject: RE: FOC Situation Report at 12:00 on Monday 10 January 2011

Rainfall

Significant rainfall has fallen in the Wivenhoe Dam catchment over the last 3 hours, with falls exceeding 100mm. This rainfall will significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.41m AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000ML/day) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

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Five radial gates are currently open at the dam releasing about 2,000m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s over the next 9 hours (commencing at 1500). At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

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Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.
Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).
----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.

For more information regarding this service, please contact your service provider.

From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 3:15 PM
To: Rob Drury <rdrury@[redacted]
Subject: Premier talking point

Rob,

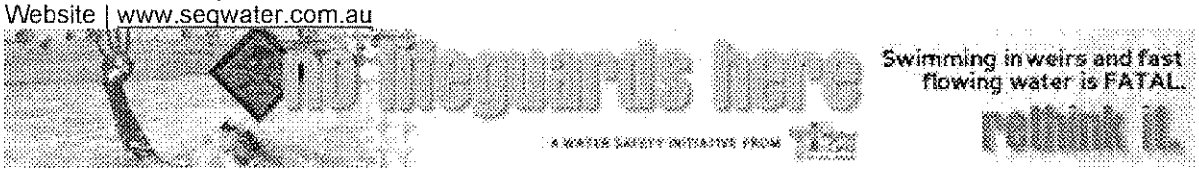
Are we able to complete this sentence.. or are we better suggesting it not be used?

- At the peak, Wivenhoe Dam was receiving <insert amount> and releasing <insert amount>, equalling to only <insert percentage> of what the Brisbane River has received from Wivenhoe Dam.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

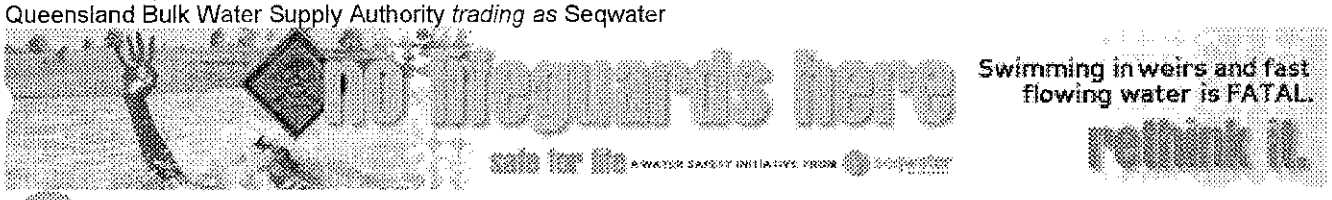


From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 3:16 PM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird [redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Subject: RE: Technical Report W37
Attach: Technical Situation Report W37.docx

Report W37 attached.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



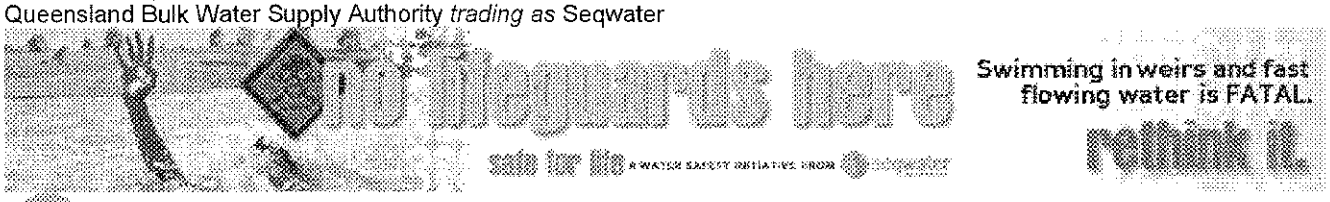
seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Monday, 10 January 2011 8:06 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W36

Please disregard the previous report, it was based on older information, this is the latest update.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



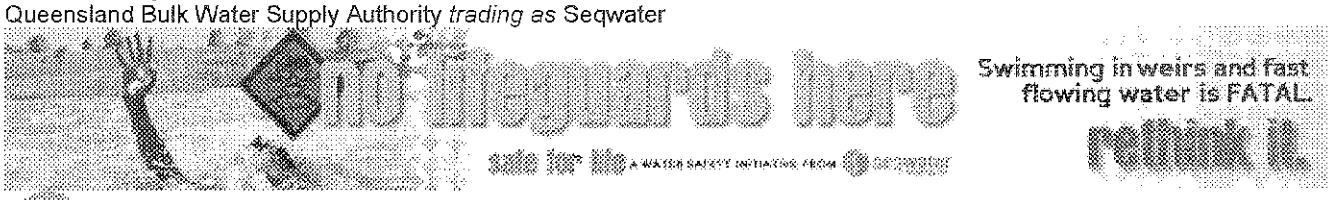
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Monday, 10 January 2011 7:53 AM
To: Rob Drury; 'Daniel.Spiller@[redacted] 'Barry.Dennien@[redacted] 'Michael.Lyons@[redacted] 'media@[redacted] 'debbie.best@[redacted] 'Scott.Denner@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Subject: RE: Technical Report W35

Attached report W35.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W37	Date of TSR release	10.1.2011	Time of TSR release	3pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge flood waters but keep impact downstream to minimum.	
Strategy	• All bridges are now inundated . • Ramp up to 2800cumecs which will give a flow in the lower Brisbane River of around 4,000cumecs	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Significant rainfall has fallen in the Wivenhoe Dam catchment over the last 3 hours, with falls exceeding 100mm. This rainfall will significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

Somerset Dam (Full Supply Level 99.00 m AHD)

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Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time		or Event	Change in strategy

From: Paul Bird <pbird@[redacted]
Sent: Monday, January 10, 2011 3:23 PM
To: Rob Drury <[redacted]
Subject: RE: Premier talking point

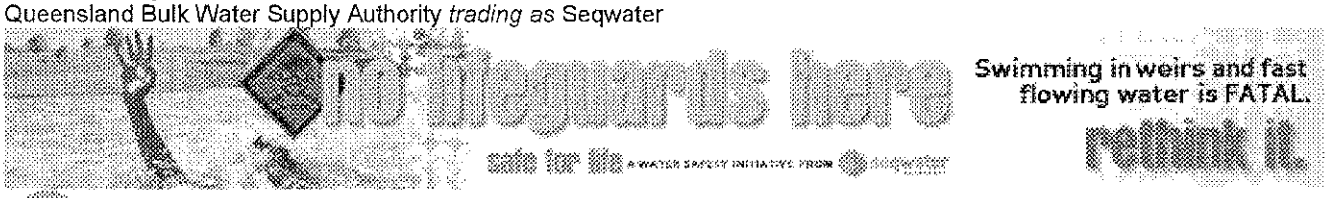
Thanks Rob,
perfect

From: Rob Drury
Sent: Monday, 10 January 2011 15:19
To: Paul Bird
Subject: RE: Premier talking point

How about this

-
- At the peak, Wivenhoe Dam was receiving up to 12,000cumecs and is now releasing 2,000cumecs increasing to 2800cumecs tonight. The total flow in the lower Brisbane will then be around 4,000cumecs.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

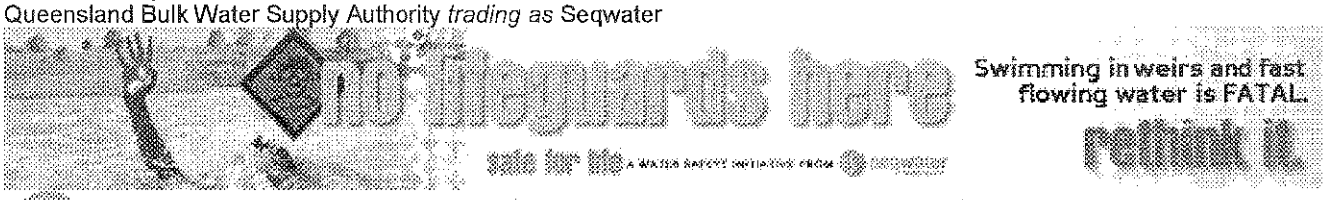
P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 3:24 PM
To: 'Barry.Dennien@[redacted]
Subject: BoM

Bureau are discussing the runs they did with FOC now so should have them through soon.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 3:27 PM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones. Give them a call if you need further information.

Below is the current strategy.
Any comments or assessments let me know.

Rainfall

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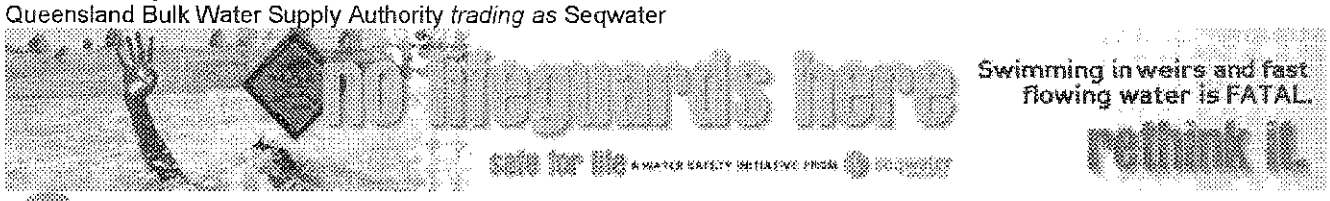
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]au
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird <pbird@[redacted]
Sent: Monday, January 10, 2011 3:51 PM
To: Rob Drury <rdrury@[redacted]
Subject: Flood compartment

Rob,

Grid is pushing to say how long it would take to fill the flood compartment at Wivenhoe on current inflows if we weren't able to release to put a context around what we are dealing with..

Based on current inflows, I think it's about 1.5 days

Your thoughts?

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

no lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 4:05 PM
To: Rob Drury <rdrury@[redacted]
Subject: Question re FOC report

Rob,

What's the trigger for the fuse plug let go at Wivenhoe?

Cheers

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading* as Seqwater

seqwater
WATER FOR LIFE

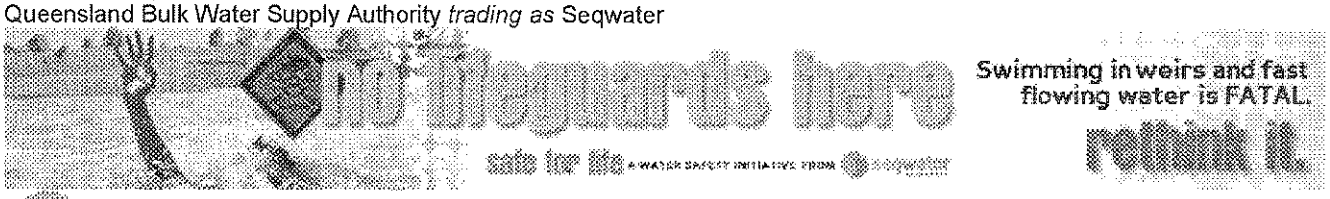
P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Volume 2

From: Rob Drury <[redacted]
Sent: Monday, January 10, 2011 4:18 PM
To: Paul Bird <[redacted]
Subject: RE: Question re FOC report

75.7m is when the middle fuse plug may initiate.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 4:24 PM
To: 'Barry.Dennien@[redacted] 'Daniel.Spiller@[redacted]
Cc: Peter Borrows <pborrows@[redacted]
Subject: FW: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]

Attached is the BoM warning re levels that they develop in discussion with our FOC re releases and models and then they discuss with BCC.

This is what they then provide to everyone.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

-----Original Message-----
From: weather
Sent: Monday, 10 January 2011 4:17 PM
To: DG-Ops Dam Levels; Murray Dunstan; Craig Duncan; Jayam Tennakoon; David Roberts; Jeff Lyddon; Glenn Patterson
Subject: FW: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]

From: Aifs Operational Manager[SMTP:AIFSQLD@BOM.GOV.AU]
Sent: Monday, January 10, 2011 4:16:39 PM
To: weather
Subject: BOM: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]
Auto forwarded by a Rule

TO::BOM615

IDQ20805

Australian Government Bureau of Meteorology
Queensland

PRIORITY
FLOOD WARNING FOR THE LOCKYER, BREMER, WARRILL AND BRISBANE RIVER BELOW WIVENHOE INCLUDING BRISBANE CITY
Issued at 4:16 PM on Monday the 10th of January 2011
by the Bureau of Meteorology, Brisbane.

Stream level rises causing moderate to major flooding are being recorded in
Lockyer Creek, Warrill Creek and and along the Bremer River. Major flood levels

are likely at Ipswich during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane overnight and through Tuesday.

At the Brisbane City Gauge, a river levels of about 2.1 metres is expected with the afternoon high tide on Tuesday and about 3 metres is expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

LOCKYER CREEK:
Further rainfall during Monday has led to renewed rises in the Lockyer Creek catchment. Rainfall is forecast to continue this evening and a return to moderate to major flood levels is expected overnight and during Tuesday. Major flood levels are expected to continue at Lyons Bridge with rises above 15 metres likely during Tuesday.

BREMER RIVER:
Rainfall during Monday will lead to renewed rises and a return to moderate flood levels along the Bremer River to Walloon. Levels over 5 metres are expected at Rosewood overnight.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

WARRILL CREEK
Further rainfall during Monday will lead to increasing river levels along Warrill Creek with levels expected to reach above 6 metres at Amberley overnight.

MIDDLE AND LOWER BRISBANE:
SEQwater advises releases from Wivenhoe Dam will increase during Monday. Moderate flooding is expected at Savages Crossing and at Mt Crosby Weir overnight tonight and during Tuesday.

The Brisbane River at the City Gauge (lower end of Edward Street and at Thornton Street) is expected to reach about 2.1 metres with the afternoon high tide on Tuesday and reach about 3 metres with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Predicted River Heights/Flows:
Ipswich: Reach about 12.7 metres (major) during Tuesday afternoon. Quicker rises and higher levels are possible depending on further rainfall tonight.

Moggill: Reach about 12 metres (minor) during Tuesday afternoon.

Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres with the afternoon high tide on Tuesday.

Reach about 3 metres with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Further rises are possible at all four locations depending on further rain.

Next Issue:
The next warning will be issued at about 9pm Monday.

Latest River Heights:

Lockyer Ck at Gatton #	10.36m steady	03:04 PM MON 10/01/11
Laidley Ck at Laidley	6m rising	02:45 PM MON 10/01/11
Laidley Ck at Showground Weir #	6.98m rising	03:07 PM MON 10/01/11
Laidley Ck at Warrego Hwy *	5.43m falling	01:00 PM MON 10/01/11
Lockyer Ck at Glenore Grove #	11.36m falling	03:05 PM MON 10/01/11
Lockyer Ck at Lyons Br #	14.79m rising	03:02 PM MON 10/01/11
Lockyer Ck at Rifle Range Rd *	13.4m rising	08:20 AM MON 10/01/11
Brisbane R at Lowood Pump Stn #	14.13m falling	03:07 PM MON 10/01/11
Brisbane R at Savages Crossing #	14.15m rising	03:09 PM MON 10/01/11
Brisbane R at Burtons Br #	10.88m rising	03:05 PM MON 10/01/11
Brisbane R at Kholo Br #	6.23m rising	03:06 PM MON 10/01/11
Brisbane R at Mt Crosby #	14.26m rising	03:07 PM MON 10/01/11
Brisbane R at Colleges Crossing #	11.96m rising	03:09 PM MON 10/01/11
Bremer R at Spressers Br #	5.07m rising	03:09 PM MON 10/01/11
Bremer R at Rosewood #	4.94m rising	03:02 PM MON 10/01/11
Bremer R at Five Mile Br Walloon #	5.12m falling	03:09 PM MON 10/01/11
Warrill Ck at Harrisville #	3.82m rising	03:05 PM MON 10/01/11
Warrill Ck at Amberley DNR *	5.34m rising	08:10 AM MON 10/01/11
Bremer R at Ipswich #	6.6m rising	02:40 PM MON 10/01/11
Brisbane R at Moggill #	5.52m rising	02:59 PM MON 10/01/11
Brisbane R at Jindalee Br #	3.7m rising	02:50 PM MON 10/01/11
Brisbane R at City Gauge #	1.36m falling	03:09 PM MON 10/01/11

*automatic station

Warnings and River Height Bulletins are available at
http://www.[redacted]lood/ . Flood Warnings are also available on telephone 1300 659 219 at a low call cost of 27.5 cents, more from mobile, public and satellite phones.

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From: Paul Bird <pbird@[redacted]
Sent: Monday, January 10, 2011 5:09 PM
To: Rob Drury <rdrury@[redacted]
Cc: Duty Seq <dutyseq@[redacted]
Subject: Premier Inquiry

Guys,

Sorry to be a nuisance.. but Premier wants to know the flow rate at Moggil in 1974.. Would we have that data?

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E pbird@[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.

From: Duty Engineer [redacted]
Sent: Monday, January 10, 2011 5:13 PM
To: Paul Bird [redacted] Rob Drury <rdrury@[redacted]
Subject: RE: Premier Inquiry

About 9,500m3/s

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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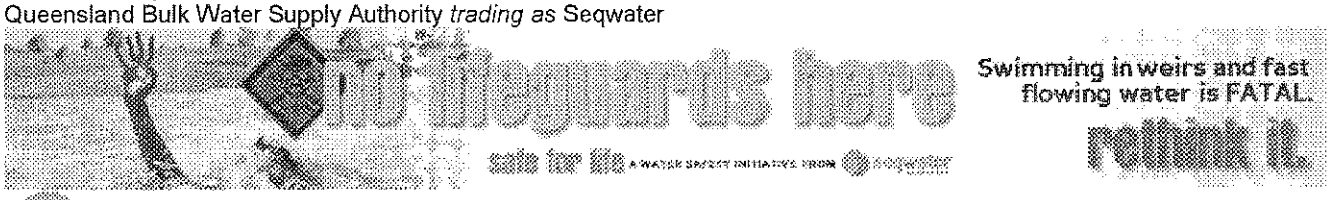
From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 5:17 PM
To: 'tonelee@internode.on.net'
Subject: FW: Update

FYI

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Monday, 10 January 2011 3:27 PM
To: Rob Drury; 'Tony Jacobs'; 'Tony Trace'; 'Lavin, Chris'
Subject: RE: Update

The Flood Centre will keep you informed or leave messages on your phones. Give them a call if you need further information.

Below is the current strategy.
Any comments or assessments let me know.

Rainfall

Significant rainfall has fallen in the Wivenhoe Dam catchment over the last 3 hours, with falls exceeding 100mm. This rainfall will significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.41m AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000ML/day) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 72.41m AHD and rising quickly. The rainfall experienced over the last 2 to 3 hours will result in significant further inflows into the dam and releases from the dam will need to be increased in accordance with Flood Mitigation

procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

Five radial gates are currently open at the dam releasing about 2,000m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s over the next 9 hours (commencing at 1500). At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

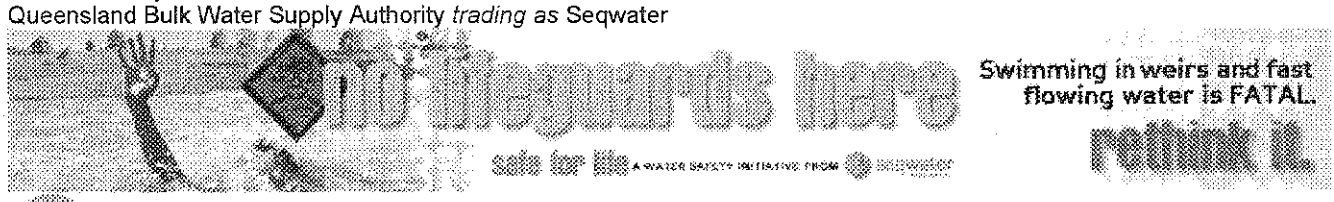
Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 5:34 PM
To: Rob Drury <rdrury@[redacted]
Subject: Next Sitrep

Robbie,

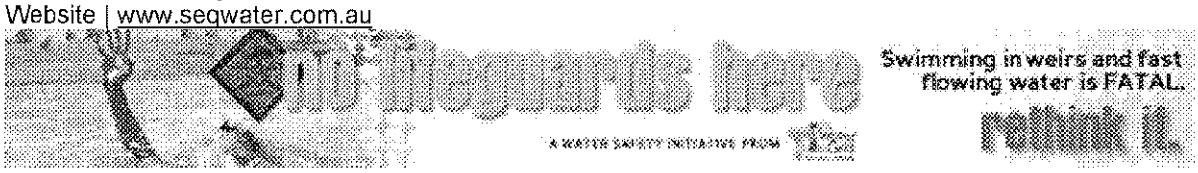
Assume we'll get an FOC update around 1800?

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Chris Lavin <Chris.Lavin@[redacted]
Sent: Monday, January 10, 2011 6:35 PM
To: Rob Drury <rdrury@[redacted]
Subject: LDMG meeting tomorrow

Hi Rob,

You may want to check to see if a rep is going from SEQWater.

Chris

****
This message has passed through an insecure network.
Please direct all enquiries to the message author.
****
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From: Duty Seq <dutyseq@[redacted]

Sent: Monday, January 10, 2011 6:43 PM

To: Duty Seq <dutyseq@[redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury [redacted] Rohan Thorogood [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Peter Borrows <pborrows@[redacted]

Subject: FOC Situation Report at 18:00 on Monday 10 January 2011

Rainfall

Only minor rainfall has been experienced in the North Pine Dam and Somerset Dam catchments with a catchment averages of less than 20mm.

However, significant rain has fallen in the Wivenhoe Dam catchment over the last 6 hours, with isolated falls exceeding 100mm. This rainfall has significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.84m AHD and falling slowly (storing 9,000ML above FSL). Five gates are open and releasing 362 m3/s. The inflow into the dam since the commencement of the event is 72,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.46m AHD and rising slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next 24 hours to be around 1200m3/s late Tuesday. The dam level will peak at 103.5m AHD in the next few hours, unless further

significant rainfall is experienced. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 72.92m AHD and rising quickly. Releases from the dam have been increased over the last 3 hours in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. The flash flooding experienced in the upper areas of Lockyer Creek have been examined and are not expected to significantly increase Brisbane River flows above the current projection of 4000m3/s at Moggill.

Five radial gates are currently open at the dam releasing about 2,400m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s. At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Monday, January 10, 2011 7:00 PM
To: Rob Drury [redacted]
Subject: Update for review

Hi Rob,

For review please:

As at 7.00 pm on Monday 10 January, the following applies:

SOMERSET DAM:
As a result of rainfall and inflows, water is being released into Wivenhoe through five sluice gates at about 146,000 megalitres per day, reducing to 103,000 megalitres per day by late Tuesday 11 January, and is likely to continue until Thursday 13 January. Areas around Kilcoy are likely to be impacted as a result of the rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Gate Releases are being increased to 240,000 megalitres a day are underway and are to continue until at least Sunday 16 January.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at least the weekend.

NORTH PINE DAM:
Five gates are open, releasing around 31,000 megalitres a day and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 1200 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

This information will be updated on the morning of Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
think it.

From: Dan Spiller [redacted]
Sent: Monday, January 10, 2011 8:18 PM
To: Rob Drury <rdrury@[redacted]
Cc: Peter Borrows <pborrows@[redacted] Barry Dennien [redacted] Paul Bird <pbird@[redacted] Michael Lyons [redacted]
Subject: Early update required tomorrow

Rob,

SDMG is early tomorrow - with Wivenhoe Dam releases obviously a key consideration.

Can you please provide an update on status to me by 7.30? A TSR would be ideal.

Obviously, the key issue will be whether additional rainfall triggers the need for an increased release rate. Beyond that, at a minimum, could you please cover overnight rainfall, dam levels and release rates.

Apologies for the late notice. I have only just been advised.

Regards,
Dan

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From: Peter Borrows [redacted]
Sent: Monday, January 10, 2011 8:28 PM
To: Rob Drury <rdrury@[redacted]
Cc: Peter Borrows <pborrows@[redacted] Stan Stevenson <sstevenson@[redacted]
Subject: Fw: Early update required tomorrow

Rob' are you able to do this.

I have a 9.00am at Radcliffe.

Regards Peter

From: Dan Spiller [redacted]
To: Rob Drury
Cc: Peter Borrows; Barry Dennien [redacted] Paul Bird; Michael Lyons [redacted]
Sent: Mon Jan 10 20:18:13 2011
Subject: Early update required tomorrow

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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 8:38 PM
To: Peter Borrows <pborrows@[redacted]
Subject: Re: Early update required tomorrow

Will do.
Rob

From: Peter Borrows
To: Rob Drury
Cc: Peter Borrows; Stan Stevenson
Sent: Mon Jan 10 20:27:46 2011
Subject: Fw: Early update required tomorrow

Rob' are you able to do this.

I have a 9.00am at Radcliffe.

Regards Peter

From: Dan Spiller [redacted]
To: Rob Drury
Cc: Peter Borrows; Barry Dennien [redacted] Paul Bird; Michael Lyons [redacted]
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From: Rob Drury [redacted]
Sent: Monday, January 10, 2011 8:39 PM
To: 'Daniel.Spiller@[redacted]
Subject: Re: Early update required tomorrow

Will do.
Rob

From: Dan Spiller [redacted]
To: Rob Drury
Cc: Peter Borrows; Barry Dennien [redacted] Paul Bird; Michael Lyons [redacted]
Sent: Mon Jan 10 20:18:13 2011
Subject: Early update required tomorrow

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Dan

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From: Rob Drury <[redacted]
Sent: Monday, January 10, 2011 11:17 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: FOC Situation Report at 18:00 on Monday 10 January 2011

Cam I get a status report as usual at 6am please? Thanks Rob.

From: Duty Engineer <dutyseq@[redacted]
To: Duty Seq; [redacted] David Roberts; flood.qld@[redacted] <flood.qld@[redacted] Mike Foster; Paul Bird; 'Peter Allen' [redacted] Rob Drury; Rohan Thorogood; Ken.Price@[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] 'Al Navaruk' <Albert.Navruk@[redacted] 'Bill Stephens' <Bill.Stephens@[redacted] 'David Pokarier' <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: 'Andy Bickerton' <abickerton@[redacted] 'Deb Chandler' <dchandler[redacted] 'Mailbox' <mai[redacted]; 'Tony Trace' <ttrace@[redacted] 'Chris Lavin' <Chris.Lavin@[redacted] 'Craig Logan' <Craig.Logan@[redacted] 'Don Carroll' <don.carroll@[redacted] 'Evan Caswell' <Evan.Caswell@[redacted] 'James Charalambous' <James.Charalambous@[redacted] 'Ken Morris' <Ken.Morris@[redacted] 'Robert McGlinn' <Robert.McGlinn@[redacted] 'Santina Pennisi' <Santina.Pennisi@[redacted] Peter Borrows
Sent: Mon Jan 10 18:43:01 2011
Subject: FOC Situation Report at 18:00 on Monday 10 January 2011

Rainfall

Only minor rainfall has been experienced in the North Pine Dam and Somerset Dam catchments with a catchment averages of less than 20mm.

However, significant rain has fallen in the Wivenhoe Dam catchment over the last 6 hours, with isolated falls exceeding 100mm. This rainfall has significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.84m AHD and falling slowly (storing 9,000ML above FSL). Five gates are open and releasing 362 m3/s. The inflow into the dam since the commencement of the event is 72,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.46m AHD and rising slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next 24 hours to be around 1200m3/s late Tuesday. The dam level will peak at 103.5m AHD in the next few hours, unless further significant rainfall is experienced. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 72.92m AHD and rising quickly. Releases from the dam have been increased over the last 3 hours in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. The flash flooding experienced in the upper areas of Lockyer Creek have been examined and are not expected to significantly increase Brisbane River flows above the current projection of 4000m3/s at Moggill.

Five radial gates are currently open at the dam releasing about 2,400m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s. At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 10, 2011 11:21 PM
To: Rob Drury <[redacted]
Subject: RE: FOC Situation Report at 18:00 on Monday 10 January 2011

Rob

Will do

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:[redacted]
Sent: Monday, 10 January 2011 11:17 PM
To: Duty Seq
Subject: Re: FOC Situation Report at 18:00 on Monday 10 January 2011

Cam I get a status report as usual at 6am please? Thanks Rob.

From: Duty Engineer <dutyseq@[redacted]
To: Duty Seq; [redacted] David Roberts; [redacted] <flood.qld@[redacted] Mike Foster; Paul Bird; 'Peter Allen' <peter.allen[redacted]; Rob Drury; Rohan Thorogood; Ken.Price[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <[redacted]au>; 'Al Navaruk' <Albert.Navruk@[redacted] 'Bill Stephens' <Bill.Stephens@[redacted] 'David Pokarier' <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffin[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Cc: 'Andy Bickerton' <[redacted]gov.au>; 'Deb Chandler' <[redacted]>; 'Mailbox' <[redacted]>; 'Tony Trace' <[redacted]gov.au>; 'Chris Lavin' <Chris.[redacted] 'Craig Logan' <Craig.[redacted] 'Don Carroll' <don.[redacted] 'Evan Caswell' <Evan.[redacted] 'James Charalambous' <James.[redacted] 'Ken Morris' <Ken.[redacted] 'Robert McGlinn' <Robert.McGlinn@[redacted] 'Santina Pennisi' <Santina.[redacted] Peter Borrows
Sent: Mon Jan 10 18:43:01 2011
Subject: FOC Situation Report at 18:00 on Monday 10 January 2011

Rainfall

Only minor rainfall has been experienced in the North Pine Dam and Somerset Dam catchments with a catchment averages of less than 20mm.

However, significant rain has fallen in the Wivenhoe Dam catchment over the last 6 hours, with isolated falls exceeding 100mm. This rainfall has significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24

hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.84m AHD and falling slowly (storing 9,000ML above FSL). Five gates are open and releasing 362 m3/s. The inflow into the dam since the commencement of the event is 72,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.46m AHD and rising slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next 24 hours to be around 1200m3/s late Tuesday. The dam level will peak at 103.5m AHD in the next few hours, unless further significant rainfall is experienced. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 72.92m AHD and rising quickly. Releases from the dam have been increased over the last 3 hours in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. The flash flooding experienced in the upper areas of Lockyer Creek have been examined and are not expected to significantly increase Brisbane River flows above the current projection of 4000m3/s at Moggill.

Five radial gates are currently open at the dam releasing about 2,400m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s. At this stage, the dam will reach about 73.8m AHD during Tuesday morning.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Monday, January 10, 2011 11:56 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk [redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan [redacted] Neville Ablitt [redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian [redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: FOC Situation Report at 00:00 Tuesday 11 Janaury 2011

Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments with falls of generally less than 20mm since 18:00 today. However, some isolated falls in the Upper Brisbane River of up to 110 mm have been recorded at Monsildale in this time. This rainfall will increase inflows into the dam.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and falling slowly (storing 4,400ML above FSL). Five gates are open, releasing 153 m3/s. The inflow into the dam since the commencement of the event is 74,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.40m AHD and falling slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next 24 hours to be around 1200m3/s late Tuesday. The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, unless further significant rainfall is experienced. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 73.22m AHD and rising at about 50 mm/hour. Releases from the dam have been held at a rate of

2,750 m3/s since 19:30 hours. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be very significant. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow may result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach about 73.8m AHD during Tuesday afternoon.

The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration will be given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Regards

Rob Ayre
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 4:40 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Somerset Dam Directive # 6 at 04:30 on Tuesday 11 January 2011
Attach: OPS_Directive_Somerset #6.doc

Please find attached Directive # 6 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date: 11/01/2011 Time: 04:30 Directive No: 6

This transmission comprises of this page and 0 other pages.

Message:

Significant rainfall has fallen in the Upper Brisbane River in the last 12 hours. This has resulted in further inflows into Wivenhoe Dam. To prevent Wivenhoe Dam exceeding the trigger level for implementation of strategy W4 (EL74.00 m AHD) we will need to store floodwater in Somerset Dam.

Therefore we need to reduce releases from Somerset Dam so as to equalise the relative volumes in flood storage.

Please undertake the following operations:-

- Please close Sluice J at 05:00
- Please close Sluice N at 06:00
- Please close Sluice K at 07:00

Please confirm this gate operation by fax once you have completed the requested operations.

Regards

Rob Ayre

Duty Engineer

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From: DutyEngineer <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 5:33 AM
To: Duty Seq [redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Malcolm Lane [redacted] Murray Dunstan <mdunstan@[redacted]
Subject: North Pine Directive No 15
Attach: OPS_Directive_NorthPine #15.doc

Hi all,

Please find attached North Pine Directive #15.

Kind regards,
John West

----------Safe Stamp----------
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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Date: 11/01/2011 Time: 05:00 Directive No: 15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations when the lake level reaches the appropriate level as indicated below. This directive supersedes all previous directives.

An interval of 15 minutes is to be used between gate movements.

Gate A : Open to Increment 2 at 6:00 am

These operations are expected to occur overnight providing no further rainfall occurs.

Please also confirm by Fax once these gate operations are complete.

John Ruffini
Duty Engineer

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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:03 AM
To: 'Chris Lavin' <Chris.Lavin@[redacted]
Subject: RE: LDMG meeting tomorrow

Chris,
Can't see that we have anyone going but most are tied up in Flood Centre.
The Flood Centre have spoken to James about the current situation so he should be able to provide where we are at. I will send you are update this morning so you have as much as we can provide bnt feel free to ring our Flood Centre if you or James needs more info.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] Fax (07) [redacted] M [redacted] E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

-----Original Message-----
From: Chris Lavin [mailto:[redacted]
Sent: Monday, 10 January 2011 6:35 PM
To: Rob Drury
Subject: LDMG meeting tomorrow

Hi Rob,

You may want to check to see if a rep is going from SEQWater.

Chris

****
This message has passed through an insecure network.
Please direct all enquiries to the message author.
****
----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
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From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 11, 2011 6:12 AM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell [redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Situation Report at 06:00 on Tuesday 11 January 2011

Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam.

There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1400 m3/s and this discharge will be decreased in the next few hours to be around 500 m3/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is

experienced). Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening.

Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible.

If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 6:13 AM
To: Rob Drury <rdrury@[redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted] Michael Lyons [redacted]
Subject: Impact of Lockyer flows

Rob,

I am fielding calls from Gov seeking advice about the impact of the Lockyer Valley flows on Brisbane River levels and on overnight rainfall (I am told that there was 50mm in two hours in Lockyer).

Early advice would be good. There are many nervous people.

Thanks,
Dan

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:18 AM
To: 'Dan Spiller' [redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted] Michael Lyons [redacted]
Subject: RE: Impact of Lockyer flows

Dan,
I will send a report shortly but below are words I was going to send. I have also attached the BoM warning for the Lockyer that they sent this morning.
They are reissuing their warning this morning based on new information.

Basically the FOC was going to try to slow our releases last night to give a small window for the Lockyer flood to go through however we again received and are still receiving heavy rain in the catchments.

Currently the FOC has shut some sluices at Somerset to store more water to keep Wivenhoe below RL74 at which we need to start increasing releases. The first fuse plug goes at about RL 75.7m

The strategy is now to keep releases as is to not worsen the situation downstream as the Lockyer recorded levels higher than any on record. However we may still need to increase releases depending on what happens through the day.

The FOC have given our release strategy (not really different in releases at this stage) to the BoM and they will reissue their flood warnings based on that and other flows in the Lockyer and Bremer.

The FOC have spoken to BCC and ICC and we will send them an update. BCC are having a LDMG meeting this morning. Dan, not sure if anyone from the WGM is going but Chris Lavin is the contact.

Rob

From: Aifs Operational Manager[SMT[redacted]
Sent: Tuesday, January 11, 2011 4:06:54 AM
To: weather
Subject: BOM: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED] Auto forwarded by a Rule

TO::BOM615

IDQ20805

Australian Government Bureau of Meteorology Queensland

PRIORITY
FLOOD WARNING FOR THE LOCKYER, BREMER, WARRILL AND BRISBANE RIVER BELOW WIVENHOE INCLUDING BRISBANE CITY Issued at 4:06 AM on Tuesday the 11th of January 2011 by the Bureau of Meteorology, Brisbane.

The main flood waters in the Lockyer Creek are now arriving at Lyons Bridge, with strong stream rises expected during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane during Tuesday.

At the Brisbane City Gauge, minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on

Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

LOCKYER CREEK:
Extremely heavy rainfall during Monday led to extreme rises in the Lockyer Creek catchment and Laidley Creek at Mulgowie. Record flood levels of 18.92 metres were recorded at Gatton Monday evening before the station failed. This level was well above the previous record peak of 16.33 metres from the February 1893 flood.

The main flood waters are currently arriving at Lyons Bridge, with strong stream rises expected in the next few hours. The Lockyer Creek at Glenore Grove peaked at 14.60 metres at 11:30pm, which is 0.3 metres below the 1974 flood.

Renewed stream rises have commenced in Lockyer Creek at Lyons Bridge with a peak between 16 and 16.5 metres expected Tuesday morning. This is likely to be similar in level to the 1996 flood.

BREMER RIVER:
The Bremer River at Walloon has exceeded the moderate flood level. The Bremer River at Rosewood peaked at 5.8 metres around midnight monday.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

WARRILL CREEK
Warrill Creek at Amberley peaked at 5.98 metres around 9pm Monday.

MIDDLE AND LOWER BRISBANE:
Moderate flooding is developing at Savages Crossing and at Mt Crosby Weir.

At the Brisbane City Gauge (lower end of Edward Street and at Thornton Street), minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Predicted River Heights/Flows:
Ipswich: Reach about 12.7 metres (major) during Tuesday afternoon.

Moggill: Reach about 12 metres (minor) during Tuesday afternoon.

Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres (minor) with the afternoon high tide on Tuesday. Reach about 3 metres (moderate) with the high tides on Wednesday.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Further rises are possible at all four locations depending on further rain.

Next Issue:
The next warning will be issued at about 8am Tuesday.

Latest River Heights:

Lockyer Ck at Helidon #	12.68m steady	03:02 PM MON 10/01/11
Flagstone Ck at Brown-Zirbels Rd *	3.49m falling	02:10 AM TUE 11/01/11
Sandy Creek at Sandy Creek Road #	2.15m falling	03:19 AM TUE 11/01/11
Ma Ma Ck at Harm's *	3.26m rising	02:30 AM TUE 11/01/11
Tenthill Ck at Tenthill *	5.57m rising	02:40 AM TUE 11/01/11
Lockyer Ck at Gatton #	18.92m rising	06:30 PM MON 10/01/11
Laidley Ck at Mulgowie *	6.39m rising	02:20 AM TUE 11/01/11

Laidley Ck at Laidley	8.7m falling slowly	10:00 PM MON 10/01/11
Laidley Ck at Showground Weir #	7.84m rising	03:25 AM TUE 11/01/11
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Lockyer Ck at Glenore Grove #	13.8m falling	03:24 AM TUE 11/01/11
Lockyer Ck at Lyons Br #	15.55m rising	03:23 AM TUE 11/01/11
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Lockyer Ck at O'Reilly's Weir #	18m falling	03:28 AM TUE 11/01/11
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Brisbane R at Burtons Br #	12.22m rising	03:29 AM TUE 11/01/11
Brisbane R at Kholo Br #	7.99m rising	03:29 AM TUE 11/01/11
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Bremer R at Rosewood#	5.56m falling	03:11 AM TUE 11/01/11
Bremer R at Five Mile Br Walloon #	6.4m rising	03:15 AM TUE 11/01/11
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Bremer R at One Mile Br #	13.75m rising	03:31 AM TUE 11/01/11
Bremer R at Hancocks Br Brassall #	11.33m rising	03:22 AM TUE 11/01/11
Bremer R at Ipswich #	8.55m rising	03:31 AM TUE 11/01/11
Brisbane R at Moggill #	7.07m rising	03:29 AM TUE 11/01/11
Brisbane R at Jindalee Br #	4.5m rising	03:29 AM TUE 11/01/11
Brisbane R at City Gauge #	1.4m falling	03:15 AM TUE 11/01/11

*automatic station

Warnings and River Height Bulletins are available at http://www.[redacted]ld/flood/ . Flood Warnings are also available on telephone 1300 659 219 at a low call cost of 27.5 cents, more from mobile, public and satellite phones.

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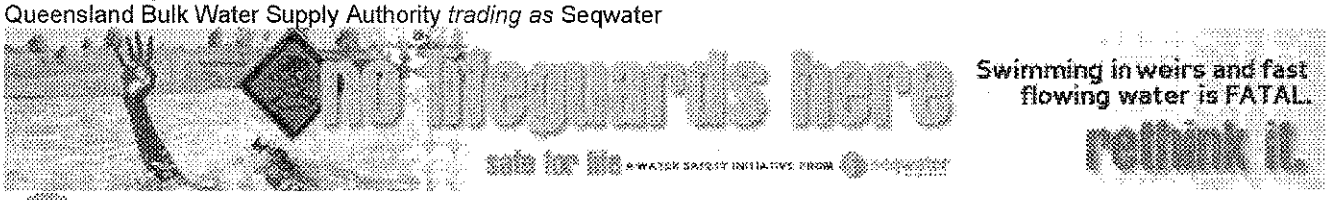
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto:[redacted]
Sent: Tuesday, 11 January 2011 6:13 AM
To: Rob Drury
Cc: Barry Dennien; Peter Borrows; Paul Bird; Michael Lyons
Subject: Impact of Lockyer flows

Rob,

I am fielding calls from Gov seeking advice about the impact of the Lockyer Valley flows on Brisbane River levels and on overnight rainfall (I am told that there was 50mm in two hours in Lockyer).

Early advice would be good. There are many nervous people.

Thanks,
Dan

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From: peter_[redacted]
Sent: Tuesday, January 11, 2011 6:22 AM
To: Rob Drury <rdrury@[redacted]
Cc: Allen Peter [redacted]
Subject: Re: Fw: inclusion of detail on consequence of fuse plug activation in the reports prepared under the Wivenhoe/Somerset protocol
Attach: ATT32981.txt

Rob,

As Bob Reilly has indicated below, there seems to be some confusion over the fuse plug spillway and the role it plays in ensuring the safety of the dam. We would recommend that something along the following lines be included in the next Technical Report to inform this discussion. Perhaps the Duty Engineers might check to see if they are happy with the wording ...

".. A safety feature of Wivenhoe Dam is its 3 bay fuse plug auxilliary spillway which is designed to progressively fail as the storage level in the dam rises above EL75.5 metres. Once the trigger level for each bay is reached, the bay is designed to fail over a relatively short period of time and this significantly increases the dischage capacity of the dam. While this feature helps ensure the dam does not collapse in a rare extreme flood event, its activation has a number of flooding consequences:

* when a bay fails, the downstream flood levels may see relatively rapid rises. For instance, the rapidly increased total spillway flow is likely to cause a sudden rise of about 0.5 metres at Ipswich. The flood level rise would be slightly higher upstream and lower downstreau. This would be on top of the already high flood levels prior to the fuse plug triggering.

* until the fuse plug is reinstated, and this might not be able to be done for some months, the ability to closely manage the types of flood events seen before Christmas 2010 would be significantly reduced, as the floodwater would basically discharge in an uncontrolled manner through the gap created by the fuse plug activation.

The current flood release strategy will probably see the dam reaching EL ?? metres, so there is not a sigificnant capacity to reduce flood releases...."

> Allen Peter [redacted] wrote:
>
>
>
> ----- Original Message -----
> From: Kathy Reilly [redacted]
> To: Allen Peter
> Sent: Mon Jan 10 18:48:31 2011
> Subject: inclusion of detail on consequence of fuse plug activation in
> the reports prepared under the Wivenhoe/Somerset protocol
>
> Hi Peter
>
> A large range of people read these reports. While there are some
> references to the fuse plug in them, they are a bit cryptic for the
> average person.
>
> Could you please have a look at the following, adjust it for
> mistakes/accuracy, and ask Seqwater to include it in the next technical
> report.
>
> ".. A safety feature of Wivenhoe Dam is its fuse plug. If the water
> level in the dam reaches EL75 metres, then it is designed to fail and,
> effectively, creates an additional spillway. Over a relatively short
> period of time, it reduces the dam level down to the full supply level
> (for water supply purposes) of 67 metres. While this feature helps

> ensure the dam does not collapse in a large flood event, its activation
> has a number of flooding consequences:
>
> * when it fails, the flood levels downstream may be approximately 0.5
> metres higher than they would have been if the flood gates had been
> discharging a sufficent amount of water to avoid the fuse plug
> activating.
> * until the fuse plug is reinstated, aud this could not be done for some
> months, the ability to manage the types of flood events seen before
> Christmas 2010 would largely be lost, as the floodwater would basically
> discharge in an uncontrolled manner through the hole created by the fuse
> plug activation.
>
> The current flood release strategy will probably see the dam reaching EL
> 74 metres, so there is not a sigificnant capacity to reduce flood
> releases...."
>
> Regards
>
>
> Bob
>
>
> +----------+
> Think B4U Print
> 1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere
> 3 sheets of A4 paper = 1 litre of water
> +----------+

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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:36 AM
To: Rob Drury <[redacted] 'Daniel.Spiller@[redacted] Paul Bird [redacted] Stan Stevenson [redacted] Peter Borrows [redacted] 'Peter.[redacted]
Cc: David Roberts <[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W38.docx

Attached is the latest report. Also below is the BoM warning with info on the Lockyer flood. The Somerset Council chambers had water through it and the library and they are working off site at the moment so communications with the Council may be impacted.

Basically the FOC was going to try to slow our releases last night to give a small window for the Lockyer flood to go through however we again received and are still receiving heavy rain in the catchments. Hence the best we can do at this stage is not increase releases.

Currently the FOC has shut some sluices at Somerset to store more water to keep Wivenhoe below RL74 at which we need to start increasing releases to ensure dam security and minimise downstream flood impacts if possible.

The strategy is now to keep releases at current levels so as to not worsen the situation downstream as the Lockyer recorded levels higher than any on record at some spots. However we may still need to increase releases depending on what happens through the day.

The FOC have given our release strategy (not really different in releases at this stage) to the BoM and they will reissue their flood warnings based on that and other flows in the Lockyer and Bremer and downstream.

The FOC have spoken to BCC and ICC and we will send them an update. BCC are having a LDMG meeting this morning.

Rob

From: Aifs Operational Manager[SMT[redacted]
Sent: Tuesday, January 11, 2011 4:06:54 AM
To: weather
Subject: BOM: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED] Auto forwarded by a Rule

TO::BOM615

IDQ20805

Australian Government Bureau of Meteorology Queensland

PRIORITY
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Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

LOCKYER CREEK:
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Renewed stream rises have commenced in Lockyer Creek at Lyons Bridge with a peak between 16 and 16.5 metres expected Tuesday morning. This is likely to be similar in level to the 1996 flood.

BREMER RIVER:
The Bremer River at Walloon has exceeded the moderate flood level. The Bremer River at Rosewood peaked at 5.8 metres around midnight monday.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

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Warrill Creek at Amberley peaked at 5.98 metres around 9pm Monday.

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Moderate flooding is developing at Savages Crossing and at Mt Crosby Weir.

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Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres (minor) with the afternoon high tide on Tuesday. Reach about 3 metres (moderate) with the high tides on Wednesday.

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Further rises are possible at all four locations depending on further rain.

Next Issue:
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*automatic station

Warnings and River Height Bulletins are available at http://www.[redacted]ld/flood/ . Flood Warnings are also available on telephone 1300 659 219 at a low call cost of 27.5 cents, more from mobile, public and satellite phones.

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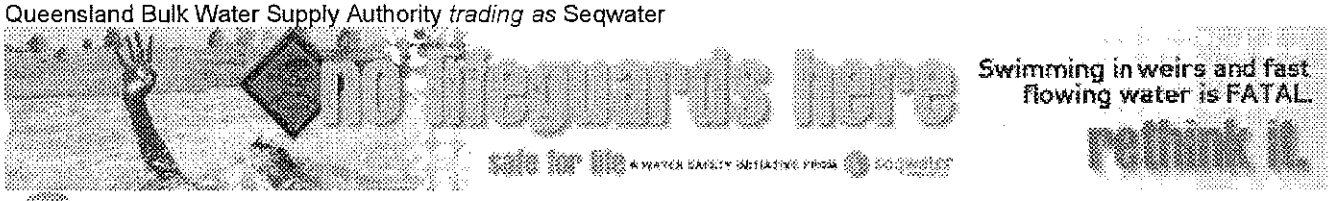
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W38	Date of TSR release	11.1.2011	Time of TSR release	6.30am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below RL74 at which significant releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Maintain current release of 2750cumecs as long as possible but it may need to be increased • Close sluices at Somerset Dam to store more water however will affect upstream areas. •	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam.

There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about

4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1400 m3/s and this discharge will be decreased in the next few hours to be around 500 m3/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening.

Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible.

If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 6:37 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update for review

Hi Rob,

Please review the update below. I am assuming at this stage that Leslie Harrison has not changed?

As at 7.00 am on Tuesday 11 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe at about 120,000 megalitres per day and this discharge will be decreased to be around 43,000 megalitres later on Tuesday 11 January. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

Areas around Kilcoy are likely to be impacted as a result of the rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Releases through five gates have been held at around 236,000 megalitres a day since early Monday night 10 January as a result of outflows into the Brisbane River from the Lockyer Creek and Bremer River.

If further rainfall occurs, dam releases may need to be increased further.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at Sunday 16 January.

NORTH PINE DAM:
Five gates are open, releasing around 15,000 megalitres a day and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

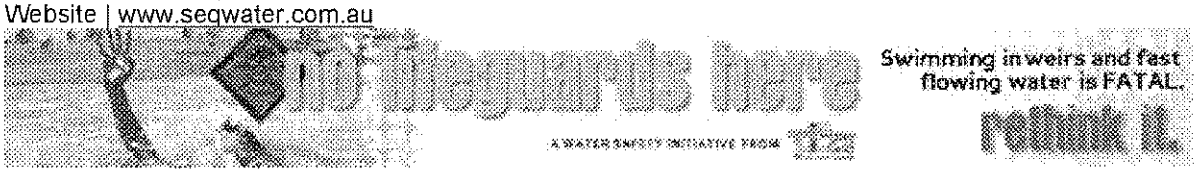
HINZE DAM:
A minor release of around 1200 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

This information will be updated during Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E pbird@[redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Rob Drury <[redacted]>
Sent: Tuesday, January 11, 2011 6:38 AM
To: Rob Drury [redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' <tonelee@internode.on.net>
Subject: RE: Update

The Flood Centre has kept you informed (and discussed with the BCC Flood Centre) of where we are at but below is a summary as at 6am this morning.

I will send off another Technical Report this morning so if you have any assessments or actions you are undertaking that you want included send them in.

Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam.

There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1400 m3/s and this discharge will be decreased in the next few hours to be around 500 m3/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening.

Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible.

If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

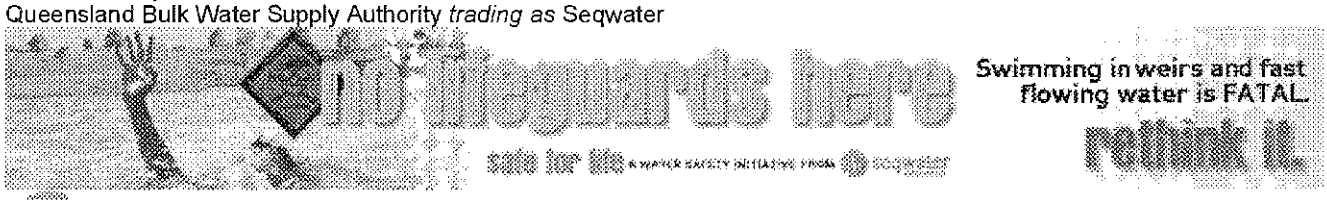
The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:40 AM
To: 'peter_allen[redacted]'
Subject: RE: Fw: inclusion of detail on consequence of fuse plug activation in the reports prepared under the Wivenhoe/Somerset protocol

---

Sorry, sent the latest report before seeing your email.
I will add your words into the next one.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

-----Original Message-----
From: [redacted] [mailto[redacted]
Sent: Tuesday, 11 January 2011 6:22 AM
To: Rob Drury
Cc: Allen Peter; [redacted]
Subject: Re: Fw: inclusion of detail on consequence of fuse plug activation in the reports prepared under the Wivenhoe/Somerset protocol

Rob,

As Bob Reilly has indicated below, there seems to be some confusion over the fuse plug spillway and the role it plays in ensuring the safety of the dam. We would recommend that something along the following lines be included in the next Technical Report to inform this discussion. Perhaps the Duty Engineers might check to see if they are happy with the wording ...

".. A safety feature of Wivenhoe Dam is its 3 bay fuse plug auxilliary spillway which is designed to progressively fail as the storage level in the dam rises above EL75.5 metres. Once the trigger level for each bay is reached, the bay is designed to fail over a relatively short period of time and this significantly increases the dischage capacity of the dam. While this feature helps ensure the dam does not collapse in a rare extreme flood event, its activation has a number of flooding consequences:

* when a bay fails, the downstream flood levels may see relatively rapid rises. For instance, the rapidly increased total spillway flow is likely to cause a sudden rise of about 0.5 metres at Ipswich. The flood level rise would be slightly higher upstream and lower downstream. This would be on top of the already high flood levels prior to the fuse plng triggering.

* until the fuse plug is reinstated, and this might not be able to be done for some months, the ability to closely manage the types of flood events seen before Christmas 2010 would be significantly reduced, as the floodwater would basically discharge in an uncontrolled manner through the gap created by the fuse plug activation.

The current flood release strategy will probably see the dam reaching EL ?? metres, so there is not a sigificnant capacity to reduce flood releases...."

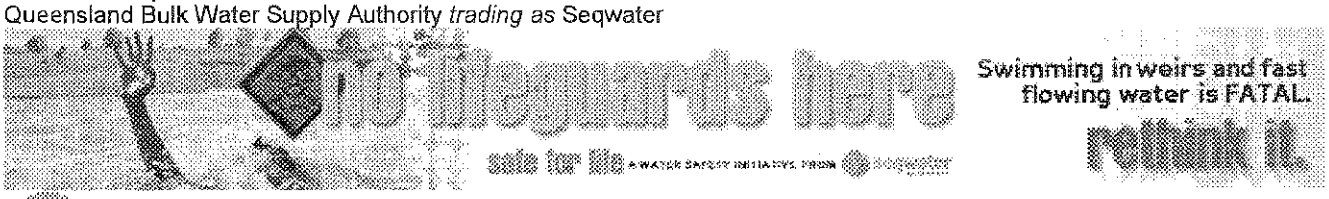
> Allen Peter [redacted] wrote:
>
>
>
> ----- Original Message -----
> From: Kathy Reilly [redacted]
> To: Allen Peter
> Sent: Mon Jan 10 18:48:31 2011
> Subject: inclusion of detail on consequence of fuse plug activation in
> the reports prepared under the Wivenhoe/Somerset protocol
>
> Hi Peter
>
> A large range of people read these reports. While there are some
> references to the fuse plug in them, they are a bit cryptic for the
> average person.
>
> Could you please have a look at the following, adjust it for
> mistakes/accuracy, and ask Seqwater to include it in the next
> technical report.
>
> ".. A safety feature of Wivenhoe Dam is its fuse plug. If the water
> level in the dam reaches EL75 metres, then it is designed to fail
> and, effectively, creates an additional spillway. Over a relatively
> short period of time, it reduces the dam level down to the full supply
> level (for water supply purposes) of 67 metres. While this feature
> helps ensure the dam does not collapse in a large flood event, its
> activation has a number of flooding consequences:
>
> * when it fails, the flood levels downstream may be approximately 0.5
> metres higher than they would have been if the flood gates had been
> discharging a sufficent amount of water to avoid the fuse plug
> activating.
> * until the fuse plug is reinstated, and this could not be done for some
> months, the ability to manage the types of flood events seen before
> Christmas 2010 would largely be lost, as the floodwater would
> basically discharge in an uncontrolled manner through the hole created
> by the fuse plug activation.
>
> The current flood release strategy will probably see the dam reaching
> EL
> 74 metres, so there is not a sigificnant capacity to reduce flood
> releases...."
>
> Regards
>
>
> Bob
>
>
> +----------+
> Think B4U Print
> 1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere
> 3 sheets of A4 paper = 1 litre of water
> +----------+

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:43 AM
To: Paul Bird <pbird@[redacted]
Subject: RE: Update for review

Just changed Somerset a little but LHD still going.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Tuesday, 11 January 2011 6:37 AM
To: Rob Drury
Subject: Update for review

Hi Rob,

Please review the update below. I am assuming at this stage that Leslie Harrison has not changed?

As at 7.00 am on Tuesday 11 January, the following applies:

SOMERSET DAM:
Water is being released into Wivenhoe however the amount discharged can change as conditions change. Levels in Somerset are expected to continue rising.

Areas around Kilcoy are likely to be impacted as a result of the rising dam levels.

WIVENHOE DAM:
Upstream levels are rising quickly as a result of significant heavy rainfall. The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam.

Releases through five gates have been held at around 236,000 megalitres a day since early Monday night 10 January as a result of outflows into the Brisbane River from the Lockyer Creek and Bremer River.

If further rainfall occurs, dam releases may need to be increased further.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at Sunday 16 January.

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The local Council is being kept informed regarding Youngs Crossing.

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Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 1200 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on road crossing closures and other potential impacts, always contact your local council.

This information will be updated during Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

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P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
relax it.

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 6:43 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Update for review

Thanks Rob

From: Rob Drury
Sent: Tuesday, 11 January 2011 06:43
To: Paul Bird
Subject: RE: Update for review

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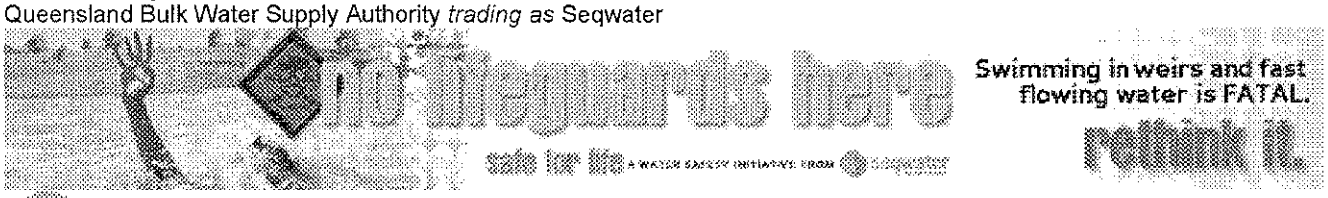
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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This information will be updated during Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
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P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

No lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 7:17 AM
To: 'stephen.[redacted] 'Ken Smith ([redacted]
'Lance McCallum ([redacted] 'Tim Watts
(tim.[redacted] 'Geoff Stead ([redacted]
'lauren.sims[redacted] 'Martin.Peter[redacted]
'Dunn.[redacted]
Cc: Barry Dennien [redacted] Peter Borrows
<pborrows@[redacted] Rob Drury <rdrury@[redacted] Paul Bird
<pbird@[redacted] 'Damien Brown ([redacted]
'bob.reilly[redacted] 'terry.wall[redacted]
'Madgwick.[redacted]
Subject: Water Grid dam release strategy
Attach: Technical Situation Report W38.docx; ATT33781.txt

All,

Attached is the latest report, with the BoM warning on the Lockyer flood below.

Key points are:

- Current releases are 2,750 cubic metres per second (about 240,000 ML/day). Due to heavy rainfall in the catchment, it was not possible to reduce releases to allow the Lockyer Valley flows to pass.
- Further rainfall may result in the need to increase releases.
- Wivenhoe Dam is at 73.51m AHD and rising at about 25mm/hour. Above 74m, the primary objective becomes maintaining the security of the dam. Releases would be increased at this level with less scope for consideration of downstream impacts.

The BoM is remodeling based on this release strategy. There is some uncertainty about the level of flows coming from the Lockyer.

Please call me on [redacted] if you require any further information.

Debbie and Tim: I recommend that a briefing for the Minister would be appropriate, perhaps around 10am.

Regards,
Daniel Spiller

Australian Government Bureau of Meteorology Queensland

PRIORITY
FLOOD WARNING FOR THE LOCKYER, BREMER, WARRILL AND BRISBANE RIVER BELOW WIVENHOE INCLUDING BRISBANE CITY Issued at 4:06 AM on Tuesday the 11th of January 2011 by the Bureau of Meteorology, Brisbane.

The main flood waters in the Lockyer Creek are now arriving at Lyons Bridge, with strong stream rises expected during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane during Tuesday.

At the Brisbane City Gauge, minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the

year at this location).

LOCKYER CREEK:
Extremely heavy rainfall during Monday led to extreme rises in the Lockyer Creek catchment and Laidley Creek at Mulgowie. Record flood levels of 18.92 metres were recorded at Gatton Monday evening before the station failed. This level was well above the previous record peak of 16.33 metres from the February 1893 flood.

The main flood waters are currently arriving at Lyons Bridge, with strong stream rises expected in the next few hours. The Lockyer Creek at Glenore Grove peaked at 14.60 metres at 11:30pm, which is 0.3 metres below the 1974 flood.

Renewed stream rises have commenced in Lockyer Creek at Lyons Bridge with a peak between 16 and 16.5 metres expected Tuesday morning. This is likely to be similar in level to the 1996 flood.

BREMER RIVER:
The Bremer River at Walloon has exceeded the moderate flood level. The Bremer River at Rosewood peaked at 5.8 metres around midnight monday.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

WARRILL CREEK
Warrill Creek at Amberley peaked at 5.98 metres around 9pm Monday.

MIDDLE AND LOWER BRISBANE:
Moderate flooding is developing at Savages Crossing and at Mt Crosby Weir.

At the Brisbane City Gauge (lower end of Edward Street and at Thornton Street), minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Predicted River Heights/Flows:
Ipswich: Reach about 12.7 metres (major) during Tuesday afternoon.

Moggill: Reach about 12 metres (minor) during Tuesday afternoon.

Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres (minor) with the afternoon high tide on Tuesday. Reach about 3 metres (moderate) with the high tides on Wednesday.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Further rises are possible at all four locations depending on further rain.

Next Issue:
The next warning will be issued at about 8am Tuesday.

Latest River Heights:

Lockyer Ck at Helidon #	12.68m steady	03:02 PM MON 10/01/11
Flagstone Ck at Brown-Zirbels Rd *	3.49m falling	02:10 AM TUE 11/01/11
Sandy Creek at Sandy Creek Road #	2.15m falling	03:19 AM TUE 11/01/11
Ma Ma Ck at Harm's *	3.26m rising	02:30 AM TUE 11/01/11
Tenthill Ck at Tenthill *	5.57m rising	02:40 AM TUE 11/01/11
Lockyer Ck at Gatton #	18.92m rising	06:30 PM MON 10/01/11
Laidley Ck at Mulgowie *	6.39m rising	02:20 AM TUE 11/01/11
Laidley Ck at Laidley	8.7m falling slowly	10:00 PM MON 10/01/11
Laidley Ck at Showground Weir #	7.84m rising	03:25 AM TUE 11/01/11
Laidley Ck at Warrego Hwy *	6.41m rising	02:00 AM TUE 11/01/11

Lockyer Ck at Glenore Grove #	13.8m falling	03:24 AM TUE 11/01/11
Lockyer Ck at Lyons Br #	15.55m rising	03:23 AM TUE 11/01/11
Lockyer Ck at Rifle Range Rd *	15.39m rising	02:40 AM TUE 11/01/11
Lockyer Ck at O'Reilly's Weir #	18m falling	03:28 AM TUE 11/01/11
Brisbane R at Lowood Pump Stn #	15.93m falling	03:31 AM TUE 11/01/11
Brisbane R at Savages Crossing #	15.89m rising	03:29 AM TUE 11/01/11
Brisbane R at Burtons Br #	12.22m rising	03:29 AM TUE 11/01/11
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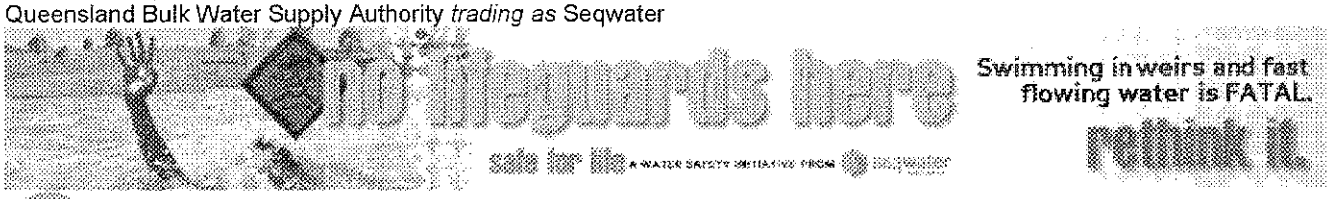
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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TECHNICAL SITUATION REPORT

TSR Number	W38	Date of TSR release	11.1.2011	Time of TSR release	6.30am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below RL74 at which significant releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Maintain current release of 2750cumecs as long as possible but it may need to be increased • Close sluices at Somerset Dam to store more water however will affect upstream areas. •	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam.

There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about

4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1400 m3/s and this discharge will be decreased in the next few hours to be around 500 m3/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening.

Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible.

If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s.

Impacts downstream of Wivenhoe Dam

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(ta include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

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From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 7:48 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Technical Report

Rob,

Can you please urgently provide dam levels as percentage?

Dan

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Tuesday, 11 January 2011 6:36 AM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Cc: David Roberts
Subject: RE: Technical Report

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The strategy is now to keep releases at current levels so as to not worsen the situation downstream as the Lockyer recorded levels higher than any on record at some spots. However we may still need to increase releases depending on what happens through the day.

The FOC have given our release strategy (not really different in releases at this stage) to the BoM and they will reissue their flood warnings based on that and other flows in the Lockyer and Bremer and downstream.

The FOC have spoken to BCC and ICC and we will send them an update. BCC are having a LDMG meeting this morning.

Rob

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Sent: Tuesday, January 11, 2011 4:06:54 AM
To: weather
Subject: BOM: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED] Auto forwarded by a Rule

TO::BOM615

IDQ20805

Australian Government Bureau of Meteorology Queensland

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rises expected during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane during Tuesday.

At the Brisbane City Gauge, minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

LOCKYER CREEK:
Extremely heavy rainfall during Monday led to extreme rises in the Lockyer Creek catchment and Laidley Creek at Mulgowie. Record flood levels of 18.92 metres were recorded at Gatton Monday evening before the station failed. This level was well above the previous record peak of 16.33 metres from the February 1893 flood.

The main flood waters are currently arriving at Lyons Bridge, with strong stream rises expected in the next few hours. The Lockyer Creek at Glenore Grove peaked at 14.60 metres at 11:30pm, which is 0.3 metres below the 1974 flood.

Renewed stream rises have commenced in Lockyer Creek at Lyons Bridge with a peak between 16 and 16.5 metres expected Tuesday morning. This is likely to be similar in level to the 1996 flood.

BREMER RIVER:
The Bremer River at Walloon has exceeded the moderate flood level. The Bremer River at Rosewood peaked at 5.8 metres around midnight monday.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

WARRILL CREEK
Warrill Creek at Amberley peaked at 5.98 metres around 9pm Monday.

MIDDLE AND LOWER BRISBANE:
Moderate flooding is developing at Savages Crossing and at Mt Crosby Weir.

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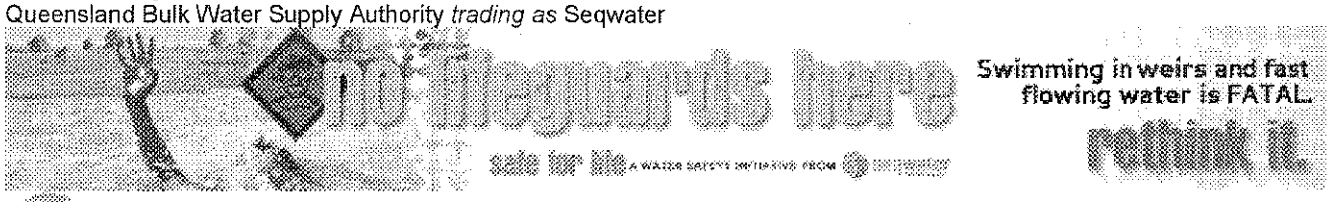

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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 7:58 AM
To: 'Daniel.Spiller@[redacted]
Subject: Re: Technical Report

Wiv. 173% Som 160%

From: Dan Spiller [redacted]
To: Rob Drury
Sent: Tue Jan 11 07:47:51 2011
Subject: RE: Technical Report

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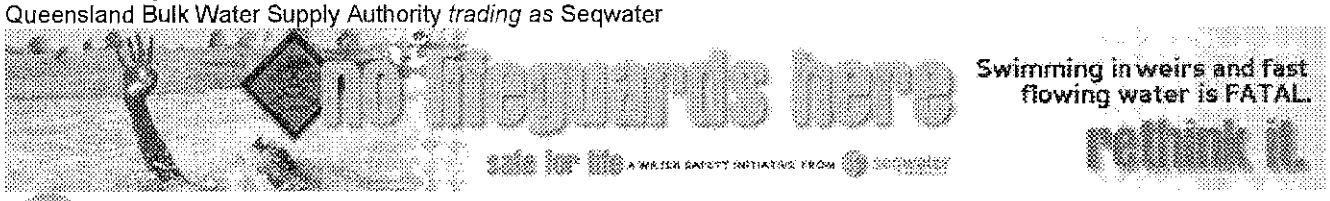
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 8:44 AM
To: Paul Bird [redacted]
Cc: Rob Drury [redacted]
Subject: RE: information Request

Paul refer to the Bureau site for official warnings

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [mailto:[redacted]
Sent: Tuesday, 11 January 2011 8:39 AM
To: Duty Seq
Cc: Rob Drury
Subject: information Request

I've been asked to prepare some material for Peter B and need to know what the critical times are today for Brisbane River levels in terms of urban flooding.

Hoping you can assist

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.

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From: Duty Seq <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 10:00 AM
To: Peter Borrows <pborrows@[redacted]
Cc: Rob Drury [redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted]
Subject: Possible Wivenhoe Release Strategy

Peter

Somerset/Wivenhoe

Our strategy revolves around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 4,500 to 5,000m3/s at the time. However, it may be that fuse plug initiation might provide a lower outflow than increase the gate outflow to protect it. In this case, we could adopt this scenario. Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

1. With no further rainfall, Wivenhoe will get to about 74.7 m AHD and we will be trying to limit the outflow will be about 3,700 to 4,500m3/s.
2. With 50mm rainfall in the Stanley and Upper Brisbane in the next 12 to 24 hours, we will need to significantly increase the release via the gates to as much as 7,500 to 9,000m3/s to prevent fuse plug initiation.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

Wivenhoe has lost incoming power and are on backup power and Energex are flying in personnel to rectify.

North Pine

Inflows and outflows are increasing very rapid but are still not extreme.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: David Roberts [redacted]
Sent: Tuesday, January 11, 2011 10:58 AM
To: Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted]
Stan Stevenson <sstevenson@[redacted]
Subject: Request From Water Grid Manager

Please send through scenario modelling on worst case scenario, please refer to Peter Burrows for details of what is required and send through to the WGM ASAP

David Roberts
Incident Coordinator
QLD Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | mob [redacted] | email [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000 Australia
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 11:33 AM
To: Rob Drury <rdrury@[redacted]
Subject: Fw: The Australian

Rob

Can you verify please?

Paul

From: Jade Simmons <Jade.Simmons@[redacted]
To: Paul Bird
Sent: Tue Jan 11 11:31:33 2011
Subject: FW: The Australian

Hi Paul,

Just wanted to check that if Wivenhoe Dam is at 173 per cent, this would be the equivalent of how much megalitres in the flood storage? I have calculated this at 1,058,500 megalitres in the flood storage compartment.

Would you be able to check this for me please?

Jade

From: Fraser, Andrew [mailto[redacted]au]
Sent: Tuesday, 11 January 2011 11:19 AM
To: SEQWGM Media
Subject: The Australian

Jade,

Thanks very much for information yesterday. I think the only thing I'm after today is how much water being held in the dam at the moment i.e. today's equivalent to the bit I've bolded. I realise you're very busy - thanking you.

Andrew Fraser
The Australian
[redacted]

From: SEQWGM Media [mailto:media@[redacted]
Sent: Monday, 10 January 2011 5:14 PM
To: Fraser, Andrew
Subject: RE: The Australian

Hi Andrew

Please find the answers to your questions below.

1. How much water is there in Wivenhoe Dam at the moment? Is this over capacity?

   On top of storing 1.15 million megalitres of drinking water, Wivenhoe can also store an additional 1.45 million megalitres in the flood storage compartment.

   At midday today, there was about 640,000 ML of flood water being held in the dam and rising. This means that the dam is at about 153 per cent of its full supply capacity.

Somerset Dam is at about 151 per cent of capacity, holding 220,000 ML of flood waters.

A lot of water has not yet reached the dam. Including this water, more than 2,000,000 ML is likely to be released from the dams during the current event.

2. How much will you be letting go tomorrow and Wednesday? Especially in the light of a king tide Wednesday?

Controlled releases are being increased today from 172,000 megalitres per day to 240,000 megalitres per day by midnight, through all five spillway gates at Wivenhoe Dam. These releases will continue for several days.

Release may need to be increased should there be further heavy rain. The release strategy is being assessed and conducted in consultation with the Bureau of Meteorology and local councils, utilising a strategy to limit impacts downstream.

The next King Tide is on 21 January 2010. See http://www[redacted]cgi-bin/oceanography/tides/tide_predications.cgi

3. Is this the fullest Wivenhoe has ever been?

Yes.

4. What are your plans for releasing water if rain continues at this rate?

See question 2

5. If not for Wivenhoe, can you give me an estimate of what river heights in Brisbane would be now?

Flows into the dams have peaked at about 1,000,000 megalitres per day. This does not include allowances for other flows, such as from the Lockyer.

The dam is allowing us to make controlled releases of 240,000 megalitres per day – about a quarter of the inflow rate.

Flows of 1,000,000 megalitres per day would have resulted in major urban flooding, with river levels similar to in 1974.

Shelley

Regards
SEQ Water Grid Communications Unit

For further details contact the SEQ Water Grid Communications Unit on:

Ph: [redacted] | **Email:** [redacted]

From: Fraser, Andrew [mailto[redacted]
Sent: Monday, 10 January 2011 3:35 PM
To: SEQWGM Media

Subject: The Australian

JADE – I appreciate that your guys are all busy today, but I would appreciate a response to below. An interview with someone would be my preference, but I can live with emailed responses.

Many thanks,

Andrew Fraser
The Australian
[redacted]

How much water is there in Wivenhoe Dam at the moment? Is this over capacity?

1. How much will you be letting go tomorrow and Wednesday? Especially in the light of a king tide Wednesday?
2. Is this the fullest Wivenhoe has ever been?
3. What are your plans for releasing water if rain continues at this rate?
4. If not for Wivenhoe, can you give me an estimate of what river heights in Brisbane would be now?

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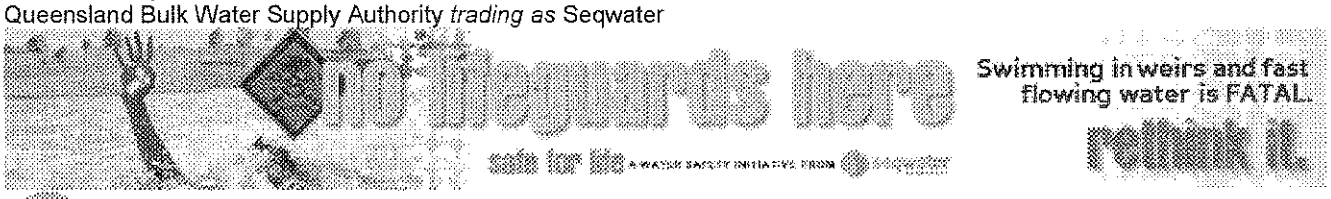
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 11:46 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: information Request

Are you guys able to do a status at 12pm.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Tuesday, 11 January 2011 8:44 AM
To: Paul Bird
Cc: Rob Drury
Subject: RE: information Request

Paul refer to the Bureau site for official warnings

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [mailto:pbird@[redacted]
Sent: Tuesday, 11 January 2011 8:39 AM
To: Duty Seq
Cc: Rob Drury
Subject: information Request

I've been asked to prepare some material for Peter B and need to know what the critical times are today for Brisbane River levels in terms of urban flooding.

Hoping you can assist

Cheers,

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

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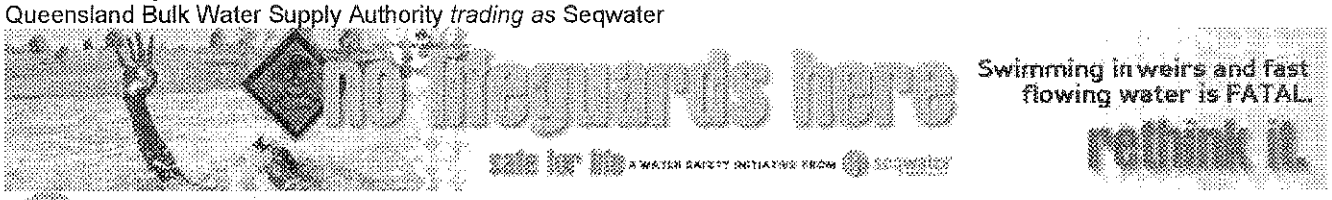
From: Rob Drury <[redacted]>
Sent: Tuesday, January 11, 2011 12:06 PM
To: Stan Stevenson [redacted]
Subject:
Attach: Technical Situation Report W39.docx

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W39	Date of TSR release	11.1.2011	Time of TSR release	12.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Maintain current release of 3970cumecs as long as possible but it may need to be increased • Close sluices at Somerset Dam to store more water however will affect upstream areas. •	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.30 AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Volume stored above FSL is 240,00ML at 163.3%

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is 74.1m AHD and rising at about 25 mm/hour. Holding 930,000ML above FSL and 179.5%.Releases from the dam are currently 3,970cumec/s. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

At this stage it is considered that without further rainfall the dam can be kept at around 74.8m.

The aim is to prevent fuse plug initiation.

Currently the situation is being assessed every 3 hours.

If further rainfall occurs, dam releases may need to be increased further.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 11, 2011 12:11 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] 'Tony Jacobs (private)' [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: SitRep 1200 11/1/2011

Somerset/Wivenhoe

Our current strategy revolves around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 4,500 to 5,000m3/s at the time. However, it may be that fuse plug initiation might provide a lower outflow than increasing the gate outflow to protect it. In this case, we would adopt an alternate scenario.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

1. With no further rainfall, Wivenhoe will approach 75.0m AHD and there will be an attempt to limit the dam outflow to 4,500m3/s, however this strategy currently being reviewed on an hour by hour basis. The release will be 4,000m3/s by 1300.
2. With 50mm rainfall in the Stanley and Upper Brisbane in the next 12 to 24 hours, the release will need to be significantly increased to be in the order 6,000m3/s.

It should be noted that the flow in the lower Brisbane River in 1974 was about 9,500m3/s

Wivenhoe has lost incoming mains power and are on backup power. Energex are attempting to rectify.

North Pine

Inflows and outflows are increasing very rapid and will exceed 2,000m3/s.

Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 12:14 PM
To: Agg Dagan <adagan@[redacted]
Cc: Rob Drury <rdrury@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Somerset Peak

At least 104.5m later tonight with higher peaks possible

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Agg Dagan [mailto:adagan@[redacted]
Sent: Tuesday, 11 January 2011 12:06 PM
To: Duty Seq
Subject: FW: Wivenhoe Directive #14

Terry I know you are busy but can ya tell me what you think the peak of Somerset Dam will be and when Thanks.

Agg Dagan
Dam Operator
QLD Bulk Water Supply Authority *trading as* Seqwater

QLD Bulk Water Supply Authority *trading as*
Ph (07) [redacted] | Fax (07) 5426 0124 | [redacted] | E [redacted]
Murrumba Terrace Somerset Dam 4312 Q Australia
Website | www[redacted]

From: Agg Dagan
Sent: Tuesday, 11 January 2011 12:01 PM
To: Duty Seq
Subject: RE: Wivenhoe Directive #14

Sorry Terry there is no Attachment.

Agg Dagan
Dam Operator
QLD Bulk Water Supply Authority *trading as* Seqwater

QLD Bulk Water Supply Authority *trading as*
Ph [redacted] | Fax [redacted] | M [redacted] | E [redacted]
Murrumba Terrace Somerset Dam 4312 Q Australia
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Tuesday, 11 January 2011 11:56 AM
To: Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: Wivenhoe Directive #14

Please find attached Wivenhoe Directive #14

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird <[redacted]>
Sent: Tuesday, January 11, 2011 12:30 PM
To: Rob Drury [redacted]
Subject: Update for review

Rob,

For review:

As at 1.00 pm on Tuesday 11 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted.

WIVENHOE DAM:
Releases through five gates have been increased to 344,000 megalitres as at 1.00pm and may need to be increased to around 516,000 megalitres a day by Wednesday 12 January due to rainfall in the Stanley and Upper Brisbane.

Local Councils have been advised that as a result of Lockyer Creek flows, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at least Sunday 16 January.

NORTH PINE DAM:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 4,300 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

no lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Stan Stevenson [redacted]
Sent: Tuesday, January 11, 2011 12:46 PM
To: Daniel.Spiller@[redacted] emergency@[redacted]
Cc: Peter Borrows [redacted] Rob Drury [redacted] Paul Bird <pbird@[redacted] David Roberts <droberts@[redacted]
Subject: Technical Situation Report W39 (2).docx
Attach: Technical Situation Report W39 (2).docx

Latest situation report for dam releases, Rob Drury is isolated on the road so I am sending on his behalf

Regards

Stan Stevenson
Acting EGM Water Delivery
QLD Bulk Water Supply Authority *trading as* Seqwater

Ph [redacted] | Fax [redacted] Mobile [redacted] | E [redacted]au
Level 3, 240 Margaret St, Brisbane City QLD 4000 Australia
PO Box 16146, City East QLD 4002
Website | www[redacted]

TECHNICAL SITUATION REPORT

TSR Number	W39	Date of TSR release	11.1.2011	Time of TSR release	12.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Maintain current release of 3970cumecs as long as possible but it may need to be increased • Close sluices at Somerset Dam to store more water however will affect upstream areas. • Current estimate of peak dam level is between EL74.5 and EL74.8 (assuming no further significant rainfall). However it is noted that rainfall is continuing across the catchment. • Further rainfall in the next 3 hours will require releases to be increased in accordance with Strategy W4, page 29 of the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam (Flood Operations Manual)	
Key considerations	Storage levels:	Above FSL
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	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.30 AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Volume stored above FSL is 240,00ML at 163.3%

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

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The dam level is 74.1m AHD and rising at about 25 mm/hour. Holding 930,000ML above FSL and 179.5%.Releases from the dam are currently 3,970cumec/s. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

At this stage it is considered that without further rainfall the dam can be kept at around 74.8m.

The aim is to prevent fuse plug initiation.

Currently the situation is being assessed every 3 hours.

If further rainfall occurs, dam releases may need to be increased further.

Outlook

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain farecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(ta include predicted local inundation areas and depths of inundation based on the information)

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ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

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SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: David Roberts [redacted]
Sent: Tuesday, January 11, 2011 12:47 PM
To: Rob Drury <rdrury@[redacted]
Subject: FW: SitRep 1200 11/1/2011

Rob,

Just to check there's no double up.

Do you from this report (below) from the duty Engineer, prepare the next Sitrep to Dan Spiller

David
M [redacted]

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Tuesday, 11 January 2011 12:11 PM
To: David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; 'Tony Jacobs (private)'; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: SitRep 1200 11/1/2011

Somerset/Wivenhoe

Our current strategy revolves around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 4,500 to 5,000m3/s at the time. However, it may be that fuse plug initiation might provide a lower outflow than increasing the gate outflow to protect it. In this case, we would adopt an alternate scenario.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

1. With no further rainfall, Wivenhoe will approach 75.0m AHD and there will be an attempt to limit the dam outflow to 4,500m3/s, however this strategy currently being reviewed on an hour by hour basis. The release will be 4,000m3/s by 1300.
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It should be noted that the flow in the lower Brisbane River in 1974 was about 9,500m3/s

Wivenhoe has lost incoming mains power and are on backup power. Energex are attempting to rectify.

North Pine

Inflows and outflows are increasing very rapid and will exceed 2,000m3/s.

Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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From: Jim Pruss [redacted]
Sent: Tuesday, January 11, 2011 1:00 PM
To: Rob Drury <rdrury@[redacted]
Subject: Update

Hi rob
Back on blackberry but stan still in the seat. When you get a chance would love a brief update and advice on how the flood ops guys are going

Jim

From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Tuesday, January 11, 2011 1:18 PM
To: Madgwick [redacted] stephen.robertson [redacted] Ken Smith ([redacted] Lance McCallum ([redacted] Tim Watts (tim.[redacted] lauren.sims [redacted] Martin.[redacted] Dunn.[redacted] Debbie Best (debbie.[redacted] terry.wall[redacted] Geoff Stead (geoff.[redacted]
Cc: Barry Dennien <Barry.Dennien@[redacted] Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted] Stan Stevenson <sstevenson@[redacted] Madgwick.[redacted]
Subject: Wivenhoe Dam release update
Attach: image001.png; Technical Situation Report W39 (2).docx

---

All,

Attached is the updated Technical Situation Report.

Releases from Wivenhoe Dam have needed to be increased to 3,970 cnbic metres per second. BoM is modelling based on this strategy.

Based on these releases, Wivenhoe Dam will peak at between 74.5 and 74.8m with no further inflows.

Further inflows will require further releases. Seqwater is considering worst case scenarios to provide to BoM and BCC to model impacts.

Regards,
Daniel Spiller

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If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.

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seqwater

WATER FOR LIFE

TECHNICAL SITUATION REPORT

TSR Number	W39	Date of TSR release	11.1.2011	Time of TSR release	12.00pm

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Outlook

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Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

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(to include predicted local inundation areas and depths of inundation based on the information)

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BCC Technical Officer contact details	[redacted]

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SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Peter Borrows [redacted]
Sent: Tuesday, January 11, 2011 2:05 PM
To: Rob Drury [redacted] Stan Stevenson [redacted]
Cc: Duty Engineer <dutyseq@[redacted] Peter Borrows <pborrows@[redacted]
Subject: FW: Technical Situation Report W39 (2).docx
Attach: Technical Situation Report W39 (2).docx

Rob, as well as a very brief high level comment on assumptions behind release strategy, can you include a statement on the inflows into the dam as well.

Thanks.

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
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Sent: Tuesday, 11 January 2011 12:46 PM
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Cc: Peter Borrows; Rob Drury; Paul Bird; David Roberts
Subject: Technical Situation Report W39 (2).docx

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Ph [redacted] | Fax [redacted] Mobile [redacted] | E [redacted]
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Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

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Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 2:11 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: SitRep 1200 11/1/2011

J and T can you also add what the inflows are currently to the updates please?

From: Duty Engineer <dutyseq@[redacted]
To: David Roberts; flood.qld@[redacted] <flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen [redacted] Rob Drury; Rohan Thorogood; 'Tony Jacobs (private)' [redacted] Ken.Price@[redacted] <Ken.Price@[redacted] kim.hang@[redacted] <kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West; Louw Van Blerk; Mark Tan; Neville Ablitt; [redacted]au; John Tibaldi; Rob.ayr[redacted]; Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Sent: Tue Jan 11 12:11:04 2011
Subject: SitRep 1200 11/1/2011

Somerset/Wivenhoe

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Wivenhoe has lost incoming mains power and are on backup power. Energex are attempting to rectify.

North Pine

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Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 2:12 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Fw: SitRep 1200 11/1/2011

From: Rob Drury
To: Duty Seq
Sent: Tue Jan 11 14:10:44 2011
Subject: Re: SitRep 1200 11/1/2011

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From: Tony Jacobs [redacted]
Sent: Tuesday, January 11, 2011 2:17 PM
To: Rob Drury <rdrury@[redacted]
Subject: Latest Release update

Rob,
Can I confirm my calculations? I make 516000Ml/day to be 6,000cumec.

We have lost power at Fernvale, so my home e-mail is not working, but luckily work is back online. However when my laptop and phone go flat I will be out of touch.

Tony Jacobs
Manager Operations
Somerset Regional Council
2 Redbank Street, Esk QLD 4312
Ph: (07)[redacted]
Fax: (07[redacted]
Email: tjacobs@[redacted]

----------Safe Stamp----------
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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 2:19 PM
To: 'TJacobs@somerset.qld.gov.au'
Subject: Re: Latest Release update

Correct

From: Tony Jacobs <[redacted]gov.au>
To: Rob Drury
Sent: Tue Jan 11 14:16:56 2011
Subject: Latest Release update

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Ph: ([redacted]
Fax: ([redacted]
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Sent: Tuesday, January 11, 2011 2:19 PM

To: Peter Borrows [redacted] Stan Stevenson <sstevenson@[redacted] Rob Drury [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted]

Cc: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rohan Thorogood <rthorogood@[redacted] Tony Jacobs (private) [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] Brett Schultz [redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Wivenhoe Dam Update

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time. Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

Wivenhoe Dam is rising very quickly and rapid gate openings are required to manage this increase. Based on the current rate of rise, inflow rate is in excess of 12,000m3/s. The situation is being revised constantly and releases will be increased hourly until the water level starts to stabilize. It is possible that the releases will be as high as 10,000m3/s in the next few hours. Heavy rainfall continues in the catchment especially around the dam.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine

Inflows and outflows are at record levels and increasing within inflows nearing 3,000m3/s, and is approaching an extreme event (possibly as high as 1 in 10,000 AEP)

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Sheralyn Grigg <de2f5942-300fdbc7-37f6c8e7-[redacted]
Sent: Tuesday, January 11, 2011 2:21 PM
To: Rob Drury <rdrury@[redacted]
Subject: Ian Douglas - Lowood police concerns with Atkinson dam wall failing. ph 54261108

Sheralyn Grigg
Administration Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted]
| E [redacted]
2470 Brisbane Valley Highway, via Fernvale QLD 4306
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: David Roberts [redacted]
Sent: Tuesday, January 11, 2011 3:22 PM
To: Rob Drury <rdrury@[redacted]
Subject: Technical Situation Report W40.docx
Attach: Technical Situation Report W40.docx

Please review and call me for any edits

TECHNICAL SITUATION REPORT

TSR Number	W40	Date of TSR release	11.1.2011	Time of TSR release	3.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Maintain current release 5100 cumecs as long as possible but it may need to be increased and is being reviewed every 30 minutes. • Close sluices at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe Dam

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time. Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

Wivenhoe Dam is rising very quickly and rapid gate openings are required to manage this increase. Based on the current rate of rise, inflow rate is in excess of 12,000m3/s. The situation is being revised constantly and releases will be increased hourly until the water level starts to stabilize. It is possible that the releases will be as high as 10,000m3/s in the next few hours. Heavy rainfall continues in the catchment especially around the dam.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s.

Travel time to Lower Brisbane River is 24 hours.

North Pine

Inflows and outflows are at record levels and increasing within inflows nearing 3,000m3/s, and is approaching an extreme event (possibly as high as 1 in 10,000 AEP)

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundatian areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 3:30 PM
To: David Roberts <droberts@[redacted]
Subject: Re: Technical Situation Report W40.docx

Ok

From: David Roberts
To: Rob Drury
Sent: Tue Jan 11 15:22:07 2011
Subject: Technical Situation Report W40.docx

Please review and call me for any edits

From: David Roberts [redacted]
Sent: Tuesday, January 11, 2011 3:33 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Technical Situation Report W40.docx

Thank you

David

M [redacted]

From: Rob Drury
Sent: Tuesday, 11 January 2011 3:30 PM
To: David Roberts
Subject: Re: Technical Situation Report W40.docx

Ok

From: David Roberts
To: Rob Drury
Sent: Tue Jan 11 15:22:07 2011
Subject: Technical Situation Report W40.docx

Please review and call me for any edits

From: Stan Stevenson [redacted]
Sent: Tuesday, January 11, 2011 3:58 PM
To: emergency@[redacted]
Cc: Daniel.Spiller@[redacted] Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted] Jim Pruss [redacted]
Subject: Technical Situation Report W40.docx
Attach: Technical Situation Report W40.docx

Latest update on releases from Wivenhoe

Regards

Stan Stevenson
Acting EGM Water Delivery
QLD Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] Mobile [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000 Australia
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W40	Date of TSR release	11.1.2011	Time of TSR release	4.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Inflows into Wivenhoe in excess of 12000 cumecs. • Maintain current release 5700 cumecs as long as possible but due to the high level in the dam may change frequently due to inflows, this is being reviewed every 30 minutes and releases adjusted accordingly. • Close sluices at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe Dam

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time. Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

Wivenhoe Dam is rising very quickly and rapid gate openings are required to manage this increase. Based on the current rate of rise, inflow rate is in excess of 12,000m3/s. The situation is being revised constantly and releases will be increased hourly until the water level starts to stabilize. It is possible that the releases will be as high as 10,000m3/s in the next few hours. Heavy rainfall continues in the catchment especially around the dam.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s.

Travel time to Lower Brisbane River is 24 hours.

North Pine

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Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

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(to include predicted local inundation areas and depths of inundation based on the information)

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ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

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SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Petula Martinz <Petula.Martinz@[redacted]
Sent: Tuesday, January 11, 2011 4:19 PM
To: Barry Dennien [redacted] Bob Reilly [redacted] Damien Brown <damien.brown [redacted] Darren Madgwick [redacted] Geoff Stead [redacted] Ken Smith [redacted] Kerry Dunn [redacted] Lance McCallum [redacted] Lauren Sims [redacted] Peter Borrows [redacted] Peter Martin [redacted] Rob Drury [redacted] SEQWGM Emergency [redacted] Stephen Robertson [redacted] Terry Wall [redacted] Tim Watts [redacted]
Subject: Wivenhoe Dam release update
Attach: Technical Situation Report W40.docx

All,

Current strategy from Flood Control Centre attached.

Dan

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
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TECHNICAL SITUATION REPORT

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Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

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BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

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(to include predicted local inundation areas and depths of inundation based on the information)

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BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

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SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

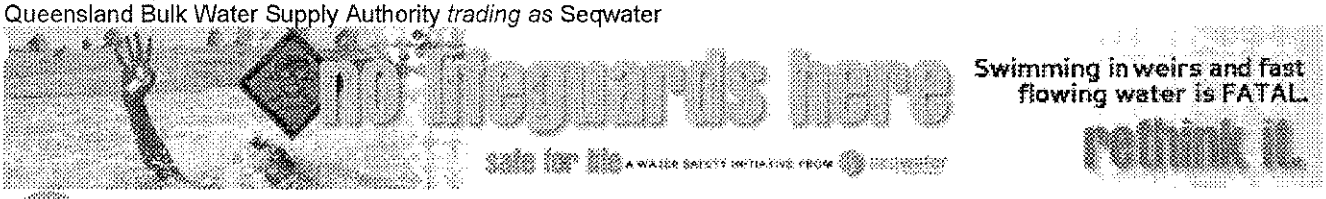
From: Rob Drury <rdrury@[redacted]
Sent: Tuesday, January 11, 2011 5:37 PM
To: Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] David Roberts <droberts@[redacted] Paul Bird <pbird@[redacted]
Subject: Technical Report

I am in the flood centre and the guys are doing a new update as we speak.
I will do up a new Technical Report when finished.

Stan, Mark Tan will continue doing his updates on Wivenhoe levels plus the extra info requested.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07[redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 5:38 PM
To: Rob Drury <[redacted] Stan Stevenson <sstevenson@[redacted]
Peter Borrows <[redacted] David Roberts
<[redacted]
Subject: RE: Technical Report

Thanks Rob,

I'll then update the 1800 and the Grid

Cheers

Paul

From: Rob Drury
Sent: Tuesday, 11 January 2011 5:37 PM
To: Stan Stevenson; Peter Borrows; David Roberts; Paul Bird
Subject: Technical Report

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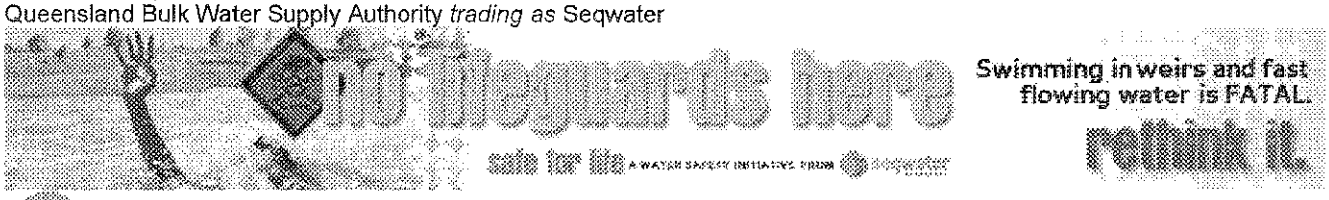
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Stan Stevenson [redacted]
Sent: Tuesday, January 11, 2011 5:57 PM
To: Rob Drury [redacted]
Subject: RE: Technical Report

Ok can we ensure the technical updates include;
Inflows into Wivenhoe
Release flows
Current level in relation to the fuse plug level

Regards

Stan

From: Rob Drury
Sent: Tuesday, 11 January 2011 5:37 PM
To: Stan Stevenson; Peter Borrows; David Roberts; Paul Bird
Subject: Technical Report

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I will do up a new Technical Report when finished.

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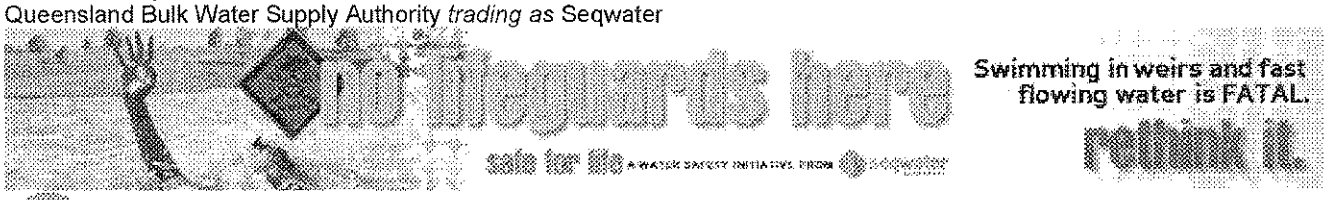
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 11, 2011 6:00 PM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury [redacted] Rohan Thorogood [redacted] 'Tony Jacobs (private)' [redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini[redacted]; John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted]

Subject: Situation Report 1800 12 Janaury 2011

In the last twelve hours totals of up to 370mm have fallen in the area around Wivenhoe Dam. In the last hour, rainfalls between 15 and 30mm have been recorded in the same area. At 1600, the BoM advised that falls between 50 to 100mm are still forecast for the 24hrs to 1600 Wednesday 12 January 2011 for the North Pine and Somerset/Wivenhoe catchments.

At 1730 Wivenhoe Dam was 74.92m AHD and rising slowly and releasing about 6,700m3/s.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall. At this time, release from the dam will be about 8,000 m3/s.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level.

Note that the automatic recorder as indicated on the BoM website is affected by drawdown and is not reflecting the actual lake level and tendency.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

The next report will be issued at 2100 12 January 2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Paul Bird <[redacted]
Sent: Tuesday, January 11, 2011 6:09 PM
To: Rob Drury [redacted]
Subject: Update for review please

As at 6.00 pm on Tuesday 11 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted.

WIVENHOE DAM:
Wivenhoe Dam is rising slowly and releasing about 576,000 megalitres per day.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall.

At this time, release from the dam will be about, 688,000 megalitres.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 6,600 megalitres a day is being made through the emergency gates and this will increase to around 8,000 megalitres per day by 6.pm Tuesday 11 January . There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated during the evening of Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater

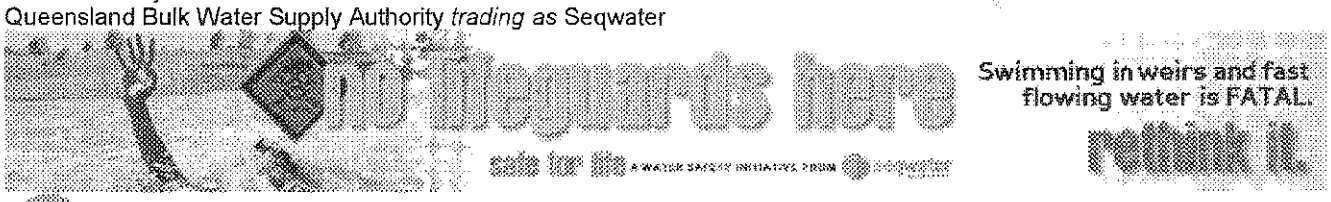
P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:12 PM
To: Paul Bird <pbird@[redacted]
Subject: RE: Update for review please

Fine

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Tuesday, 11 January 2011 6:09 PM
To: Rob Drury
Subject: Update for review please

As at 6.00 pm on Tuesday 11 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted.

WIVENHOE DAM:
Wivenhoe Dam is rising slowly and releasing about 576,000 megalitres per day.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall.

At this time, release from the dam will be about, 688,000 megalitres.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 6,600 megalitres a day is being made through the emergency gates and this will increase to around 8,000 megalitres per day by 6.pm Tuesday 11 January . There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated during the evening of Tuesday 11 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

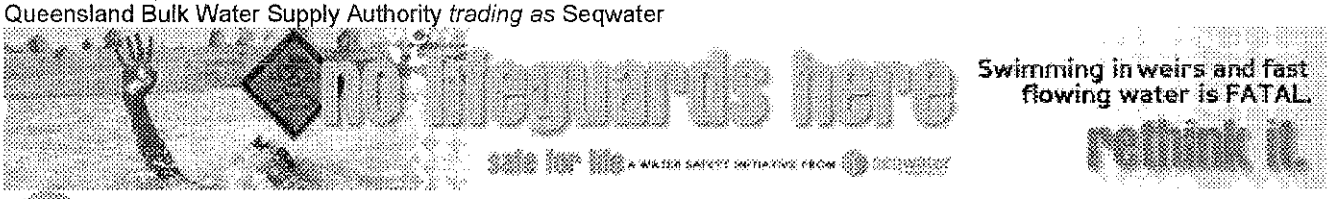
lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:19 PM
To: 'Lupulescu, Sorin' [redacted]
Subject:

Sorin,
As we discussed we are at close levels at Wivenhoe and if there was any possibility of you not discharging into Wivenhoe, or preferably taking water back into your dam, it would assist greatly.

Thanks
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



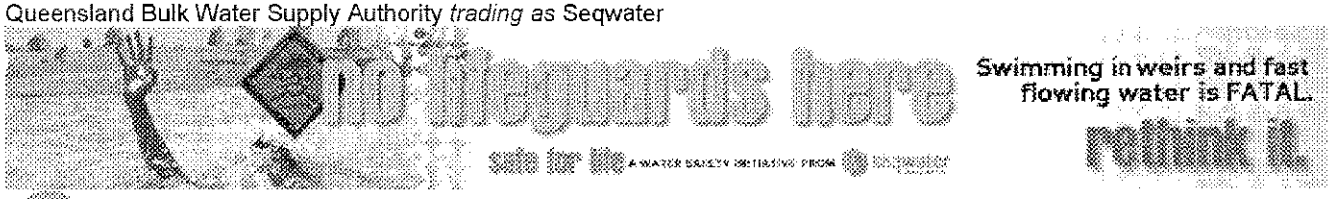
seqwater
Ph (07) [redacted] Fax (07 [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 6:28 PM
To: Rob Drury <[redacted] 'Daniel.Spille[redacted]Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts [redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W41.docx

Attached is the latest Technical Report.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W41	Date of TSR release	11.1.2011	Time of TSR release	6pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible
Strategy	• Peak inflows into Wivenhoe in excess of 12000 cumecs. • Increase releases to maintain fuse plug and dam integrity. • Close sluices at Somerset Dam to store more water however will affect upstream areas.
Key considerations	Storage levels: Above FSL
	Inflows: Inflows expected well over 1,500,000ML.
	Rainfall: Continuing
	Lockyer/Bremer: Monitoring their inflows
	Brisbane River: Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.41m holding 671,000ML and 176.6%.

In the last twelve hours totals of up to 370mm have fallen in the area around Wivenhoe Dam. In the last hour, rainfalls between 15 and 30mm have been recorded in the same area. At 1600, the BoM advised that falls between 50 to 100mm are still forecast for the 24hrs to 1600 Wednesday 12 January 2011 for the North Pine and Somerset/Wivenhoe catchments. Current inflows are about 9,000cumecs.

At 1730 Wivenhoe Dam was 74.92m AHD holding 2,200,000ML and 190% and rising slowly and releasing about 6,700m3/s.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall. At this time, release from the dam will be about 8,000 m3/s.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level.

Note that the automatic recorder as indicated on the BoM website is affected by drawdown and is not reflecting the actual lake level and tendency.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 86cumecs or 7396 megalitres a day is being made through the emergency gates and this will increase to around 8,000 megalitres per day by 6.pm Tuesday 11 January There is no public access to the spillway.

Wyralong Dam

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyaralong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyaralong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Craig Duncan [redacted]
Sent: Tuesday, January 11, 2011 6:36 PM
To: Rob Drury <rdrury@[redacted]
Cc: John Tibaldi <jtibaldi@[redacted] Terry Malone <tmalone@[redacted]
Subject: Fw: Emergency Management: Dam Release

Hi Rob,
FYI, Andrew from RCSC rang me for info as to LHD release. Advised that we've continued releases from starting on the 9th, passing inflows until further notice.

Also FYI, staff monitoring overnight at Maroon and Moogerah Dam's.

Regards,
Craig

From: Andrew Ross [redacted]
To: Craig Duncan
Cc: Katrina Udell [redacted]
Sent: Tue Jan 11 18:30:10 2011
Subject: Emergency Management: Dam Release

Craig,

As discussed we have activated our emergency coordination centre (ECC) and note the Leslie Harrison dam gates are currently open and will remain open whilst the rain is flowing. We are conscious of the concerns associated with high tides and potential for localised flooding and may contact you over the next few days. Please call us directly if you have any issues or interest.

Thanks Andrew

Wed : High Tide 2.24am and 2.16pm
Thurs: High Tide 3.29am and 3.13pm

Contacts:
Phil Bucknell – Manager [redacted]
Andrew Ross & Katrina Udell – Planning [redacted]
Emily Hippe – Operations [redacted]

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From: Petula Martinz [redacted]
Sent: Tuesday, January 11, 2011 6:44 PM
To: Barry Dennien [redacted] Bob Reilly [redacted] Damien Brown <[redacted] Darren Madgwick [redacted] Geoff Stead [redacted] Ken Smith [redacted] Kerry Dunn [redacted] Lance McCallum [redacted] Lauren Sims [redacted] Peter Borrows <pborrows@[redacted] Peter Martin [redacted] Rob Drury <rdrury@[redacted] SEQWGM Emergency [redacted] Stephen Robertson [redacted] Terry Wall [redacted] Tim Watts <tim.[redacted] SEQWGM Media [redacted] john.bradley[redacted]
Subject: Updated technical support report
Attach: Technical Situation Report W41.docx

All,

Updated report attached.

Regards,
Dan

Petula Martinz
Executive Assistant to Daniel Spiller
Director Operations
SEQ Water Grid Manager
Phone: [redacted] | **Fax:** [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street, Brisbane
Post: PO Box 16205, City East Qld 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W41	Date of TSR release	11.1.2011	Time of TSR release	6pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Peak inflows into Wivenhoe in excess of 12000 cumecs. • Increase releases to maintain fuse plug and dam integrity. • Close sluices at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.41m holding 671,000ML and 176.6%.

In the last twelve hours totals of up to 370mm have fallen in the area around Wivenhoe Dam. In the last hour, rainfalls between 15 and 30mm have been recorded in the same area. At 1600, the BoM advised that falls between 50 to 100mm are still forecast for the 24hrs to 1600 Wednesday 12 January 2011 for the North Pine and Somerset/Wivenhoe catchments. Current inflows are about 9,000cumecs.

At 1730 Wivenhoe Dam was 74.92m AHD holding 2,200,000ML and 190% and rising slowly and releasing about 6,700m3/s.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall. At this time, release from the dam will be about 8,000 m3/s.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level.

Note that the automatic recorder as indicated on the BoM website is affected by drawdown and is not reflecting the actual lake level and tendency.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 86cumecs or 7396 megalitres a day is being made through the emergency gates and this will increase to around 8,000 megalitres per day by 6.pm Tuesday 11 January There is no public access to the spillway.

Wyralong Dam

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyaralong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyaralong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updotes/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas ond depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

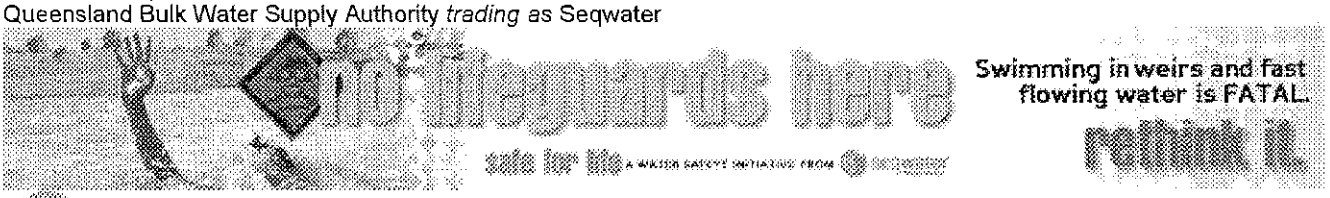
Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury <rdrury@seqwater.com>
Sent: Tuesday, January 11, 2011 7:29 PM
To: Rob Drury [redacted] 'Daniel.Spiller[redacted]; Paul Bird <pbird@[redacted]; Stan Stevenson [redacted]; Peter Borrows [redacted] 'Peter.[redacted]
Cc: David Roberts [redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W42.docx

Attached is the latest Technical Report.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W42	Date of TSR release	11.1.2011	Time of TSR release	7pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible
Strategy	• Peak inflows into Wivenhoe in excess of 12000 cumecs. • Increase releases to maintain fuse plug and dam integrity. • Close sluices at Somerset Dam to store more water however will affect upstream areas.
Key considerations	Storage levels: Above FSL
	Inflows: Inflows expected well over 1,500,000ML.
	Rainfall: Continuing
	Lockyer/Bremer: Monitoring their inflows
	Brisbane River: Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.6m holding 684,000ML and 180.0%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 1900 Wivenhoe Dam was 74.97m AHD holding 2,227,000ML and 191.1% and rising slowly and releasing about 7,500m3/s.

Since the last update, there has only been an increase in release to 7,500cumecs. At this stage there is no planned increase in releases unless there are further inflows.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Wyralong Dam

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyaralong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyaralong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin

BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

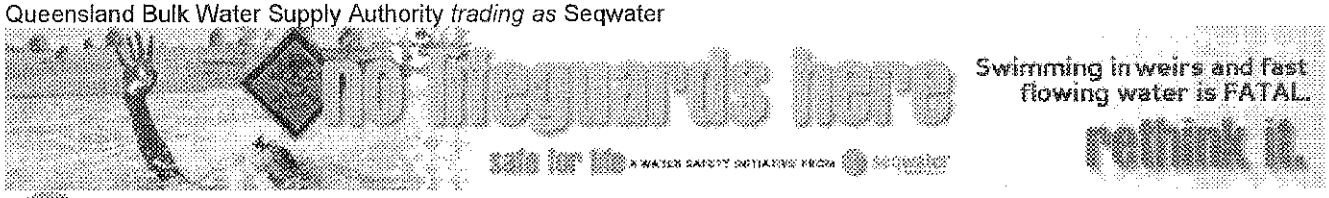
Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 8:11 PM
To: Duty Seq <dutyseq[redacted]
Subject: Report
Attach: Technical Situation Report W43.docx

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]au
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W43	Date of TSR release	11.1.2011	Time of TSR release	8pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible	
Strategy	• Peak inflows into Wivenhoe in excess of 12000 cumecs. • Increase releases to maintain fuse plug and dam integrity. • Close sluices at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.7m holding 691,500ML and 180.2%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2000 Wivenhoe Dam was 74.97m AHD holding 2,227,000ML and 191.1% and rising slowly and releasing about 7,500m3/s.

The levels have stayed the same for an hour so there are no planned increases in releases.

As soon as the levels show a drop, releases will be reduced.

The dam is now expected to peak around 74.97m AHD which is 100mmm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Wyralong Dam

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyaralong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyaralong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager

BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

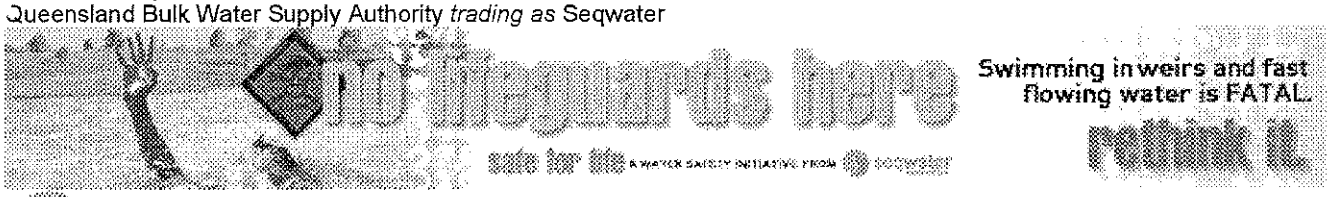
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 8:20 PM
To: Rob Drury [redacted] 'Daniel.Spiller@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows [redacted]
Cc: David Roberts <droberts@[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W43.docx

Attached report W43.

Levels at Wivenhoe now seem to be steady.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W43	Date of TSR release	11.1.2011	Time of TSR release	8pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible
Strategy	• Peak inflows into Wivenhoe in excess of 12000 cumecs. • Increase releases to maintain fuse plug and dam integrity. • Close sluices at Somerset Dam to store more water however will affect upstream areas.
Key considerations	Storage levels: Above FSL
	Inflows: Inflows expected well over 1,500,000ML.
	Rainfall: Continuing
	Lockyer/Bremer: Monitoring their inflows
	Brisbane River: Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.7m holding 691,500ML and 180.2%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2000 Wivenhoe Dam was 74.97m AHD holding 2,227,000ML and 191.1% and steady and releasing about 7,500m3/s.

The levels have stayed the same for an hour so there are no planned increases in releases.

As soon as the levels show they are dropping, releases will be reduced.

The dam is now expected to peak around 74.97m AHD which is around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Wyralong Dam

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyaralong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyaralong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager

BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

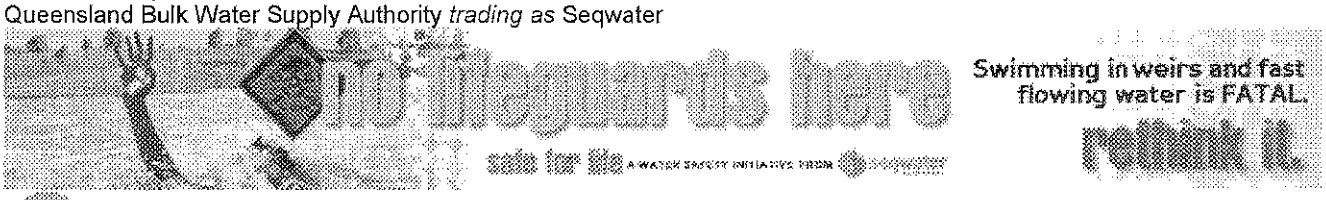
Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 8:30 PM
To: Paul Bird <pbird@[redacted]
Subject: RE: 1800 & Grid update for review please

Slight change.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Tuesday, 11 January 2011 8:26 PM
To: Rob Drury
Subject: 1800 & Grid update for review please

As at 8.30 pm on Tuesday 11 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted.

WIVENHOE DAM:
Wivenhoe Dam is currently releasing about 654,000 megalitres per day.

The levels have stayed the same for an hour so at this stage there are no planned increases in releases.

As soon as the levels show they are consistently dropping, releases will be reduced.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to

the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated in the event of a significant change.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
Swimming in weirs and fast flowing water is FATAL.
return it.

From: Paul Bird <[redacted]
Sent: Tuesday, January 11, 2011 8:31 PM
To: Rob Drury [redacted]
Subject: RE: 1800 & Grid update for review please

Thanks Rob

From: Rob Drury
Sent: Tuesday, 11 January 2011 8:30 PM
To: Paul Bird
Subject: RE: 1800 & Grid update for review please

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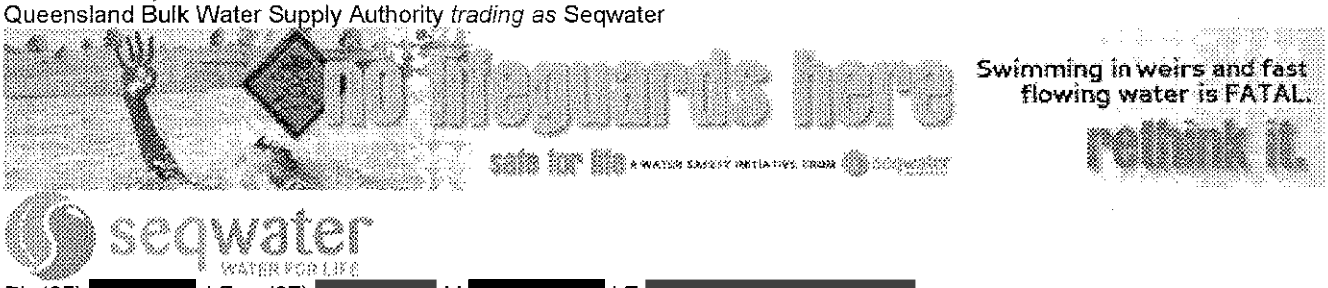
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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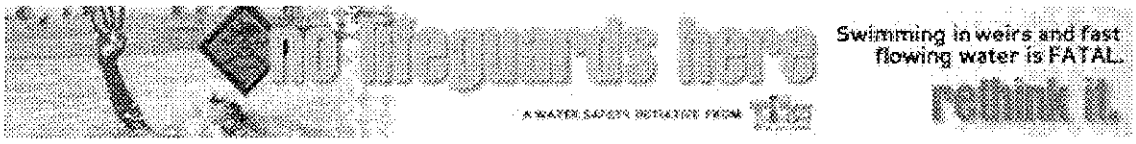


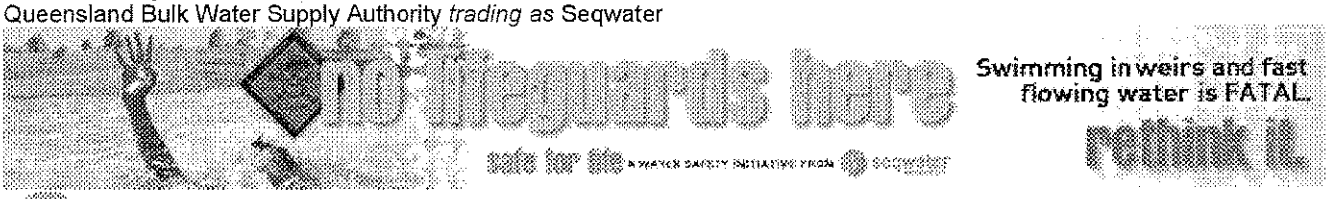
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 9:16 PM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird [redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W44.docx

Attached report.

Dam has peaked (assuming no more rain) and release reduction has been initiated.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W44	Date of TSR release	11.1.2011	Time of TSR release	8pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Initiate the gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Maintain controlled releases. • Keep sluices closed at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.78m holding 697,400ML and 183.6%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2100 Wivenhoe Dam was 74.95m AHD holding 2,223,000ML and 190.8% and slowly dropping.

The levels have now stabilized and commenced to fall slowly.

The FOC has begun an appropriate closure sequence to reduce releases.

Assuming no further rain, the dam has now peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

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Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Worning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas ond depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 9:20 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Technical Report

Thanks Robbie.

I'll look at another update after 10

Cheers

PB

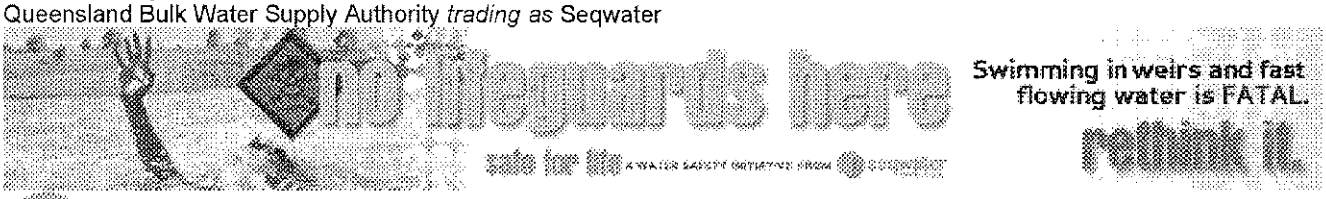
From: Rob Drury
Sent: Tuesday, 11 January 2011 9:16 PM
To: Rob Drury; 'Daniel.Spiller@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Cc: David Roberts
Subject: RE: Technical Report

Attached report.

Dam has peaked (assuming no more rain) and release reduction has been initiated.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Petula Martinz [redacted] on behalf of Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 9:25 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Technical Report

From: Rob Drury [mailto:[redacted]
Sent: Tuesday, 11 January 2011 9:16 PM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Cc: David Roberts
Subject: RE: Technical Report

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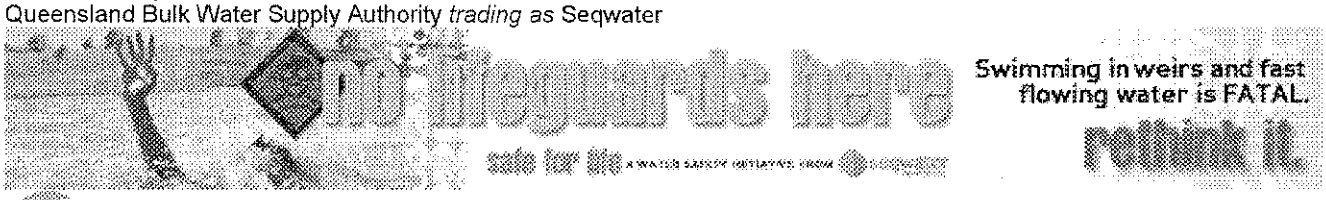

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----------Safe Stamp----------
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For more information regarding this service, please contact your service provider.

From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 9:28 PM
To: Rob Drury <rdrury@[redacted]
Subject: Re: Technical Report

Rob,

We will distribute this version widely. Can you pls update to state volumes?

Dan

On 11/01/2011, at 9:15 PM, "Rob Drury" [redacted]> wrote:

Attached report.

Dam has peaked (assuming no more rain) and release reduction has been initiated.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www[redacted]

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----------Safe Stamp----------
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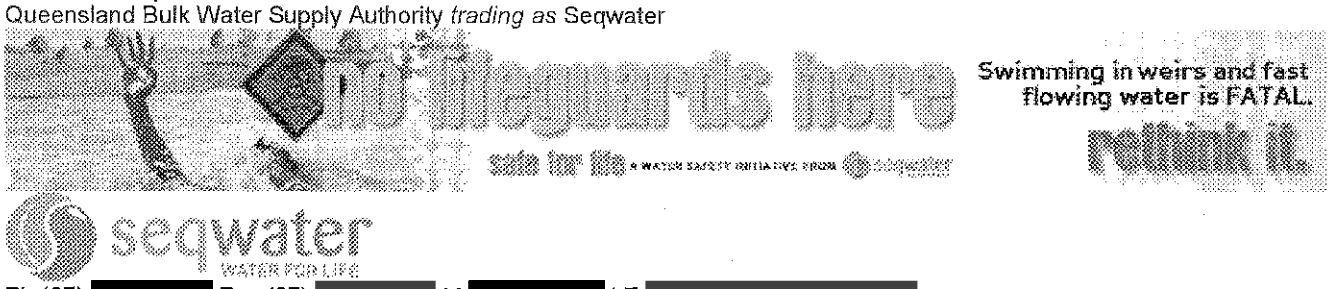
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 9:31 PM
To: 'Dan Spiller' [redacted]
Subject: RE: Technical Report

Sure,
I had the volumes of the dams in there, which volumes did you mean?

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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On 11/01/2011, at 9:15 PM, "Rob Drury" <rdrury [redacted] wrote:

> Attached report.
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> Rob
>
> **Robert Drury**
> Dam Operations Manager
> Water Delivery
> Queensland Bulk Water Supply Authority *trading as* Seqwater
> <image001.jpg>
> <image002.png>
> Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
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From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 9:33 PM
To: Rob Drury [redacted]
Subject: Re: Technical Report

Sorry, I meant release rates. You note the closure sequence, but not from what.

On 11/01/2011, at 9:31 PM, "Rob Drury" <[redacted]> wrote:

Sure,

I had the volumes of the dams in there, which volumes did you mean?

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]

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<Technical Situation Report W44.docx>

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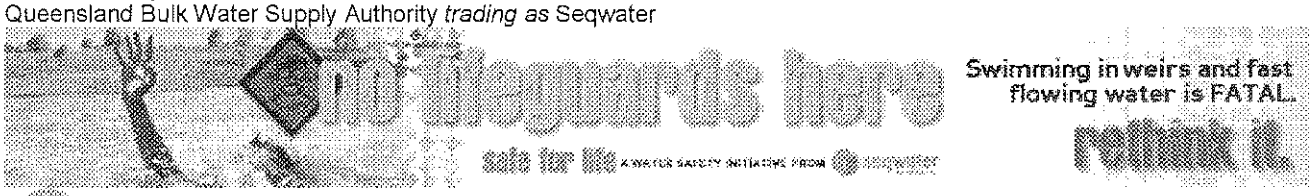
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 9:33 PM
To: 'Dan Spiller' [redacted]
Subject: RE: Technical Report

Just figured out what you meant, will send a new one through in a minute.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto [redacted]
Sent: Tuesday, 11 January 2011 9:33 PM
To: Rob Drury
Subject: Re: Technical Report

Sorry, I meant release rates. You note the closure sequence, but not from what.

On 11/01/2011, at 9:31 PM, "Rob Drury" [redacted] wrote:

> Sure,
> I had the volumes of the dams in there, which volumes did you mean?
>
> Rob
>
>
> **Robert Drury**
> Dam Operations Manager
> Water Delivery
> Queensland Bulk Water Supply Authority *trading as* Seqwater
> <image001.jpg>
> <image002.png>
> Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
> Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
> PO Box 37, Fernvale QLD 4306
> Website | www[redacted]
>
>
> ---
>
> **From:** Dan Spiller [mailto: [redacted]
> **Sent:** Tuesday, 11 January 2011 9:28 PM
> **To:** Rob Drury
> **Subject:** Re: Technical Report

Rob,

We will distribute this version widely. Can you pls update to state volumes?

Dan

On 11/01/2011, at 9:15 PM, "Rob Drury" <[redacted]> wrote:

Attached report.

Dam has peaked (assuming no more rain) and release reduction has been initiated.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] E [redacted]
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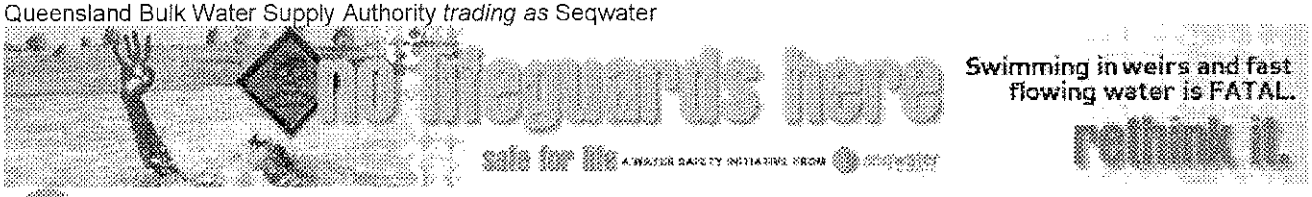
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 9:51 PM
To: 'Dan Spiller' [redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W44.docx

Dan,
Updated report.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

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Sent: Tuesday, 11 January 2011 9:33 PM
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Sent: Tuesday, 11 January 2011 9:28 PM
To: Rob Drury
Subject: Re: Technical Report

Rob,

We will distribute this version widely. Can you pls update to state volumes?

Dan

On 11/01/2011, at 9:15 PM, "Rob Drury" <rdrury[redacted] wrote:

Attached report.

Dam has peaked (assuming no more rain) and release reduction has been initiated.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater
<image001.jpg>
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TECHNICAL SITUATION REPORT

TSR Number	W44	Date of TSR release	11.1.2011	Time of TSR release	8pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Initiate the gradual reduction of releases.
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Maintain controlled releases. • Keep sluices closed at Somerset Dam to store more water however will affect upstream areas.
Key considerations	Storage levels: Above FSL
	Inflows: Inflows expected well over 1,500,000ML.
	Rainfall: Continuing
	Lockyer/Bremer: Monitoring their inflows
	Brisbane River: Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.78m holding 697,400ML and 183.6%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2100 Wivenhoe Dam was 74.95m AHD holding 2,223,000ML and 190.8% and slowly dropping.

The levels have now stabilized and commenced to fall slowly.

The FOC has begun an appropriate closure sequence to reduce releases.
Releases will be reduced slowly throughout the night to track dropping levels. First reduction will be to around 7,100cumecs.

Assuming no further rain, the dam has now peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weother/rain forecasts, Tropical Cyclone Warning etc) ond other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

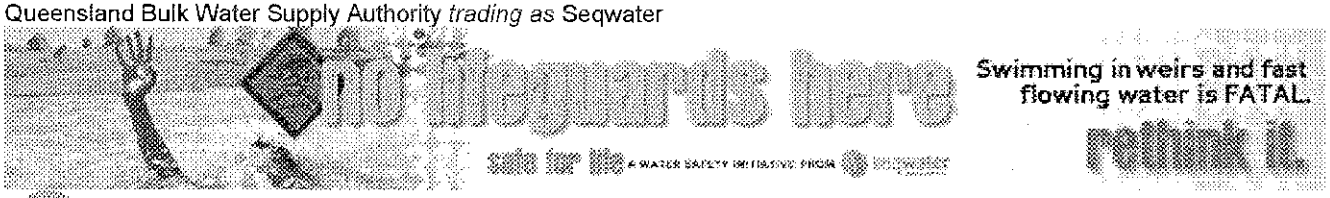
Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 10:07 PM
To: Rob Drury <[redacted] 'Daniel.Spiller[redacted]; Paul Bird <[redacted] Stan Stevenson <[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W45.docx

Attached report W45.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W45	Date of TSR release	11.1.2011	Time of TSR release	10pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Maintain controlled releases. • Keep sluices closed at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.85m holding 702,260ML and 185%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2200 Wivenhoe Dam was 74.95m AHD holding 2,223,000ML and 190.8%.

The FOC has begun an appropriate closure sequence to reduce releases.
Releases will be reduced slowly throughout the night to track dropping levels. First reduction has been to around 7,100cumecs.

Assuming no further rain, the dam peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Paul Bird [redacted]
Sent: Tuesday, January 11, 2011 10:11 PM
To: Rob Drury [redacted]
Subject: Update for review

As at 10.30 pm on Tuesday 11 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted.

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

Releases will be reduced slowly throughout the night to track dropping levels. First reduction has been to around 610,000 megalitres per day.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows.

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

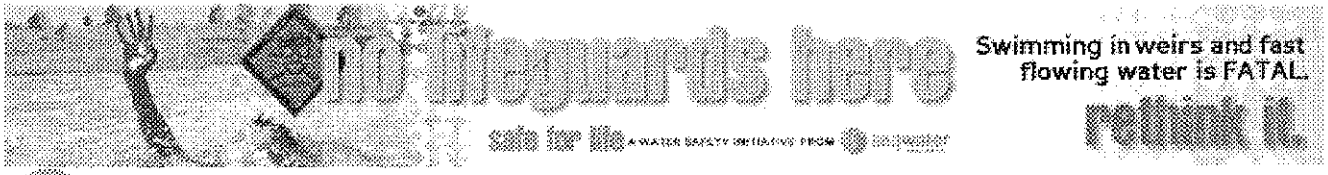
This information will be updated in the event of a significant change.

From: Rob Drury
Sent: Tuesday, 11 January 2011 10:07 PM
To: Rob Drury; 'Daniel.Spiller@[redacted] Paul Bird; Stan Stevenson; Peter Borrows; 'Peter.[redacted]
Cc: David Roberts
Subject: RE: Technical Report

Attached report W45.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 10:19 PM
To: stephen.[redacted] Lance McCallum ([redacted] Tim Watts ([redacted] Geoff Stead ([redacted] lauren.[redacted] John Bradley ([redacted] Debbie Best (debbie.best[redacted] Martin.Peter[redacted] Dunn.[redacted] Ken Smith ([redacted]
Cc: Rob Drury [redacted] Barry Dennien [redacted] Peter Borrows [redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] Madgwick.[redacted]
Subject: Wivenhow Dam update
Attach: Technical Situation Report W44.docx

All,

Attached is the most recent technical situation report.

Note that Wivenhoe Dam levels have stabilised and are now falling slowly. Without further rainfall, release rates will be reduced progressively. The first reduction will be to 7,100 cubic metres per second.

Regards,
Daniel Spiller

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TECHNICAL SITUATION REPORT

TSR Number	W44	Date of TSR release	11.1.2011	Time of TSR release	8pm

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	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

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The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	

From: Dan Spiller [redacted]
Sent: Tuesday, January 11, 2011 10:39 PM
To: Rob Drury <rdrury@[redacted] Peter Borrows [redacted]
Cc: Barry Dennien [redacted]
Subject: Morning update

Rob and Peter,

we understand that the next major media interview will be at 6am tomorrow.

To ensure sufficient time for briefing and preparation of materials, can you please provide a Technical Situation Report at 5am?

Thanks,
Dan

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
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From: Peter Borrows [redacted]
Sent: Tuesday, January 11, 2011 10:41 PM
To: Rob Drury <rdrury@[redacted]
Subject: Fw: Morning update

Can you organise for someone to do this Rob?

From: Dan Spiller [redacted]
To: Rob Drury; Peter Borrows
Cc: Barry Dennien [redacted]
Sent: Tue Jan 11 22:38:32 2011
Subject: Morning update

Rob and Peter,

we understand that the next major media interview will be at 6am tomorrow.

To ensure sufficient time for briefing and preparation of materials, can you please provide a Technical Situation Report at 5am?

Thanks,
Dan

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From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 10:57 PM
To: 'Daniel.Spiller@[redacted] Peter Borrows <pborrows@[redacted]
Cc: 'Barry.Dennien@[redacted]
Subject: Re: Morning update

Will do. Rob

From: Dan Spiller [redacted]
To: Rob Drury; Peter Borrows
Cc: Barry Dennien [redacted]
Sent: Tue Jan 11 22:38:32 2011
Subject: Morning update

Rob and Peter,

we understand that the next major media interview will be at 6am tomorrow.

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Thanks,
Dan

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 11, 2011 11:10 PM
To: DG-Ops Dam Levels <[redacted] DG-Ops duty enginners <[redacted] DG-Ops Dam Levels Central <OpsDamLevelsCentra[redacted]>; Rob Townsley <[redacted]
Subject: Wivenhoe Directive #27
Attach: OPS_Directive_Wivenhoe #27.doc

A copy of directive for you information.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 11/01/2011 Time: 23:00 Directive No: 27

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 11:30 on 11/01/2011

- Close Gates 5,1,4,2 and 3 to 10.0 m

Please advise the Flood Operations Centre by fax once you have completed this operation.

Rob Ayre
Duty Engineer

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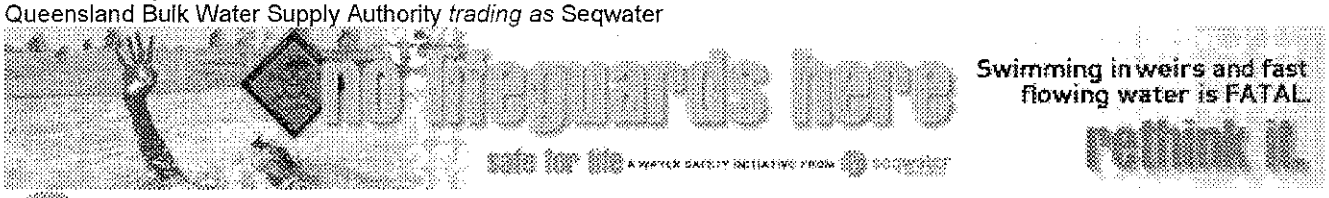
From: Rob Drury [redacted]
Sent: Tuesday, January 11, 2011 11:21 PM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted] Duty Seq <dutyseq@[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W46.docx

Attached report W46.

Next report will be 5am Wednesday 12.1.2011.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W46	Date of TSR release	11.1.2011	Time of TSR release	11pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Maintain controlled releases. • Keep sluices closed at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.90m holding 705,730ML and 185.8%.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 2300 Wivenhoe Dam was 74.92m AHD holding 2,219,000ML and 190.4%.

The FOC has begun an appropriate closure sequence to reduce releases.
Releases will be reduced throughout the night to track dropping levels. Another reduction will commence around 23:30 to 6,100cumecs. Further reductions will occur over night.

Assuming no further rain, the dam peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	AM	or Event	

From: Dan Spiller <Daniel.Spiller[redacted]>
Sent: Tuesday, January 11, 2011 11:43 PM
To: 'stephen.robertson[redacted] 'Ken Smith (ken.[redacted].au)'; 'john.bradley[redacted] 'Lance McCallum ([redacted] 'Tim Watts ([redacted] 'Geoff Stead ([redacted] 'lauren.[redacted] 'Martin.[redacted] 'Dunn.[redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] 'bob.reilly[redacted]'; 'Damien Brown ([redacted] 'Madgwick.[redacted]
Subject: Updated Wivenhoe Dam releases
Attach: Technical Situation Report W46.docx; ATT02603.txt

All,

Updated report attached.

At 2300, Wivenhoe Dam was at 74.92m AHD (190.4%) and holding.

The Flood Operations Centre has commenced a closure sequence. At 2330, releases will be reduced to 6,100 cubic metres per second.

The centre will continue to monitor rainfall and inflows and adjust as necessary.

With releases having peaked, the next report will be provided at 0500.

Regards,
Dan

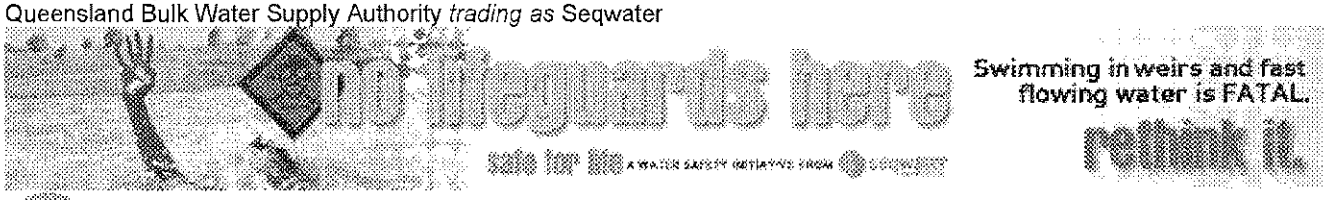
From: Rob Drury [mailto:rdrury@[redacted]
Sent: Tuesday, January 11, 2011 11:21 PM
To: Rob Drury; Dan Spiller; Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Cc: David Roberts; Duty Seq
Subject: RE: Technical Report

Attached report W46.

Next report will be 5am Wednesday 12.1.2011.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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TECHNICAL SITUATION REPORT

TSR Number	W46	Date of TSR release	11.1.2011	Time of TSR release	11pm

Seqwater status of inflows and dam operations

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Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based an the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	AM	or Event	

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From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 12, 2011 1:24 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld[redacted] John.Ruffini[redacted] John Tibaldi [redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone [redacted]
Subject: Wivenhoe Dam Directive #29 at 01:15 on Tuesdya 12 January 2011
Attach: OPS_Directive_Wivenhoe #29.doc

Please find attached a copy of Directive #29 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 12/01/2011 Time: 01:15 Directive No: 29

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 01:30 on 12/01/2011

- Close Gates 5,1,4,2 and 3 to 9.0 m

Please advise the Flood Operations Centre by fax once you have completed this operation.

Rob Ayre
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 12, 2011 3:38 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] flood.qld@[redacted] John.Ruffin[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Directive #30
Attach: OPS_Directive_Wivenhoe #30.doc

Please find attached a copy of the latest directive for Wivenhoe Dam

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) (07) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 12/01/2011 Time: 03:15 Directive No: 30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 03:30 on 12/01/2011

- Close Gates 5,1,4,2 and 3 to 8.0 m

Please advise the Flood Operations Centre by fax once you have completed this operation.

Rob Ayre
Duty Engineer

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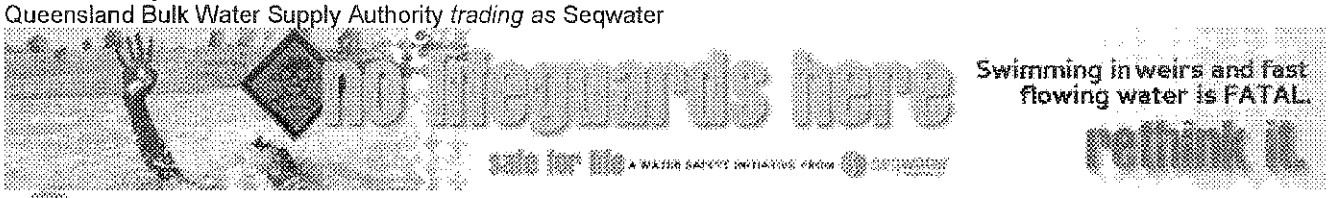
From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 5:20 AM
To: 'Daniel.Spiller@[redacted]
Subject: update

Dan,
Will send report in a minute.
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 5:31 AM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted] Duty Seq <dutyseq@[redacted]
Subject: RE: Technical Report
Attach: Technical Situation Report W47.docx

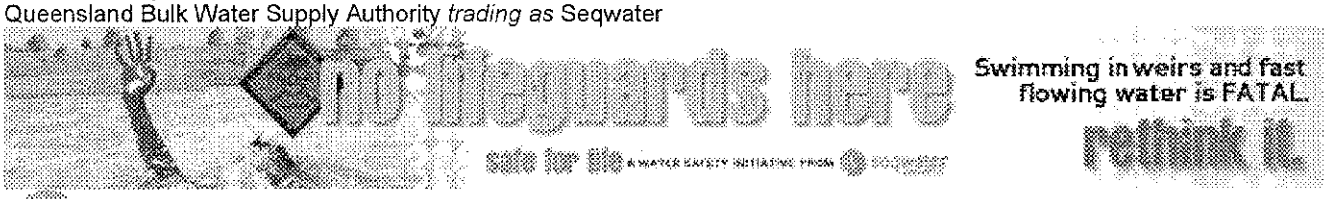
Attached report W47.

Current discharge is 4300cumecs and further reductions to drain the storages will occur. Somerset will also have to be released into Wivenhoe at some stage.

Next report later this morning.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W47	Date of TSR release	12.1.2011	Time of TSR release	5am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Maintain controlled releases. • Keep sluices closed at Somerset Dam to store more water however will affect upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolved ensuring dam security and was around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

Only minimal falls occurred overnight in the order of mm.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 105.1m holding 719730ML and 189.5%. Some flows are going over the Somerset spillway.

Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 0500 Wivenhoe Dam was 74.77m AHD holding 2,195,287ML and 188%.

The FOC has begun an appropriate closure sequence to reduce releases.

Current release rate is 4,300cumecs.
Further reductions will occur throughout the week..

Assuming no further rain, the dam peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

North Pine Dam:
Five gates are open and continuing to drop. Releases may still continue until Wednesday 12 January. The event magnitude is estimated to be a 1:10,000 year excedance probability.

The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundotion based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation oreos and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	PM	or Event	

From: Dan Spiller [redacted]
Sent: Wednesday, January 12, 2011 5:37 AM
To: stephen.[redacted] ken.smith@[redacted] Bradley John [redacted] lance.mccallum[redacted] Tim.Watts[redacted] Geoff.Stead[redacted] Lauren.Sims[redacted] 'Martin.[redacted] 'Dunn.[redacted] Best Debbie [redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Rob Drury [redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] Madgwick.[redacted] damien.brown[redacted] Reilly Bob [redacted]
Subject: Dam release update
Attach: Technical Situation Report W47.docx

All,

Attached is the most recent situation report.

There was minimum rainfall in the catchment last night, meaning that dam levels and release rates were reduced.

Wivenhoe Dam is currently at 188%, having peaked at about 191% (74.97m AHD, about 0.6m below the first fuse peak). Somerset Dam is at about 190%, which is its peak level.

Releases are now at 4,300 cubic metres per second (about 370,000 ML/day), having peaked at 7,500 cubic metres per second (about 650,000 ML/day) for a couple of hours.

We will update the report about every three hours. The next report will include more information about the closing sequence, including the broad timeframes for dam levels to be reduced. Note that, while dam levels are reducing, they remain at critical levels.

An update on water treatment will be provided later this morning.

Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: (07) [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W47	Date of TSR release	12.1.2011	Time of TSR release	5am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

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	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
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	Brisbane River:	Impact as below.

Somerset/Wivenhoe

Our strategy revolved ensuring dam security and was around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 10,000m3/s at the time.

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Somerset should peak at around 105.2m (1974 peak level was 106.5m).

At 0500 Wivenhoe Dam was 74.77m AHD holding 2,195,287ML and 188%.

The FOC has begun an appropriate closure sequence to reduce releases.

Current release rate is 4,300cumecs.
Further reductions will occur throughout the week..

Assuming no further rain, the dam peaked around 74.97m AHD which was around 600mm below the first fuse plug initiation level.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m3/s

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The local Council is being kept informed regarding Youngs Crossing.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the informotion)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

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ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

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SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	PM	or Event	

From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 5:39 AM
To: Rob Drury <rdrury@[redacted]
Subject: Release for review

Rob,

For your review please.. Need to make sure Leslie Harrison is correct and wondering if there's anything to update for North Pine in terms of potential close date.

As at 6.00 am on Wednesday 12 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted. Some releases are going over the spillway and releases into Wivenhoe will need to recommence during the day.

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

Releases have been reduced slowly during the night to drop levels and are currently at 369,800 megalitres per day.

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For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated during Wednesday January 12

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

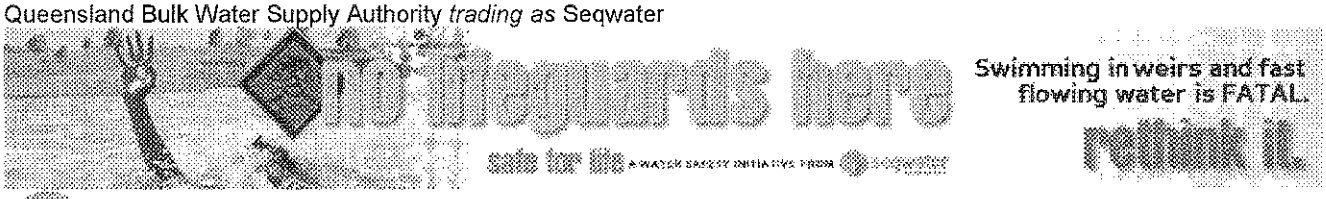
P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
think it.

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 5:48 AM
To: Paul Bird <pbird@[redacted]
Subject: RE: Release for review

Minor changes.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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This information will be updated during Wednesday January 12

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

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P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 12, 2011 5:49 AM

To: David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton <abickerton@[redacted] Deb Chandler [redacted] Mailbox <mail@[redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Situation Report 0600 Wed 12/01/2011

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Wivenhoe Dam peaked on the 11th January, Tuesday night at 19:00 at 74.97 mAHD with a corresponding discharge of 7,450 m3/s. The release have now been scaled back to 4,300m3/s at 05:00 am. Wivenhoe Dam is currently 74.77 m AHD and falling slowly.

The releases from Wivenhoe Dam will be temporarily reduced to 2,500 m3/s to allow the peak of Lockyer Creek to enter the Brisbane River, after which they will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

Somerset Dam is at 105.10 mAHD and slowly rising. The dam is discharging 1,230 m3/s over the spillway. The dam is expected to peak this morning near its current level. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing on Thursday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine Dam is currently releasing 105 m3/s through five gates. At 17:00 the lake was 39.78 mAHD. The event has a volume of around 200,000 ML. The peak discharge from the dam was 2,800 m3/s. This is categorised as an extreme event in the order of 1 in 10,000.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

The next report will be issued at 08:00 12 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 5:50 AM
To: Rob Drury [redacted]
Subject: RE: Release for review

Thanks Robbie.

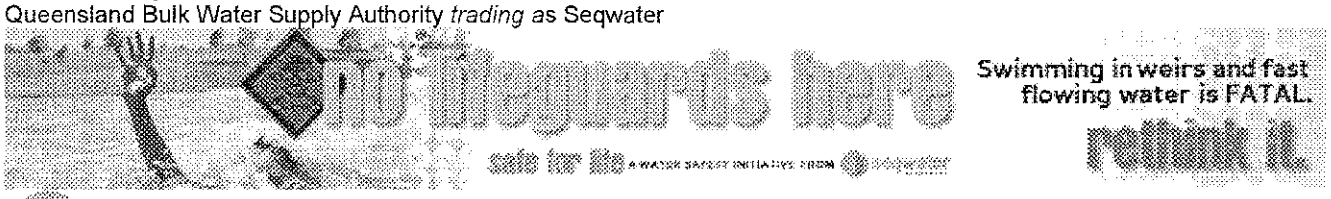
When are we likely to recommence producing the Wivenhoe & Somerset level figures?

Cheers

From: Rob Drury
Sent: Wednesday, 12 January 2011 05:48
To: Paul Bird
Subject: RE: Release for review

Minor changes.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



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WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Wednesday, 12 January 2011 5:39 AM
To: Rob Drury
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Rob,

For your review please.. Need to make sure Leslie Harrison is correct and wondering if there's anything to update for North Pine in terms of potential close date.

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For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated during Wednesday January 12

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

P [redacted] M [redacted] E [redacted]au
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PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 5:54 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update change

Rob,

Have changed Wivenhoe as follows to match the Duty Engineer sitrep

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

The releases from Wivenhoe Dam will be temporarily reduced to 215,00 to allow the peak of Lockyer Creek to enter the Brisbane River, after which they will be increased to maximum of 301,000 megalitres.

This release will then be maintained to drain the flood storage component within the required seven days.

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Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
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Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

No lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

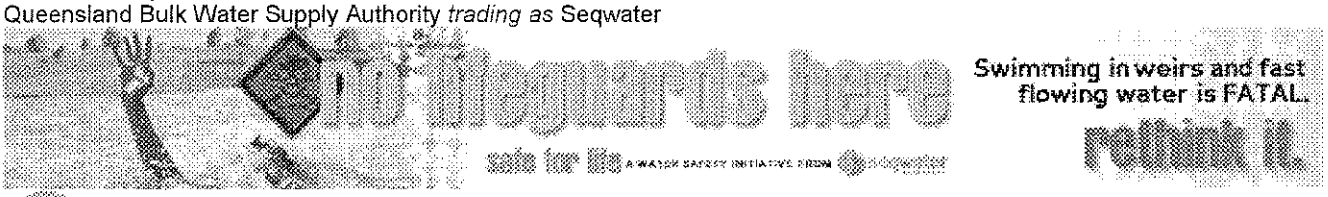
From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 6:43 AM
To: Duty Seq <[redacted]>
Subject: RE: Situation Report 0600 Wed 12/01/2011

Rob,
I will do another of my updates about 8am.
I will include your closing plans as well.

Can you also advise any rough times of when we might get to 2500 and maybe what the Lockyer flow is we are going on the back of?

Tell JT Matt Hegarty is inspecting d/s of NPD to assess but Mal advises there are boulders where the access road was and checking Youngs Crossing levels is easy now as he reckons he can see it from the dam wall.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Wednesday, 12 January 2011 5:49 AM
To: David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; 'Tony Jacobs (private)'; Andy Bickerton; Deb Chandler; Mailbox; Tony Trace; Chris Lavin; Craig Logan; Don Carroll; Evan Caswell; 'Flood Information Centre'; James Charalambous; Ken Morris; Robert McGlinn; Santina Pennisi; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: Situation Report 0600 Wed 12/01/2011

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Wivenhoe Dam peaked on the 11th January, Tuesday night at 19:00 at 74.97 mAHD with a corresponding discharge of 7,450 m3/s. The release have now been scaled back to 4,300m3/s at 05:00 am. Wivenhoe Dam is currently 74.77 m AHD and falling slowly.

The releases from Wivenhoe Dam will be temporarily reduced to 2,500 m3/s to allow the peak of Lockyer Creek to enter the Brisbane River, after which they will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

Somerset Dam is at 105.10 mAHD and slowly rising. The dam is discharging 1,230 m3/s over the spillway. The dam is expected to peak this morning near its current level. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing on Thursday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine Dam is currently releasing 105 m3/s through five gates. At 17:00 the lake was 39.78 mAHD. The event has a volume of around 200,000 ML. The peak discharge from the dam was 2,800 m3/s. This is categorised as an extreme event in the order of 1 in 10,000.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

The next report will be issued at 08:00 12 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 12, 2011 7:57 AM

To: Duty Seq <dutyseq@[redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird [redacted] Peter Allen [redacted] Rob Drury [redacted] Rohan Thorogood [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@brisbane.qld.gov.au>; Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk [redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: RE: Situation Report 0800 Wed 12/01/2011

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011 and the dam is discharging 1,230 m3/s over the spillway. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing later Wednesday.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.75 m AHD at 07:30 and generally falling slowly.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine

At 07:00 North Pine Dam was 39.78 mAHD falling and releasing about 105 m3/s. North Pine has peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be close later Wednesday or early Thursday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

The next report will be issued at 12:00 12 January 2011.

Regards

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 7:58 AM
To: 'Dan Spiller' [redacted]
Subject: RE: Dam release update

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

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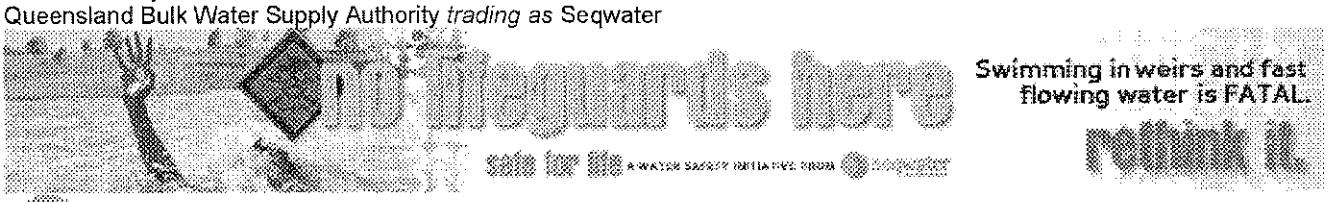
Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto [redacted]
Sent: Wednesday, 12 January 2011 5:37 AM

To: stephen.[redacted] ken.smith[redacted] Bradley John;
lance.mccallu[redacted] Tim.Watts[redacted] Geoff.[redacted]
Lauren.[redacted] 'Martin.[redacted] 'Dunn.[redacted] Best Debbie
Cc: Barry Dennien; Peter Borrows; Rob Drury; SEQWGM Media; SEQWGM Emergency;
Madgwick.[redacted] damien.brown[redacted] Reilly Bob
Subject: Dam release update

All,

Attached is the most recent situation report.

There was minimum rainfall in the catchment last night, meaning that dam levels and release rates were reduced.

Wivenhoe Dam is currently at 188%, having peaked at about 191% (74.97m AHD, about 0.6m below the first fuse peak). Somerset Dam is at about 190%, which is its peak level.

Releases are now at 4,300 cubic metres per second (about 370,000 ML/day), having peaked at 7,500 cubic metres per second (about 650,000 ML/day) for a couple of hours.

We will update the report about every three hours. The next report will include more information about the closing sequence, including the broad timeframes for dam levels to be reduced. Note that, while dam levels are reducing, they remain at critical levels.

An update on water treatment will be provided later this morning.

Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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From: Dan Spiller [redacted]
Sent: Wednesday, January 12, 2011 8:02 AM
To: Rob Drury <rdrury[redacted]
Subject: RE: Dam release update

Thanks. Got it to him.

From: Rob Drury [mailto:[redacted]
Sent: Wednesday, January 12, 2011 7:58 AM
To: Dan Spiller
Subject: RE: Dam release update

Rainfall

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Strategy

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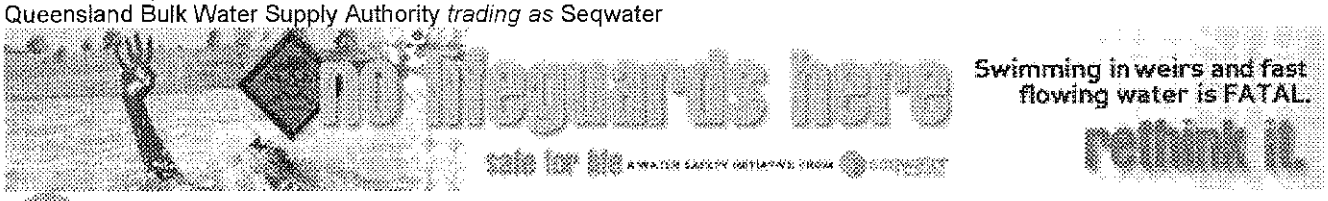
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.s[redacted]

From: Dan Spiller [mailto:[redacted]
Sent: Wednesday, 12 January 2011 5:37 AM
To: stephen.[redacted] ken.smith[redacted] Bradley John; lance.mcca[redacted] Tim.[redacted] Geoff.[redacted] Lauren.[redacted] 'Martin.[redacted] 'Dunn.[redacted] Best Debbie
Cc: Barry Dennien; Peter Borrows; Rob Drury; SEQWGM Media; SEQWGM Emergency; Madgwick.[redacted] damien.browr[redacted] Reilly Bob
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Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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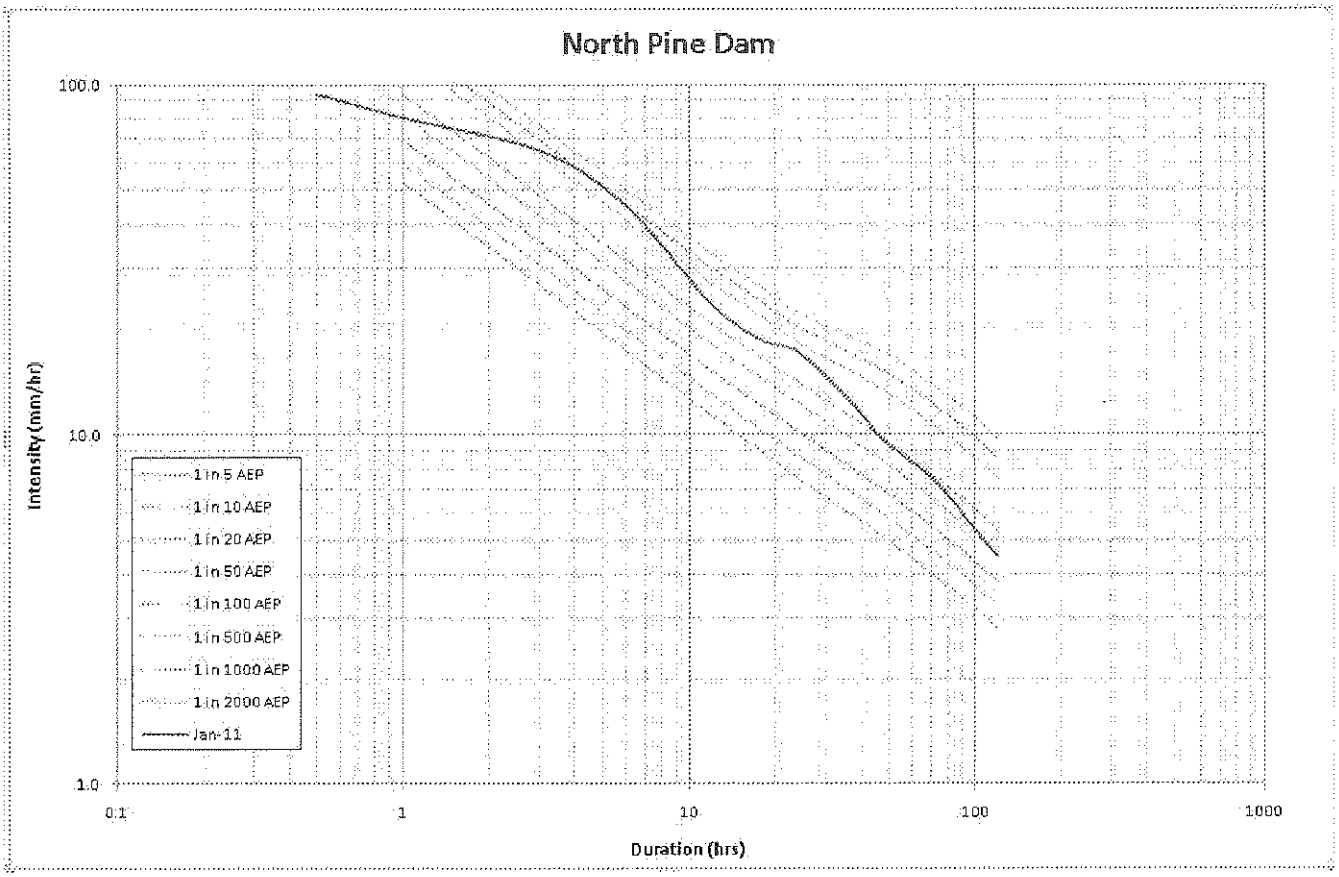
From: Duty Engineer <d[redacted]
Sent: Wednesday, January 12, 2011 8:11 AM
To: Rob Drury <rdrury@[redacted] John.Ruffin[redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: North Pine IFD Analysis



Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 8:11 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update for review

Rob,

For your review please

As at 8.00 am on Wednesday 12 January, the following applies:

SOMERSET DAM:
Releases have stopped, however levels in Somerset are expected to continue rising and areas around Kilcoy are likely to be impacted. Some releases are going over the spillway and releases into Wivenhoe will need to recommence later on Wednesday 12 January.

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

The releases from Wivenhoe Dam have been temporarily reduced to 215,000 megalitres per day to allow the peak of Lockyer Creek to enter the Brisbane River.

After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 301,000 megalitres per day.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue. It is expected with no further rain to close the gates today or tomorrow.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows. It is expected that the dam release may finish later today.

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P 07[redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002

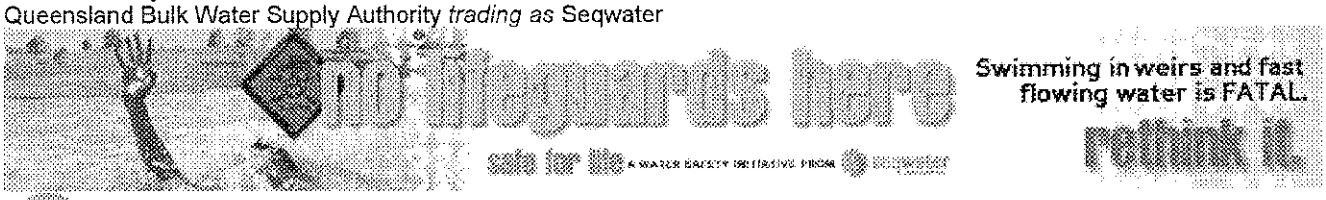
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 8:21 AM
To: Rob Drury <rdrury@[redacted] 'Daniel.Spiller@[redacted] Paul Bird <pbird@[redacted] Stan Stevenson <sstevenson@[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted] Duty Seq <dutyseq@[redacted]
Subject: RE: Technical Report W48
Attach: Technical Situation Report W48.docx

Attached report W48.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W48	Date of TSR release	12.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Develop and implement closing plan for next 7 or so days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,000,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam is discharging 1,230 m3/s over the spillway. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing later Wednesday. At 8am Somerset was 105.11m and 720,400ML at 189.7%.

Wivenhoe Dam peaked at 74.97 m AHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.75 m AHD at 2,192,000ML and 188.1% at 07:30 and generally falling slowly.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine

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Strategy

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Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted locol inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

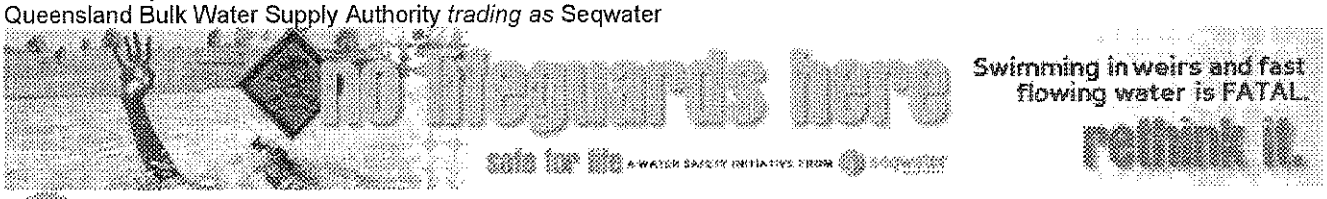
Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	11am	or Event	

From: Rob Drury <[redacted]
Sent: Wednesday, January 12, 2011 8:23 AM
To: Paul Bird <[redacted]
Subject: RE: Update for review

Some change to Somerset.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Wednesday, 12 January 2011 8:11 AM
To: Rob Drury
Subject: Update for review

Rob,

For your review please

As at 8.00 am on Wednesday 12 January, the following applies:

SOMERSET DAM:
Releases have stopped and the level in Somerset has almost peaked.
Some releases are going over the spillway and sluice releases into Wivenhoe will need to recommence later on Wednesday 12 January.

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

The releases from Wivenhoe Dam have been temporarily reduced to 215,000 megalitres per day to allow the peak of Lockyer Creek to enter the Brisbane River.

After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 301,000 megalitres per day to drain the storage.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and will continue. It is expected with no further rain to close the gates today or tomorrow.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows. It is expected that the dam release may finish later today.

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater

P [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

No lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 12, 2011 8:27 AM
To: Rob Drury [redacted]
Subject: RE: Technical Report W48

Rob

We can't open docx!

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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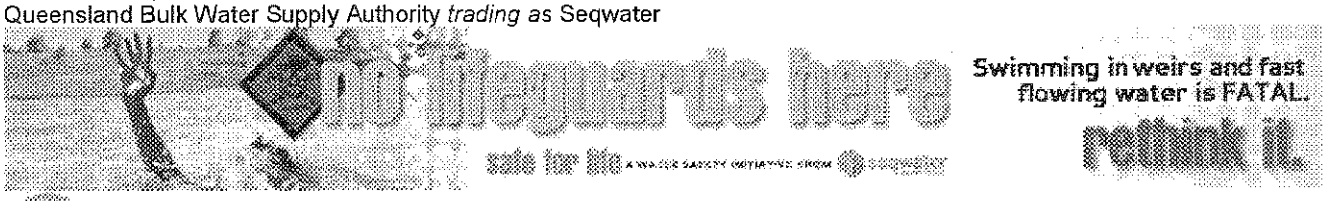
From: Rob Drury [mailto:rdrury@[redacted]
Sent: Wednesday, 12 January 2011 8:21 AM
To: Rob Drury; [redacted] Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Cc: David Roberts; Duty Seq
Subject: RE: Technical Report W48

Attached report W48.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 8:35 AM
To: Mark Tan <mtan@s[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: RE: Seqwater Storage Capacities Update at 8:00hrs on Wednesday 12 Jan 2011

Thanks Mark,

Great job.. very helpful

Cheers,

Paul

From: Mark Tan
Sent: Wednesday, 12 January 2011 08:30
To: Rob Drury; Paul Bird; Arminda Roberts; John Tibaldi; Tara King; Stan Stevenson
Subject: Seqwater Storage Capacities Update at 8:00hrs on Wednesday 12 Jan 2011

Good morning,

Not much has changed.
Wivenhoe's level has bounced up 30mm in last hour.
Somerset's level is holding at 105.11mAHD.
Levels at a number of our storages are falling gradually.
Please note from Hinze dam level is from yesterday. We'll receive an update later today.

seqwater

Dam Capacities on 12 January 2011

Dam	FSL		12/01/2011 7:00		12/01/2011 8:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Atkinson Dam	65.72	30,488	65.76	30,665	65.76	30,665	100.6%	0.0%
Baroon Pocket Dam	217.00	61,000	218.34	67,030	218.32	66,940	109.7%	0.1%
Bill Gunn Dam	110.00	6,947	110.43	7,428	110.43	7,428	106.9%	0.0%
Borumba Dam	135.01	45,557	136.73	52,078	136.73	52,078	113.3%	0.0%
Bromelton Dam	44.50	8,210	44.35	8,061	44.35	8,061	98.2%	0.0%
Cedar Pocket Dam	101.07	730	101.40	803	101.40	803	110.0%	0.0%
Cooloolabin Dam	296.00	13,820	296.20	14,257	296.20	14,257	103.2%	0.0%
Enoggera Dam	74.37	4,567	76.35	5,721	76.33	5,710	125.0%	0.0%
Ewen Maddock Dam	25.38	16,587	26.26	20,298	26.24	20,657	124.5%	2.2%
Gold Creek Dam	92.75	801	95.86	1,430	95.86	1,430	178.6%	0.0%
Hinze Dam	82.20	161,079	84.11	180,537	84.11	180,537	112.1%	0.0%
Lake Clarendon Dam	98.00	24,276	105.05		105.05			0.0%
Lake Kurwongbah (Sideling Creek Dam)	20.42	14,370	20.68	15,284	20.65	15,245	106.2%	0.3%
Lake MacDonald Dam	95.92	8,018	95.95	9,739	95.95	9,739	121.5%	0.0%
Lake Manchester Dam	50.90	26,217	51.83	28,815	51.83	28,815	109.9%	0.0%
Leslie Harrison Dam	18.32	24,868	18.10	23,918	18.10	23,918	96.2%	0.0%
Little Nerang Dam	168.02	6,705	168.50	6,919	169.50	6,919	103.2%	0.0%
Maroon Dam	207.14	44,319	210.04	54,590	209.95	54,275	122.5%	0.7%
Moogerah Dam	154.91	83,765	157.12	103,076	157.12	103,076	123.1%	0.0%
Nindooinbah Dam	122.80	222						0.0%
North Pine Dam	39.60	214,802	39.79	218,466	39.78	218,247	101.8%	0.1%
Poona Dam	152.70	655	152.74	662	152.73	660	100.8%	0.3%
Somerset Dam	**99.00**	**379,849**	**105.11**	**720,436**	**105.11**	**720,436**	**189.7%**	**0.0%**
Wappa Dam	44.81	4,694	48.37	7,631	48.37	7,631	162.6%	0.0%
Wivenhoe Dam	**67.00**	**1,165,238**	**74.75**	**2,192,113**	**74.73**	**2,196,874**	**188.5%**	**0.4%**
Splityard Creek Dam			157.60	20,188	157.55	28,144		0.0%
Adjusted Wivenhoe Dam	**67.00**	**1,165,238**		**2,194,762**		**2,194,718**	**188.3%**	**0.0%**
Total - North Pine, Somerset & Wivenhoe		**1,759,389**		**3,128,903**		**3,133,401**	**178.1%**	**0.3%**
Total - All		**2,347,773**		**3,767,968**		**3,772,244**	**160.7%**	**0.2%**

This table can also be found on our intranet here → S:\WaterDelivery\Ops_Intranet\Reports\Daily Capacities Update.mht
Please do not hesitate to contact me if you have any queries.

Kind regards,

Mark Tan
Information Analyst
Queensland Bulk Water Supply Authority *trading as* Seqwater

From: Paul Bird <pbird@seqwater.com>
Sent: Wednesday, January 12, 2011 8:43 AM
To: Mark Tan <mtan@[redacted] Rob Drury [redacted] Arminda Roberts [redacted] John Tibaldi <[redacted]; Tara King [redacted] Stan Stevenson [redacted]
Subject: RE: please send me your secondary email account if we lose our connection to Margaret St office

---

Mine is [redacted]

From: Mark Tan
Sent: Wednesday, 12 January 2011 08:39
To: Rob Drury; Paul Bird; Arminda Roberts; John Tibaldi; Tara King; Stan Stevenson
Subject: please send me your secondary email account if we lose our connection to Margaret St office

Got it.
Can everyone send me their secondary email contact? If we lose our connection, I'll email from my personal email account.
My personal email is: [redacted]

Cheers, mark.

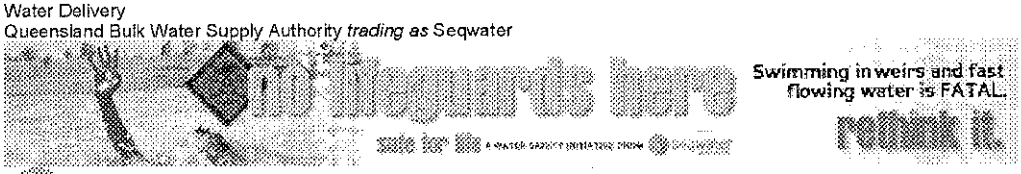
From: Rob Drury
Sent: Wednesday, 12 January 2011 8:36 AM
To: Mark Tan; Paul Bird; Arminda Roberts; John Tibaldi; Tara King; Stan Stevenson
Subject: RE: Wivenhoe Dam Update at 08:30hrs on Wednesday 12 Jan 2011

Mark,
We may lose connection to Margaret St, can you download what you may need from our servers asap just in case you need to send this via Hotmail or similar?

The spreadsheets, etc, etc.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
Ph [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Mark Tan
Sent: Wednesday, 12 January 2011 8:35 AM
To: Rob Drury; Paul Bird; Arminda Roberts; John Tibaldi; Tara King; Stan Stevenson
Subject: Wivenhoe Dam Update at 08:30hrs on Wednesday 12 Jan 2011

Hi,

Wivenhoe level has receded 10mm in last half hour. Next update at 9:00am.

Dam	FSL		12/01/2011 8:00		12/01/2011 8:30			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Wivenhoe Dam	67.00	1,165,238	74.78	2,196,874	74.77	2,196,287	188.4%	0.1%
Splityard Creek Dam			157.55	20,144	157.55	20,144		0.0%
Adjusted Wivenhoe Dam	67.00	1,165,238		2,194,718		2,193,131	188.2%	0.1%

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 8:48 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Situation Report 0600 Wed 12/01/2011

Can you please add for the short term

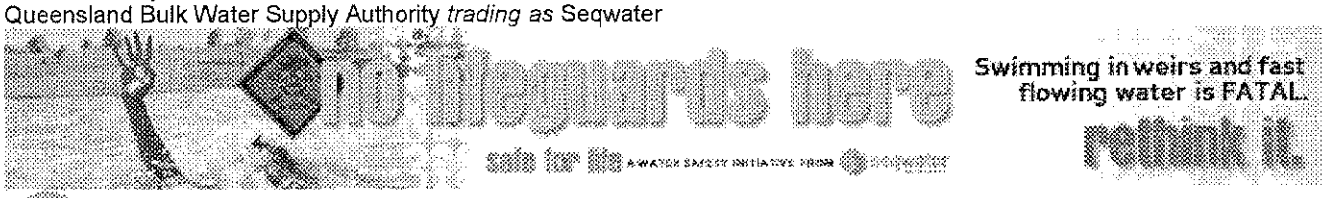
[redacted]

to the Duty Engineers email list please?

Just in case we lose Citrix connection.
Paul, Mark and others are sending theirs to me.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Wednesday, 12 January 2011 5:49 AM
To: David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; Peter Allen; Rob Drury; Rohan Thorogood; 'Tony Jacobs (private)'; Andy Bickerton; Deb Chandler; Mailbox; Tony Trace; Chris Lavin; Craig Logan; Don Carroll; Evan Caswell; 'Flood Information Centre'; James Charalambous; Ken Morris; Robert McGlinn; Santina Pennisi; Ken.Price[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted]gov.au; John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: Situation Report 0600 Wed 12/01/2011

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Wivenhoe Dam peaked on the 11th January, Tuesday night at 19:00 at 74.97 mAHD with a corresponding discharge of 7,450 m3/s. The release have now been scaled back to 4,300m3/s at 05:00 am. Wivenhoe Dam is currently 74.77 m AHD and falling slowly.

The releases from Wivenhoe Dam will be temporarily reduced to 2,500 m3/s to allow the peak of Lockyer Creek to enter the Brisbane River, after which they will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

Somerset Dam is at 105.10 mAHD and slowly rising. The dam is discharging 1,230 m3/s over the spillway. The dam is expected to peak this morning near its current level. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing on Thursday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine Dam is currently releasing 105 m3/s through five gates. At 17:00 the lake was 39.78 mAHD. The event has a volume of around 200,000 ML. The peak discharge from the dam was 2,800 m3/s. This is categorised as an extreme event in the order of 1 in 10,000.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

The next report will be issued at 08:00 12 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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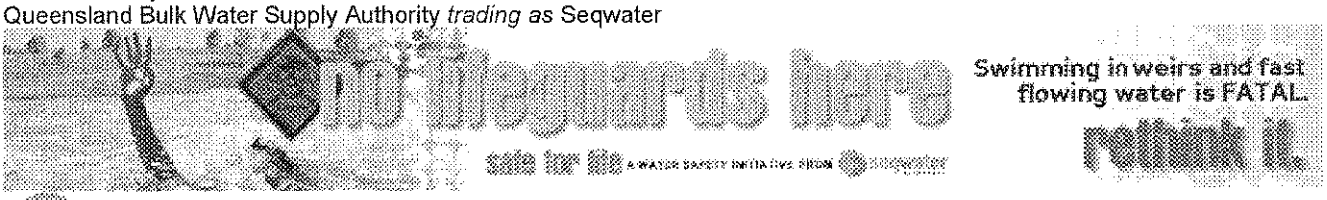
From: Rob Drury <[redacted]
Sent: Wednesday, January 12, 2011 8:50 AM
To: [redacted]
Subject: FW: Technical Report W31
Attach: Technical Situation Report W32.docx

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



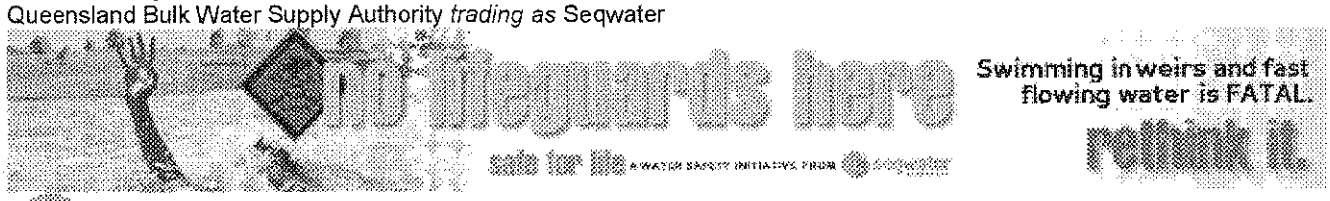
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Sunday, 9 January 2011 7:50 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Would like to blame the computer system but purely operator error.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

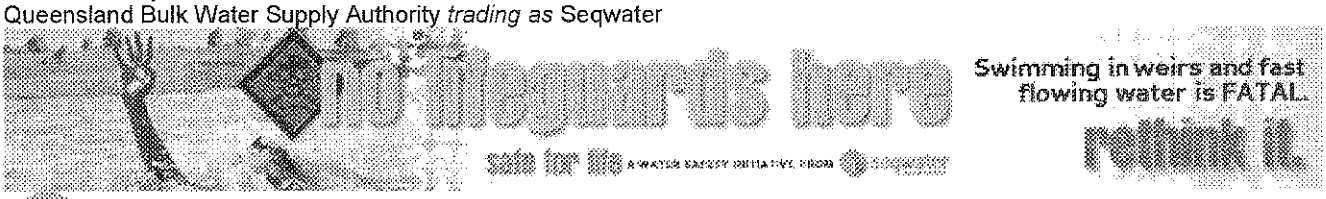
From: Rob Drury
Sent: Sunday, 9 January 2011 7:26 AM
To: Rob Drury; 'Dan Spiller'

Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts; Arminda Roberts
Subject: RE: Technical Report W31

Please find attached Report W31.
Basically continuing releases to maintain 1600 cumecs total flow in the mid Brisbane but watching predicted rainfall as the strategy may change. Fernvale and Mt Crosby bridges still should be unaffected but does depend on what rain we get today or tomorrow.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



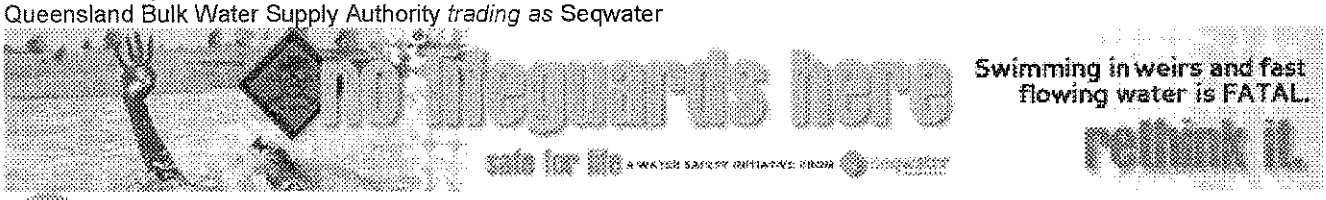
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Saturday, 8 January 2011 7:46 AM
To: Rob Drury; 'Dan Spiller'
Cc: Peter Borrows; Stan Stevenson; Mike Foster; Paul Bird; David Roberts
Subject: RE: Technical Report W31

Attached report number W31.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W32	Date of TSR release	9.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases to discharge floodwater as quickly as possible	
Strategy	• Continue the current releases of around 1350cumecs or 116,000ML per day, however this may change slightly depending on other flows to maintain around 1600cumecs in the mid Brisbane River • This should keep Fernvale and Mt Crosby bridges clear however if further predicted rainfall occurs there may be impacts on these bridges too	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
Monday:	Rain periods.
Tuesday:	Rain periods.
Wednesday	A few showers.
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today,

consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently falling slowly, with the current level being 68.58m AHD. River levels upstream of the dam are receding, however further inflows will result from any additional rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River. The current release rate from Wivenhoe Dam is 116,000ML/day. Since the commencement of the event on 02/01/2011approximately 150,000ML has been released from the dam, with a total of at least 450,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Wednesday.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Wednesday 12 January. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but this may be revised if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and closed late last night. However further releases are likely.

Hinze Dam

The gate opening of 300mm continues today and may for several days depending on inflows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	[redacted].au

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

From: Dan Spiller [redacted]
Sent: Wednesday, January 12, 2011 9:00 AM
To: 'stephen.robertson[redacted]; 'ken.smit[redacted]; 'Bradley John' [redacted] 'lance.[redacted] 'Tim.W[redacted] 'Geoff.[redacted] 'Lauren[redacted] 'Martin.PeterJ[redacted] 'Dunn.[redacted] 'Best Debbie' [redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Rob Drury [redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] 'Madgwick.[redacted] 'damien.brow[redacted]u'; 'Reilly Bob' [redacted]
Subject: Dam release update
Attach: Technical Situation Report W48.docx

All,

Attached is an updated Technical Support Report, including advice about the gate closure process.

Note that releases have been reduced to 2,500 cubic metres per second while peak Lockyer Valley flows pass. Increases will then increase to 3,500 cubic metres per second.

Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: daniel.[redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

Please consider the environment before printing this email. It takes 10 litres of water to make one sheet of A4 paper.

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TECHNICAL SITUATION REPORT

TSR Number	W48	Date of TSR release	12.1.2011	Time of TSR release	8am

Seqwater status of inflows and dam operations

Current status but could change bosed on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Develop and implement closing plan for next 7 or so days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,000,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam is discharging 1,230 m3/s over the spillway. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing later Wednesday. At 8am Somerset was 105.11m and 720,400ML at 189.7%.

Wivenhoe Dam peaked at 74.97 m AHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.75 m AHD at 2,192,000ML and 188.1% at 07:30 and generally falling slowly.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine

At 07:00 North Pine Dam was 39.78 mAHD falling and releasing about 105 m3/s. North Pine has

peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be close later Wednesday or early Thursday

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@bom.gov.au

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas ond depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	11am	or Event	

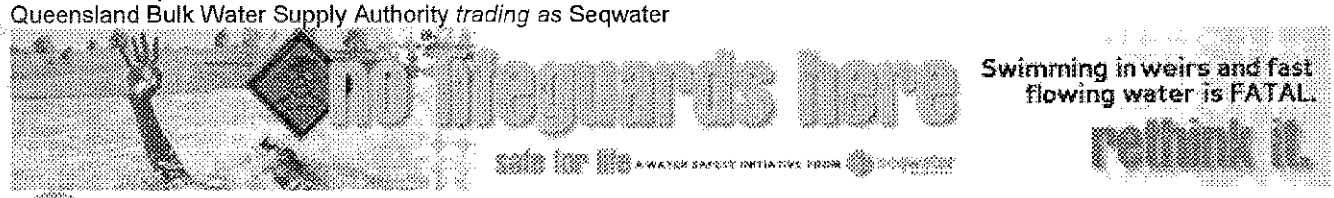
From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 10:35 AM
To: Duty Seq [redacted]
Subject: RE: Technical Report W48

Will send in old Word around 11am.
Are you doing another ypdate at 11am?

Also, PB said he was sure you had thought of it but just in case anyone asked, that we don't reinundate anyone by going from 2500 to 3500, i.e. I assume we just keep the same flow downstream.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Wednesday, 12 January 2011 8:27 AM
To: Rob Drury
Subject: RE: Technical Report W48

Rob

We can't open docx!

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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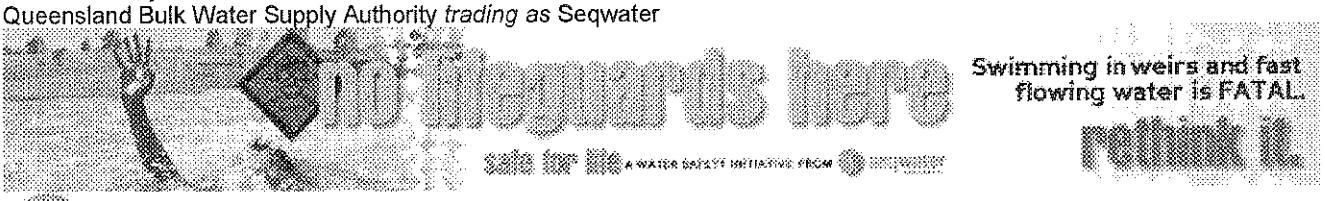
From: Rob Drury [mailto:rdrury@[redacted]
Sent: Wednesday, 12 January 2011 8:21 AM
To: Rob Drury; [redacted] Paul Bird; Stan Stevenson; Peter Borrows; [redacted]
Cc: David Roberts; Duty Seq

Subject: RE: Technical Report W48

Attached report W48.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

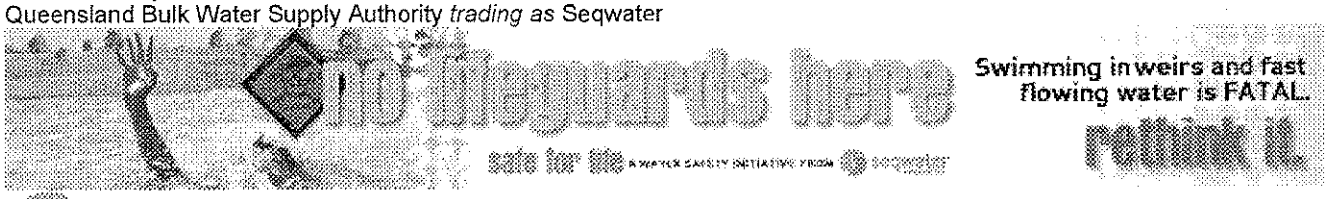
From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 11:24 AM
To: Rob Drury <[redacted] 'Daniel.Spiller@[redacted] Paul Bird <[redacted] Stan Stevenson <[redacted] Peter Borrows <pborrows@[redacted] 'Peter.[redacted]
Cc: David Roberts <droberts@[redacted]
Subject: RE: Technical Report W49
Attach: Technical Situation Report W49.docx

Attached report.

Starting to release from Somerset to start giving relief to Kilcoy area as space appears in Wivenhoe.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W49	Date of TSR release	12.1.2011	Time of TSR release	11am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Develop and implement closing plan for next 7 or so days • Maintain lower releases until Lockyer peak has passed. • Begin dropping Somerset Dam to relieve upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam is discharging over the spillway.
One Sluice gate has been opened around 11am to assist the draining of the flood storage compartment. Further sluices may be opened during the day to relieve upstream impacts.
At 11am Somerset was 105.06m and 716,900ML at 188.7% and dropping slightly.

Wivenhoe Dam peaked at 74.97 m AHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.
At 11am Wivenhoe Dam was 74.78 m AHD at 2,197,000ML and 188.5% and generally steady.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be around 2.3 million megalitres.

North Pine

At 11:00 North Pine Dam was 39.77 mAHD and falling and still releasing from 5 gates.
North Pine has peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s.
The event has a volume of around 200,000 ML. It is expected that gates will now not close until Thursday or Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin

BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

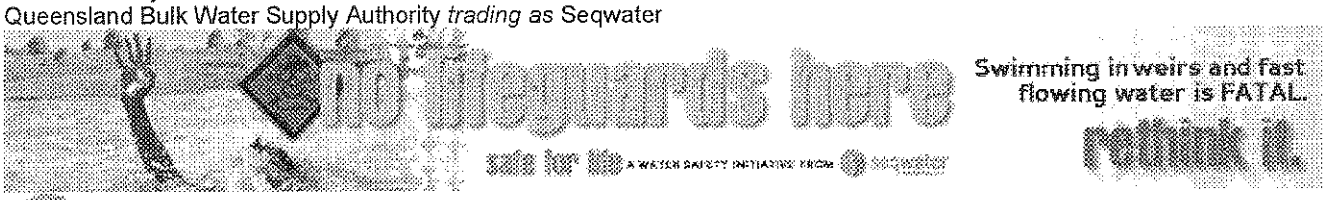
Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	2pm	or Event	

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 11:25 AM
To: Duty Seq [redacted]
Subject: Tehnical Report in Word 1973
Attach: Technical Situation Report W49.doc

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.s[redacted]

TECHNICAL SITUATION REPORT

TSR Number	W49	Date of TSR release	12.1.2011	Time of TSR release	11am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual reduction of releases.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Develop and implement closing plan for next 7 or so days • Maintain lower releases until Lockyer peak has passed. • Begin dropping Somerset Dam to relieve upstream areas.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 1,500,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam is discharging over the spillway.
One Sluice gate has been opened around 11am to assist the draining of the flood storage compartment. Further sluices may be opened during the day to relieve upstream impacts.
At 11am Somerset was 105.06m and 716,900ML at 188.7% and dropping slightly.

Wivenhoe Dam peaked at 74.97 m AHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.
At 11am Wivenhoe Dam was 74.78 m AHD at 2,197,000ML and 188.5% and generally steady.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be around 2.3 million megalitres.

North Pine

At 11:00 North Pine Dam was 39.77 mAHD and falling and still releasing from 5 gates.
North Pine has peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s.
The event has a volume of around 200,000 ML. It is expected that gates will now not close until Thursday or Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin

BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	2pm	or Event	

From: Paul Bird [redacted]
Sent: Wednesday, January 12, 2011 11:29 AM
To: Rob Drury [redacted]
Subject: Update for review

As at 11.30 am on Wednesday 12 January, the following applies:

SOMERSET DAM:
Somerset Dam is discharging over the spillway.
One Sluice gate has been opened around 11am to assist the draining of the flood storage compartment. Further sluices may be opened during the day to relieve upstream impacts.

WIVENHOE DAM:
The Flood Operations Centre has begun an appropriate closure sequence to reduce releases.

The releases from Wivenhoe Dam have been temporarily reduced to 215,000 megalitres per day to allow the peak of Lockyer Creek to enter the Brisbane River.

After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 301,000 megalitres per day.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
Five gates are open, and it is expected that gates will now not close until Thursday or Friday.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
Gate releases are underway due to rainfall and inflows. It is expected that the dam release may finish later today.

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury <[redacted]>
Sent: Wednesday, January 12, 2011 11:30 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted] 'Tony Trace' <TTrace@[redacted] 'Lavin, Chris' <Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

I haven't been sending many of these as the Flood Centre has been forwarding all their sit reps to you directly which are the same.

However will keep sending these in case there are other issues that may come up or issues you want to raise.

Rainfall

No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam is discharging over the spillway.
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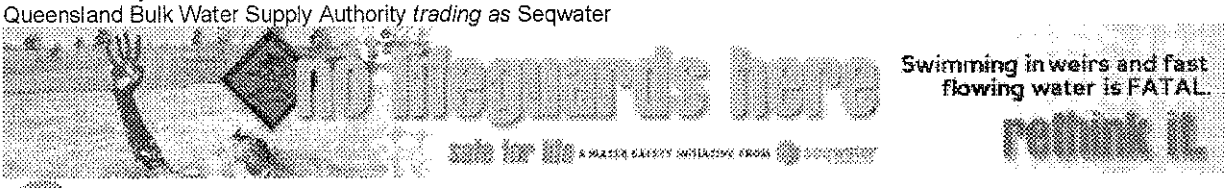
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



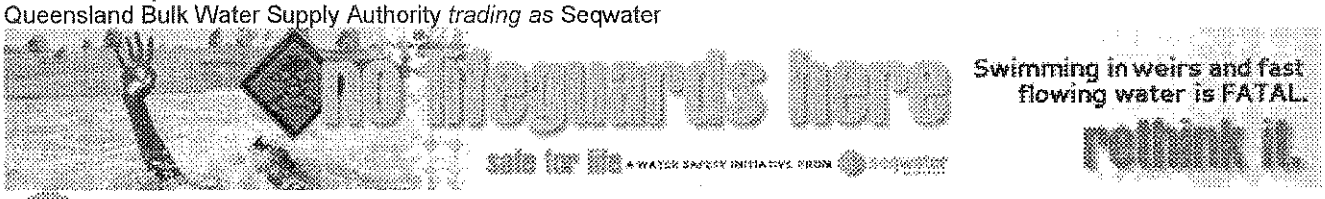
seqwater
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E rdrun[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 11:31 AM
To: Paul Bird <[redacted]
Subject: RE: Update for review

Looks fine.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird
Sent: Wednesday, 12 January 2011 11:29 AM
To: Rob Drury
Subject: Update for review

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For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

lifeguards here
A WATER SAFETY INITIATIVE FROM
Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 12, 2011 11:33 AM
To: Paul Bird <pbird@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: RE: Comms Contacts

done

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Paul Bird [mailto:pbird@[redacted]
Sent: Wednesday, 12 January 2011 11:20 AM
To: Duty Seq
Cc: Rob Drury; [redacted]
Subject: Comms Contacts

Folks,

When you send out sitreps etc, please also send to the following email addresses so we can work around loss of corporate email systems:

[redacted]

Many thanks

Paul

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

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P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

no lifeguards here
Swimming in weirs and fast flowing water is FATAL.
rethink it.

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From:	NGComms [redacted] on behalf of Water Grid Emergency Manager <emergency@[redacted]
Sent:	Wednesday, January 12, 2011 11:34 AM
To:	Rob Drury <rdrury@[redacted]
Subject:	IMPORTANT: Change to emergency contact email for WGM

Colleagues,

We are experiencing some issues with our email system due to power outages around Brisbane. In the short term please use the following email address as the emergency contact email for the WGM:

seqwgm[redacted]

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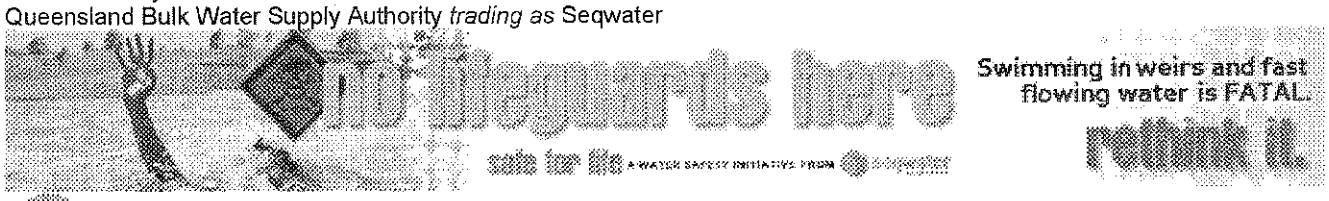
From: Rob Drury [redacted]
Sent: Wednesday, January 12, 2011 11:40 AM
To: Duty Seq <dutyseq@[redacted]
Subject: FW: NOTICE: PENDING FULL SYSTEM SHUTDOWN

FYI

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Cynthia Crane
Sent: Wednesday, 12 January 2011 11:34 AM
To: All Staff
Subject: NOTICE: PENDING FULL SYSTEM SHUTDOWN

Morning all

We will have to shutdown all ICT Services as all power services to Margaret street will be made unavailable to the data centre. This will mean no remote access, no email services, file share and apps. This will start taking effect immediately as we are under advice to vacate the building asap.

Sorry that this is short notice but it is essential to protect the systems by shutting down properly so that we can effect a faster recovery when possible.

Cynthia Crane
Manager, Information Communication and Technology Services.
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000 Australia
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 12, 2011 3:18 PM

To: Duty Seq <dutyseq@[redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] Rohan Thorogood <rthorogood@[redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre[redacted]>; James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Paul.Bird[redacted]

Subject: Situation Report 1500 Wed 12/01/2011

Rainfall

Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011 and the dam is discharging 1,440 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.81 m AHD at 15:00 and steady.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres.

North Pine

At 15:00 North Pine Dam was 39.74 mAHD falling with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be closed on Thursday or Thursday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

The next report will be issued at 18:00 12 January 2011.

Regards

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller [redacted]
Sent: Wednesday, January 12, 2011 3:52 PM
To: 'stephen.robertson[redacted]; 'ken.smith[redacted]'; 'Bradley John' [redacted] 'lance.[redacted] 'Tim.Watts@ministerial.qld.gov.au'; 'Geoff.[redacted] 'Lauren.[redacted].au'; 'Martin.[redacted] 'Dunn.[redacted] 'Best Debbie' [redacted]
Cc: Barry Dennien [redacted] Peter Borrows [redacted] Rob Drury <rdrury@[redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] 'Madgwick.[redacted] 'damien.brown@derm.qld.gov.au'; 'Reilly Bob' [redacted]
Subject: Dam release update
Attach: Technical_Situation_Report_W50.docx

All,

Attached is an updated Technical Support Report, including advice about the gate closure process.

The Wivenhoe Dam release rate has been maintained at 2,500 cubic metres per second. Dam levels have reduced slightly.

Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W50	Date of TSR release	12.1.2011	Time of TSR release	3pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Maintain reduced release from Wivenhoe until Lockyer flows are reduced and then increase to discharge flood waters over 7 days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 m AHD at 08:00 on 12 January 2011 and the dam has been discharging over the spillway. One sluice was opened at 1030 12 January 2011 and the dam is discharging 1,440 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

At 3pm Somerset was 104.94m and 708,505ML at 186.5%.

Wivenhoe Dam peaked at 74.97 m AHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days.

At 3pm Wivenhoe Dam was 74.81 m AHD at 2,201,636ML and 188.9% and fluctuating slightly due to the releases coming from Somerset but relatively steady.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be approximately 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML.

At 3.00pm North Pine Dam was 39.74 mAHD and 217,370 ML and 101.4% and slowly falling. It is expected that gates will be closed Thursday or Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gate releases are underway due to rainfall and inflows.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	12.1.2011	Time	8pm	or Event	

From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 12, 2011 5:57 PM

To: John.Ruffini[redacted] John Tibaldi [redacted] Rob.ayre[redacted] Terry Malone [redacted] 'Arminda Roberts (private)' <[redacted]>; David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted]>; Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' <[redacted]>; Rohan Thorogood [redacted] tararuffles[redacted]; 'Tony Jacobs (private)' [redacted] Al Navaruk [redacted] Bill Stephens <[redacted] David Pokarier [redacted] John West [redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted]

Cc: [redacted] 'Robert Drury' [redacted]

Subject: Situation Report 1800 Wed 12/01/2011

Rainfall

Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011. Somerset Dam was 104.87 mAHD at 1700 12 January 2011 and discharging 1,410 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.82 m AHD at 17:00 and steady.

The release from Wivenhoe Dam was reduced to 2,500 m3/s at 07:30 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River and this release has been maintained since. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. The release is expected to commence Thursday and then be maintained at this level to drain the flood storage component within the required 7 days. The releases will not result in any renewed rises at downstream locations.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be 2.6 million megalitres.

North Pine

At 17:00 North Pine Dam was 39.74 mAHD steady with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be closed on Thursday or Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy regularly. The FOC is maintaining close contact with warning agencies

and local councils.

The next report will be issued at 06:00 13 January 2011.

Regards

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Dan Spiller [redacted]
Sent: Wednesday, January 12, 2011 8:34 PM
To: 'stephen.[redacted] 'ken.smith@premiers.qld.gov.au'; 'Bradley John' [redacted] 'lance.[redacted] 'Tim.[redacted] 'Geoff.[redacted] 'Lauren.[redacted] 'Martin.[redacted] 'Dunn.[redacted] 'Best Debbie' [redacted]
Cc: Barry Dennien [redacted] Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted] SEQWGM Media [redacted] SEQWGM Emergency [redacted] 'Madgwick.[redacted] 'damien.brown@derm.qld.gov.au'; 'Reilly Bob' [redacted]
Subject: RE: Dam release update
Attach: Technical_Situation_Report_W51.docx

All,

Attached is an updated Technical Support Report.

Please call me on [redacted] if you require further information.

Regards,
Dan

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

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TECHNICAL SITUATION REPORT

TSR Number	W51	Date of TSR release	12.1.2011	Time of TSR release	6pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Maintain reduced release from Wivenhoe until Lockyer flows are reduced and then increase to discharge flood waters over 7 days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011 and discharging 1,410 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

At 5pm Somerset was 104.86m and 702,953ML at 185.1%.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The release from Wivenhoe Dam was reduced to 2,500 m3/s at 07:30 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River and this release has been maintained since. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. The release is expected to commence Thursday and then be maintained at this level to drain the flood storage component within the required 7 days. The releases will not result in any renewed rises at downstream locations.

At 5pm Wivenhoe Dam was 74.82 m AHD at 2,203,223ML and 189.1% and fluctuating slightly due to the releases coming from Somerset but relatively steady.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be approximately 2.6 million megalitres.

North Pine

At 17:00 North Pine Dam had all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 5.00pm North Pine Dam was 39.74 mAHD and 217,370 ML and 101.4% and slowly falling. It is expected that gates will be closed Thursday or Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gate releases finished late this afternoon.

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	13.1.2011	Time	8am	or Event	

From: DutyEngineer [redacted]
Sent: Wednesday, January 12, 2011 9:57 PM
To: Paul Bird <pbird@[redacted] Rob Drury <rdrury@[redacted]
Subject: Storage levels at 21:00hrs 12 Jan 2011 (Wednesday) -WIV, SOM & NP

Hi all,

WIV's level has fallen 20mm in last hour, from 74.82mAHD to 74.80mAHD.
SOM's level has fallen 170mm in last 3 hours.
NP's level has fallen 10mm in last hour, from 39.74mAHD to 39.73mAHD.

Dam	FSL		1/12/2011 21:00		1/12/2011 22:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
North Pine Dam	39.60	214,302	39.74	217,370	39.73	217,151	101.3%	0.1%
Somerset Dam	99.00	379,849	104.86	702,953	104.69	690,748	181.8%	3.2%
Wivenhoe Dam	67.00	1,165,238	74.82	2,203,223	74.80	2,200,049	188.8%	0.3%
Splityard Creek Dam			157.55	20,144	157.55	20,144		0.0%
Adjusted Wivenhoe Dam	67.00	1,165,238		2,201,067		2,197,893	188.6%	0.3%

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From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 13, 2011 5:45 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] 'Tony Jacobs (private)' [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre [redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted]

Cc: Andy Bickerton <abickerton@[redacted] Deb Chandler <dchandler@[redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted]

Subject: FOC Situation Report 0600 13 January 2011

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on Wednesday 12 January 2011. The current level is 104.34 mAHD. One sluice was opened at 10:30 on 12 January 2011 and the dam is currently discharging 1,130 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.72 m AHD at 06:00 and commence to fall slowly.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will be managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 06:00 North Pine Dam was 39.70 mAHD falling with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that all gates will be closed on Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and reviewing operating strategy. The FOC will continue to maintain close contact with warning agencies and local councils.

The next report will be issued at 18:00 on Thursday 13 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: DutyEngineer [redacted]
Sent: Thursday, January 13, 2011 7:43 AM
To: Duty Seq <dutyseq@[redacted] Paul Bird [redacted] Rob Drury [redacted]
paulhbird[redacted]
Subject: Storage levels at 07:00hrs 13 Jan 2011 (Thursday) - WIV, SOM & NP

Hi,

Wivenhoe Dam
Wivenhoe levels are provided every 2 hours.
4:00am - 74.74mAHD
6:00am - 74.71mAHD

Somerset Dam
Somerset level has been falling consistently at approx. 40mm per hour.

North Pine Dam
North Pine's Level has fallen 10mm in last hour.

Dam	FSL		13/01/2011 6:00		13/01/2011 7:00			
	Level	Actual	Level	Capacity	Level	Capacity		Capacity Change in last hr
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
North Pine Dam	39.60	214,302	39.69	216,274	39.68	216,055	100.8%	0.1%
Somerset Dam	99.00	379,849	104.28	663,307	104.24	660,882	174.0%	0.6%
Wivenhoe Dam	67.00	1,165,238	74.74	2,190,543	74.71	2,185,835	187.6%	0.4%
Splityard Creek Dam			157.55	20,144		20,144		
Adjusted Wivenhoe Dam	67.00	1,165,238		2,201,067		2,183,679	187.4%	1.5%

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From: dkcr [redacted]
Sent: Thursday, January 13, 2011 12:24 PM
To: Rob Drury <rdrury@[redacted]
Subject: FW:
Attach: Technical_Situation_Report_W52.doc; Technical_Situation_Report_W52.docx

---

From: Robert Drury [mailto:[redacted]
Sent: Thursday, 13 January 2011 6:09 AM
To: Dan; David Roberts; Duty Engineer; paul; PB; PeterA; tara; WGM
Subject:

Attached report W52 in two formats.

Rob

----------Safe Stamp----------
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TECHNICAL SITUATION REPORT

TSR Number	W52	Date of TSR release	13.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based an inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Maintain reduced release from Wivenhoe until Lockyer flows are reduced and then increase to discharge flood waters over 7 days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011 and discharging 1,410 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

At 5am Somerset was 104.32m and 666,225ML at 175.39%.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will be managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

At 5am Wivenhoe Dam was 74.74 m AHD at 2,194,043ML and 188.29% and dropping slowly due to the

releases coming from Somerset.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 17:00 North Pine Dam still gates open releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 5.00am North Pine Dam was 39.70 mAHD and 216,494ML and 100.71% and slowly falling. It is expected that gates will be closed Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	13.1.2011	Time	12pm	or Event	

TECHNICAL SITUATION REPORT

TSR Number	W52	Date of TSR release	13.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Maintain reduced release from Wivenhoe until Lockyer flows are reduced and then increase to discharge flood waters over 7 days	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over 2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

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At 5am Somerset was 104.32m and 666,225ML at 175.39%.

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At 5am Wivenhoe Dam was 74.74 m AHD at 2,194,043ML and 188.29% and dropping slowly due to the

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North Pine

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At 5.00am North Pine Dam was 39.70 mAHD and 216,494ML and 100.71% and slowly falling. It is expected that gates will be closed Friday.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000 megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	13.1.2011	Time	12pm	or Event	

From: DutyEngineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 12:25 PM
To: Rob Drury <rdrury@[redacted]
Subject: Wiv Som Update

Hi Rob,

Current status for Wivenhoe is as follows:

Date *(DD/MM/YYYY)*	13/01/2011				
Time of reading *(24 hours format Eg 16:59)*	12:00				
EL Gauge Board *(m AHD)*	74.61				
Radial Gates *(m Open)*	1	2	3	4	5
	3.5	4.0	5.0	4.0	3.5

Wivenhoe discharge is 2,597 cumecs.

Current status for Somerset is as follows:

Date *(dd/mm/yyyy)*	13/01/11							
Time of reading (hh:mm) *(24 hour format Eg 16:59)*	12:02							
EL Gauge Board *(m AHD)*	103.96							
Crest Gates *(Open/Closed)*	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
	opened	opened	opened	opened	opened	opened	opened	opened
Sluice Gates *(% Open)*				Opened	Opened			
Regulators *(% Open)*	**2**		**3**		**12**		**13**	
Comments								

Somerset discharge is 1,244 cumecs.

Cheers,
John W

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From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 12:33 PM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Wiv Som Update

My update if you agree.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011 and discharging 1,410 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.

At 12pm Somerset was 103.96m and 642,535ML at 169.2%.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam had been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will now be gradually adjusted upwards and managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The increase will be gradual and will commence at 1.00pm Thursday 13.1.2011.

At 12pm Wivenhoe Dam was 74.61 m AHD at 2,170,100ML and 186.2% and dropping slowly due to the releases coming from Somerset.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 12pm North Pine Dam still gates open. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At12pm North Pine Dam was 39.64mAHD and 215,179ML and 100.4% and slowly falling. It is expected that gates will be closed early Friday morning.

Strategy

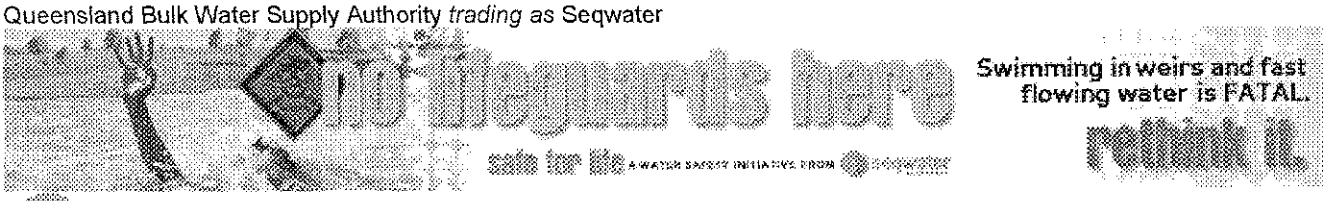
The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Robert Drury
Dam Operations Manager
Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

From: DutyEngineer [mailto[redacted]
Sent: Thursday, 13 January 2011 12:25 PM
To: Rob Drury
Subject: Wiv Som Update

Hi Rob,

Current status for Wivenhoe is as follows:

Date *(DD/MM/YYYY)*	13/01/2011				
Time of reading *(24 hours format Eg 16:59)*	12:00				
EL Gauge Board *(m AHD)*	74.61				
Radial Gates *(m Open)*	1	2	3	4	5
	3.5	4.0	5.0	4.0	3.5

Wivenhoe discharge is 2,597 cumecs.

Current status for Somerset is as follows:

Date *(dd/mm/yyyy)*	13/01/11							
Time of reading (hh:mm) *(24 hour format Eg 16:59)*	12:02							
EL Gauge Board *(m AHD)*	103.96							
Crest Gates *(Open/Closed)*	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
	opened	opened	opened	opened	opened	opened	opened	opened
Sluice Gates *(% Open)*				Opened	Opened			
Regulators *(% Open)*	**2**		**3**		**12**		**13**	
Comments								

Somerset discharge is 1,244 cumecs.

Cheers,
John W

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 12:46 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryr[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Somerset Directive #10 and Wivenhoe Directive #35
Attach: OPS_Directive_Somerset #10.doc; OPS_Directive_Wivenhoe #35.doc

---

Please find attached Somerset Directive #10 and Wivenhoe Directive #35

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date:	13/01/2011
	Directive No:	10
	Time:	12:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following operations:-

- Fully Open Sluice K at 13:00.

Please confirm this gate operation by fax once you have completed the requested operations.

Regards

John Tibaldi

Duty Engineer

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	13/01/201
	Directive No:	35
	Time:	12:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 13:00 on 13/01/2011

- Open Gate 2 from 4.0 metres to 4.5 metres at 1300.
- Open Gate 4 from 4.0 metres to 4.5 metres at 1400.

Please advise the Flood Operations Centre by fax once you have completed this operation.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 12:55 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Wiv Som Update (revised)

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 1300 Somerset was 103.96m and steady (642,535ML). Three sluices are opened at 1300 12 January 2011 and discharging 1,250 m3/s into Wivenhoe Dam. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam had been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will now be gradually adjusted to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The increase will be gradual and will commence at 1.00pm Thursday 13.1.2011. This will not cause renewed rises downstream

At 1200 Wivenhoe Dam was 74.61 m AHD (2,170,100ML) and is still dropping slowly with the releases coming from Somerset.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 1200 North Pine Dam still gates open. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 1200 North Pine Dam was 39.64mAHD (215,179ML) and slowly falling. It is expected that gates will be closed early Friday morning.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater

No lifeguards here
safe for life
Swimming in weirs and fast flowing water is FATAL.
rethink it.

seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: DutyEngineer [mailto:dutyseq@[redacted]
Sent: Thursday, 13 January 2011 12:25 PM
To: Rob Drury
Subject: Wiv Som Update

Hi Rob,

Current status for Wivenhoe is as follows:

Date *(DD/MM/YYYY)*	13/01/2011				
Time of reading *(24 hours format Eg 16:59)*	12:00				
EL Gauge Board *(m AHD)*	74.61				
Radial Gates *(m Open)*	1	2	3	4	5
	3.5	4.0	5.0	4.0	3.5

Wivenhoe discharge is 2,597 cumecs.

Current status for Somerset is as follows:

Date *(dd/mm/yyyy)*	13/01/11							
Time of reading (hh:mm) *(24 hour format Eg 16:59)*	12:02							
EL Gauge Board *(m AHD)*	103.96							
Crest Gates *(Open/Closed)*	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
	opened	opened	opened	opened	opened	opened	opened	opened
Sluice Gates *(% Open)*				Opened	Opened			
Regulators *(% Open)*	**2**		**3**		**12**		**13**	
Comments								

Somerset discharge is 1,244 cumecs.

Cheers,
John W

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From: Bec FitzGerald <BFitzGerald@[redacted]
Sent: Thursday, January 13, 2011 12:57 PM
To: Rob Drury <rdrury@[redacted]
Subject: FW: Local Disaster Management Group Meeting 2:30pm

Hello,

Teleconference scheduled for 2:30 this afternoon, you will need to dial the following number:

[redacted]3

You will be asked to enter a passcode, your participant passcode is:

[redacted]

Bec FitzGerald
Accounts Payable Officer
Somerset Regional Council

a | PO Box 117, ESK QLD 4312
p | [redacted]
f | [redacted]
e | [redacted]
w | www.[redacted]

****
This email may be confidential and/or privileged. Only the intended recipient may access or use it. Any dissemination, distribution or copying of this email is strictly prohibited. If you are not the intended recipient, please notify the sender immediately by return email and then erase the email.
We use virus scanning software but exclude all liability for viruses or similar in any attachment.
****

Please consider the environment before printing this e-mail

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For more information regarding this service, please contact your service provider.

From: Rob Drury
To: Bec FitzGerald
Sent: Thursday, 13 January 2011 1:01 PM
Subject: Read: FW: Local Disaster Management Group Meeting 2:30pm

Your message

To: Rob Drury
Subject: FW: Local Disaster Management Group Meeting 2:30pm
Sent: 13/01/2011 12:57 PM

was read on 13/01/2011 1:01 PM.

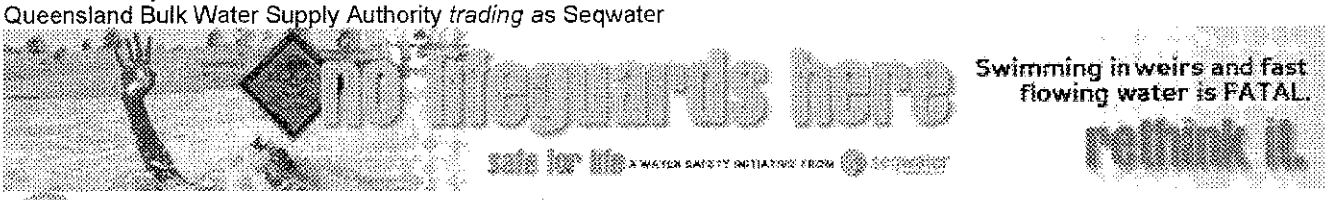
From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 1:09 PM
To: 'Dan Spiller' [redacted] Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted] Arminda Roberts <aroberts@[redacted] Tara King <tking@[redacted]
Cc: 'paulhbird[redacted]; 'arminda.roberts[redacted]; 'tararuffles[redacted]
Subject: Technical Report W53
Attach: Technical_Situation_Report_W53.docx

Attached is the latest report.

Releases from Somerset are being increased to drain Somerset into Wivenhoe Dam.
Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

TECHNICAL SITUATION REPORT

TSR Number	W53	Date of TSR release	13.1.2011	Time of TSR release	12pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Three sluices are opened as at 1300 12 January 2011 and discharging 1,250 m3/s into Wivenhoe Dam. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 12pm Somerset was 103.96m and 642,535ML at 169.2%.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam had been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will now be managed gradually from 1pm Thursday 13.1.2011 to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be managed to drain the flood storage component within the required 7 days. This will not cause renewed rises downstream.

At 12pm Wivenhoe Dam was 74.61 m AHD at 2,170,100ML and 186.2% and dropping slowly.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 12pm North Pine Dam still gates open. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At12pm North Pine Dam was 39.64mAHD and 215,179ML and 100.4% and slowly falling. It is expected that gates will be closed early Friday morning.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	13.1.2011	Time	5pm	or Event	

From: Paul Bird [redacted]
Sent: Thursday, January 13, 2011 1:13 PM
To: Rob Drury [redacted]
Subject: RE: Technical Report W53

Thanks Rob,

Can you also please send to Seqwater.comms@gmail.com please until Monday

Thanks

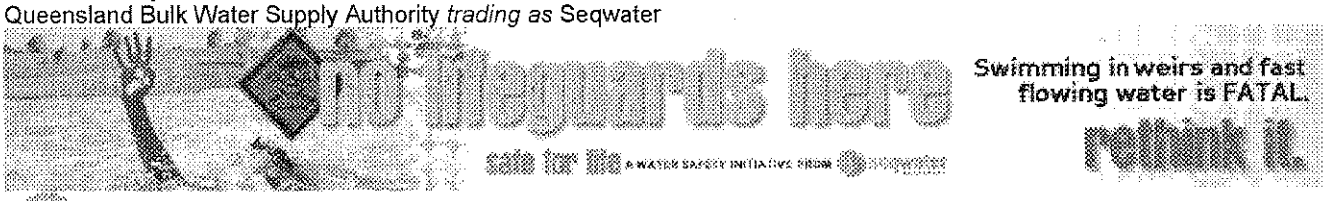
From: Rob Drury
Sent: Thursday, 13 January 2011 1:09 PM
To: 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King
Cc: 'paulhbird[redacted]; 'arminda.roberts[redacted]; '[redacted]'; 'dkcr'; [redacted]
Subject: Technical Report W53

Attached is the latest report.

Releases from Somerset are being increased to drain Somerset into Wivenhoe Dam.
Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird <seqwater.[redacted]
Sent: Thursday, January 13, 2011 1:21 PM
To: Rob Drury [redacted]
Cc: Rob Drury <[redacted]>
Subject: Update for review

For review please Rob

As at 2.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Three sluices are open as at 1.00pm on Thursday 13 January 2011 and discharging 107,500 megalitres into Wivenhoe Dam.

Sluice gates will be utilised to drain of the flood storage compartment during the next five days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

WIVENHOE DAM:
The releases from Wivenhoe Dam had been temporarily reduced to 215,000 megalitres at 07:30 am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River has peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed gradually from 1pm Thursday 13 January to achieve a target flow of around 301,000 megalitres a day at Moggill.

This release will then be managed to drain the flood storage component within the required seven days.

This is not expected to cause renewed rises downstream.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing with all gates open one increment, at about 6,800 megalitres per day. It is expected that gates will be closed on Friday.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No Releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

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From: Duty Engineer <[redacted]>
Sent: Thursday, January 13, 2011 2:29 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #36
Attach: OPS_Directive_Wivenhoe #36.doc

Please find attached Wivenhoe Directive #36

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	13/01/201
	Directive No:	36
	Time:	14:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 1500 on 13/01/2011

- Open Gate 1 from 3.5 metres to 4.0 metres at 1500.
- Open Gate 5 from 3.5 metres to 4.0 metres at 1600.
- Open Gate 1 from 4.0 metres to 4.5 metres at 1700.
- Open Gate 5 from 4.0 metres to 4.5 metres at 1800.

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Barry Dennien [redacted]
Sent: Thursday, January 13, 2011 3:11 PM
To: Rob Drury [redacted]
Subject: Wivenhoe update

Rob

Will we get a technical update before 4.30pm

Barry

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From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 3:17 PM
To: 'Barry.Dennien@[redacted]
Subject: Re: Wivenhoe update

Was planning about 5pm but will do one before 4pm.

From: Barry Dennien [redacted]
To: Rob Drury
Sent: Thu Jan 13 15:11:00 2011
Subject: Wivenhoe update

Rob

Will we get a technical update before 4.30pm

Barry

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From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 3:45 PM
To: Rob Drury <rdrury@[redacted]
Subject:

Hi Rob,

Levels, gate settings are to 2pm, releases are to 3pm.

North Pine Dam ***(FSL 39.60m AHD)***

Date *(DD/MM/YYYY)*	13/01/2011				
Time of reading *(24 hours format Eg 16:59)*	14:00				
EL Gauge Board *(m AHD)*	39.63				
Radial Gates *(Increments)*	A	B	C	D	E
	1	1	1	1	1
Regulators (% *Open*)	1		2		
	0		0		
River Release Valve *(Open(L/sec) / Close)*	Open to 300 l/s				
Comments					

North Pine release at 15:00hrs is 80 cumecs.

Somerset Dam ***(FSL 99.00 m AHD)***

Date *(dd/mm/yyyy)*	13/01/11							
Time of reading (hh:mm) *(24 hour format Eg 16:59)*	14:00hours							
EL Gauge Board *(m AHD)*	103.86							
Crest Gates *(Open/Closed)*	I	J	K	L	M	N	O	P
	opened	opened	opened	opened	opened	opened	opened	opened
Sluice Gates *(% Open)*			Opened	Opened	Opened			
Regulators *(% Open)*	2		3		12		13	
Comments								

Somerset release at 15:00hrs is 1,389 cumecs.

Wivenhoe Dam ***(FSL 67.0 m AHD)***

Date *(DD/MM/YYYY)*	13/01/2011				
Time of reading *(24 hours format Eg 16:59)*	1400				
EL Gauge Board *(m AHD)*	74.57				
Radial Gates (*m Open*)	1	2	3	4	5
	3.5	4.5	5.0	4.5	3.5
Regulator Discharge MLd					
Hydro Discharge MLd					

Comments	Open gate 4

Wivenhoe release at 15:00hrs is 2,653 cumecs.

Cheers,
John

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rob Drury <[redacted]>
Sent: Thursday, January 13, 2011 3:46 PM
To: Rob Drury <[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

Attached is an update as at 12pm.

Again let me know of any issues.

Will send one each day.

Rob

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Three sluices are opened as at 1300 12 January 2011 and discharging 1,250 m3/s into Wivenhoe Dam. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

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The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

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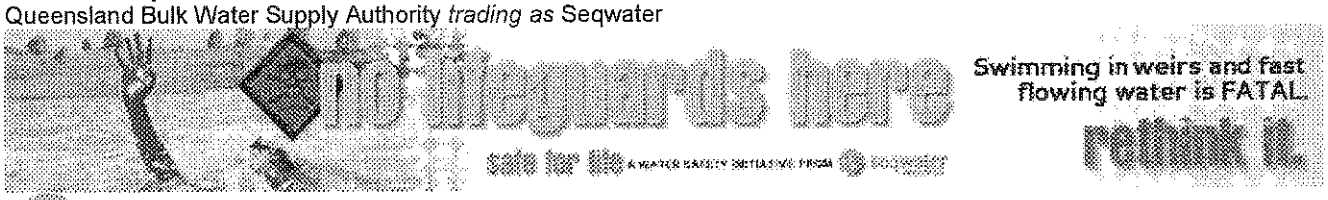
Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



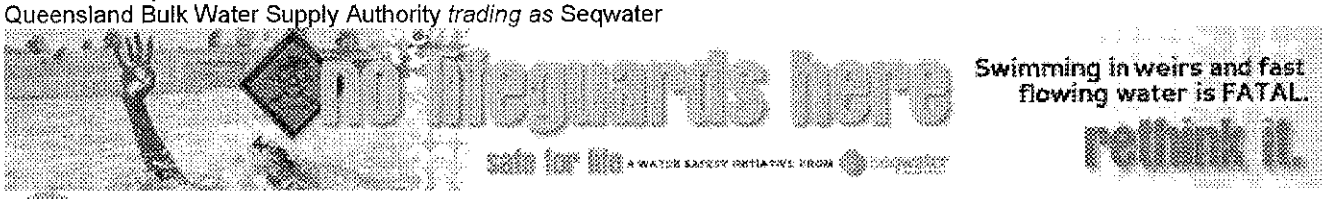
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 3:59 PM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' [redacted]
Peter Borrows [redacted] Paul Bird <pbird@[redacted]
Arminda Roberts [redacted] Tara King [redacted]
Jim Pruss [redacted]
Cc: 'paulhbird[redacted]; '[redacted]'; 'tararuffles[redacted]; 'dkcr'
[redacted] 'seqwgm([redacted]; 'Seqwater.[redacted]
Subject: RE: Technical Report W53
Attach: Technical_Situation_Report_W54.docx

Attached is the latest report W53.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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From: Rob Drury
Sent: Thursday, 13 January 2011 1:09 PM
To: 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King
Cc: 'paulhbird[redacted]; 'arminda.roberts[redacted]; 'tararuffles([redacted]; 'dkcr'; [redacted]
Subject: Technical Report W53

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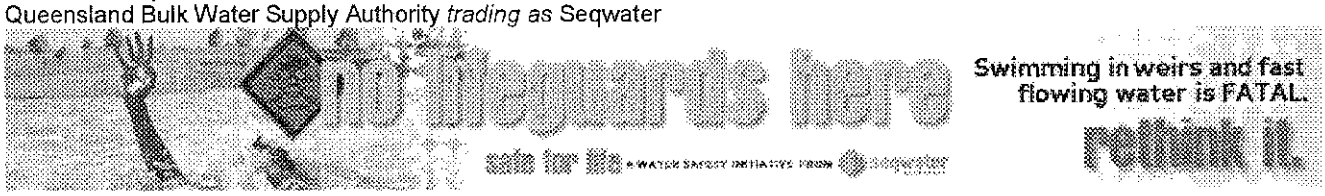
Releases from Somerset are being increased to drain Somerset into Wivenhoe Dam.
Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E rdrury@[redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W54	Date of TSR release	13.1.2011	Time of TSR release	3pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Three sluices are opened as at 1300 12 January 2011. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 3pm Somerset was 103.86m and 636,100ML at 167.5% and discharging 1,389cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam had been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will now be managed gradually from 1pm Thursday 13.1.2011 to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be managed to drain the flood storage component within the required 7 days. This will not cause renewed rises downstream.

At 3pm Wivenhoe Dam was 74.57 m AHD at 2,163,861ML and 185.7% and dropping slowly and discharging 2,653cumecs.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 3pm North Pine Dam was 39.63mAHD and 214,960ML and 100.3% and discharging 80cumecs. It is planned to close the gates at 5am Friday morning.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas ond depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	13.1.2011	Time	8pm	or Event	

From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 4:24 PM
To: Rob Drury <rdrury@[redacted] druryr[redacted]
Subject: Rob, please review
Attach: 13 Jan 1600.doc

Rob can you please review the 1600 update.

Thanks,
Tara

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

1800 INFO LINE SCRIPT

Thanks for calling the SEQ Water Grid release hotline

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

As at 4.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Three sluices are open as at 3.00pm on Thursday 13 January 2011, discharging 119,000 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain of the flood storage compartment during the next five days.
Water levels in Somerset Dam will fall slowly in the next 24 hours.

WIVENHOE DAM:
The releases from Wivenhoe Dam had been temporarily reduced to 215,000 megalitres at 07:30 am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River has peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed gradually from the afternoon of Thursday 13 January to achieve a target flow of around 301,000 megalitres a day at Moggill.

This release will then be managed to drain the flood storage component within the required seven days.

This is not expected to cause renewed rises downstream.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 6,800 megalitres per day with all gates opened. It is expected that gates will be Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No Releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

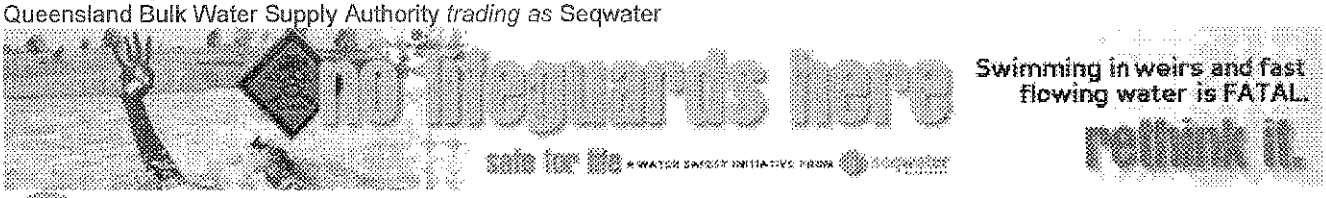
This information will be updated during Thursday January 13

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 4:34 PM
To: 'Seqwater Communications' <seqwater[redacted]
Subject: FW: Rob, please review
Attach: 13 Jan 1600.doc

Some changes.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [mailto:seqwater[redacted]
Sent: Thursday, 13 January 2011 4:24 PM
To: Rob Drury; [redacted]
Subject: Rob, please review

Rob can you please review the 1600 update.

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Tara

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The Brisbane River has peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will be managed to achieve a target flow at Moggill that is aimed at draining the floodwaters stored within the required seven days in case further rainfall eventuates..

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 6,800 megalitres per day with all gates opened. It is expected that gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No Releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

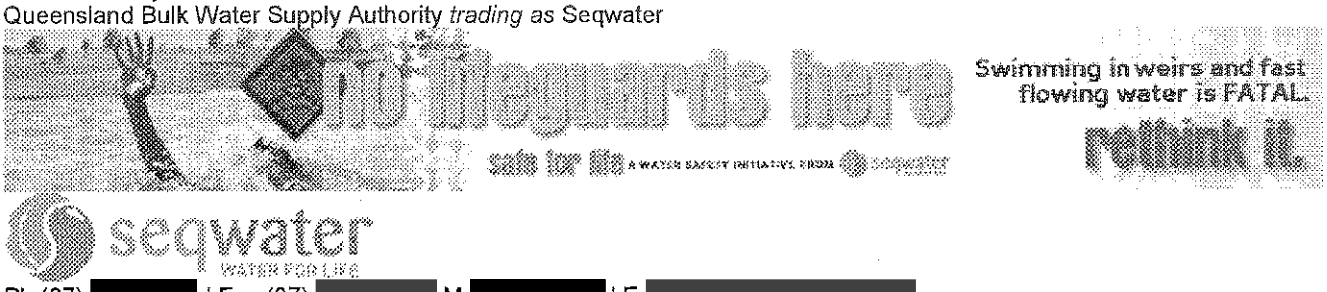
Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice.

Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated during Thursday January 13

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 4:43 PM
To: 'Seqwater Communications' [redacted]
Subject: FW: Rob, please review
Attach: 13 Jan 1600.doc

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



seqwater
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Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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To: Rob Drury; [redacted]
Subject: Rob, please review

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Tara

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Water levels in Somerset Dam will fall slowly in the next 24 hours.

WIVENHOE DAM:
The releases from Wivenhoe Dam had been temporarily reduced to 215,000 megalitres at 07:30 am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River has peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed to drain the floodwaters stored within the required seven days in case further rainfall eventuates.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 6,800 megalitres per day with all gates opened. It is expected that gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No Releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice.

Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated during Thursday January 13

From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 4:45 PM
To: Rob Drury <rdrury@[redacted] druryr[redacted]
Subject: Fwd: FW: Revised - Water Grid media update - 13 January 2011

Please review.
---------- Forwarded message ----------
From: **WaterGridMedia** [redacted]
Date: Thu, Jan 13, 2011 at 4:41 PM
Subject: FW: Revised - Water Grid media update - 13 January 2011
To: Seqwater Communications [redacted]

Hi Tara,

Revised update below.

Thanks!

Jade

WATER GRID MEDIA UPDATE

13 January 2011: Issued at 4.30pm

CONTROLLED RELEASES FROM WIVENHOE DAM CONTINUE

NOTE: All SEQ dams remain safe, stable and operating within their design specifications.

Wivenhoe Dam is at 186 per cent, and is dropping gradually with controlled releases through all five gates of 228,000 megalitres per day. This is down from the peak of 645,000 megalitres earlier in the week. The dam's slow recession is due in part to inflows of 120,000 megalitres per day via a sluice gate from Somerset Dam. Somerset is at 167 per cent.

Releases are being made in consultation with the Bureau of Meteorology and local councils and every effort is being made to limit downstream impacts where possible.

Due to a combination of Lockyer Creek, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at least Sunday 16 January. Residents are urged to contact local councils for detailed information on road crossing closures and other impacts.

All recreations areas around Somerset and Wivenhoe are closed, and given the dam levels and the need for safety around spillways, **we will not be able to facilitate any land-based media aecess to our sites today**.

Five gates are open at North Pine Dam, however, are expected to close Friday. The local Council is being kept informed regarding Youngs Crossing.

Gate releases at Leslie Harrison Dam have now ceased.

Water has spilled from Wyaralong Dam after it exceeded 100 per cent capacity earlier this week.

A minor release of around 8,000 megalitres a day is being made through the emergency gates at Hinze Dam. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

ENDS

Owing to technical issues caused by the flood, a temporary email contact is in use. Please email [redacted]

Note to the Editor: While releases are being made from the region's water storages, routine updates will be provided.

Community Assistance: Please direct the community to contact **telephone - 1800 613 122.** This number has been established for members of the public seeking information on which dams are spilling in South East Queensland.

Members of the public seeking information on **potential impacts in their local areas** should **direct inquiries to their local councils**.

About the SEQ Water Grid: Established in June 2008, the SEQ Water Grid represents one of Australia's largest investments in water infrastructure and is a world class asset in water management in both times of drought and deluge.

Through a network of climate resilient water sources, treatment facilities, new two-way pipes and existing pipelines, the SEQ Water Grid gives the South East Queensland region the ability to support water demands, water quality, economic prosperity and lifestyle - regardless of climate change and population growth.

For further information on the Water Grid: www.watergrid.com.au

For further details contact the SEQ Water Grid Communications Unit on:

Owing to technical issues caused by the flood, a temporary email contact is in use. Please email to
[redacted]

Ph: [redacted] **| Mobile:** [redacted]

Email: w[redacted]u

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From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 4:56 PM
To: Arminda Roberts [redacted] Michael Feichtner [redacted] paulhbird [redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Fwd: 1600 Water Release Update

4pm update just issued.

Cheers,
Tara

---------- Forwarded message ----------
From: **Seqwater Communications** [redacted]
Date: Thu, Jan 13, 2011 at 4:54 PM
Subject: 1600 Water Release Update
To: Alan Roebuck <aroebuck@[redacted] Gary Stubbs [redacted] Greg Swain [redacted] Kathy Petrik <[redacted]>, Lisa Martin [redacted] Paula Weston [redacted], Tony Jacobs [redacted] Water Grid Media [redacted]

As at 4.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Three sluices are open as at 3.00pm on Thursday 13 January 2011, discharging 119,000 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain of the flood storage compartment during the next five days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

WIVENHOE DAM:
The releases from Wivenhoe Dam had been temporarily reduced to 215,000 megalitres at 07:30 am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River has peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed to drain the floodwaters stored within the required seven days in case further rainfall eventuates.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 6,800 megalitres per day with all gates opened. It is expected that gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated during the evening of Thursday January 13

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
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From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 13, 2011 6:43 PM

To: 'Arminda Roberts (private)' [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood [redacted] seqwater. [redacted] 'Tony Jacobs (private)' [redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West [redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted]

Subject: Situation Report 1830 13 January 2011

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011. The current level is 103.60 mAHD and falling. Four sluices are open and the dam is currently discharging 1,528 m3/s.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.5 mAHD at 18:00 and continuing to fall slowly.

The releases from Wivenhoe Dam are currently 2,888 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 18:00 North Pine Dam was 39.60 mAHD and falling with 5 gates open, releasing about 151 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

All gates will be closed at 05:00 Friday to enable MMRC to consider reopening Youngs Crossing.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and reviewing operating strategy. The FOC will continue to maintain close contact with warning agencies and local councils.

The next report will be issued at 06:00 on Friday 14 January 2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 7:05 PM
To: Rob Drury <rdrury@[redacted]
Cc: [redacted] Tara King [redacted]
Subject: Please review!
Attach: 13 Jan 1900.doc

Hi Rob,

1900hrs water release update for your review.

Cheers,
Tara

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1800 INFO LINE SCRIPT

Thanks for calling the SEQ Water Grid release hotline

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

As at 7.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Four sluices are open as at 6.00pm on Thursday 13 January 2011, discharging 131,000 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain off the flood storage compartment during the next five days.

WIVENHOE DAM:
The releases from Wivenhoe Dam were temporarily reduced to 215,000 megalitres at 7:30am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed to drain the floodwaters stored within the required seven days in case further rainfall eventuates.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 13,000 megalitres per day with all gates opened. At this stage, gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. This release is expected to be reduced tomorrow. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

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Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated on Friday January 14.

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 7:11 PM
To: 'seqwater.comm[redacted]
Subject: Re: Please review!

Ok

From: Seqwater Communications <seqwater.[redacted]
To: Rob Drury
Cc: [redacted] <[redacted]; Tara King [redacted]
Sent: Thu Jan 13 19:04:46 2011
Subject: Please review!

Hi Rob,

1900hrs water release update for your review.

Cheers,
Tara

----------Safe Stamp----------
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For more information regarding this service, please contact your service provider.

From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 7:22 PM
To: Arminda Roberts [redacted] Michael Feichtner [redacted] Mike Foster <mfoster@[redacted]
Cc: Rob Drury <rdrury@[redacted] Bill Andrew [redacted]
Subject: Fwd: 1900hrs Water Release Update

Hi all,

7pm update emailed out. I am about to rerecord the 1800 and update the web.
We are not expecting anymore updates from the FOC overnight.
I will continue to monitor emails until 10.30pm tonight, and will have the mobile on me all night if the situation changes (ph. [redacted]
Paul will take over early tomorrow.

Best,
Tara
---------- Forwarded message ----------
From: **Seqwater Communications** [redacted]
Date: Thu, Jan 13, 2011 at 7:17 PM
Subject: 1900hrs Water Release Update
To: Water Grid Media [redacted] Alan Roebuck <aroebuck@[redacted] Gary Stubbs [redacted] Greg Swain [redacted] Kathy Petrik [redacted] Lisa Martin [redacted] Paula Weston [redacted] Tony Jacobs [redacted]

As at 7.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Four sluices are open as at 6.00pm on Thursday 13 January 2011, discharging 131,000 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain off the flood storage compartment during the next five days.

WIVENHOE DAM:
The releases from Wivenhoe Dam were temporarily reduced to 215,000 megalitres at 7:30am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed to drain the floodwaters stored within the required seven days in case further rainfall eventuates.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 13,000 megalitres per day with all gates opened. At this stage, gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. This release is expected to be reduced tomorrow. There is no public access to the spillway.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated on Friday January 14.

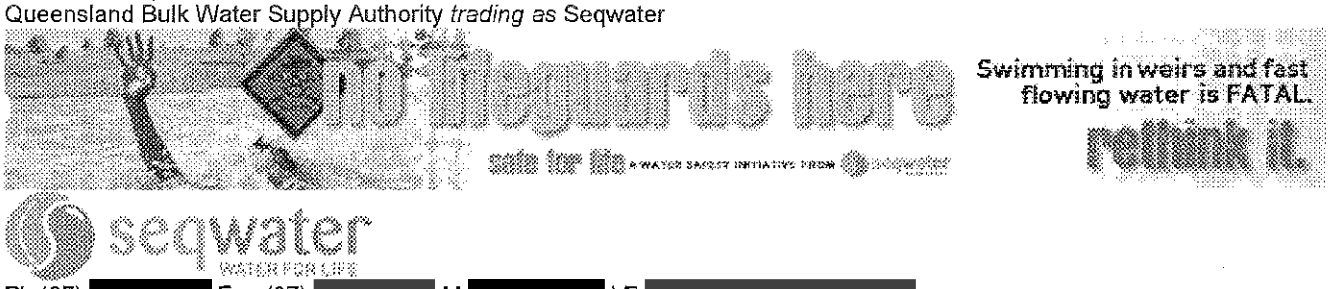
----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 8:20 PM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Situation Report 1830 13 January 2011

Terry,
Sending off one last update, what is our release rate as of 8pm?
And can I get a release rate for Somerset and Wivenhoe say 5am tomorrow please whoever is awake?

Thanks
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Thursday, 13 January 2011 6:43 PM
To: 'Arminda Roberts (private)'; David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; 'Paul Bird (Private)'; Peter Allen; Rob Drury; 'Rob D (Private)'; Rohan Thorogood; [redacted] 'Tony Jacobs (private)'; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Blerk; Mark Tan; Neville Ablitt; John.Ruffini[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: Situation Report 1830 13 January 2011

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011. The current level is 103.60 mAHD and falling. Four sluices are open and the dam is currently discharging 1,528 m3/s.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.5 mAHD at 18:00 and continuing to fall slowly.

The releases from Wivenhoe Dam are currently 2,888 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 18:00 North Pine Dam was 39.60 mAHD and falling with 5 gates open, releasing about 151 m3/s. North Pine peaked at

41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

All gates will be closed at 05:00 Friday to enable MMRC to consider reopening Youngs Crossing.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and reviewing operating strategy. The FOC will continue to maintain close contact with warning agencies and local councils.

The next report will be issued at 06:00 on Friday 14 January 2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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Volume 3

From: Duty Engineer <dutyseq@[redacted]

Sent: Thursday, January 13, 2011 8:22 PM

To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]

Subject: Wivenhoe Dam Directive # 38 for Wivenhoe Dam at 20:15 on Thursday 13 January 2011

Attach: OPS_Directive_Wivenhoe #38.doc

Please find attached a copy of Directive #38 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	13/01/201
	Directive No:	38
	Time:	20:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 2030 on 13/01/2011

- Open Gate 2 from 5.0 metres to 5.5 metres at 2100.
- Open Gate 4 from 5.0 metres to 5.5 metres at 2200.
- Open Gate 1 from 5.0 metres to 5.5 metres at 2300.
- Open Gate 5 from 5.0 metres to 5.5 metres at 0000 on 14/01/2011

- Open Gate 3 from 5.5 metres to 6.0 metres at 0100 on 14/01/2011
- Open Gate 2 from 5.5 metres to 6.0 metres at 0200.
- Open Gate 4 from 5.5 metres to 6.0 metres at 0300.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 8:32 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted] Rob Drury <rdrury@[redacted] flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Somerset Dam Directive # 11 at 20:30 on 13 January 2011
Attach: OPS_Directive_Somerset #11.doc

Please find attached a copy of Directive # 11 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date:	13/01/2011
	Directive No:	11
	Time:	20:45

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following operations:-

- Fully Open Sluice N at 21:00.

Please confirm this gate operation by fax once you have completed the requested operations.

Regards

Rob Ayre

Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Duty Engineer <dutyseq@[redacted]
Sent: Thursday, January 13, 2011 8:35 PM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Situation Report 1830 13 January 2011

Rob

At 20:00 we are releasing the following:-

North Pine Dam = 151 m3/s

Somerset Dam = 1,268 m3/s

Wivenhoe Dam = 3,117 m3/s

Will advise what we are doing at 05:00 – expect that North Pine will be closed and Wivenhoe will be at 3,,500 m3/s.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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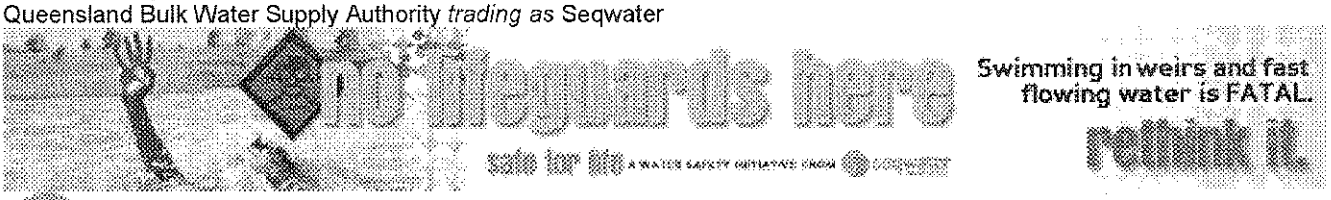
From: Rob Drury [mailto:rdrury@[redacted]
Sent: Thursday, 13 January 2011 8:20 PM
To: Duty Seq
Subject: RE: Situation Report 1830 13 January 2011

Terry,
Sending off one last update, what is our release rate as of 8pm?
And can I get a release rate for Somerset and Wivenhoe say 5am tomorrow please whoever is awake?

Thanks
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Thursday, 13 January 2011 6:43 PM
To: 'Arminda Roberts (private)'; David Roberts; flood.qld@[redacted] Mike Foster; Paul Bird; 'Paul Bird (Private)'; Peter Allen; Rob Drury; 'Rob D (Private)'; Rohan Thorogood; [redacted] 'Tony Jacobs (private)'; Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk; Bill Stephens; David Pokarier; John West; Louw Van Bierk; Mark Tan; Neville Ablitt; [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone; Brett Schultz; Glenn Patterson; Malcolm Lane; Murray Dunstan; Rob Gorian; Agg Dagan; Doug Grigg; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly
Subject: Situation Report 1830 13 January 2011

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011. The current level is 103.60 mAHD and falling. Four sluices are open and the dam is currently discharging 1,528 m3/s.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.5 mAHD at 18:00 and continuing to fall slowly.

The releases from Wivenhoe Dam are currently 2,888 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 18:00 North Pine Dam was 39.60 mAHD and falling with 5 gates open, releasing about 151 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

All gates will be closed at 05:00 Friday to enable MMRC to consider reopening Youngs Crossing.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and reviewing operating strategy. The FOC will continue to maintain close contact with warning agencies and ocal councils.

The next report will be issued at 06:00 on Friday 14 January 2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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----------Safe Stamp----------

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For more information regarding this service, please contact your service provider.

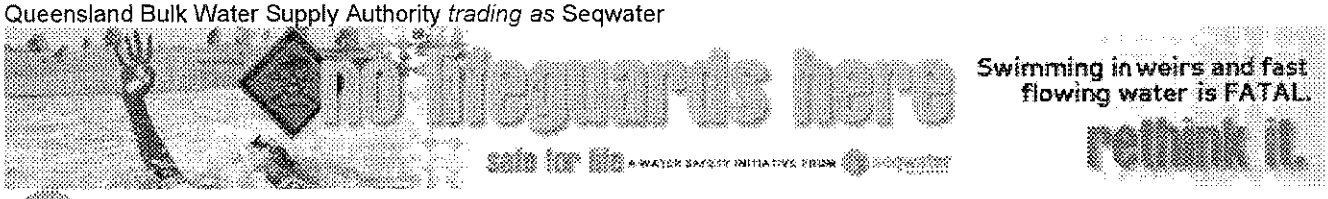
From: Rob Drury <rdrury@[redacted]
Sent: Thursday, January 13, 2011 8:49 PM
To: Rob Drury [redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird [redacted]
Arminda Roberts <aroberts@[redacted] Tara King [redacted]
Jim Pruss [redacted]
Cc: 'paulhbird[redacted]; 'arminda.roberts[redacted]; [redacted]; 'dkcr' [redacted] 'seqwgm@[redacted] 'Seqwater.c[redacted]
Subject: RE: Technical Report W55
Attach: Technical_Situation_Report_W55.docx

Attached is Report W55.

North Pine will close at 5am tomorrow morning.
Wivenhoe is slowly adjusting as the Bremer and Lockyer die away, discharging around 3,117 cumecs at 8pm.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



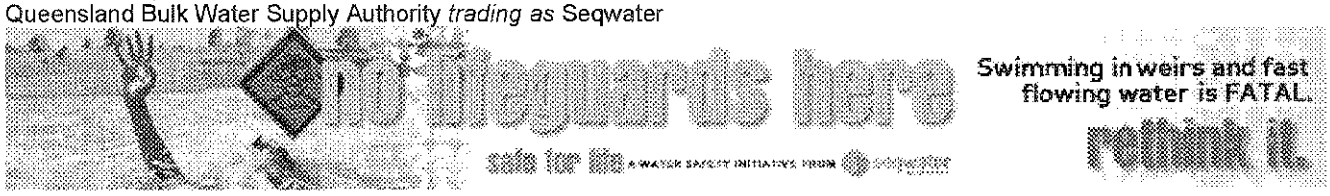
seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 13 January 2011 3:59 PM
To: Rob Drury; 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King; Jim Pruss
Cc: 'paulhbird[redacted] 'arminda.roberts[redacted]'; 'tararuffles[redacted]'; 'dkcr'; 'seqwgm[redacted]; 'Seqwater.comms[redacted]
Subject: RE: Technical Report W53

Attached is the latest report W53.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

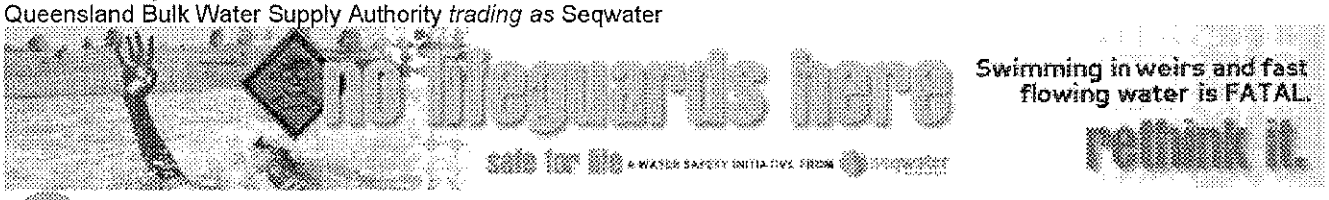
From: Rob Drury
Sent: Thursday, 13 January 2011 1:09 PM
To: 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King
Cc: 'paulhbird[redacted] 'arminda.roberts[redacted]; 'tararuffles[redacted]'; 'dkcr'; [redacted]
Subject: Technical Report W53

Attached is the latest report.

Releases from Somerset are being increased to drain Somerset into Wivenhoe Dam.
Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W55	Date of TSR release	13.1.2011	Time of TSR release	8pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Three sluices are opened as at 1300 12 January 2011. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 8pm Somerset was 103.47m and 611,359ML at 160.9% and discharging 1,268cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

At 8pm Wivenhoe Dam was 74.46 m AHD at 2,146,663ML and 184.2% and dropping slowly and discharging 3,117cumecs.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 8pm North Pine Dam was 39.56mAHD and 213,450ML and 99.6% and discharging.151cumecs.
It is planned to close the gates at 5am Friday morning.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	14.1.2011	Time	8am	or Event	

From: Seqwater Communications [redacted]
Sent: Thursday, January 13, 2011 9:16 PM
To: Rob Drury [redacted]
Subject: Re: Technical Report W55
Attach: 13 Jan 2100.doc

Rob, please review 9pm update. Only change is that 3 gates are opened at SOM, and output is reduced from earlier today.
thanks,
Tara

On Thu, Jan 13, 2011 at 8:49 PM, Rob Drury <[redacted]> wrote:

> Attached is Report W55.
>
> North Pine will close at 5am tomorrow morning.
>
> Wivenhoe is slowly adjusting as the Bremer and Lockyer die away, discharging around 3,117 cumecs at 8pm.
>
> Rob
>
> **Robert Drury**
>
> Dam Operations Manager
>
> Water Delivery
>
> Queensland Bulk Water Supply Authority *trading as* Seqwater
>
> Seqwater_No-Lifeguards-Here_email_strap
>
> cid:image001.png@01CA24E1.BD
>
> Ph (07) [redacted] Fax (07) [redacted] M [redacted] E [redacted]
>
> Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
> PO Box 37, Fernvale QLD 4306
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> Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 13 January 2011 3:59 PM
To: Rob Drury; 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King; Jim Pruss
Cc: 'paulhbir[redacted]'; 'arminda.robert[redacted]'; 'tararuffles[redacted]'; 'dker'; 'seqwgm[redacted]
'Seqwater.comms[redacted]
Subject: RE: Technical Report W53

Attached is the latest report W53.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

Seqwater_No-Lifeguards-Here_email_strap

cid:image001.png@01CA24E1.BD

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 13 January 2011 1:09 PM
To: 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King
Cc: 'paulhbird[redacted]'; 'arminda.roberts[redacted]'; 'tararuffles[redacted]'; 'dker'; seqwgm[redacted]
Subject: Technical Report W53

Attached is the latest report.

Releases from Somerset are being increased to drain Somerset into Wivenhoe Dam.

Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

Seqwater_No-Lifeguards-Here_email_strap

cid:image001.png@01CA24E1.BD

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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1800 INFO LINE SCRIPT

Thanks for calling the SEQ Water Grid release hotline

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

As at 9.00pm on Thursday 13 January, the following applies:

SOMERSET DAM:
Three sluices are open as at 8.00pm on Thursday 13 January 2011, discharging 109,000 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain off the flood storage compartment during the next five days.

WIVENHOE DAM:
The releases from Wivenhoe Dam were temporarily reduced to 215,000 megalitres at 7:30am on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River.
The Brisbane River peaked at the Port Office Gauge early Thursday morning.

Releases from Wivenhoe Dam will now be managed to drain the floodwaters stored within the required seven days in case further rainfall eventuates.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is releasing about 13,000 megalitres per day with all gates opened. At this stage, gates will be closed early Friday morning.

The local Council is being kept informed regarding Youngs Crossing.

LESLIE HARRISON DAM:
No releases

HINZE DAM:
A minor release of around 8,000 megalitres a day is being made through the emergency gates. This release is expected to be reduced tomorrow. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice.

Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated on Friday January 14.

From: Rob Drury [redacted]
Sent: Thursday, January 13, 2011 9:44 PM
To: '[redacted]
Subject: Re: Technical Report W55

Fine

From: Seqwater Communications [redacted]
To: Rob Drury
Sent: Thu Jan 13 21:15:59 2011
Subject: Re: Technical Report W55

Rob, please review 9pm update. Only change is that 3 gates are opened at SOM, and output is reduced from earlier today.
thanks,
Tara

On Thu, Jan 13, 2011 at 8:49 PM, Rob Drury <[redacted]> wrote:

> Attached is Report W55.
>
> □
>
> North Pine will close at 5am tomorrow morning.
>
> Wivenhoe is slowly adjusting as the Bremer and Lockyer die away, discharging around 3,117 cumecs at 8pm.
>
> □
>
> Rob
>
> □
>
> □
>
> **Robert Drury**
>
> Dam Operations Manager
>
> Water Delivery
>
> Queensland Bulk Water Supply Authority *trading as* Seqwater
>
> Seqwater_No-Lifeguards-Here_email_strap
>
> cid:[redacted]
>
> Ph (07[redacted] |□Fax (07)[redacted] |□M[redacted] E[redacted]
>
> Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
> PO Box 37, Fernvale QLD 4306
>
> Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 13 January 2011 3:59 PM
To: Rob Drury; 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King; Jim Pruss
Cc: 'paulhbird[redacted]; 'arminda.roberts[redacted] 'tararuffles[redacted] 'dker'; 'seqwgm[redacted]
'Seqwater.comns[redacted]
Subject: RE: Technical Report W53

Attached is the latest report W53.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

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cid:image001.png@01CA24E1.BD

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 13 January 2011 1:09 PM
To: 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King
Cc: 'paulhbird[redacted]; 'arminda.robert[redacted]; 'tararuffles[redacted]; 'dker'; seqwgm[redacted]
Subject: Technical Report W53

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Releases from Wivenhoe will be managed from 1pm today to maintain a flow of around 3500cumecs at Moggill.

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Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

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cid:image001.png@01CA24E1.BD

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 12:55 AM
To: Rob Drury [redacted]
Cc: [redacted] John Tibaldi [redacted]
Rob.ayre@[redacted] Terry Malone [redacted]
Subject: Ipswich Police Enquiry - Somerset Dam

Rob

Received a call from Dave Preston at Ipswich District Police regarding a rumour that Somerset Dam wall had a crack in it.

I confirmed with Ray Ballinger that during their last surveillance nothing was untoward with the wall and replied to Dave indicating that everything at the dam was okay.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 2:04 AM
To: Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: North Pine Dam Directive # 30 at 02:00 on Friday 14 January 2011
Attach: OPS_Directive_NorthPine #30.doc

Please find attached Directive # 30 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event Operations Directive

TO: North Pine Dam Operators	Directive	No: 30
	Date:	14/01/2011
	Time:	02:00

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 03:15 on Friday 14 January 2011.

The interval between gate operations is to be 15 minutes.

- Gate A: Close to 1 increment at 03:15
- Gate E: Close to 1 increment at 03:30
- Gate C: Close to 1 increment at 03:45

- Fully Close Gate B at 04:00
- Fully Close Gate D at 04:15
- Fully Close Gate A at 04:30
- Fully Close Gate E at 04:45
- Fully Close Gate C at 05:00

Please also confirm by phone and Fax once this gate operation is complete.

The low level outlet will remain open releasing 300 L/s for fish recovery.

Rob Ayre
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 4:34 AM
To: [redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Newspaper Articles - The Australian

Gents

Please be aware of the following reports in the Friday 13 January 2011 edition of *The Australian*

http://www.theaustralian.com.au/news/opinion/blighs-tough-people-owed-a-tough-inquiry/story-e6frg6zo-1225987404095

http://www.theaustralian.com.au/in-depth/queensland-floods/brisbane-flood-peak-passes-inquiry-calls-start/story-fn7iwx3v-1225987462450

Regards

Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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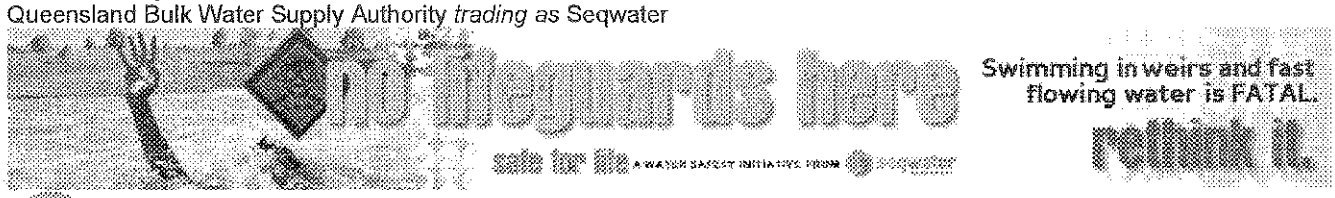
From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 5:12 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Ipswich Police Enquiry - Somerset Dam

Same as every night.

Can I get just an update of releases from Som and Wiv please?

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) 54278131 | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Friday, 14 January 2011 12:55 AM
To: Rob Drury
Cc: [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Subject: Ipswich Police Enquiry - Somerset Dam

Rob

Received a call from Dave Preston at Ipswich District Police regarding a rumour that Somerset Dam wall had a crack in it.

I confirmed with Ray Ballinger that during their last surveillance nothing was untoward with the wall and replied to Dave indicating that everything at the dam was okay.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer [redacted]

Sent: Friday, January 14, 2011 5:35 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood [redacted] seqwater.[redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace [redacted] Chris Lavin [redacted] Craig Logan [redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris [redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan [redacted] Neville Ablitt <nablitt@[redacted] [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz [redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan [redacted] Rob Gorian [redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: FOC Situation Report at 06:00 on Friday 14 Janaury 2011

Rainfall

There has been no significant rainfall in the last 12 hours and falls of only 5mm is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011. The current level is 102.87 mAHD and falling. Four sluices are open and the dam is currently discharging about 1,300 m3/s.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. At 05:00 Wivenhoe Dam was 74.74.08 mAHD and continuing to fall.

The releases from Wivenhoe Dam are currently about 3,500 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by Wednesday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 05:00 North Pine Dam was 39.40 mAHD and gate operations have ceased. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs. Fish recovery has commenced and MBRC have been advised that the gates have been closed. MBRC will inspect Youngs Crossing to determine if the crossing can be re-opened.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments. The FOC will continue to maintain close contact with warning agencies and local councils.

The next report will be issued at 18:00 on Friday 14 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 5:38 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

Update as of this morning.
As usual, let us know if there are any issues or concerns.
And feel free to contact the Flood Centre for details or discuss.

Rob

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 5am Somerset was 102.87m and 574,852ML at 151.3% and discharging 1,277cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

At 5am Wivenhoe Dam was 74.08 m AHD at 2,087,960ML and 179.22% and dropping slowly and discharging around 3,500cumecs and this flow will be maintained until early next week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

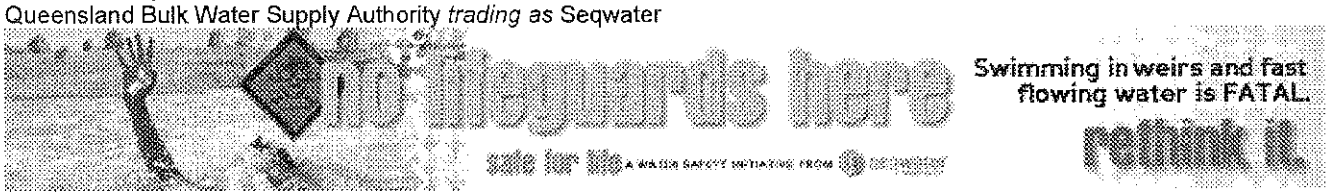
North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 5am North Pine Dam was 39.4mAHD and 210,040ML and 98.0% and all gates were closed.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]

Sent: Friday, January 14, 2011 5:45 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price[redacted] kim.hang[redacted] Al Navaruk [redacted] Bill Stephens <[redacted]>; David Pokarier [redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: FOC Situation Report at 06:00 on Friday 14 Janaury 2011

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Strategy

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The next report will be issued at 18:00 on Friday 14 January 2011.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 5:52 AM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted]
Arminda Roberts <aroberts@[redacted] Tara King <tking@[redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
Cc: 'paulhbird[redacted] 'arminda.robert[redacted] 'tararuffles[redacted]; 'dkcr' [redacted] 'seqwgn[redacted] 'Seqwater.[redacted]
Subject: RE: Technical Report W55
Attach: Technical_Situation_Report_W56.docx; Technical_Situation_Report_W56.doc

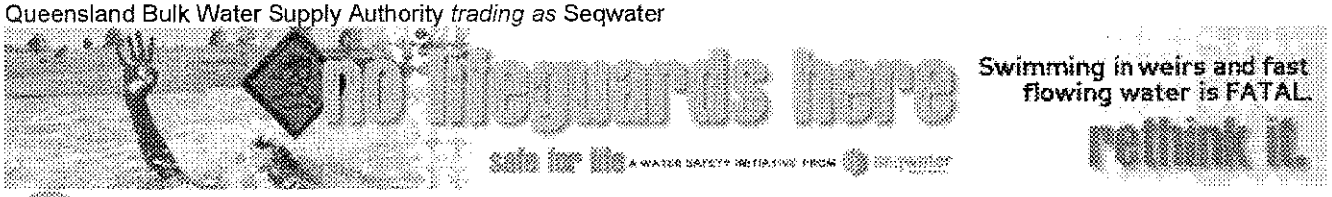
---

Attached report W56 in 2 formats.

North Pine closed at 5am.
Wivenhoe releasing close to 3500cumecs as the flows downstream are dropping off. Will continue around this rate until early next week to drain storage in 7 days.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

| E [redacted]
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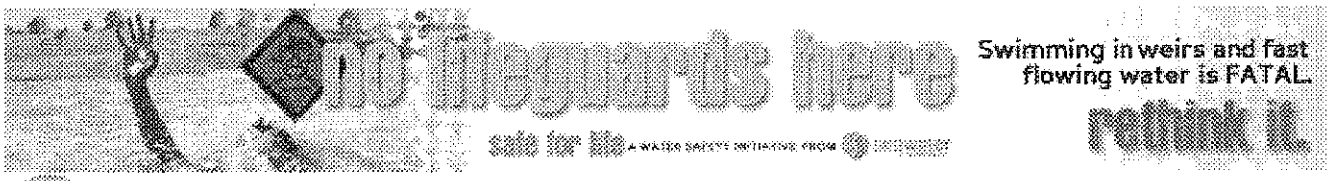

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Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W56	Date of TSR release	14.1.2011	Time of TSR release	5am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area and drain reservoir • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows expected well over2,300,000ML.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 12 hours and falls of only 5mm is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 5am Somerset was 102.87m and 574,852ML at 151.3% and discharging 1,300cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.

At 5am Wivenhoe Dam was 74.08 m AHD at 2,087,960ML and 179.22% and dropping slowly and discharging around 3,500cumecs and this flow will be maintained until early next week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 5am North Pine Dam was 39.4mAHD and 210,040ML and 98.0% and all gates were closed. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.
Fish recovery has commenced and MBRC have been advised that the gates have been closed. MBRC will inspect Youngs Crossing to determine if the crossing can be re-opened

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments. The FOC is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed..

Hinze Dam:
A release of around 8,000megalitres a day is being made through the emergency gates. The Lake Level is dropping. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	14.1.2011	Time	8am	or Event	

TECHNICAL SITUATION REPORT

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Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

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BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

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(to include predicted local inundation areas and depths of inundation based on the information)

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BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

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ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
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SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	14.1.2011	Time	8am	or Event	

From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 5:56 AM
To: Barton Maher <bmaher@[redacted] Rob Drury <rdrury@[redacted]
Cc: [redacted] John Tibaldi [redacted]
Rob.ayre@[redacted] Terry Malone [redacted]
Subject: Fuse Plug Ratings

Barton

Do you have equations for the fuse plugs?

We need equations to include in our gate operation model asap. Approximately equations will suffice at this stage.

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Seqwater Communications [redacted]
Sent: Friday, January 14, 2011 6:08 AM
To: Rob Drury <rdrury@[redacted] Rob Drury [redacted]
Cc: Paul Bird [redacted] paulhbird[redacted] Tara King [redacted] Michael Feichtner [redacted]
Subject: Please review 6am update.

Hi Rob,

Please review 6am update.

Regards
Arminda

As at 6.00am on Friday 14 January, the following applies:

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The Centre is also maintaining close contact with warning agencies and local councils.

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As at 05.00am on Friday 14 January all gates are closed at North Pine Dam.

LESLIE HARRISON DAM:
No releases

HINZE DAM:
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RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated again later on Friday January 14.

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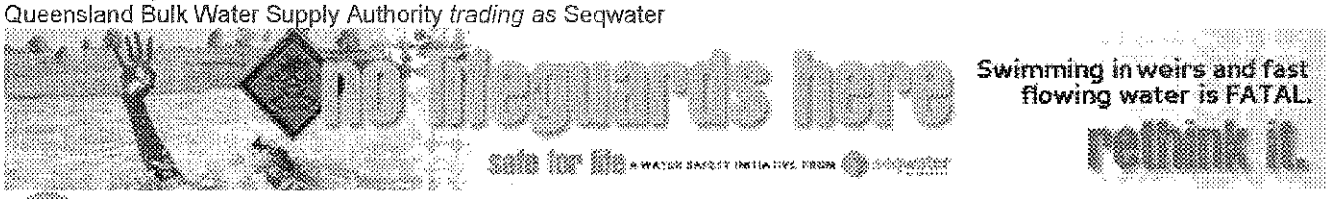
From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 6:11 AM
To: 'Seqwater Communications' [redacted] Rob Drury [redacted]
Cc: Paul Bird <pbird@[redacted] [redacted] Tara King [redacted] Michael Feichtner [redacted]
Subject: RE: Please review 6am update.

Only change is to Hinze.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [mailto[redacted]
Sent: Friday, 14 January 2011 6:08 AM
To: Rob Drury; Rob Drury
Cc: Paul Bird; paulhbird[redacted] Tara King; Michael Feichtner
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From: Seqwater Communications [redacted]
Sent: Friday, January 14, 2011 6:13 AM
To: Rob Drury [redacted]
Subject: Re: Please review 6am update.

Thanks Rob.

On Fri, Jan 14, 2011 at 6:10 AM, Rob Drury <[redacted]> wrote:

> Only change is to Hinze.
>
> **Robert Drury**
>
> Dam Operations Manager
>
> Water Delivery
>
> Queensland Bulk Water Supply Authority *trading as* Seqwater
>
> Seqwater_No-Lifeguards-Here_email_strap
>
> cid:[redacted]
>
> Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
>
> Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
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>
> ---
>
> **From:** Seqwater Communications [mailto:[redacted]
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> **To:** Rob Drury; Rob Drury
> **Cc:** Paul Bird; [redacted] Tara King; Michael Feichtner
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From: Seqwater Communications [redacted]
Sent: Friday, January 14, 2011 6:26 AM
To: [redacted] Paul Bird <pbird@[redacted] Michael Feichtner [redacted] Tara King [redacted]
Cc: Rob Drury <rdrury@[redacted] Peter Borrows [redacted] Peter Borrows <pborrows@[redacted]
Subject: Fwd: 0600hrs Water Release Update

6.00am update issued.

---------- Forwarded message ----------
From: **Seqwater Communications** <[redacted]
Date: Fri, Jan 14, 2011 at 6:19 AM
Subject: 0600hrs Water Release Update
To: Water Grid Media [redacted] Alan Roebuck <aroebuck@[redacted] Gary Stubbs [redacted] Greg Swain <greg.swain@[redacted] Kathy Petrik [redacted] Lisa Martin <lisa.m.martin@[redacted] Paula Weston [redacted] Tony Jacobs [redacted]

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From: Tony Jacobs [redacted]
Sent: Friday, January 14, 2011 7:01 AM
To: Rob Drury [redacted]
Subject: RE: Update

Thanks Rob,

I have received your phone messages, however have been having huge problems with communications in Lowood and Fernvale and have not been able to return calls.

Lowood's phones came back on last night and hopefully Fernvale may see some improvements today. Lowood has power now and I noticed an Energex trailer mounted generator in the main street of Fernvale so the problems there must be unfixable (I believe the line from Split Yard is still in or too close to the water), maybe they will be able to get power to some of town from the trailer today, which ill make a huge improvement. We are trying to source electricians so that the inundated houses can be reconnected.

As Esk is now accessible from Gatton the LDMG has relocated to Esk so I will be contactable during the middle part of the day.

Tony Jacobs
Manager Operations
Somerset Regional Council
2 Redbank Street, Esk QLD 4312
Ph: [redacted]
Fax:
Email: [redacted]

From: Rob Drury [mailto:rdrury@[redacted]
Sent: Friday, 14 January 2011 5:38 AM
To: Rob Drury; Tony Jacobs; Tony Trace; Lavin, Chris
Cc: Tone and Lee Jacobs
Subject: RE: Update

Update as of this morning.
As usual, let us know if there are any issues or concerns.
And feel free to contact the Flood Centre for details or discuss.

Rob

Rainfall

There has been no significant rainfall in the last 12 hours and none is expected for the next 5 days.

Somerset/Wivenhoe

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At 5am North Pine Dam was 39.4mAHD and 210,040ML and 98.0% and all gates were closed.

Strategy

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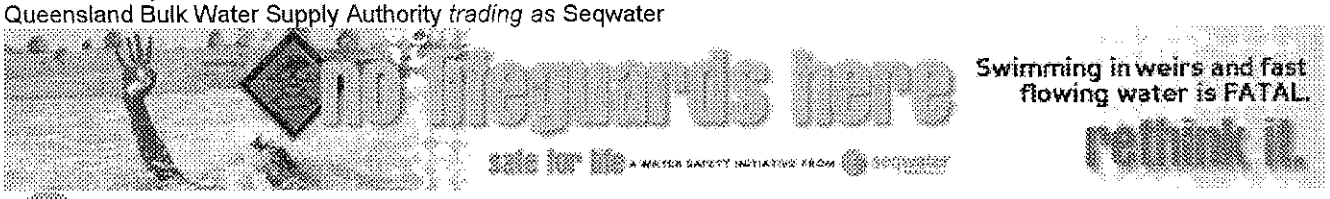
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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From: Christopher Hine [redacted]
Sent: Friday, January 14, 2011 7:31 AM
To: Christopher Hine <chine@[redacted] Rohan Thorogood <rthorogood@[redacted] Dom Courtney <dcourtney@[redacted] 'Lake Somerset Holiday Park [[redacted] 'Julie and Geoff Wade' [redacted] 'Camp Somerset' [redacted] 'John Wordsworth' [redacted] 'somersetdamstore@b[redacted] fernvalefutures[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'grand.hotelesk[redacted] 'info[redacted]
Cc: COMMS Staff <COMMSStaff@[redacted] Brenda Terelinck <bterelinck@[redacted] Sheralyn Grigg <sgrigg@[redacted] Leonie Quick <lquick@[redacted] Carmel Marsden <cmarsden@[redacted] Douglas Hunt <dhunt@[redacted] Donna Gregory <dgregory@[redacted] Andrew Watkinson <awatkinson@[redacted] James Udy <judy@[redacted] Rob Drury <rdrury@[redacted] John Tibaldi <jtibaldi@[redacted] Craig A. Hine <cahine@[redacted] Justin Lee <jlee@[redacted] Michael Hall <mhall@[redacted] Terry Bliesner <tbliesner@[redacted] Duty Seq <dutyseq@[redacted] Tony Spinks <tspinks@[redacted] Grant Titmarsh <gtitmarsh@[redacted] Craig Duncan <cduncan@[redacted] Fiona Apps <Fapps@[redacted]
Subject: RE: Lake Somerset - temporary closure of on-water recreation activities

---

Good Morning

Situation report 0700 Friday 14th January 2011

We are finally seeing both Wivenhoe and Somerset Lake levels dropping after an eventful week.

Somerset is 3.70m and Wivenhoe 6.93m above full supply level. Wivenhoe Dam is still isolated due to flood levels and is expected to remain like this over the weekend. The road between Esk and Somerset opened this morning but the Esk Kilcoy Rd between the Spit and Kilcoy remains closed due to major flood damage to the bridge at Shaws Gully and floodway at Beams Creek.

Due to the current levels, water quality concerns and damage to infrastructure both Wivenhoe and Somerset will remained closed to all recreation activities until further notice.

Regards

Chris Hine
Lead Ranger [Somerset Dam]
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph (07)[redacted] | Fax (07)[redacted] | M[redacted]
Somerset Dam
Website | www.seqwater.com.au

From: Christopher Hine
Sent: Tuesday, 11 January 2011 7:20 AM
To: Rohan Thorogood; Dom Courtney; 'Lake Somerset Holiday Park [[redacted]au]'; 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted]gov.au'; 'evic@[redacted]'; 'Gough.[redacted]' 'grand.hotelesk[redacted]'; '[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan; Fiona Apps
Subject: RE: Lake Somerset - temporary closure of on-water recreation activities

Good morning

Situation report 0600 Tuesday 11th January 2011.

Major inflows have continued over the last 24 hours and significant rainfall has occurred over the last 3 hours.

Both Wivenhoe and Somerset remained closed to all recreation activities.

Somerset is 4.30m above full supply level and is expected to rise during the day. The discharge has been reduced to 2 open sluice gates due to the increased outflows into the Brisbane River from Lockyer Creek and the Bremer River. Areas around Kilcoy will continue to be adversely affected.

Wivenhoe is 6.61m above full supply level and rising. Five Radial gates are open and at this stage the dam is expected to be 7.00m above full supply level Tuesday evening. Heavy rainfall continues through out East Queensland and the situation could deteriorate over the next 24 hours.

The following recreation sites are closed –

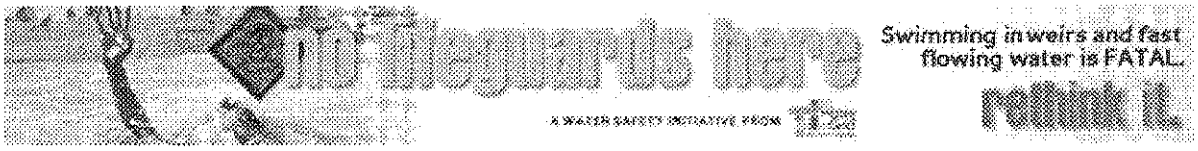
- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- Lumley Hill
- Spillway Common/ Atkinson's Crossing
- Cormorant Bay
- Branch Creek
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh
- Somerset Park Camping area

Regards

Chris Hine
Lead Ranger [Somerset Dam]
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph (07)[redacted] Fax (07)[redacted] | M[redacted]
Somerset Dam
Website | www.seqwater.com.au



From: Rohan Thorogood
Sent: Monday, 10 January 2011 7:17 AM
To: Christopher Hine; Dom Courtney; 'Lake Somerset Holiday Park [[redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted] 'fernvalefutures[redacted] 'evic[redacted] 'Gough.[redacted] '[redacted] 'grand.hotelesk[redacted]'; 'info[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan; Fiona Apps
Subject: RE: Lake Somerset - temporary closure of on-water recreation activities

Good Morning,

Situation report 0700 Monday January 10, 2011.

Major inflows have continued over the last 24 hours.

Both Wivenhoe and Somerset are closed to all recreational activities, and will remain so for some days.

Somerset is expected to reach 4.5 M above FSL, and Wivenhoe 6.3M above FSL.

The following recreation sites are closed –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- Lumley Hill
- Spillway Common/ Atkinson's Crossing
- Cormorant Bay
- Branch Creek
- Billies Bay/Hays Landing
- The Spit
- Lake Somerset Holiday Park Kirkleagh

Numerous roads are cut including the highway at Kilcoy and Fernvale, and conditions are extremely dangerous.

Regards

Rohan

Rohan Thorogood
Coordinator(Central)
Catchment Services and Group Support
Queensland Bulk Water Supply Authority *trading as* Seqwater

Ph (07)[redacted] | Fax (07)[redacted] | M[redacted] | E[redacted]
PO Box 37 Fernvale 4306

Website | www.seqwater.com.au

Don't be DAM Stupid rethink it.
safe for life A WATER SAFETY INITIATIVE FROM seqwater

From: Christopher Hine
Sent: Sunday, 9 January 2011 6:59 AM
To: Christopher Hine; Dom Courtney; 'Lake Somerset Holiday Park [[redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted] 'fernvalefutures@[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'grand.hotelesk[redacted]; 'info[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan; Rohan Thorogood; Fiona Apps
Subject: RE: Lake Somerset - temporary closure of on-water recreation activities

Good Morning,

Situation Report 0600 Sunday 9th January 2011-01-09

Due to current lake levels and forecast rainfalls over the next 3 days Somerset and Wivenhoe will remain **closed** to all water based recreation activities today Sunday 9th January 2011 and possibly well into next week. Given the saturated conditions of the catchments, significant inflows to Seqwater dams will continue over the next few days.

Lake Somerset is 1.27m above full supply level and is releasing water through two open sluice gates. Moderate rainfall [60mm in some areas] has fallen in the dam catchment overnight and will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000 ML/day.

Lake Wivenhoe is 1.58m above full supply level with water being released from 5 gates at a rate of 116,000 ML/day. At this stage releases will continue until at least Wednesday.

The following recreation sites are closed to the public –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit

- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

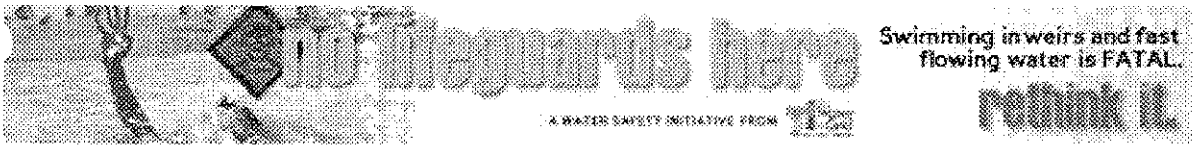
Next update will be issued at 0600 Monday 10th January 2011.

Regards

Chris Hine
Lead Ranger [Somerset Dam]
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

[redacted] | E [redacted]
Somerset Dam
Website | www.seqwater.com.au



From: Christopher Hine
Sent: Saturday, 8 January 2011 7:01 AM
To: Dom Courtney; 'Lake Somerset Holiday Park [[redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted] 'fernvalefutures@[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'grand.hotelesk[redacted] 'i[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan; Rohan Thorogood; Fiona Apps
Subject: RE: Lake Somerset - temporary closure of on-water recreation activities

Good Morning,

Latest update as of 0600 Saturday 7th January 2011.

Lake Somerset is currently 1.44 m above full supply level and rising, and is temporarily **closed** to all water based recreation activities. The Lake is expected to remain closed over the weekend and possibly into next week, depending upon the conditions. There is 1 sluice gate open releasing water into Wivenhoe Dam.

Wivenhoe Dam is currently 1.47m above full supply level and rising. There are 5 gates open releasing water from Wivenhoe Dam.

The following recreation sites are closed to the public –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing
- The Spit

- Lake Somerset Holiday Park Kirkleagh [Boat ramps only]

The next advise will be issued 0600 Sunday 8th January 2011.

Regards

Chris Hine
Lead Ranger [Somerset Dam]
Queensland Bulk Water Supply Authority *trading as* Seqwater

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Somerset Dam
Website | www.seqwater.com.au

From: Dom Courtney
Sent: Friday, 7 January 2011 2:00 PM
To: 'Lake Somerset Holiday Park [redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted]; 'fernvalefutures@[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'grand.h[redacted] 'info@[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Christopher Hine; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan; Rohan Thorogood; Fiona Apps
Subject: Lake Somerset - temporary closure of on-water recreation activities

Good afternoon,

For your information, from 6pm tonight (Friday 7th January 2011), Lake Somerset will be temporarily **closed** to water based recreation activities. This decision has been made due to the high water levels and water quality issues associated with significant inflows of water into the lake.

Lake Somerset is expected to remain closed over the weekend, and possibly into next week, depending upon the conditions. The lake will be re-opened to on-water recreation activities when it is safe to do so. We understand the impact that this decision could have on local businesses, however public safety is a paramount consideration in this matter.

Seqwater will provide further information as conditions change.

Regards,
Dom

Dom Courtney
Recreation Coordinator
Queensland Bulk Water Supply Authority *trading as* Seqwater

T [redacted] M [redacted] | F [redacted] | E d[redacted]
North Pine Water Treatment Plant, Protheroe Rd, Joyner QLD 4500 Australia
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Dom Courtney
Sent: Friday, 7 January 2011 11:30 AM
To: 'Lake Somerset Holiday Park [redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted]fernvalefutures@[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'grand.hotelesk[redacted] 'inf[redacted]
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Christopher Hine; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan
Subject: RE: Lake levels

Good morning,

Further to the email that Rohan sent this morning:

Lake Somerset - due to anticipated further inflows, Seqwater expects that it may be necessary to close Lake Somerset to all on-water recreation activities, possibly as early as tomorrow morning (Saturday 8th January 2011). This situation will be monitored and a decision will be made and communicated as soon as possible.

Further advices will be issued as conditions change.

Regards,
Dom

Dom Courtney
Recreation Coordinator
Queensland Bulk Water Supply Authority *trading as* Seqwater

T [redacted] | M [redacted] | F [redacted] | E [redacted]
North Pine Water Treatment Plant, Protheroe Rd, Joyner QLD 4500 Australia
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

Swimming in weirs and fast flowing water is FATAL.
rethink it.

From: Rohan Thorogood
Sent: Friday, 7 January 2011 6:10 AM
To: 'Lake Somerset Holiday Park [redacted] 'Julie and Geoff Wade'; 'Camp Somerset'; 'John Wordsworth'; 'somersetdamstore[redacted]; 'fernvalefutures@[redacted] 'evic@[redacted] 'Gough.[redacted] 'Douglas.[redacted] 'Robyn Mason'
Cc: COMMS Staff; Brenda Terelinck; Sheralyn Grigg; Leonie Quick; Carmel Marsden; Christopher Hine; Dom Courtney; Douglas Hunt; Donna Gregory; Andrew Watkinson; James Udy; Rob Drury; John Tibaldi; Craig A. Hine; Justin Lee; Michael Hall; Terry Bliesner; Duty Seq; Tony Spinks; Grant Titmarsh; Craig Duncan
Subject: Lake levels

Good Morning,
Once again there have been significant inflows into dams yesterday and overnight.
Currently Wivenhoe Dam is 600mm above FSL. Releases from Wivenhoe are only minor at this point, to allow the Lockyer creek to subside, when releases should increase later today or early tomorrow.
As such, Wivenhoe will continue to rise, and Seqwater has taken the decision to close Wivenhoe to all water based recreational activities as from this morning, and this will most likely extend over the weekend.
Somerset Dam is currently 600mm above FSL and rising slowly.
This is slightly below the trigger level to close the lake to water based recreational activities.
At this point, Somerset is open to water based recreational activities, however this could change at short notice at any time over the next few days given the volatile weather conditions.
Moogerah is approximately 700mm above FSL and open to water based recreational activities, while Maroon remains open, but primary contact (swimming and skiing) should be avoided.
The following recreation sites are closed to the public –

- O'Sheas Crossing
- Hamon Cove
- Logan Inlet
- Captain Logan Camp
- River access at Atkinson's Crossing
- Billies Bay/Hays Landing

The next advice will be issued at 0600 tomorrow, or when conditions change.
Regards,
Rohan

Rohan Thorogood
Coordinator(Central)
Catchment Services and Group Support
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
PO Box 37 Fernvale 4306

Website | www.seqwater.com.au

Don't be DAM Stupid Dangerous floodwater attracts everyone rethink it.
safe for life A WATER SAFETY INITIATIVE FROM SEQWATER

From: Rob Drury <[redacted]
Sent: Friday, January 14, 2011 8:08 AM
To: Duty Seq <dutyseq@[redacted]
Subject: Names

How about the Millenium Flood?

From: Duty Engineer <dutyseq@[redacted]
To: Barton Maher; Rob Drury
Cc: [redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Sent: Fri Jan 14 05:56:26 2011
Subject: Fuse Plug Ratings

Barton

Do you have equations for the fuse plugs?

We need equations to include in our gate operation model asap. Approximately equations will suffice at this stage.

Terry

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 9:10 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Names

October 2010
Early Dec 2010
Pre Christmas Flood 2010
Post Christmas Flood 2010
New Year Flood 2011

Australia Day Flood 2011?

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rachel Lerch [redacted]
Sent: Friday, January 14, 2011 10:03 AM
To: Cr Graeme Lehmann [redacted] Bob Bain [redacted] Tony Jacobs [redacted] Steve Brennan [redacted] 'Pitman. [redacted] 'Goodger. [redacted] Andy Bickerton <ABickerton [redacted]>; 'David.Caughley [redacted] 'CraigX.Smith [redacted] 'Peter.Varley [redacted] 'Richard.lahse [redacted] 'Qastoogoolawah.oic [redacted] 'Tom.parsonage [redacted]; Rob Drury <rdrury@ [redacted] 'michaellukritz [redacted]'; 'glendolan [redacted]'; 'russellcross@ [redacted]; 'Mark.Kelly [redacted] 'Wendy.fry@ [redacted] 'Annabelle.johnstone@ [redacted] 'gough. [redacted] "Tanwan.MartinJ [redacted] 'Douglas. [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: LDMG Meeting - 2.30pm TODAY

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm today (14th January 2011) at the Esk Administration Building.

If you are unable to attend in person teleconference is available. You will need to dia [redacted] d enter a passcode which is [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Peter Borrows <[redacted]
Sent: Friday, January 14, 2011 11:57 AM
To: Rob Drury <rdrury@[redacted]
Cc: Jim Pruss <jpruss@[redacted] Peter Pennell [redacted]
Peter Borrows <pborrows@[redacted]
Subject: FW: Seqwater's ability to assist Wivenhoe Pocket Community?

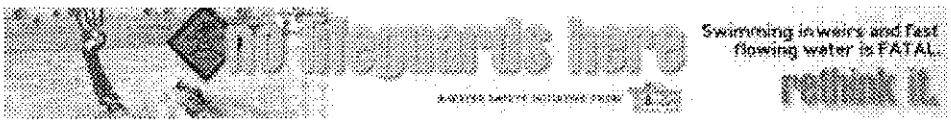
Rob, can you follow up with Dan – this needs to go through the local disaster committee if it an urgent situation and can't wait the 2 to 3 days for SES.

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Daniel Garcia
Sent: Friday, 14 January 2011 11:42 AM
To: Peter Pennell; Rob Drury; Peter Borrows
Cc: Brad Heck
Subject: Seqwater's ability to assist Wivenhoe Pocket Community?

learnt this morning that Seqwater sent a chopper to the LWIC this morning with food for staff.

If future food drops are planned could we make a request for urgent items to also be brought out for the local community.

Nothing is needed right now and we have successfully arranged an SES food drop but we would like to keep our options open for emergencies and the SES can take 2 or 3 days to respond.

We also have a need at times for people to be evacuated for health reasons. There are existing services for this we know but once again they are in high demand and cannot always respond when desired.

Lastly the community emergency coordination team based on the local Rural Fire Brigade may run low on fuel for essential vehicles. As a last resort could Seqwater give permission for individuals coordinating the flood response in Wivenhoe Pocket to refuel at LWIC? I am not asking for open access like a petrol station I am talking about key emergency personnel and vehicles, possibly no more than 6 people or vehicles. I understand that there are local petrol stations that we can now access and when possible we would try that avenue first. I am asking for emergency last resort access.

If nothing else prior notice of air drops would be appreciated.

Thank you

Dan

Daniel Garcia
Natural Asset Maintenance Planner
QLD Bulk Water Supply Authority *trading as* Seqwater

Ph (07)[redacted] | Fax (07)[redacted] | dgarcia@[redacted]
2470 Brisbane Valley Highway, via Fernvale QLD 4306
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 12:19 PM
To: Peter Borrows <pborrows@[redacted]
Cc: Jim Pruss <[redacted] Peter Pennell [redacted]
Subject: RE: Seqwater's ability to assist Wivenhoe Pocket Community?

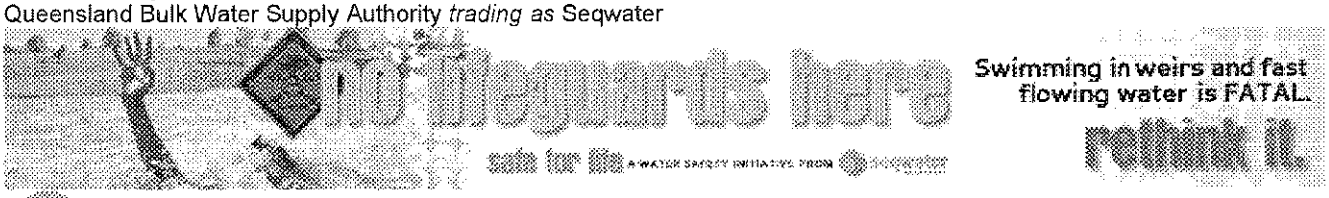
I spoke to Dan.
I explained it should go through the SES or LDMG for emergencies and explained re our chopper which was mainly a personnel transport and any food was just a minor amount for stranded staff members.

Brooke had left a message with Dan yesterday but phone communication is haphazard.

Spoke to Rohan who concurs.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

From: Peter Borrows
Sent: Friday, 14 January 2011 11:57 AM
To: Rob Drury
Cc: Jim Pruss; Peter Pennell; Peter Borrows
Subject: FW: Seqwater's ability to assist Wivenhoe Pocket Community?

Rob, can you follow up with Dan – this needs to go through the local disaster committee if it an urgent situation and can't wait the 2 to 3 days for SES.

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Daniel Garcia
Sent: Friday, 14 January 2011 11:42 AM
To: Peter Pennell; Rob Drury; Peter Borrows
Cc: Brad Heck
Subject: Seqwater's ability to assist Wivenhoe Pocket Community?

I learnt this morning that Seqwater sent a chopper to the LWIC this morning with food for staff.

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Nothing is needed right now and we have successfully arranged an SES food drop but we would like to keep our options open for emergencies and the SES can take 2 or 3 days to respond.

We also have a need at times for people to be evacuated for health reasons. There are existing services for this we know but once again they are in high demand and cannot always respond when desired.

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If nothing else prior notice of air drops would be appreciated.

Thank you

Dan

Daniel Garcia
Natural Asset Maintenance Planner
QLD Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | [redacted]
2470 Brisbane Valley Highway, via Fernvale QLD 4306
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rachel Lerch [redacted]
Sent: Friday, January 14, 2011 1:48 PM
To: Cr Graeme Lehmann [redacted] Bob Bain [redacted] Tony Jacobs <TJacobs [redacted] Steve Brennan [redacted] 'Pitman. [redacted] Andy Bickerton [redacted] 'David.Caughley [redacted] 'CraigX.Smith@ [redacted] 'Peter.Varley [redacted]'; 'Richard.lahse@ [redacted] Qastoogoolawah.oic [redacted] 'Tom.parsonage [redacted]; Rob Drury [redacted] 'michaellukritz [redacted]'; 'glendolan [redacted] 'russellcross@ [redacted] Mark.Kelly [redacted] 'Wendy.fry@ [redacted]; 'Annabelle.johnston [redacted] 'gough. [redacted] 'Tanwan. [redacted] 'Douglas. [redacted] 'tristan_berrell [redacted] 'richardperry [redacted] 'garychalmers [redacted]; 'QAS Springfield OIC' [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: Road Closures within Somerset Region

Hello all

Please be advised of the below road closure information.

Road still officially closed as at 6pm:

- Brisbane Valley Highway at (5kmSouth Esk) and Brisbane River At Fernvale (Geoff Fisher Bridge)
- Esk Hampton Road – bridge 3 crossing (Red Bank Creek)
- Neurum Road
- Gatton Esk Road (Closed at Lockyer Creek)
- Ten Mile Road
- Monsildale Road
- Esk Crows Nest Road – Skinner Bridge
- Crossdale – Woodgate Road
- Gregors Creek Road
- Mary Smokes Creek Road
- Patrick Estate Road – Pointings Bridge
- Brightview Road
- Sandy Creek Road
- Clarendon Road
- Forest Hill-Fernvale Road – East of Lowood
- Esk Kilcoy Road – Shaws Gully – 1 km North of Spit
- Wivenhoe Somerset Road - Titmarsh Bridge
- D'Aguilar Highway – Blackbutt Range
- Ivory Creek Road
- Coominya Connection Road – Mt Tarampa, Watsons Road
- Watsons Bridge – to Coominya Connection Road
- Kilcoy Murgon Road – which is Jimna Range
- McAuleys Lane (Dickinsons Bridge)
- Minden Village - Zabels Road North (bridge damaged)
- Tooloorum Bridge is closed
- Strassburgs Road closed

Regards
Rachel Lerch

PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]
Ph (07)[redacted]
Fax (07[redacted]

----------Safe Stamp----------
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From: Rachel Lerch [redacted]
Sent: Friday, January 14, 2011 1:56 PM
To: Cr Graeme Lehmann [redacted] Bob Bain <BBain[redacted]>; Tony Jacobs <TJacobs@[redacted]>; Steve Brennan [redacted] 'Pitman.[redacted] 'Goodger.[redacted] Andy Bickerton <ABickerton[redacted]; 'David.Caughley[redacted] 'CraigX.Smith[redacted]; 'Peter.Varley[redacted] 'Richard.lahse[redacted] 'Qastoogoolawah.[redacted] 'Tom.parsonage[redacted]; Rob Drury <rdrury@[redacted] 'michaellukritz[redacted]; 'glendolan[redacted] 'russellcross[redacted] 'Mark.Kelly@[redacted] 'Wendy.fry[redacted] 'Annabelle.johnstone[redacted] 'gough.[redacted] 'Tanwan.MartinJ[redacted] '[redacted] 'tristan_berrell[redacted] 'richardperry[redacted]; 'garychalmers[redacted] 'QAS Springfield OIC' [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: RE: Road Closures within Somerset Region

Further to the below email I confirm the road closures listed are provided as per LDMG meeting request and were current as of 6pm yesterday, Thursday 13 January 2011.

Further updates will be provided in today's meeting.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]au
Ph (07[redacted]
Fax [redacted]

From: Rachel Lerch
Sent: Friday, 14 January 2011 1:48 PM
To: Cr Graeme Lehmann; Bob Bain; Tony Jacobs; Steve Brennan; 'Pitman.[redacted] 'Goodger.[redacted] Andy Bickerton; 'David.Caughley[redacted] 'CraigX.Smith@[redacted] 'Peter.Varley[redacted] 'Richard.lahse[redacted] 'Qastoogoolawah.oic[redacted] 'Tom.parsonage[redacted] 'rdrury@[redacted] 'michaellukritz[redacted]; 'glendolan[redacted] 'russellcross[redacted] 'Mark.Kelly@[redacted] 'Wendy.fry[redacted]; 'Annabelle.johnstone[redacted] 'gough.[redacted] 'Tanwan.Ma[redacted] 'Douglas.[redacted]; 'tristan_berrel[redacted] 'richardperry[redacted]; 'garychalmer[redacted]; 'QAS Springfield OIC'
Cc: Kerri-Lee Jones
Subject: Road Closures within Somerset Region

Hello all

Please be advised of the below road closure information.

Road still officially closed as at 6pm:

- Brisbane Valley Highway at (5kmSouth Esk) and Brisbane River At Fernvale (Geoff Fisher Bridge)
- Esk Hampton Road – bridge 3 crossing (Red Bank Creek)
- Neurum Road
- Gatton Esk Road (Closed at Lockyer Creek)
- Ten Mile Road
- Monsildale Road
- Esk Crows Nest Road – Skinner Bridge
- Crossdale – Woodgate Road
- Gregors Creek Road
- Mary Smokes Creek Road
- Patrick Estate Road – Pointings Bridge
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- Sandy Creek Road
- Clarendon Road
- Forest Hill-Fernvale Road – East of Lowood
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- Wivenhoe Somerset Road - Titmarsh Bridge
- D'Aguilar Highway – Blackbutt Range
- Ivory Creek Road
- Coominya Connection Road – Mt Tarampa, Watsons Road
- Watsons Bridge – to Coominya Connection Road
- Kilcoy Murgon Road – which is Jimna Range
- McAuleys Lane (Dickinsons Bridge)
- Minden Village - Zabels Road North (bridge damaged)
- Tooloorum Bridge is closed
- Strassburgs Road closed

Regards

Rachel Lorch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]
Ph ([redacted]
Fax [redacted]

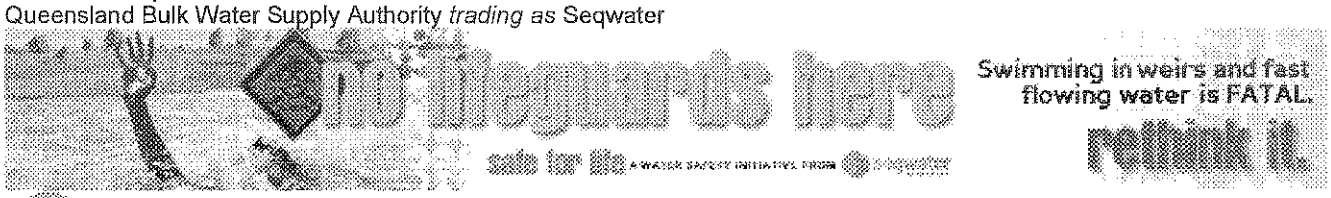
----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Friday, January 14, 2011 2:40 PM
To: 'Seqwater Communications' [redacted]
Subject: RE: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011

As per my phone message, Dan Spiller advised one per day was enough as long as they got update as usual on levels.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [mailto[redacted]
Sent: Friday, 14 January 2011 1:23 PM
To: Rob Drury; Rob Drury
Subject: Fwd: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011

Hey Rob,

I'm on stand-by to receive your technical update. Hoping to get this over to the grid before my roster finishes at 3:30pm.

Cheers
Min

---------- Forwarded message ----------
From: **Seqwater Communications** <seqwater.comms[redacted]
Date: Fri, Jan 14, 2011 at 1:05 PM
Subject: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011
To: Water Grid Media <watergridmedia[redacted]

Hi all,

Wivenhoe Dam
Latest gauge board level from 11:00am. Level has fallen 270mm from 9:00am to 11:00am.

Somerset Dam
Level has fallen 190mm in last 3 hours from 102.61mAHD to 102.42mAHD.

North Pine Dam
Current ALERT level reading from 11:00am is 39.42mAHD.It has been holding at close to this level since 9:00am.

Dam	FSL		14/01/2011 9:00		14/01/2011 12:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Atkinson Dam	65.72	30,488	65.69	30,236	65.69	30,181	55.5%	0.2%
Baroon Pocket Dam	217.00	61,000	217.43	62,935	217.41	62,845	103.0%	0.1%
Bill Gunn Dam	110.00	6,947	110.14	7,091	110.12	7,070	101.8%	0.3%
Borumba Dam	135.01	45,952	135.37	47,747	135.37	47,747	103.9%	0.0%
Bromelton Dam	44.50	8,210	44.35	8,061	44.50			0.0%
Cedar Pocket Dam	101.07	730	101.12	741	101.14	745	102.0%	0.6%
Cooloolabin Dam	296.00	13,820	296.08	13,980	296.08	13,980	101.2%	0.0%
Enoggera Dam	74.37	4,567	74.86	4,848	74.84	4,835	105.9%	0.2%
Ewen Maddock Dam	25.38	16,587	25.72	17,972	25.70	17,889	107.8%	0.5%
Gold Creek Dam	92.75	801	95.00	1,270	94.93	1,257	157.0%	1.6%
Hinze Dam	82.20	161,073	83.65	175,764	83.65	175,764	109.1%	0.0%
Lake Clarendon Dam	96.00	24,276	94.69	20,082	94.55	19,643	80.9%	1.7%
Lake Kurwongbah (Sideling Creek Dam)	20.42	14,370	20.43	14,408	20.42	14,370	100.0%	0.3%
Lake MacDonald Dam	95.81	8,018	95.56	8,663	95.56	8,663	108.0%	0.0%
Lake Manchester Dam	50.90	26,217	51.15	26,915	51.15	26,915	102.7%	0.0%
Leslie Harrison Dam	18.32	24,868	18.16	24,196	18.18	23,898	96.1%	1.2%
Little Nerang Dam	168.02	6,705	168.27	6,816	168.28	6,821	101.7%	0.1%
Maroon Dam	207.14	44,319	209.44	52,882	209.32	51,945	117.2%	1.0%
Mongaran Dam	154.91	83,765	155.80	91,291	155.78	91,117	108.8%	0.2%
Nindoombah Dam	122.80	322	122.80	322				0.0%
North Pine Dam	**39.60**	**214,302**	**39.40**	**210,040**	**39.42**	**210,467**	**98.2%**	**0.2%**
Poona Dam	152.70	655	152.65	647	152.64	645	98.5%	0.2%
Somerset Dam	**99.00**	**379,849**	**102.61**	**559,552**	**102.42**	**548,577**	**144.4%**	**2.3%**
Wappa Dam	44.81	4,694	48.37	7,631	48.37	7,631	202.6%	0.0%
Wivenhoe Dam	**67.00**	**1,165,238**	**74.08**	**2,087,960**	**73.91**	**2,046,825**	**175.7%**	**3.5%**
Splityard Creek Dam			157.30	19,924	157.95	19,968		0.0%
Adjusted Wivenhoe Dam	**67.00**	**1,165,238**		**2,085,584**		**2,044,493**	**175.6%**	**3.9%**
Total - North Pine, Somerset & Wivenhoe		1,759,389		2,855,176		2,803,536	159.3%	2.5%
Total - All		2,347,273		3,478,830		3,417,499	145.8%	2.6%

Kind regards,
Arminda Roberts

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For more information regarding this service, please contact your service provider.

From: Seqwater Communications [redacted]
Sent: Friday, January 14, 2011 2:43 PM
To: Rob Drury [redacted]
Subject: Re: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011

Thanks Rob. I was just listening to your phone message. I'll pass that info on to the Water Grid Media Team.

Cheers
Arminda

On Fri, Jan 14, 2011 at 2:39 PM, Rob Drury [redacted] > wrote:

> As per my phone message, Dan Spiller advised one per day was enough as long as they got update as usual on levels.
>
> Rob
>
> **Robert Drury**
>
> Dam Operations Manager
>
> Water Delivery
>
> Queensland Bulk Water Supply Authority *trading as* Seqwater
>
> Seqwater_No-Lifeguards-Here_email_strap
>
> cid:[redacted]
>
> Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
>
> Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
> PO Box 37, Fernvale QLD 4306
>
> Website | www.seqwater.com.au
>
> ---
>
> **From:** Seqwater Communications [mailto [redacted]
> **Sent:** Friday, 14 January 2011 1:23 PM
> **To:** Rob Drury; Rob Drury
> **Subject:** Fwd: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011

Hey Rob,

I'm on stand-by to receive your technical update. Hoping to get this over to the grid before my roster finishes at 3:30pm.

Cheers

Min

---------- Forwarded message ----------
From: **Seqwater Communications** [redacted]
Date: Fri, Jan 14, 2011 at 1:05 PM
Subject: Seqwater Storage Capacities Update at 12:00hrs on Friday 14 Jan 2011
To: Water Grid Media [redacted]

Hi all,

Wivenhoe Dam

Latest gauge board level from 11:00am. Level has fallen 270mm from 9:00am to 11:00am.

Somerset Dam

Level has fallen 190mm in last 3 hours from 102.61mAHD to 102.42mAHD.

North Pine Dam

Current ALERT level reading from 11:00am is 39.42mAHD.It has been holding at close to this level since 9:00am.

Kind regards,

Arminda Roberts

----------Safe Stamp----------

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 3:19 PM
To: Peter Borrows <pborrows@[redacted]
Cc: Rob Drury [redacted] John Tibaldi <jtibaldi@[redacted]
Subject: Response to "The Australian"

Peter

The Australian article http://www.theaustralian.com.au/in-depth/queensland-floods/brisbane-flood-peak-passes-inquiry-calls-start/story-fn7iwx3v-1225987462450 suggests that Seqwater "had been forced to release massive volumes of water to reduce the risk of a catastrophic collapse."

The people of Brisbane and Ipswich should be reassured that Wivenhoe Dam was never at risk and it was not considered in discussions on the operating strategy. The peak release from the dam was 7,335 cubic metres per second, less than half of the discharge capacity of the dam.

Terry Malone
John Tibaldi

Duty Engineers
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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From: Paul Bird [redacted]
Sent: Friday, January 14, 2011 4:55 PM
To: Rob Drury [redacted] Arminda Roberts <aroberts@[redacted]
Subject: Re: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

Certainly over this weekend... Would every 4 hours be OK?

From: Rob Drury
To: Paul Bird; Arminda Roberts
Sent: Fri Jan 14 16:53:50 2011
Subject: Fw: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

How often did you want Mark to update these? Week days and weekends?

From: Terry Malone
To: Rob Drury
Cc: Mark Tan
Sent: Fri Jan 14 16:46:03 2011
Subject: RE: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

Rob

Can you please advise how often Mark should be updating water level data?

Terry

From: Mark Tan
Sent: Friday, 14 January 2011 4:33 PM
To: Rob Drury; Paul Bird; Arminda Roberts; John Tibaldi; Tara King; Stan Stevenson; [redacted] 'Michael Feichtner'; 'Tara King'; Mike Foster; Terry Malone; John West
Subject: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

Hi,

Wivenhoe Dam: Level has fallen 270mm in last 5 hours from 73.81mAHD to 73.54mAHD.
Somerset Dam: Level has fallen 250mm in last 4 hours from 102.42mAHD to 102.17mAHD.
North Pine Dam: Please note these are ALERT level readings and may differ from gauge board readings. Level has risen 10mm in last 4 hours, from 39.42mAHD to 39.43mAHD.

Dam	FSL		14/01/2011 12:00		14/01/2011 16:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Atkinson Dam	65.72	30,488	65.68	30,181	65.75	30,621	100.4%	1.4%
Barron Pocket Dam	217.00	61,000	217.41	62,845	217.39	62,755	102.9%	0.1%
Bill Gunn Dam	110.00	6,947	110.12	7,070	110.11	7,060	101.6%	0.1%
Borumba Dam	135.01	45,952	135.37	47,747	135.35	47,645	103.7%	0.2%
Bromelton Dam	44.50	8,210	44.50		44.91	8,021	97.7%	0.0%
Cedar Pocket Dam	101.07	730	101.14	745	101.14	745	102.0%	0.0%
Cooloolabin Dam	296.08	13,928	296.08	13,980	296.08	13,980	101.2%	0.0%
Enoggera Dam	74.37	4,567	74.84	4,035	74.88	4,012	105.4%	0.5%
Ewen Maddock Dam	25.38	16,507	25.70	17,889	25.68	17,807	107.4%	0.5%
Gold Creek Dam	92.75	801	94.93	1,257	94.85	1,243	155.1%	1.1%
Hinze Dam	82.29	161,073	83.05	175,764	83.05	175,764	109.1%	0.0%
Lake Clarendon Dam	96.00	24,276	94.55	19,643	94.58	19,673	81.0%	0.1%
Lake Kurwongbah (Sideling Creek Dam)	20.42	14,370	20.42	14,370	20.42	14,370	100.0%	0.0%
Lake MacDonald Dam	95.32	8,018	95.56	8,663	95.56	8,663	108.0%	0.0%
Lake Manchester Dam	50.90	26,217	51.15	26,915	51.15	26,860	102.5%	0.2%
Leslie Harrison Dam	18.32	24,868	18.10	23,898	18.16	24,196	97.3%	1.2%
Little Nerang Dam	168.02	6,705	168.28	6,821	168.26	6,812	101.6%	0.1%
Maroon Dam	207.14	44,319	209.32	51,945	209.15	51,347	115.9%	1.1%
Moogerah Dam	154.91	83,765	155.78	91,117	155.72	90,680	108.2%	0.6%
Nindooinbah Dam	122.80	322						0.0%
North Pine Dam	**39.60**	**214,302**	**39.42**	**210,467**	**39.43**	**210,680**	**98.3%**	**0.1%**
Poona Dam	152.70	655	152.64	645	152.61	641	97.5%	0.7%
Somerset Dam	**99.00**	**379,849**	**102.42**	**548,577**	**102.17**	**534,418**	**140.7%**	**3.7%**
Wappa Dam	44.81	4,694	48.37	7,631	48.37	7,631	162.6%	0.0%
Wivenhoe Dam	**67.00**	**1,165,238**	**73.81**	**2,046,825**	**73.54**	**2,006,166**	**172.2%**	**3.5%**
Splityard Creek Dam			157.35	19,968	157.30	19,924		0.0%
Adjusted Wivenhoe Dam	**67.00**	**1,165,238**		**2,044,493**		**2,003,789**	**172.0%**	**3.5%**
Total - North Pine, Somerset & Wivenhoe		1,759,389		2,803,536		2,748,882	156.2%	1.1%
Total - All		2,347,773		3,417,499		3,370,131	143.5%	1.0%

This table can also be found in our intranet here → S:\WaterDelivery\Ops_Intranet\Reports\Daily Capacities Update.mht

Please do not hesitate to contact me if you have any queries.

Kind regards,

Mark Tan
Information Analyst
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Level 3, 240 Margaret Street
PO Box 16146, City East Qld 4002
[redacted]e [redacted]

From: Rachel Lerch [redacted]
Sent: Friday, January 14, 2011 5:23 PM
To: Cr Graeme Lehmann [redacted] Bob Bain [redacted] Tony Jacobs [redacted] Steve Brennan [redacted] 'Pitman.[redacted]' [redacted] Andy Bickerton [redacted] 'David.Caughley [redacted] 'CraigX.Smith [redacted] 'Peter.Varley [redacted] 'Richard.lahse [redacted] 'Qastoogoolawah.oic [redacted] 'Tom.parsonag [redacted]'; Rob Drury [redacted] 'michaellukrit [redacted]'; 'glendolan [redacted] 'russellcross@ [redacted] 'Mark.Kelly [redacted] 'Wendy.fry [redacted] Annabelle.johnstone [redacted] 'gough. [redacted] 'Tanwan. [redacted] '[redacted] 'tristan_berrel [redacted] 'richardperry [redacted] 'garychalmers [redacted]'; 'QAS Springfield OIC' [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: LDMG Meeting - Saturdayy 2.30pm
Attach: 2011-01-14 - Minutes of Meeting.doc; 2011-01-15 - Agenda.doc

---

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Saturday (15th January 2011) at the Esk Administration Building. Please find attached minutes from today's meeting and an agenda for tomorrow.

If you are unable to attend in person teleconference is available. You will need to dia [redacted] and enter a passcode which is [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]
Ph [redacted]
Fax [redacted]

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Thursday 14 January 2011
2.30pm
Somerset Regional Council Office Meeting Room

MINUTES

1. **Attendance:**

Shayne Neumann MP, Wayne Wendt, Cr Graeme Lehmann (SRC), Bob Bain (SRC), Tony Jacobs (SRC), Steve Brennan (SRC), Andrew Johnson (SRC), Sgt Marty Tanwan (QPS- Kilcoy), Sgt Ian Douglas (QPS- Lowood), Andy Bickerton (SES – Somerset Region), Craig Smith (QFS – Ipswich), Bill Doorley (QFS), Peta (QFS), Peter Zauner (QFS), John Bowls (QFS – Ipswich), Jan Tooth (QAS Sprinfield), Scott (SEQ Water), Jim (SEQ Water), Richard Perry (Energex), Gary Madigan (Energex), Col Neil (EMQ), Eddie Bennett (EMQ), Deryck (Squizzy) Taylor (EMQ), Lynn & Susan (Esk Hospital), Matthew Kelly (DCS).

2. **Road Closures:**

- Brisbane Valley Highway at (5km South Esk) and Brisbane River at Fernvale (Geoff Fisher Bridge)
- Esk Hampton Road – bridge 3 crossing (Red Bank Creek)
- Neurum Road
- Gatton Esk Road NOW OPEN
- Ten Mile Road
- Monsildale Road
- Esk Crows Nest Road – Skinner Bridge
- Crossdale – Woodgate Road
- Gregors Creek Road
- Mary Smokes Creek Road
- Patrick Estate Raod – Pointings Bridge
- Brightview Road – OPEN WITH CARE
- Sandy Creek Road
- Clarendon Road NOW OPEN
- Forest Hill-Fernvale Road – East of Lowood
- Esk Kilcoy Road – Shaws Gully – 1km North of Spit
- Wivenhoe Somerset Road – Titmarsh Bridge
- D'Aguilar Highway – Blackbutt Range
- Ivory Creek Road
- Coominya Connection Road – Mt Tarampa, Watsons Raod NOW OPEN
- Watsons Bridge – to Coominya Connection Road NOW OPEN

- Kilcoy Murgon Road – which is Jimna Range
- McAuleys Lane (Dickinsons Bridge)
- Minden Village – Zabels Road North (bridge damaged)
- Tooloorum Bridge is closed
- Strassburgs Raod closed
- Sim Jue Creek Road closed at bridge

3. **Power Outages**
    - Generator supplying businesses at Fernvale. Trying to get feeds in to get pieces of Fernvale going. Really critical now is north of Toogoolawah. Cut up to Harlen. 3 or 4 power poles to replace, having trouble getting them there because of load restrictions on bridge. Probably another week until get to Linville. Lots of pockets and transformers that will be off for a long time. Had to cut to get the main line going.
    - Main priority is Linville and Fernvale.
    - Issue with customer requests. Need to go through Brisbane Central Control but only have 16 people and cover very broad area so very slow. Man power is an issue, only certain number of people qualified for that job. Not a lot can be done unless there is a change of procedure and this probably won't happened due to safety issues.
    - Need to do a job request before a job can be undertaken. Officers in field cannot just go and do a job that they see needs doing unless a job request has been sent through from a customer. Issue is that the employees cannot log a job themselves. This issue needs to be formally raised with the District Group, if not resolved there go to State.
    - **ACTION 1-** Request to log jobs from the field. People not able to log their jobs or have difficulty doing so due to communications problems in flood effected areas. When raising this request, the impacts and hold ups need to be identified.
    - Tony will advise a route Energex can take to get the power poles in without worrying about load restrictions.
    - Possibly a month until Fernvale has full supply. Wayne Wendt advised that a generator was provided last night to supply the Main street.
    - Energex are sourcing another generator. Can also back feed from Marburg, Lowood and Morganvale but need to be careful not to overload. Second generator will be set up this afternoon, part of Fernvale back on. This is a short term solution however.
    - Bob Bain said that he was advised that another generator would be available by 5.30pm to supply to north of Brisbane Valley Highway.
    - **ACTION 2-** Public communication strategy: advise via doorknock, press and mail out to limit use of power. Those on generators will need to be conservative with their use also. Radio announcement via River 949, generator issue to be worked out prior to radio announcement. SES to assist with door knocking. Ascertain how many people are currently without power.
    - Energex isolating transformers. Electrician to inspect and Energex need to be contacted afterwards.
    - **ACTION 3-** Request QBuild supply electricians.

- Before power is reconnected the houses need to be cleaned out.

4. **Water Supply**
    - Jim Cross, SEQ Water: Lowood Water treatment plant completely disabled yesterday. Since then SEQ Water and QUU identified pump and transported overnight, establishing as we speak. Hoping to be operational and water into the plant some time today.
    - Ian Douglas advised he had spoken to Mark Conderton who said that Esk 90% with no issues, Toogoolawah 41% with no issues, Kilcoy have just had power reconnected with no further issues, Lowood and Fernvale are currently being supplied by watertrucks going 24 hours. At Lowood this has maintained at 25-30%.
    - Lockyer Valley needs main repairs before resuming production
    - Fernvale reservoir has a main break. This has been highest priority for a couple of days now.
    - QUU issued release to boil water at Lowood, Fernvale, Lockyer Valley, etc.
    - **ACTION 5-** Council to contact QUU for a status update on the need for boiling water before consumption.
5. **General Community Needs**
    - 16 people working with Lifeline in Toogoolawah. Cash possibly available tomorrow. Setting up recovery centres out of Linville.
    - Bob Bain suggested that a centre be set up in Lowood.
    - It was hoped to get to Lowood today but there will be a presence there first thing tomorrow morning.
    - Shane Neumann advised that extra Centrelink employees have been deployed at Ipswich. Suggested that some of these staff be diverted to Lowood, Fernvale, Coominya, Wivenhoe Pocket and Esk.
    - Refer to Queensland Health for temporary medical assistance and support filling non-urgent prescriptions and getting the required materials.
    - Advised that requests at Fernvale have been referred to Lowood and that people now have access to Ipswich.
    - Non-urgent prescription base will be assessed by QAS.
6. **Resupply Food / Fuel**
    - Wivenhoe Pocket has been taken care of.
    - Prioritising how to best deliver efficiently.
    - Delay in getting supplies organised as food packages can be sent from Brisbane already packed or can come in bulk and be packed here. Advised that the Department of Public Works should be able to do packs.
    - Need centralisation as to resupply issues e.g. food, medical, etc.
    - Eddie Bennett to follow upon delivery from EMQ.
    - **ACTION 6-** Find out why food drops did not happen. If can't source helicopters, see DDC.
    - Supermarket supplies – Esk limited, no fresh meat. Normal supply restored by Sunday to Esk and Toogoolawah. Lowood have had a supply come in and Fernvale are operating, no fresh food but supply of non-perishables available.

- Fuel- Lowood had a tanker delivery this morning. Should be able to get another resupply next week. Kilcoy are rationing and have now been limited to emergency services only. Weight restrictions on bridges creating an issue for resupply. Tony Jacobs to be contact for BP as to how to access.
- QFS having problems accessing diesel in Kilcoy, Toogoolawah, Esk, Wivenhoe Pocket. Prefer to buy from local suppliers. Various groups have left fuel available for emergency services.

7. **Waste**
    - Bob Bain advised that wheelie bin type pick up in Esk, Toogoolawah in next day or so. Fernvale and Lowood flood damage and bin pick ups. Rubbish collection Kilcoy being done by Council, contractor should be able to take over in the next few days.
    - **ACTION 7-** Council will do press release. Flood damage rubbish removal from curve will be picked up through out the region.
    - Dead animals – federal funding assistance for farmers. Essentially up to land owner to dispose of animals. Will set aside small area at tip for domestic pets that people take to tip themselves.
    - Kilcoy- Mary Smokes Creek an issue for getting truck in at present but will be further assessed.
8. **Other Business**
    - **ACTION 8-** Council to advise QFS & EMQ how many homes require clean up. They will then find out what personnel are required to assist.
    - Morteon Region happy to assist with bridge repairs.
    - Problem with communications, Fernvale and Lowood area not full supply.
    - **ACTION 9-** Request had been put through to Telstra, request for repairs will be made again by EMQ referring to previous request.
    - Suggested that the Fernvale issue may be lack of power problem if the exchange is out.
    - QFS have requested assistance and relief staff for incident control and communications.
9. **Next Meeting: 2.30pm Saturday 15th January 2011.**

Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Saturday 15th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

AGENDA

	Item	***Report from***
1.	Open meeting & welcome • Attendance • Apologies*	
2.	Review of previous minutes	
3.	Business arising from previous minutes –	
4.	General business –	
5.	• Road Closure • Power Outages • Water Supply/Quality • General Community Needs • Resupply of Water/Food/Fuel etc Waste	
6.	Other Business	
7.	Next Meeting	
8.	Close of meeting	

From: Michael and Donna Fiechtner [redacted]
Sent: Friday, January 14, 2011 5:32 PM
To: Rob Drury <rdrury@[redacted]
Subject: FW: WATER GRID MEDIA UPDATE - 14 January 2011: Issued at 5:30pm

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Thanks
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inquiries to their local councils.

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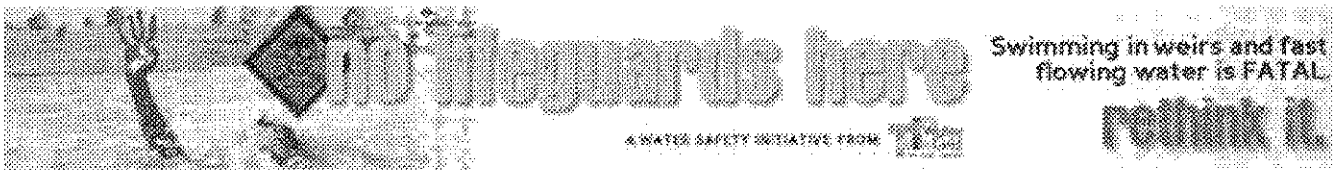
Ph: [redacted] | Mobile: [redacted] | Email: [redacted]



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Sent: Friday, 14 January 2011 4:55 PM
To: Michael Feichtner
Subject: Fwd: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

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From: **Seqwater Communications** <seqwater.comms[redacted]
Date: Fri, Jan 14, 2011 at 4:51 PM
Subject: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011
To: Water Grid Media < >, "aleisha.coote" <Aleisha.Coote[redacted], Paul Bird [redacted]
Paul Bird [redacted]

Storage capacity update as at 4.00pm Friday.

regards
Michael Fiechtner
[redacted]

Wivenhoe Dam: Level has fallen 270mm in last 5 hours from 73.81mAHD to 73.54mAHD.
Somerset Dam: Level has fallen 250mm in last 4 hours from 102.42mAHD to 102.17mAHD.
North Pine Dam: Please note these are ALERT level readings and may differ from gauge board readings. Level has risen 10mm in last 4 hours, from 39.42mAHD to 39.43mAHD.

Dam	FSL		14/01/2011 12:00		14/01/2011 16:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Atkinson Dam	65.72	30,488	65.68	30,191	65.75	30,621	100.4%	1.4%
Baroon Pocket Dam	217.00	61,000	217.41	62,845	217.39	62,755	102.9%	0.1%
Bill Gunn Dam	110.00	6,947	110.12	7,078	110.11	7,060	101.6%	0.1%
Borumba Dam	135.01	45,952	135.37	47,747	135.35	47,645	103.7%	0.2%
Bromelton Dam	44.50	9,210	44.50		44.32	8,021	97.7%	0.0%
Cedar Pocket Dam	101.07	730	101.14	745	101.14	745	102.0%	0.0%
Cooloolabin Dam	296.00	13,820	296.08	13,980	296.08	13,980	101.2%	0.0%
Enoggera Dam	74.37	4,567	74.64	4,885	74.00	4,812	105.4%	0.5%
Ewen Maddock Dam	25.39	16,587	25.70	17,893	25.68	17,807	103.4%	0.5%
Gold Creek Dam	92.75	861	94.33	1,257	94.08	1,243	155.1%	1.0%
Hinze Dam	82.20	161,073	83.65	175,764	83.83	175,764	109.1%	0.0%
Lake Clarendon Dam	96.00	24,276	94.55	19,643	94.56	19,673	81.0%	0.1%
Lake Kurwongbah (Sideling Creek Dam)	20.42	14,370	20.42	14,370	20.42	14,370	100.0%	0.0%
Lake MacDonald Dam	95.32	8,018	95.56	8,663	95.56	8,663	108.0%	0.0%
Lake Manchester Dam	50.90	26,217	51.15	26,915	51.13	26,860	102.5%	0.2%
Leslie Harrison Dam	18.32	24,068	18.10	23,898	18.16	24,196	97.3%	1.3%
Little Nerang Dam	168.02	6,705	168.28	6,821	168.26	6,812	101.6%	0.1%
Maroon Dam	207.14	44,313	209.32	51,945	209.15	51,347	115.9%	1.3%
Moogerah Dam	154.91	83,765	155.78	91,117	155.72	90,600	108.2%	0.6%
Ninddoinbah Dam	122.80	322						0.0%
North Pine Dam	**39.60**	**214,302**	**39.42**	**210,467**	**39.43**	**210,680**	**98.3%**	**0.1%**
Poona Dam	152.70	655	152.64	645	152.61	641	97.9%	0.7%
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Wappa Dam	44.81	4,694	48.37	7,631	48.37	7,631	162.6%	0.0%
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Splityard Creek Dam			157.35	19,968	157.30	13,924		0.0%
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Total - North Pine, Somerset & Wivenhoe		**1,759,389**		**2,803,536**		**2,748,887**	**156.2%**	**2.1%**
Total - All		**2,347,773**		**3,417,499**		**3,370,131**	**143.5%**	**2.0%**

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Sent: Friday, January 14, 2011 5:42 PM
To: 'feckos [redacted]
Subject: Re: WATER GRID MEDIA UPDATE - 14 January 2011: Issued at 5:30pm

---

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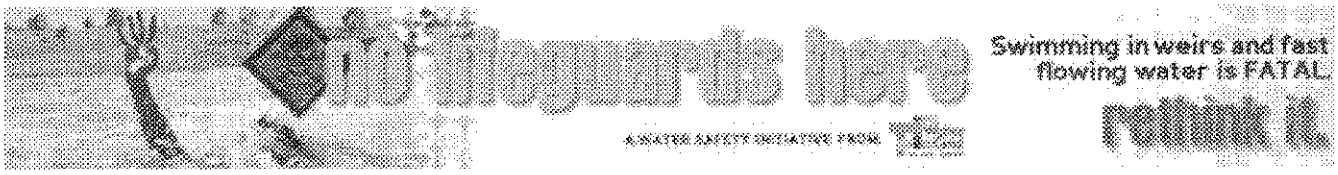

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Sent: Friday, January 14, 2011 5:45 PM
To: Rob Drury <[redacted]
Subject: RE: WATER GRID MEDIA UPDATE - 14 January 2011: Issued at 5:30pm

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Thanks Rob ....all good..... will adjust.
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Wivenhoe Dam is at **172** per cent, and continues to drop steadily. Releases have been graduated to [redacted] megalitres per day in a 7 day strategy designed to draw down the flood storage compartment with no noticeable effects downstream. The continuing releases are necessary in order to prepare Wivenhoe for any future weather events should they occur.
Somerset Dam is at **140** per cent and also dropping steadily with [redacted] megalitres per day being released into Wivenhoe via the sluice gates. Inflows and water levels in the Brisbane and Pine catchments are being continually monitored.
Releases are being made in consultation with the Bureau of Meteorology and local councils and every effort is being made to limit downstream impacts where possible.
Due to a combination of Lockyer Creek, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until at least Sunday 16 January.
Residents are urged to contact local councils for detailed information on road crossing closures and other impacts.
All recreations areas around Somerset and Wivenhoe are **closed**, and given the dam levels and the need for safety around spillways, **we will not be able to facilitate any land-based media access to our sites today**. People are advised not to travel to any recreation sites during the flood crisis, even if the roads are open.
Recreation sites may need to remain closed until they can be properly inspected and any public safety issues assessed.
All five gates at North Pine Dam closed this morning.
Gate releases at Leslie Harrison Dam have ceased.

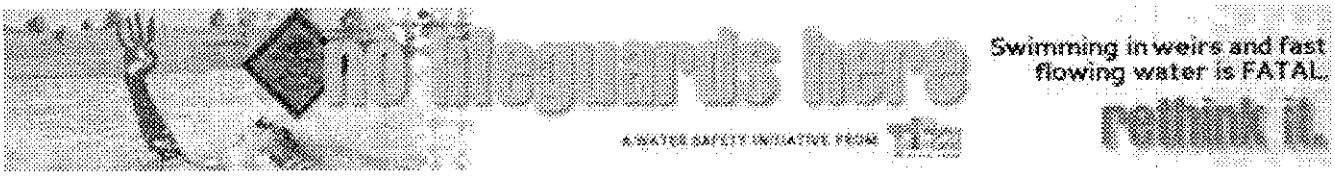
Water has spilled from Wyaralong Dam after it exceeded 100 per cent capacity earlier this week.
A minor release of around [redacted] megalitres a day is being made through the emergency gates at Hinze Dam. This release may reduce slowly over the next few days but will continue until next week. There is no public access to the spillway.
For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.
ENDS

Owing to technical issues caused by the flood, a temporary email contact is in use.
Please email [redacted]

PLEASE NOTE: While releases are being made from the region's water storages, routine updates will be provided.

Community Assistance:
Please direct the community to contact **telephone - 1800 613 122.** This number has been established for members of the public seeking information on which dams are spilling in South East Queensland. Members of the public seeking information on **potential impacts in their local areas should direct inquiries to their local councils**.

For further details contact the Water Grid Communications Unit on:
Ph: [redacted] **| Mobile:** [redacted] **| Email:** [redacted]



From: Seqwater Communications [mailto:[redacted]
Sent: Friday, 14 January 2011 4:55 PM
To: Michael Feichtner
Subject: Fwd: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011

---------- Forwarded message ----------
From: **Seqwater Communications** <seqwater.comms[redacted]
Date: Fri, Jan 14, 2011 at 4:51 PM
Subject: Seqwater Storage Capacities Update at 16:00hrs on Friday 14 Jan 2011
To: Water Grid Media < >, "aleisha.coote" [redacted] Paul Bird [redacted]
Paul Bird [redacted]

Storage capacity update as at 4.00pm Friday.

regards
Michael Fiechtner
[redacted]

Wivenhoe Dam: Level has fallen 270mm in last 5 hours from 73.81mAHD to 73.54mAHD.
Somerset Dam: Level has fallen 250mm in last 4 hours from 102.42mAHD to 102.17mAHD.
North Pine Dam: Please note these are ALERT level readings and may differ from gauge board readings. Level has risen 10mm in last 4 hours, from 39.42mAHD to 39.43mAHD.

Dam	FSL		14/01/2011 12:00		14/01/2011 16:00			Capacity Change in last hr
	Level	Actual	Level	Capacity	Level	Capacity		
	m AHD	ML	m AHD	ML	m AHD	ML	%	%
Atkinson Dam	65.72	36,495	65.68	36,191	65.75	36,621	100.0%	1.2%
Barcoo Pocket Dam	217.08	61,866	217.41	62,845	217.38	62,755	102.3%	0.1%
Bill Gunn Dam	110.00	6,947	110.11	7,078	110.11	7,060	101.6%	0.1%
Bonanza Dam	135.01	45,952	135.37	47,747	135.38	47,645	103.7%	0.2%
Bromelton Dam	44.50	8,319	44.50		44.51	8,021	97.7%	0.0%
Cedar Pocket Dam	101.07	730	101.14	745	101.14	745	102.0%	0.0%
Cooloolabin Dam	296.00	13,620	296.08	13,989	296.08	13,988	101.7%	0.0%
Enoggera Dam	74.27	4,567	74.54	4,835	74.88	4,812	105.4%	0.5%
Green Mountain Dam	25.36	16,587	25.70	17,633	25.68	17,807	107.4%	0.5%
Gold Creek Dam	91.79	881	94.33	1,257	94.88	1,243	158.3%	0%
Hinze Dam	82.36	161,072	83.65	175,764	83.65	175,764	109.1%	0.0%
Lake Clarendon Dam	96.00	24,275	94.55	19,643	94.56	19,673	81.0%	0.1%
Lake Kurwongbah (Sideling Creek Dam)	20.42	14,370	20.42	14,370	20.42	14,370	100.0%	0.0%
Lake MacDonald Dam	95.32	8,018	95.56	8,663	95.56	8,663	108.0%	0.0%
Lake Manchester Dam	50.90	26,217	51.15	26,915	51.15	26,800	102.3%	0.2%
Leslie Harrison Dam	18.02	24,668	18.10	23,890	18.16	24,196	97.6%	1.3%
Little Nerang Dam	168.02	6,785	168.26	6,811	168.26	6,812	101.6%	0.1%
Maroon Dam	207.14	44,313	209.32	51,845	209.35	51,347	115.9%	1.0%
Moogerah Dam	154.51	83,765	155.78	91,317	155.75	90,600	108.2%	0.8%
Nindigully Weir	112.86	327						0.0%
North Pine Dam	**39.60**	**214,302**	**39.42**	**210,467**	**39.43**	**210,680**	**98.3%**	**0.1%**
Poona Dam	152.79	655	152.64	645	152.61	641	97.8%	0.7%
Somerset Dam	**99.00**	**379,849**	**102.42**	**548,577**	**102.17**	**534,418**	**140.7%**	**3.7%**
Wappa Dam	44.81	4,694	48.37	7,631	48.37	7,631	162.6%	0.0%
Wivenhoe Dam	**67.00**	**1,165,238**	**73.81**	**2,046,825**	**73.54**	**2,005,165**	**172.2%**	**3.5%**
Stanley River Dam			157.35	13,968	157.30	13,834		0.0%
Adjusted Wivenhoe Dam	**67.00**	**1,165,238**		**2,044,493**		**2,003,789**	**172.0%**	**3.5%**
Total - North Pine, Somerset & Wivenhoe		**1,759,389**		**2,803,536**		**2,748,887**	**156.2%**	**2.1%**
Total - All		**2,347,773**		**3,417,499**		**3,370,131**	**143.5%**	**2.1%**

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 7:29 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury [redacted] flood.qld@[redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted]
Subject: Wivenhoe Dam Directive # 39

Please find attached a copy of Directive #39.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 8:17 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted] Rob Drury <rdrury@[redacted] flood.qld@[redacted] John Tibaldi [redacted] Terry Malone [redacted]
Subject: Wivenhoe Dam Directive # 39
Attach: OPS_Directive_Wivenhoe #39.doc

Please find attached a copy of Directive #39.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	14/01/201
	Directive No:	39
	Time:	19:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 1930 on 14/01/2011

- Open Gate 1 from 5.5 metres to 6.0 metres at 1930.

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Friday, January 14, 2011 9:21 PM
To: Terry Malone <tmalone@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Peter Borrows <pborrows@[redacted] Rob.ayre@[redacted] John.Ruffini[redacted]
Subject: BOM Estimate of Wivenhoe Contribution to Flood (see attached)
Attach: [Untitled].pdf

Please note BOM estimate of Wivenhoe outflow being just over half of the total flood flow in Brisbane at the flood peak (see attached - Courier Mail Article of 14 January, page 5). At this stage I agree with this estimate and I think we should be consistent with BOM on this in public statements.

John Tibaldi

****
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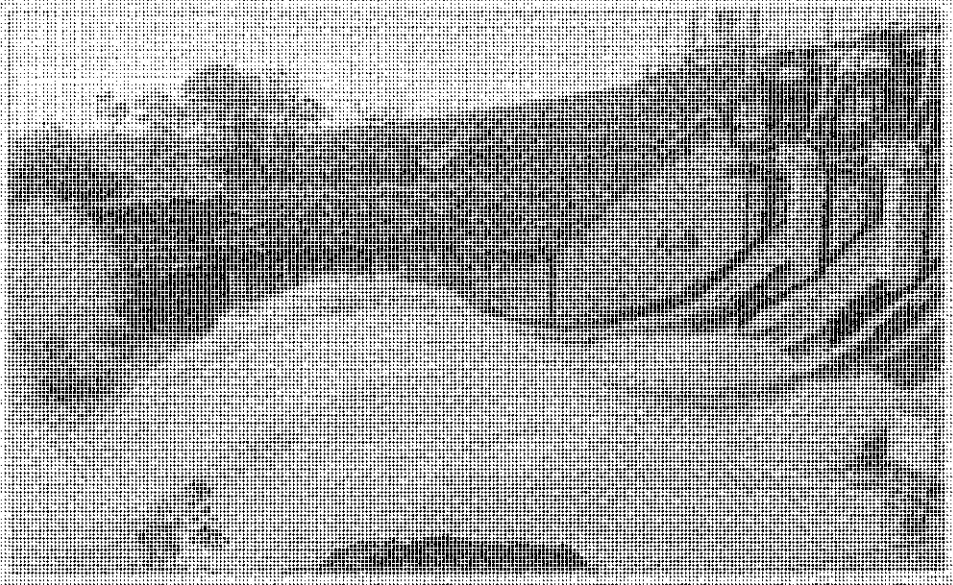
Releases from Wivenhoe Dam a 'minute-by-minute' decision



TRICKY TIMING: Discharging water from Wivenhoe Dam mitigated Brisbane flood levels. Once the crisis has eased, releases will be ramped up again. Picture: Russell Duffield

Brian Williams

FLOOD Warning Centre chief Peter Baddiley has defended releases of record Brisbane River levels in flood hours and after yesterday's peak reached higher than predicted.

The supervising hydrologist at the weather bureau said yesterday every flood was slightly different and the rule in predicting predictions was to [illegible] than have residents caught by surprise.

"We finished up with a peak about half a metre at the upper end of the river at Somerset Dam, the peak exceeded [illegible] metres," Mr Baddiley said.

"We've had an general flood in that it was higher at the top than at the bottom."

The [illegible] when [illegible] Wivenhoe Dam discharge of [illegible] per day were made.

These were released into Brisbane [illegible] stabilised and [illegible].

Releases were then [illegible] at [illegible] [illegible] to inflows.

"By altering releases quickly as needed, it lowered the flood peak and allowed the downstream flood water from the Bremer and Lockyer and Warrill creeks and Brisbane River's lower reaches below Wivenhoe to get ahead of dam releases," Mr Baddiley said.

At the peak, water from the upper Brisbane and Bremer river catchments through Wivenhoe contributed slightly more than half the flood [illegible] in Brisbane.

SEQ Water Grid [illegible] Barry [illegible] said [illegible] dent [illegible] would [illegible] operations to use all the [illegible] of [illegible] for flood [illegible] or could be improved.

He said Tuesday night was a difficult time, as water was held back at [illegible] to relieve pressure on Wivenhoe downstream.

But [illegible] was [illegible] that both dams were close to full when the decision was taken to release more [illegible] of water.

"It was a tricky thing," he said. "It became a minute-by-minute decision."

Mr Baddiley said no figures were available yet on what Brisbane's flood would have been without Wivenhoe but its mitigation effect was significant.

After floods [illegible], releases will be ramped up to [illegible] a day for about seven days.

From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 2:06 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted] Rob Drury [redacted] flood.qld@[redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre [redacted] Terry Malone [redacted]
Subject: Wivenhoe Dam Directive #40
Attach: OPS_Directive_Wivenhoe #40.doc

Please find attached a copy of Directive # 40.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) (07)[redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	15/01/201
	Directive No:	40
	Time:	02:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 02:30 on 15/01/2011

- Open Gate 5 from 5.5 metres to 6.0 metres at 0230.

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Tibaldi
Duty Engineer

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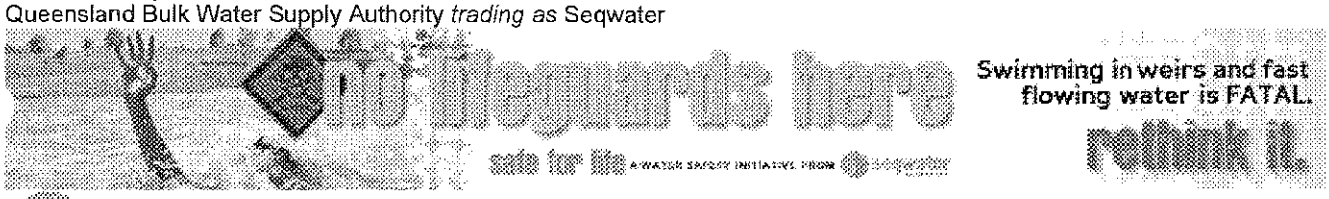
From: Rob Drury [redacted]
Sent: Saturday, January 15, 2011 6:20 AM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: Wivenhoe Dam Directive #40

John,
Were you going to send through another status report?
If not can I just get the latest Wivenhoe and NPD levels?
And I assume release from Wiv and Somer are still 3500 and around 1300cumecs respectively.

Also should we open a regulator at NPD?

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Saturday, 15 January 2011 2:06 AM
To: Agg Dagan; Doug Grigg; druryr[redacted] Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; Rob Drury; flood.qld[redacted] John.Ruffin[redacted]; John Tibaldi; Rob.ayre[redacted]; Terry Malone
Subject: Wivenhoe Dam Directive #40

Please find attached a copy of Directive # 40.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 6:24 AM
To: Rob Drury [redacted]
Subject: RE: Wivenhoe Dam Directive #40

Rob

Just had handover so give me 30 minutes to put together a stirep

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Saturday, 15 January 2011 6:20 AM
To: Duty Seq
Subject: RE: Wivenhoe Dam Directive #40

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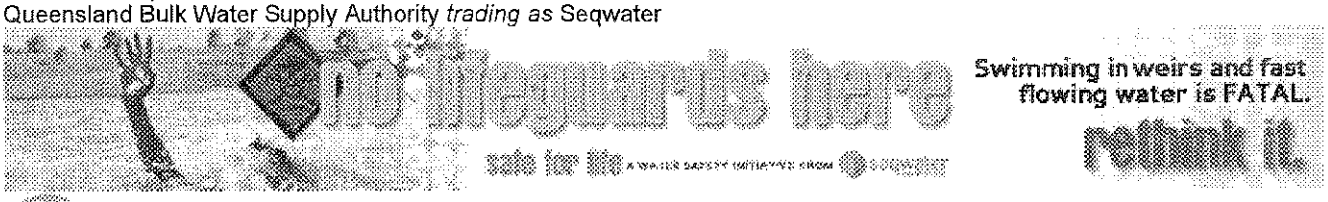
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Saturday, 15 January 2011 2:06 AM
To: Agg Dagan; Doug Grigg; druryr[redacted]; Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; Rob Drury; flood.qld@[redacted] John Tibaldi; Rob.ayre@[redacted] Terry Malone
Subject: Wivenhoe Dam Directive #40

Please find attached a copy of Directive # 40.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer [redacted]

Sent: Saturday, January 15, 2011 6:36 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.[redacted] Craig Logan <[redacted] Don Carroll <[redacted] Evan Caswell <Evan.[redacted] 'Flood Information Centre' <Flood_Information [redacted] James Charalambous <James.[redacted] Ken Morris <Ken.[redacted]gov.au>; Robert McGlinn <Robert.[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk[redacted]; Bill Stephens <Bill.Stephens@[redacted] David Pokarier <[redacted]au>; John West <jwest@[redacted] Louw Van Blerk <[redacted] Mark Tan <[redacted]au>; Neville Ablitt <[redacted] John.Ruffin[redacted]John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz [redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <[redacted] Rob Gorian <[redacted] Agg Dagan <[redacted] Doug Grigg <[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted]

Subject: Situation Report 0630 Saturday 15 January 2011

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

At 06:00 Somerset Dam was 101.35 mAHD and falling. Four sluices are open and the dam is currently discharging about 920 m3/s. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011.

At 05:00 Wivenhoe Dam was 72.86 mAHD and continuing to fall. The releases from Wivenhoe Dam are currently about 3,500 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release level is being maintained to drain the flood storage component by Wednesday.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 05:00 North Pine Dam was 39.40 mAHD and gate operations have ceased. This level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

The next report will be issued at 18:00 on Saturday 15 January 2011.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Saturday, January 15, 2011 6:59 AM
To: Rob Drury <[redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird <[redacted]
Arminda Roberts <[redacted] Tara King <tking@[redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
'peter_allen[redacted]'; 'Scott.Denner@[redacted] Mike Foster
[redacted]
Cc: 'paulhbird[redacted] 'arminda.roberts[redacted]'; 'tararuffles[redacted]; 'dkcr'
<dkc[redacted]; 'seqwgm[redacted] 'Seqwater.comm[redacted]'
Subject: RE: Technical Report W57
Attach: Technical_Situation_Report_W57.docx

Attached is report W57.
Only change is the gradual reduction in levels as below.
Will send next report tomorrow morning around 8am or so unless there is a significant change.

Main points

Rainfall There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

Somerset is 101.35m and 490,137ML at 129.0% and discharging 920cumecs (release slowly decreases as the head of water behind sluices decreases.)

Wivenhoe Dam is 72.86 m AHD at 1,905,900ML and 163.6% and dropping slowly and discharging around 3,500cumecs and this flow will be maintained.

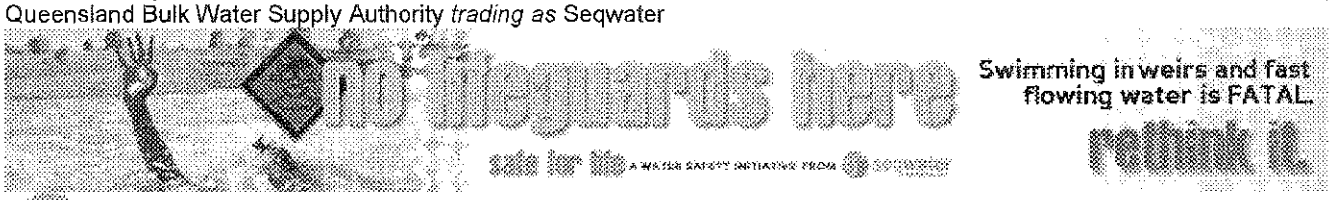
The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At closure North Pine Dam was 39.4mAHD and 210,040ML and 98.0% and all gates were closed. The current level is expected to slightly increase to just over 39.5 mAHD in the next few days due to base-flow.

Leslie Harrison closed and Hinze to close gate around Tuesday.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W57	Date of TSR release	15.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area and drain reservoir • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 6am Somerset was 101.35m and 490,137ML at 129.0% and discharging 920cumecs.

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The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by around Wednesday 19th January.

At 5am Wivenhoe Dam was 72.86 m AHD at 1,905,900ML and 163.6% and dropping slowly and discharging around 3,500cumecs and this flow will be maintained.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

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At closure North Pine Dam was 39.4mAHD and 210,040ML and 98.0% and all gates were closed. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

MBRC will inspect Youngs Crossing to determine if the crossing can be re-opened

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A release of around 6,800megalitres a day is being made through the emergency gates. The Lake Level is dropping and the gate should be closed around Tuesday next week. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/roin forecasts, Tropical Cyclone Warning etc) ond other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	16.1.2011	Time	9am	or Event	

From: Dan Spiller [redacted]
Sent: Saturday, January 15, 2011 7:00 AM
To: Rob Drury <rdrury@[redacted]
Subject: Out of Office: Technical Report W57

I am out of the office until Sunday 16 January.

Should your email relate to the flood incident response, please be advised that the Emergency Manager role is now allocated to:

- Peter McManamon ([redacted]
- Keith Davies ([redacted] and [redacted]

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
While all care has been taken, the SEQ Water Grid Manager disclaims all liability for loss or damage to person or property arising from this message being infected by a computer virus or other contamination. Unless stated otherwise, this email represents only the views of the sender and not the views of the SEQ Water Grid Manager and/or the Queensland Government.

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For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Saturday, January 15, 2011 7:08 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

Attached is an update as at 6am today.

Again let me know of any issues.

The FOC and the BCC have kept up discussions re any impacts of release strategy. If there are any concerns re effects on houses or recovery that arrive get back to the FOC any time.

Will send one each day.

Aiming to have most of flood storage drained by Wednesday but will have better idea of closing times over next few days. Then may have better idea as to when bridges will come out. But again contact the FOC if you want.

Rob

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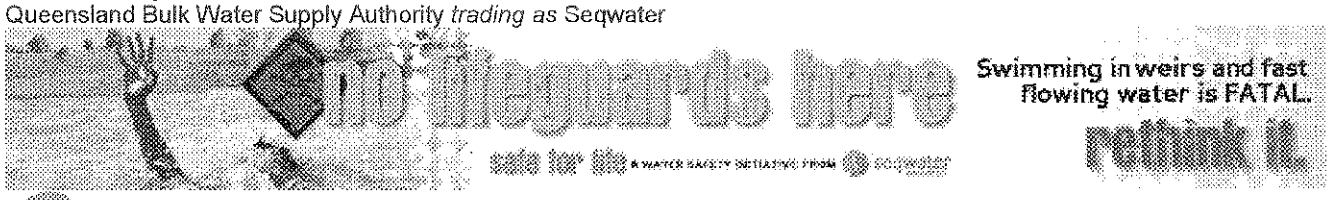

seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [redacted]
Sent: Saturday, January 15, 2011 7:27 AM
To: Rob Drury [redacted]
Subject: Re: Technical Report W57

Update for review please Rob, (Your report is great with the %ages.. many thanks

As at 8.00am on Saturday 15 January, the following applies:

SOMERSET DAM:
The dam is at 129% with our sluices open and is currently discharging about 79,000 megalitres a day into Wivenhoe Dam.

Sluice gates are being utilised to drain of the flood storage compartment and water levels in Somerset Dam will fall slowly.

WIVENHOE DAM:
Wivenhoe Dam is at 163%, dropping slowly and discharging around 301,000 megalitres a day, and this flow will be maintained.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
All gates are closed

LESLIE HARRISON DAM:
No Releases

HINZE DAM:
Around 6,600 megalitres per day is being released through the emergency gates, which are expected to close on Tuesday

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood situation, even if roads are open.

This information will be updated on Sunday 16 January.

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Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

Seqwater_No-Lifeguards-Here_email_strap

cid:image001.png@01CA24E1.BD

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www[redacted]

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From: Rob Drury [redacted]
Sent: Saturday, January 15, 2011 7:29 AM
To: 'seqwater.comm[redacted]
Subject: Re: Technical Report W57

All good

From: Seqwater Communications <seqwater.comms[redacted]>
To: Rob Drury
Sent: Sat Jan 15 07:27:28 2011
Subject: Re: Technical Report W57

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Water Delivery

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Seqwater_No-Lifeguards-Here_email_strap

cid:image001.png@01CA24E1.BD

Ph (07) [redacted] |□Fax (07) [redacted] |□M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
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□

□

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From: Rob Drury [redacted]
Sent: Saturday, January 15, 2011 8:01 AM
To: John Tibaldi <jtibaldi@[redacted] Duty Seq <dutyseq@[redacted]
Terry Malone <tmalone@[redacted] Peter Borrows
<pborrows@[redacted]
Subject: Re: Courier Mail Article (January 15) - Worth reading if you haven't already

---

One in the Australian too but not as exciting a read as this one.

From: John Tibaldi
To: Duty Seq; Terry Malone; Rob Drury; Peter Borrows
Sent: Sat Jan 15 07:52:50 2011
Subject: Courier Mail Article (January 15) - Worth reading if you haven't already

Lord Mayor Campbell Newman sees prediction of devastating Brisbane floods come true

- by Robert Craddock, Brian Williams
- From: *The Courier-Mail*
- January 15, 2011 12:00AM

IT WAS like that poignant moment when the first gentle raindrop of a wicked summer storm lands gently on your shoulder.

It was December 14 and Lord Mayor Campbell Newman was visiting *The Courier-Mail* offices at Bowen Hills. "Going on holidays?" someone asked. Cr Newman replied: "No, I am really worried there could be a major flood . . . the forecasts are not good."

Outside the sun was shining, the world was passing by and many Brisbanites felt the closest they would come to life-changing floods was walking past the black and white photos of the 1974 and 1893 floods at the Breakfast Creek Hotel. To them flood warnings, published by *The Caurier-Mail* as early as October 1, were a bit like those on-plane briefings about life jackets . . . yeah, whatever. Then the world changed, drop by painful drop.

The tragic fallout of the central Queensland floods in previous weeks rocked the state, but when a group of celebrities like Wendell Sailor, *Underbelly* star Les Hill, hairdresser Stefan and many others attended a telethon last Sunday their mood was bright and optimistic. The darkest chapters of the disaster seemed over, not about to begin. The only man who seemed to be carrying a stern sense of foreboding was Police Commissioner Bob Atkinson, who confided to some people: "Have you seen the weather forecast for the next four days? I don't like this at all this could be dire."

The first sign hell was on its way came on Monday when the mother of all storms ransacked Toowoomba just after noon. Nurses at Toowoomba Base Hospital gathered on the top floor as wheelie bins and cars floated down the street. No one was more shocked than the locals. As one Toowoomba journalist said: "At first it was almost amusing. We live on a mountain: we don't do floods. Puddles, maybe."
News of several deaths in the region rocked Queensland. Premier Anna Bligh and Cr Newman were told that the floodwater had to go somewhere and most probably towards Brisbane but it was manageable.

But then came the sledgehammer moment. On Tuesday, Brisbane and the Lockyer Valley were viciously tormented by heaven and earth; rain plus floods. So powerful was the surging tide that Gatton florist Lisa Sterling could barely out-run it as water chased her to refuge near a railway line. Some were not so fortunate. At the weather bureau Flood Warning Centre, analysts could scarcely believe what was happening on their screens. They felt like the athletics judges at the Mexico Olympics when long jumper Bob Beamon almost leaped out of the pit and the measuring ball fell off the end of its stick.

The rainfall record for Helidon had been set in the 1974 floods. On Tuesday the water gauge in the local creek soared past that record, with a reading of 5.2m before it was washed away. In nearby Gatton, the record water flow in Lockyer Creek used to be 16.33m, set back in 1893. It surged to 18.92m on Tuesday before the creek gauge also stopped, swept away by the forces it was designed to measure. They were the stats that really stand out to me from the week," bureau hydrologist Jimmy Stewart said. Mr Stewart and his family were forced out of their home by the floods he was monitoring and moved into a city hotel. From the 21st floor of the bureau's city offices forecasters had a bird's-eye view of the Brisbane River.

The crazy rain readings mesmerised people whose lives would now be shaped by them. At 10am on Tuesday, Cr Newman had his "holy heck" moment when he was sitting in a Local Disaster Management Group meeting in Ann St, Brisbane, and the gathering became spellbound by the sight of a storm of biblical proportions on their screen. "That was a defining moment, when we realised it was a real flood and it was coming," Cr Newman said.

He retired briefly to his office late on Tuesday and called up rain readings on his computer. A figure of 250mm left him stunned and facing the harsh reality that the toughest days of his life were ahead of him.
"For me, that moment when I looked at the reading, it was the incredible feeling of a burden on my shoulders," Cr Newman said. "This is happening and I am going to deal with it."

Premier Anna Bligh called Brisbane a post-war zone and Cr Newman could not argue as he sent the type of "blow up the bridge" messages he might have once seen as a boy watching *Hogan's Heroes*.
When Brisbane's Riverwalk started to disintegrate and float out to Moreton Bay, he gave permission to "destroy" the bridge. The plan was aborted because it was considered too dangerous.
Riverwalk, built at a cost of $17 million, and supposed to last 30 years, lasted only a decade before becoming a glorified crab pot.

With intense rain being recorded across catchments from Brisbane to the Darling Downs, after consulting bureau hydrologists SEQ Water Grid managers decided to lift releases from Wivenhoe Dam to 240,000ML about midnight on Tuesday.

It was a terrible juggling act as managers balanced weather predictions, the effect of tides, further rain, run-off and flooded downstream catchments. By that point every dam in the southeast was spilling water.
But it could have been worse. While that was happening, grid managers were drawing up plans to cope with an utterly horrendous 6.5m flood far worse than the current mark and the possibility of an even greater catastrophe. It was a close thing.

"If Wivenhoe Dam had got another 600mm of water it would have gone through the secondary spillway, which operates automatically," Cr Newman said. "If that had happened it would have been a flood of a much greater height. A couple of hours more rain and it could have been much more dire."

By Wednesday night the calls went around that the flood had peaked and the second spillway was not threatened. It was still a disaster of monumental proportions, but it could have been worse.

From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 8:37 AM
To: Rob Drury [redacted] John Tibaldi [redacted]
Terry Malone [redacted] Peter Borrows
<pborrows@[redacted]
Subject: RE: Courier Mail Article (January 15) - Worth reading if you haven't already

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The Australian article http://www.theaustralian.com.au/national-affairs/state-politics/experts-trying-to-balance-flow-of-wivenhoe-dam-almost-lost-control/story-e6frgczx-1225988034297 suggests that we nearly lost control of the outflow from the dam. It overlooks the fact that even if the fuse plugs had been initiated we still could have managed the outflow through the gates.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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To: Duty Seq; Terry Malone; Rob Drury; Peter Borrows
Sent: Sat Jan 15 07:52:50 2011
Subject: Courier Mail Article (January 15) - Worth reading if you haven't already

Lord Mayor Campbell Newman sees prediction of devastating Brisbane floods come true

- by Robert Craddock, Brian Williams
- From: *The Courier-Mail*
- January 15, 2011 12:00AM

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From: Rob Drury <rdrur[redacted]
Sent: Saturday, January 15, 2011 8:45 AM
To: Duty Seq <dutyseq@[redacted]
Subject: Re: Courier Mail Article (January 15) - Worth reading if you haven't already

---

A good story almost ruined by the facts.

From: Duty Engineer <dutyseq@[redacted]
To: Rob Drury; John Tibaldi; Terry Malone; Peter Borrows
Sent: Sat Jan 15 08:37:16 2011
Subject: RE: Courier Mail Article (January 15) - Worth reading if you haven't already

The Australian article http://www.theaustralian.com.au/national-affairs/state-politics/experts-trying-to-balance-flow-of-wivenhoe-dam-almost-lost-control/story-e6frgczx-1225988034297 suggests that we nearly lost control of the outflow from the dam. It overlooks the fact that even if the fuse plugs had been initiated we still could have managed the outflow through the gates.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [mailto:rdrury@[redacted]
Sent: Saturday, 15 January 2011 8:01 AM
To: John Tibaldi; Duty Seq; Terry Malone; Peter Borrows
Subject: Re: Courier Mail Article (January 15) - Worth reading if you haven't already

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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 8:57 AM
To: Rob Drury [redacted] John.Ruffini [redacted] John Tibaldi [redacted] Rob.ayre [redacted] Terry Malone <tmalone@[redacted]
Subject: Possible Media Visit to FOC

Peter Borrows has indicated that the WGM may want to invite media to take photos in the FOC sometime today. This will be managed by senior comms people but we are not authorized to comment. Peter suggests that the more people in the FOC the better!

Will advise if I hear more.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 10:15 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted] [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #41
Attach: OPS_Directive_Wivenhoe #41.doc

Please find attached Wivenhoe Directive #41

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	15/01/201
	Directive No:	41
	Time:	10:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 10:30 on 15/01/2011

- Open Gate 3 from 6.0 metres to 6.5 metres at 1030.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Terry Malone
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 1:02 PM
To: [redacted] John Tibaldi <jtibaldi@[redacted]
Rob.ayre@[redacted] Terry Malone [redacted]
Cc: Rob Drury [redacted]
Subject: Summary of Manual
Attach: Summary of Manual.doc

Peter Borrows asked for a 2 page summary of the manual. Any comments prior to Rob Drury passing it on?

JT bring out the red pen!

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Summary
of
Manual of Operational Procedures
for
Flood Mitigation at Wivenhoe and Somerset Dam

Background

- The Manual was originally issued in Oct 1968 and has been revised on 6 occasions since. Each major revision of the Manual is overseen by a panel of engineering experts. The last major revision was November 2009.
- The Manual is approved under the Water Supply Act 2008.
- The purpose of the Manual is to define a set of procedures to reduce, so far as practicable, the effects of flooding associated with the dams.
- The Manual is approved by the Director General of the Department of Environment and Resource Management and takes effect from the date of the gazette notice.

Objectives

The objectives of the flood operational procedures, listed in order of importance, are:

- Ensure structural safety of the dams
- Provide optimum protection of urbanized areas from inundation
- Minimise disruption to rural life in the Stanley and Brisbane Rivers
- Retain a full water supply storage at the conclusion of the flood event.
- Minimise the impacts to the environment during the drain phase following a flood.

Flood Operations

Wivenhoe Dam

The volume above the full water supply level is available as temporary flood storage. Water levels in the dam are managed by 5 large radial gates capable of releasing up to 10,000m3/s at extremely high water levels.

In addition, the auxiliary spillway, capable of releasing up to 14,000m3/s at extremely water levels, consists of 3 fuse plugs which erode after being overtopped, thereby increasing the discharge capacity of the dam. This ensures the structural safety of the dam. In the event of initiation of the fuse plugs, outflow from the dam can still be controlled by the radial gates.

The Flood Operations Centre was mobilised at 8am Saturday 6 January 2011.

During an event, the operation of the dam transitions between four operating strategies depending of the circumstances at the time:

- **W1** – Primary consideration is given to Minimising Disruption to Downstream Rural Life. Under this strategy, the predicted water level is below 68.50 m AHD and the maximum release is 1,900m3/s.
    - *This stage was exceeded at 8am Saturday 6 January 2011.*
- **W2** – Transition Phase moving from Minimising Disruption to Protecting Downstream Urban Areas. Under this strategy, the water level is predicted to be between 68.5 and 74.0 m AHD and the maximum release is less than 3,500m3/s.
    - *This stage was exceeded approximately 6pm Saturday 8 January 2011.*
- **W3** – Primary consideration is to Protect of Urban Areas from Inundation. Under this strategy, the water level is predicted to be between 68.5 and 74.0 m AHD but the maximum release is less than 4,000m3/s.
    - *This stage was exceeded approximately 9am Tuesday 11 January 2011.*
- **W4** – Primary consideration is to Protection the Dam. Under this strategy, the water level is predicted to exceed 74.0 m AHD and there is no limit to the maximum release. Consideration is given to managing gates releases to avoid fuse plug initiation if at all possible as this would compromise flood mitigation capacity in the short to medium term

In extreme events, the interval between gates openings can be as little as 10 minutes.

Somerset Dam

The flood storage compartment of Somerset Dam is used in conjunction with of Wivenhoe Dam to ensure that the combined flood mitigation impact is maximized. This may mean temporarily holding flood water in Somerset while Wivenhoe Dam levels are rising.

Monitoring and Prediction

During the event, observed and forecast rainfall and observed water levels are continuously monitored and included in prediction models to give as long as practical lead times for potential inflows and subsequent gate operations.

Drainage Phase

The objective of the drainage strategy is to drain the flood component within 7 days to ensure the dam is ready for any possible ensuing event while minisming downstream impact in urban areas. This generally means that releases are managed so that downstream flows are limited to 3,500m3/s, the threshold for urban flood damage.

From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 2:08 PM
To: Peter Borrows [redacted] Rob Drury [redacted] Terry Malone <tmalone@[redacted]
Cc: 'Dan Spiller' [redacted] 'John Bradley' [redacted] 'Elaina Smouha' [redacted] bob.reilly[redacted]
Subject: March 2010 Report Index
Attach: Report Index.pdf

FYI

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Peter Borrows [mailto:pborrows@[redacted]
Sent: Saturday, 15 January 2011 1:10 PM
To: Rob Drury; Duty Seq; Terry Malone
Cc: Peter Borrows
Subject: Fw: 2 pm phone hook up - Wivenhoe operations brief preparation

Rob & Terry, can you both come in on this at 2pm please.

From: Barry Dennien [redacted]
To: Dan Spiller [redacted] John Bradley ([redacted] Elaina Smouha [redacted] Peter Borrows; [redacted]
Sent: Sat Jan 15 12:10:09 2011
Subject: 2 pm phone hook up - Wivenhoe operations brief preparation

Folks

Details of phone hook up:

phone - [redacted]
account number - [redacted]
pin - [redacted]

Agenda to follow in approx one hour

Barry Dennien

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Entered: [illegible]

Prepared by:

SunWater Limited
ACN 131 034 985

179 Turbot Street, Brisbane
PO Box 15536 City East
Brisbane Queensland Australia 4002

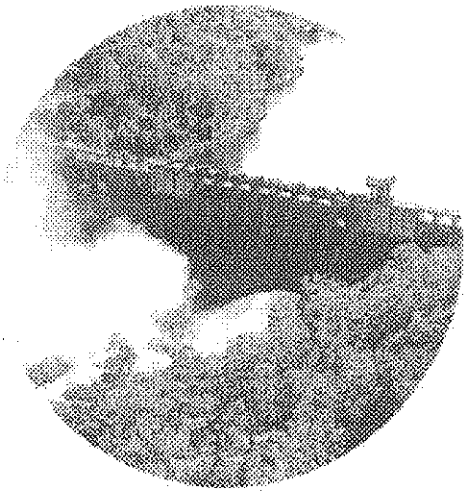
Tel: [redacted]
Fax: [redacted]

Author: [redacted]

Mr Rob Ayre
Headworks Design Manager
Infrastructure Development

Approved: [redacted]

Mr Daryl Brigden
Manager, Engineering South
Infrastructure Development



Final Report

Flood Events at Wivenhoe, Somerset and North Pine Dams for February and March 2010

[illegible]

Prepared for:
Seqwater

This report has been produced by SunWater, to provide information for client use only.
The information contained in this report is limited by the scope and the purpose of the engineering study, and should not be regarded as completely exhaustive.
Permission to use or quote information from this report in studies external to the Corporation must first be obtained from the Chief Executive, SunWater.

RD5-889

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APPENDIX B - Estimated Inflows and Release

APPENDIX C - Reservoir Headwater Levels

RD5-891

From: Duty Engineer <dutyseq@[redacted]
Sent: Saturday, January 15, 2011 3:32 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #42

Please find attached Wivenhoe Directive #42

Note that it commences at 1700 Saturday

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rachel Lerch [redacted]
Sent: Saturday, January 15, 2011 5:38 PM
To: [redacted].au'; 'Trezise.[redacted]
'Susan_hertrich[redacted]'; Cr Graeme Lehmann
<[redacted]gov.au>; Bob Bain [redacted] Tony
Jacobs <[redacted]>; Steve Brennan
[redacted] 'Pitman.[redacted]
'Goodger.[redacted] Andy Bickerton
<[redacted]gov.au>; 'David.Caughley[redacted]
'CraigX.[redacted]au'; 'Peter.Varley[redacted]
'Richard.lahse[redacted]; 'Qastoogoolawah.oic@[redacted]
'Tom.parsonage[redacted]'; Rob Drury <rdrury@[redacted]
'michaellukritz[redacted]; 'glendol[redacted]au';
'russellcross[redacted]; 'Mark.Kelly[redacted]
'Wendy.fry[redacted]; 'Annabelle.johnstone[redacted]
'gough.[redacted] 'Tanwan.[redacted]
'Douglas.[redacted] 'tristan_berrell@hotmail.com';
'[redacted]au'; 'garychalmers[redacted] 'QAS Springfield
OIC' <[redacted]au>
Cc: Kerri-Lee Jones <[redacted]au>
Subject: DMG Meeting - Sunday 2.30pm
Attach: 2011-01-15 - Minutes of Meeting.doc

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Sunday (16th January 2011) at the Esk Administration Building. Minutes from today's meeting attached. Agenda will be finalized just prior to the meeting as it is dependant on the updates provided.

If you are unable to attend in person teleconference is available. You will need to dial [redacted] and enter a passcode which i[redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted].au
Ph [redacted]
Fax [redacted]

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Saturday 15th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

MINUTES

- **Attendance:**

  Cr Graeme Lehmann (SRC), Cr Alan Bechly, Bob Bain (SRC), Tony Jacobs (SRC), Geoff (SRC), Andrew Johnson (SRC), Dan Hall (SRC), Geoff (GCC), Wayne Wendt, Garth & Robbie (Ipswich), John Cumner (QPS- Toogoolawah), Sgt Ian Douglas (QPS- Lowood), David Crawford (QPS- Kilcoy), Andy Bickerton (SES – Somerset Region), Tracey Shearer (SES- Scenic Rim), Peter Zauner (QFS), Peter (QAS), Scott (SEQ Water), Jim (SEQ Water), Richard Perry (Energex), Gary Madigan (Energex), Eddie Bennett (EMQ), Susan Hertrich (Esk Hospital), Terry Flanagan (DCS), Karlene Trezise (QPS-Esk), Rusty Kraut (QFS), Paul Quinlan (QUU), Mike Shaplan (EMQ).

- **Local Weather Warnings**
  - Local weather warnings minor flooding Brisbane River, middle and lower
  - Downward trend.
  - Weather forecast fine, potential storms Monday – Thursday next week.

- **Road Closures:**

  - Watson Road closed at Coominya-Connection Road
  - West Road near Mahons Road
  - Tooloorum Road – Toolurum Bridge closed
  - Woodgate Road
  - Brisbane Valley Hwy closed between Fernvale and Esk
  - Wivenhoe-Somerest Road – Titmarsh Bridge, Bryden
  - Gregors Creek Road
  - Kilcoy-Murgon Road is closed at Jimna due to a landslip
  - Brisbane Valley Hwy 5k south Esk (Poddy Gully & Geoff Fisher)
  - Esk-Crows Nest Road – Taylors Bridge & Anduramba
  - D'Aguilar Hwy – Blackbutt Range
  - Kilcoy-Murgan Rd – Jimna Range closed
  - McCauleys Ln – Dickinson Bridge
  - Monsildale Road
  - Neurum Road
  - Sandy Creek Road – Hubners Bridge

- Ten Mile Road
- Brighview Road
- Forest-Hill Fernvale Road – East Lowood
- Patrick Estate Road – Pointings Bridge
- Strassburgs Road – closed top end
- Zabels Road North – bridge damage – possible closure
- The D'Aguilar Highway is closed at the Blackbutt Range due to a landslide
- Esk-Kilcoy Road – at Murrumba
- Esk Hampton Road is closed due to a roadslip at the top of the range
- Esk-Hampton Road is closed at Redbank Creek crossing number 3 due to extensive bridge and pavement damage (2.5k's Hampton side of O'Grady Road
- Esk-Kilcoy Road at Shaws Gully (1km north spit) & Myers Gully (near Nofz Lane)
- Wivenhoe-Somerset Road is closed to all traffic at Split Yard Creek
- Ivory Creek Road (approx. 6km north)

- **ROADS OPEN**
- **NOTE: Most roads are in poor condition with large potholes, extensive pavement damage and undermining, with some roads are reduced to single lane traffic only.**
- Warrego Highway – open with restrictions, please follow detour/directional signage
- Brisbane Valley Highway – Open between the Warrego Highway and Fernvale and again Esk and D'Aguilar Hwy (stop-go at Harlin Bridge)
- D'Aguilar Hwy – open to one lane for vehicles up to 4.5 tonne at Mary Smokes Creek, Royston. Drive with Caution and expect delays. Local traffic to Moore and Linville only
- Forest Hill-Fernvale Road – West of Lowood (Lyons Bridge)
- Lowood-Minden Road
- Gatton-Esk Road – 20 tonne limit at Lockyer Creek Bridge
- Fernvale Road
- Clamorgan Vale Road
- Marburg Road
- Many smaller roads within the Region are open to local traffic

- **Power Outages**
  - Power outages reported at Atkinsons Dam, Avoca Vale, Brighview, Bryden, Buaraba, Clarendon, Colinton, Cooeeimbardi, Coominya, Cressbrook, Dundas, Fairney View, Fernvale, Fulham, Glen Esk, Gregors Creek, Harlin, Ivory Creek, Kilcoy, Lake Clarendon, Linville, Lower Cressbrook, Lowood, Moore, Mount Beppo, Patrick Estate, Rifle Range, Scrub Creek, Tarampa, Toogoolawah, Vernor, Wivenhoe Pocket, Yimbun.
  - Energex advised next Tuesday / Wednesday for repair at Moore and Colington
  - Could potentially be out in Greater Brisbane area for one month

- Small number of generators being utilised.
- Gary Madigan (Energex) advised that trying to get second large generator on Fernvale. A lot of Fernvale, despite some pockets, will have power restored when this is done. May be some issues once start, hopefully go to plan.
- Currently 23,500 without power in SE Qld and Brisbane Valley. Somerset account for about 1,800 of those.
- Where can get access with additional crews by Monday-Tuesday next week should have progressed some major repairs. Some will still be inaccessible as yet.
- When second generator installed at Fernvale will supply power 24/7 and an operator will be on site with generator.
- Richard Perry advised very slow progress in north due to rugged terrain. Additional 22 Energex staff and 10 additional contractors called in. Doing everything can to get power to Moore and beyond.

- **Water Supply**
  - Fernvale currently have water being trucked in.
  - Tarampa and Minden are still out.
  - Boil alert still current for a number of regions.
  - 2 submersible pumps and back up under water at Lowood. QUU trucking water in. Expected to be operational on the afternoon of 14th.
  - Kilcoy, Linville (60%), Esk (60%) treatment plants online and making water. Lowood has temporary pump running as from 5.00am this morning. Similar to what plant would normally produce. Up and running and operational. Tanker assisted at present until further notice. Tankers will continue until up and running properly. Expect to be fully charged within next 24 hours.
  - Fernvale – some damaged mains unable to be accessed but slowly but surely accessing it and fixing.
  - Minden supply – some areas have quite severe damage. Will take bit longer to restore. Rest will be returned when able to fill up the line.
  - **ACTION 1- Find out timeframe for Minden to be functioning properly.**
  - Ian Douglas advised spoke to operator who indicated that commenced from treatment plant to reservoir at 12% two or three hours ago.
  - Line from Gatton to Laidley can be isolated from Minden and was isolated due to main break a few days ago.
  - About 50 metres has been washed away.
  - Major issues with water treatment plant in Esk and Lowood, may be out of working order until Wednesday. Fernvale, cannot access. Means water is going into River, trying to prevent that. **ACTION 2- Need to report to Public Health. Paul from QUU to provide an update to Tony this afternoon.**
- **General Community Needs**
  - Communications: most voice services returned (landlines restored) in Lowood and Fernvale at 2pm yesterday. One section down but Telstra working on.
  - Communications have been returned to most areas.
  - Jimna down, Telstra can't reach yet

- Voice services provided by Mount Kilcoy exchange may not be available or intermittent due to power supply issues
- Mobile: current issues at Mt Stradbroke, Lowood due to power problems. Ironbark – GSM only coverage.
- Capacity may still be an issue locally.
- Evacuations have dropped to 53 from 63 yesterday. Additionally 25 visiting Esk for meals. All other centres not housing people.
- Lowood has approximately 40-50 people still.
- IGA Lowood and Toogoolawah expecting deliveries in the next day or so.

- **Resupply Food / Fuel**
  - 7 x 50 day food packs and 500 x 3 day food packs delivered to Esk for distribution
  - Waiting for food order, arriving this evening on 2 small trucks to comply with Main Roads limits. One to Lowood, one to Esk.
  - Limitations of 20L per drop on helicopter.
  - 2,000 food hampers at Lowood High School from Muslim Community. Being distributed to Coominya, Fernvale and Wivenhoe Pocket from there.
  - John Cumner (QPS Toogoolawah) advised that Scrub Creek and Toogoolawah have been cut off for an extended period of time.
  - **ACTION 3- Status to be reported on these regions.**
- **Waste**
  - Waste services currently suspended. Residents advised to leave on footpath.
  - Fernvale/Lowood: skips available for putrid waste. Private people providing vehicles for rubbish pick up.
  - Request from Moore. **Action 4- Put details in SIT REP.**
- **Other Business**
  - Private helicopter being utilised to distribute goods in Linville. May need to resource someone to replace this. Advised that don't require any further drops in that area. 5 ute fulls delivered to Linville. Air lift cancelled now that water has subsided.
  - Rapid Response Teams. Priorities: Rapid Damage assessment, access to highways and local areas, water supplies, resupply needs, communications and restoring power. **ACTION 5: Will need assessments from SES, Qld Health, Volunteers Qld, etc. Information required includes what is being done, what results have been achieved and any issues / shortfalls so assistance can be provided. Send email [redacted] so that updates can be sent. From the information provided, can then start tasking.**
  - **ACTION 6- All agencies and coordination centres to get in contact with Somerset Regional Council (Esk Administration office) for status update. Email [redacted] These will then be sent on to IMT and added to the agenda for tomorrow's meeting.**

- Terry Flanagan (DCS) advised that there are teams at Fernvale, Lowood, Toogoolawah and will be back at Esk tomorrow. 70 applications and approximately $35,000 distributed.
- Any isolated areas that need attention to be identified with damage assessment.
- **ACTION 7- Confirm what on RFA list. To have available at next meeting.**
- Somerset Region has been split into 8 zones, a copy to be sent to all. When making requests can then send copy to zones and prioritise the seriously affected regions.
- 100 SES volunteers assisting in RDA.
- **ACTION 8- SES interstate vehicles that are not marked will be in the region. Let people know they are in the area. Personnel will still be in SES uniforms but will be in the different state uniform.**
- **ACTION 9- SIT REPS due to Tony (SRC) before 2pm so they can be put on the agenda. Updates will be required morning and afternoon once established.**

Next Meeting: 2.30pm Sunday 16th January 2011.

From: NQWater Duty Engineer [redacted]
Sent: Saturday, January 15, 2011 7:12 PM
To: Peter Borrows <pborrows@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Briefing note

Peter,
I am at the Flood Centre with John, Terry and Rob Ayre but finishing up soon.
We have put together a fair bit of the briefing note and will put some more togther tonight and early tomorrow.
John, Terry and I will meet you tomorrow morning at 8.30am in level 3 Margaret Street to run through if we are covering everything.
Then we will finalise a few details and put together.

John may still send a copy through tonight but probably best just to rin through it with you tomorrow.

Rob

Duty Engineer
SunWater Flood Operations Centre
[redacted]

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From: Duty Engineer [redacted]
Sent: Saturday, January 15, 2011 10:19 PM
To: Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted]
Rob Drury <rdrury@[redacted]
Subject: Wienhoe Directive 43
Attach: OPS_Directive_Wivenhoe #43.doc

Please find attached a copy of the latest Directive.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	15/01/201
	Directive No:	43
	Time:	22:00

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 22:00 on 15/01/2011

- Open Gate 4 from 6.0 metres to 6.5 metres at 22:00.

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Ruffini
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Sunday, January 16, 2011 2:44 AM

To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryrj[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]

Subject: OPS_Directive_Wivenhoe #44.doc

Please find attached a cpy of Wivenhoe Directive 44

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 16/01/201**
	Directive No: 44
	Time: 02:45

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 04:00 on 16/01/2011

- Open Gate 1 from 6.0 metres to 6.5 metres at 04:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Ruffini
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Sunday, January 16, 2011 6:09 AM

To: Duty Seq <dutyseq@[redacted] 'Arminda Roberts (private)' <arminda.roberts@gmail.com>; David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin [redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted]

Subject: Situation Report 0600 Sunday 16 January 2011

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

At 06:00 Somerset Dam was 100.01 mAHD and falling. Four sluices are open and the dam is currently discharging about 820 m3/s. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011.

At 06:00 Wivenhoe Dam was 71.3 mAHD and continuing to fall. The releases from Wivenhoe Dam are currently about 3,477 m3/s and are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release level is being maintained to drain the flood storage component by Wednesday.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 06:00 North Pine Dam was 39.46 mAHD. All gates are closed. The lake level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

The next report will be issued at 18:00 on Sunday 16 January 2011.

John Ruffini
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury <rdrury[redacted]
Sent: Sunday, January 16, 2011 6:37 AM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted]
Arminda Roberts [redacted] Tara King [redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
'peter_allen[redacted] 'Scott.Denner@[redacted] Mike Foster
<mfoster@[redacted]
Cc: 'paulhbir[redacted]'; 'arminda.roberts[redacted] 'tara[redacted]
[redacted] 'seqwgm[redacted]; 'Seqwater[redacted]
Subject: RE: Technical Report W58
Attach: Technical_Situation_Report_W58.docx; Technical_Situation_Report_W58.doc

---

Attached is report W58 in 2 formats..
Only change is the gradual reduction in levels as below.
Will send next report tomorrow morning around 8am or so unless there is a significant change.

Main points

Rainfall There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

At 6am Somerset was 100.01m and 424,360ML at 111.7% and discharging 820cumecs.

At 6am Wivenhoe Dam was 71.3 m AHD at 1,687,269ML and 144.8% and dropping and discharging around 3,477cumecs and this flow will be maintained.

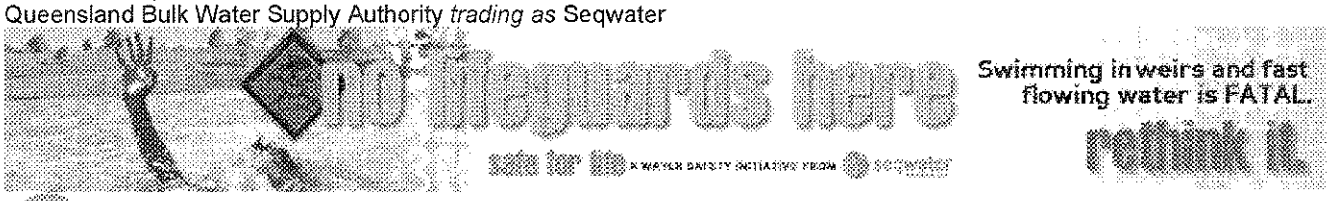
The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 6am North Pine Dam was 39.46mAHD and 211,319ML and 98.6% and all gates were closed

Leslie Harrison closed and Hinze to close gate around Tuesday.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W58	Date of TSR release	16.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area and drain reservoir • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 6am Somerset was 100.01m and 424,360ML at 111.7% and discharging 820cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by around Wednesday 19th January.

At 6am Wivenhoe Dam was 71.3 m AHD at 1,687,269ML and 144.8% and dropping slowly and discharging around 3,477cumecs and this flow will be maintained.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 6am North Pine Dam was 39.46mAHD and 211,319ML and 98.6% and all gates were closed. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A release of around 6,800megalitres a day is being made through the emergency gates. The Lake Level is dropping and the gate should be closed around Tuesday next week. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	17.1.2011	Time	9am	or Event	

TECHNICAL SITUATION REPORT

TSR Number	W58	Date of TSR release	16.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Continue release of water from Somerset into Wivenhoe to reduce impacts upstream in Kilcoy area and drain reservoir • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

At 6am Somerset was 100.01m and 424,360ML at 111.7% and discharging 820cumecs.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by around Wednesday 19th January.

At 6am Wivenhoe Dam was 71.3 m AHD at 1,687,269ML and 144.8% and dropping slowly and discharging around 3,477cumecs and this flow will be maintained.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 6am North Pine Dam was 39.46mAHD and 211,319ML and 98.6% and all gates were closed. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A release of around 6,800megalitres a day is being made through the emergency gates. The Lake Level is dropping and the gate should be closed around Tuesday next week. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Worning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain farecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	17.1.2011	Time	9am	or Event	

From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 6:39 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

Attached is an update as at 6am today.

Again let me know of any issues.

The FOC and the BCC have kept up discussions re any impacts of release strategy. If there are any concerns re effects on houses or recovery that arrive get back to the FOC any time.

Will send one each day.

Aiming to have most of flood storage drained by Wednesday but will have better idea of closing times over next few days. Then may have better idea as to when bridges will come out. But again contact the FOC if you want.

Rob

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. Four sluices are opened. Sluice gates will be utilised to drain of the flood storage compartment during the next 4 days. Water levels in Somerset Dam will fall slowly in the next 24 hours.

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At 6am Wivenhoe Dam was 71.3 m AHD at 1,687,269ML and 144.8% and dropping slowly and discharging around 3,477cumecs and this flow will be maintained.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

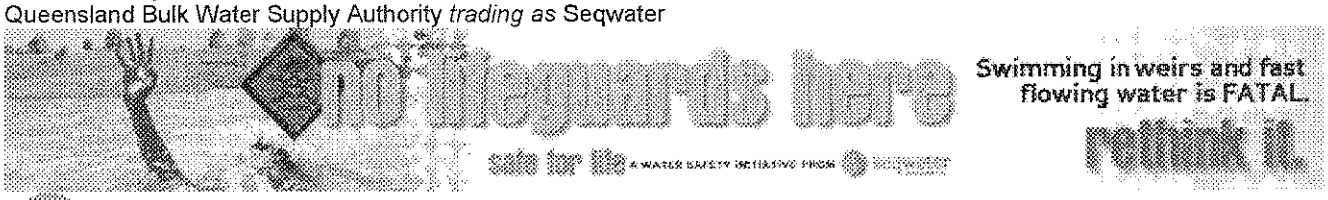
North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 6am North Pine Dam was 39.46mAHD and 211,319ML and 98.6% and all gates were closed. The current level is expected to increase to just over 39.5 mAHD in the next few days due to base-flow. This could be higher if further rainfall occurs.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 6:51 AM
To: flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone [redacted] Brett Schultz [redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan [redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Cc: Rob Drury <rdrury@[redacted] pburrows@[redacted]
Subject: Message from the Senior Flood Operations Engineer

You, more than most, know the magnitude and severity of this current event. Our current preliminary assessment suggests that the rainfall totals and runoff volumes make this event larger than the January 1974 flood for the dams. It also approaches the magnitude of the 1893 event.

Certain elements of the media have made assertions about the adopted operational strategy which was used to manage it. It is unfortunate that these reports have removed the focus from the recovery effort.

I can assure you that the adopted strategy was performed in accordance with the Manuals of Operational Procedures and that the affected communities where afforded the highest level of protection available under the circumstances. The magnitude of the event meant that the security of the dams had to be considered in selecting the releases that where required.

You should all be proud of your efforts to date.

I also wish to remind you that we are still operational and will be until at least Wednesday. So let's finish the job in the same way we started.

Thanks and Regards

Rob Ayre, John Ruffini, John Tibaldi, and Terry Malone

Duty Engineers
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Scott Denner [redacted]
Sent: Sunday, January 16, 2011 7:22 AM
To: Rob Drury <rdrury@[redacted]
Cc: seqwgm[redacted] Lee Hutchison [redacted]
Subject: TSRs 31' 32 and 33

Rob

Will you pls feed TSRs 31, 32 and 33 through to the OCA system (address per cc to this email) when you have time (they are the only ones we don't have recorded in the system).

Thanks

Scott

Sent from my iPad

On 16/01/2011, at 6:38 AM, "Rob Drury" [redacted] wrote:

Attached is report W58 in 2 formats..

Only change is the gradual reduction in levels as below.

Will send next report tomorrow morning around 8am or so unless there is a significant change.

Main points

Rainfall There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

At 6am Somerset was 100.01m and 424,360ML at 111.7% and discharging 820cumecs.

At 6am Wivenhoe Dam was 71.3 m AHD at 1,687,269ML and 144.8% and dropping and discharging around 3,477cumecs and this flow will be maintained.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

At 6am North Pine Dam was 39.46mAHD and 211,319ML and 98.6% and all gates were closed

Leslie Harrison closed and Hinze to close gate around Tuesday.

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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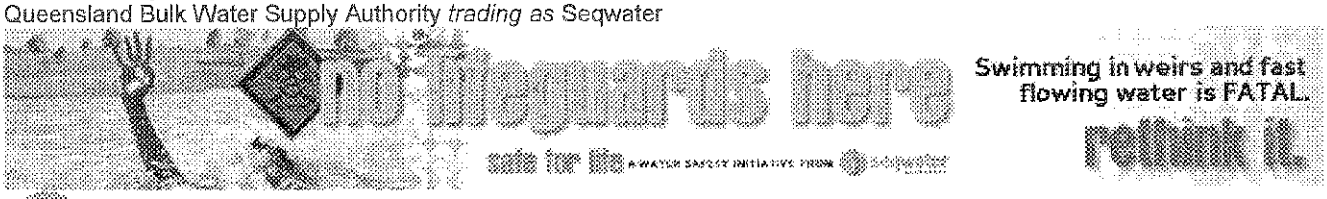
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 7:49 AM
To: 'Scott Denner' [redacted]
Cc: [redacted]
Subject: RE: TSRs 31' 32 and 33

Will get David to put them in.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Scott Denner [mailto [redacted]
Sent: Sunday, 16 January 2011 7:22 AM
To: Rob Drury
Cc: seqwgm [redacted] Lee Hutchison
Subject: TSRs 31' 32 and 33

Rob

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Scott

Sent from my iPad

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> Only change is the gradual reduction in levels as below.
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>
> Main points
>
> **Rainfall** There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.
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Robert Drury
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Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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Your Anti-virus Service scanned this email. It is safe from known viruses.
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From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 7:49 AM
To: David Roberts <[redacted]
Subject: TSRs
Attach: Technical Situation Report W33.docx; Technical Situation Report W32.docx; Technical Situation Report W31.docx

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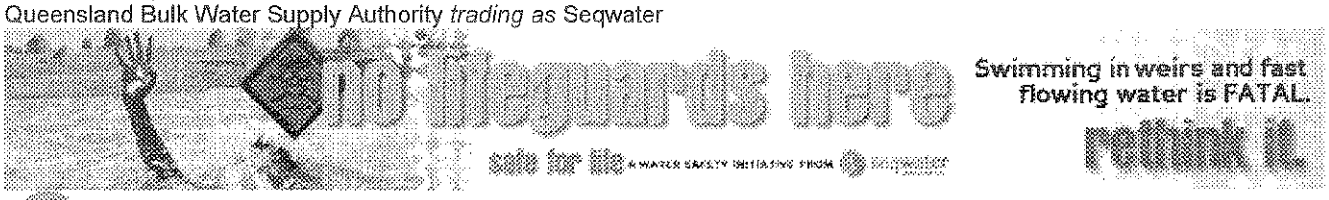
Can you add these to OCA please?

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W33	Date of TSR release	9.1.2011	Time of TSR release	6.00pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases however event is increasing in magnitude and may require increased releases.	
Strategy	• Continue the current releases however there may be a need to increase releases above current levels and impact Mt Crosby and Fernvale Bridges.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Inflows may approach 1,000,000ML which is close to outflow in 1999 and two thirds of 1974 event.
	Rainfall:	Continuing
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (60 mm); Somerset Dam (150 mm); Wivenhoe Dam (80 mm). The bulk of the rain that has fallen in the upper reaches of the Stanley and Brisbane Rivers.

The BOM rainfall forecast for the next few days is:-

Monday:	Very heavy rain periods with totals up to 300mm centred around North Pine.
Tuesday:	Rain periods with totals up to 150mm centred around North Pine.
Wednesday	A few showers less than 10mm
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.65 m AHD and rising at 1600. Following the rain in the 9 hours, the number of open gates has been increased from 2 to 5 which are expected to remain open for the next 12 hours. Youngs Crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 100.75 m AHD and rising quickly. Estimated peak inflow to the dam is about 3,000m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 101.5 during early Tuesday morning.

Since the commencement of the event on 02/01/2011approximately 80,000ML has been released from the dam, with an event total of at least 320,000ML based on the recorded rainfall to date. The event total is expected to increase significantly due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Wednesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently rising again, with the current level being 68.70m AHD. Estimated peak inflow to the dam just from the Upper Brisbane R is about 5,000m3/s and, at this stage, the dam will reach at least 72.5 m AHD during Wednesday morning. River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River for the next 24 hours. This may mean temporarily reducing releases from Wivenhoe Dam as Lockyer flows increase. However, releases may have to be increased significantly during Monday depending on the rain in the next 12 to 24 hours. The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day).

Since the commencement of the event on 02/01/2011 approximately 210,000ML has been released from the dam, with an event total approaching 1,000,000ML (including Somerset outflow) based on the recorded rainfall to date. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Saturday 15th January 2011.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Saturday 15 January.

At this stage Fernvale and Mt Crosby Weir Bridge will not be affected for the next 24 hours but there is a strong possibility that, if the predicted rainfall totals eventuate in the next 12 to 24 hours, higher releases from Wivenhoe Dam will be necessary. This may adversely impact upon Fernvale and Mt Crosby Weir Bridges as early as Tuesday morning.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weother/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	9.1.2011	Time		or Event	Change in strategy

TECHNICAL SITUATION REPORT

TSR Number	W32	Date of TSR release	9.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue current releases to discharge floodwater as quickly as possible	
Strategy	• Continue the current releases of around 1350cumecs or 116,000ML per day, however this may change slightly depending on other flows to maintain around 1600cumecs in the mid Brisbane River • This should keep Fernvale and Mt Crosby bridges clear however if further predicted rainfall occurs there may be impacts on these bridges too	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:-

Sunday:	Rain periods.
Monday:	Rain periods.
Tuesday:	Rain periods.
Wednesday	A few showers.
Thursday	A shower or two.
Friday	A shower or two.
Saturday	Mostly fine.

A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates.

North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today,

consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday.

Wivenhoe Dam (Full Supply Level 67.00 m AHD)

The dam level is currently falling slowly, with the current level being 68.58m AHD. River levels upstream of the dam are receding, however further inflows will result from any additional rainfall. The current gate operation strategy will maintain flows of around 1,600m^3/s in the mid-Brisbane River. The current release rate from Wivenhoe Dam is 116,000ML/day. Since the commencement of the event on 02/01/2011approximately 150,000ML has been released from the dam, with a total of at least 450,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Wednesday.

Impacts downstream of Wivenhoe Dam

The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Wednesday 12 January. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected, but this may be revised if the predicted rainfall totals eventuate and higher releases from Wivenhoe Dam are considered necessary.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and closed late last night. However further releases are likely.

Hinze Dam

The gate opening of 300mm continues today and may for several days depending on inflows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundotion areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

TECHNICAL SITUATION REPORT

TSR Number	W31	Date of TSR release	8.1.2011	Time of TSR release	7.00am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Continue increasing releases to discharge floodwater as quickly as possible	
Strategy	• Continue to increase releases from 890cumecs this morning to 1200cumecs by lunchtime • This should keep Fernvale and Mt Crosby bridges clear however further predicted rainfall may impact.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Ongoing inflows
	Rainfall:	
	Lockyer/Bremer:	Monitoring their inflows
	Brisbane River:	Minimal impact as per previous discussions and releases.

Rainfall

Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. No significant rain has fallen in the past 12 hours.

Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days.

Saturday: Rain light at times 5-50mm with higher falls along the coast
Sunday: Widespread rain with totals between 50-100mm
Monday: Widespread rain again with totals between 50-100mm
Tuesday: Rain easing with totals between 25-50mm

Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday

North Pine (Full Supply Level 39.60 m AHD)

At 0600 Saturday, North Pine Lake Level was 39. 46 m AHD and slowly rising. Currently 3 gates are open to release runoff from rain on Wed/Thursday/Friday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy.

Somerset (Full Supply Level 99.00 m AHD)

At 0500 Saturday, Somerset Dam level was 100.42m AHD and rising. The Dam is releasing into Wivenhoe through one open sluice gate. Water will be temporarily held in Somerset to allow the inflow from the upper Brisbane is passed through the system. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to Somerset and Wivenhoe, it is the usual practice to hold flood water in Somerset until there is a high level of confidence in the estimated inflows to Wivenhoe.

Since the commencement of the event on 02/01/2011, approximately 85,000ML has flowed into Somerset Dam with a further 20,000ML expected based on the recorded rainfall to date. Approximately 25,000ML has been released into Wivenhoe.

Wivenhoe (Full Supply Level 67.00 m AHD)

At 0600 Saturday, Wivenhoe Dam was 68.45 m AHD and rising steadily with all five gates open and releasing about 890 m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to 1,200m3/s by midday Saturday 08/01/2011. Further assessments will be undertaken to determine increases above this level. However, given the high likelihood of significant inflows in the next week, this may be increased.

Since the commencement of the event on 02/01/2011, approximately 200,000ML has flowed into Wivenhoe Dam (including Somerset releases) with a further 180,000ML expected based on the recorded rainfall to date. Approximately 50,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s.

Impacts downstream of Wivenhoe

The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected but they could potentially be affected if the predicted rainfall totals eventuate.

The current available assessments indicate that the combined flow in the lower Brisbane R would only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane Rive. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy.

Leslie Harrison Dam

Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and closed late last night but further operations are likely.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
0410378740	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council (BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised and do not have a problem with the new strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in strategy

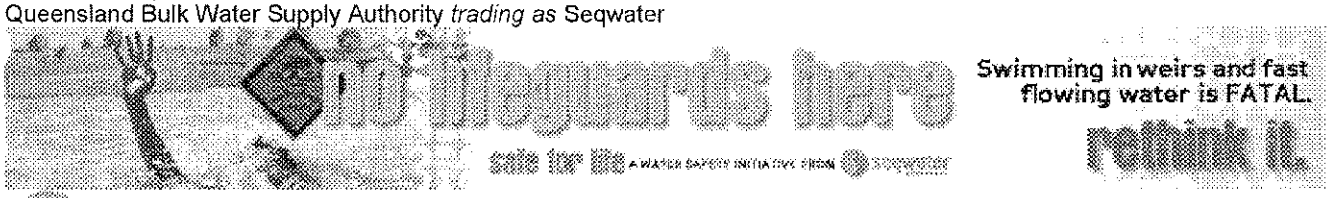
From: David Roberts <droberts@[redacted]
Sent: Sunday, January 16, 2011 7:50 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: TSRs

Sure

From: Rob Drury
Sent: Sunday, 16 January 2011 7:49 AM
To: David Roberts
Subject: TSRs

Can you add these to OCA please?

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [redacted]
Sent: Sunday, January 16, 2011 8:16 AM
To: Paul Bird <pbird@[redacted] [redacted] Rob Drury <rdrury@[redacted] Michael Feichtner [redacted]
Subject: Update 16th for approval

As at 8.00am on Sunday the 16th January, the following applies:

There has been no significant rain in the last 24 hours and no significant rainfall is expected in the next 24 hours. Mostly fine conditions are expected over the the remainder of the weekend but showers will return early next week.

SOMERSET DAM:
Somerset Dam is at 111.7 %. Four sluices are open as at 8.00am on Sunday the 16th January 2011, discharging 70,520 megalitres into Wivenhoe Dam.
Sluice gates will be utilised to drain off the flood storage compartment during the next four days. Water levels in Somerset will fall slowly in the next 24 hours.

WIVENHOE DAM:
As at 8.00am on Sunday the 16th January 2011 Wivenhoe is at 144.8%. 299,022 megalitres is being released. This flow will be maintained to drain the flood storage compartment by Wednesday 19th January

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

NORTH PINE DAM:
North Pine is at 96.8 % and all gates are closed

LESLIE HARRISON DAM:
No releases

HINZE DAM:
A release of around 6,8000 megalitres a day is being made through the emergency gates. The lake level is dropping and the gate should be closed around Tuesday next week. There is no public access to the spillway.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood crisis situation, even if roads are open.

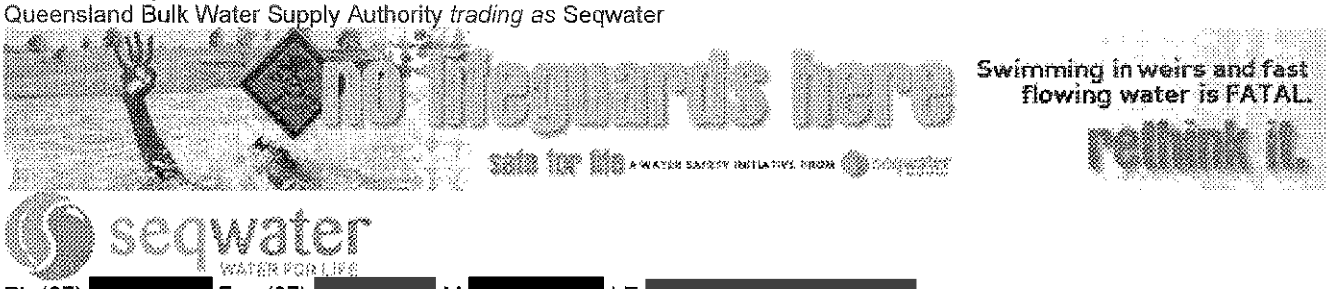
This information will be updated on Monday the 17th January

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 8:29 AM
To: 'Seqwater Communications' [redacted] Paul Bird <pbird@[redacted] [redacted] Michael Feichtner [redacted]
Subject: RE: Update 16th for approval

Some changes in blue,
Haven't had a change to finalise closing of Wivenhoe so left as general.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Seqwater Communications [mailto[redacted]
Sent: Sunday, 16 January 2011 8:16 AM
To: Paul Bird; paulhbird[redacted]; Rob Drury; Michael Feichtner
Subject: Update 16th for approval

As at 8.00am on Sunday the 16th January, the following applies:

There has been no significant rain in the last 24 hours and no significant rainfall is expected in the next 24 hours. Mostly fine conditions are expected over the the remainder of the weekend but showers will return early next week.

SOMERSET DAM:
Somerset Dam is at 111.7 %. Four sluices are open as at 8.00am on Sunday the 16th January 2011, discharging 70,520 megalitres into Wivenhoe Dam.
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This information will be updated on Monday the 17th January

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From: Seqwater Communications [redacted]
Sent: Sunday, January 16, 2011 8:32 AM
To: Rob Drury [redacted]
Subject: Re: Update 16th for approval

Thanks Rob, Will change and send
regards
Michael

On Sun, Jan 16, 2011 at 8:28 AM, Rob Drury <[redacted]> wrote:

Some changes in blue,

Haven't had a change to finalise closing of Wivenhoe so left as general.

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

Seqwater_No-Lifeguards-Here_email_strap

cid [redacted]

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

From: Seqwater Communications [mailto:seqwater.[redacted]
Sent: Sunday, 16 January 2011 8:16 AM
To: Paul Bird; [redacted]; Rob Drury; Michael Feichtner
Subject: Update 16th for approval

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to Seqwater sites during the flood crisis situation, even if roads are open.

This information will be updated on Monday the 17th January

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 8:37 AM
To: flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryrj[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive # 45 at 08:30 on Sunday 16 January 2011
Attach: OPS_Directive_Wivenhoe #45.doc

Please find attached Directive # 45 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	16/01/201
	Directive No:	45
	Time:	08:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 09:00 on 16/01/2011

- Open Gate 5 from 6.0 metres to 6.5 metres at 09:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 9:17 AM
To: Glenn Patterson <gpatterson@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury [redacted]
Subject: Somerset Dam Directive #12 at 09:30 on Sunday 16 January 2011
Attach: ~$S_Directive_Somerset #12.doc

Please find attached Directive #12 for your action

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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----------Safe Stamp----------
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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 12:16 PM
To: flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone [redacted] Agg Dagan [redacted] Doug Grigg [redacted] druryrj[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted]
Subject: Wivenhoe Dam Directive #46 at 12:15 on Sunday 16 January 2011
Attach: OPS_Directive_Wivenhoe #46.doc

Please find attached a copy of Directive #46 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	16/01/201
	Directive No:	46
	Time:	12:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 13:00 on 16/01/2011

- Open Gate 3 from 6.5 metres to 7.0 metres at 13:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

This facsimile is intended only for the addressee and may contain legally privileged and confidential information. If you are not the addressee, you are notified that any transmission, distribution, or photocopy of this facsimile is strictly prohibited. The legal privilege and confidentiality attached to this facsimile is not waived, lost or destroyed by reason of a mistaken delivery to you. If you have received this facsimile in error, please immediately notify me by telephone and return the original facsimile to me at my address.

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 12:32 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Subject: FW: Wivenhoe Dam Directive #46 at 12:15 on Sunday 16 January 2011
Attach: OPS_Directive_Wivenhoe #46.doc

Matthew

Re-send of previous email

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Sunday, 16 January 2011 12:16 PM
To: flood.qld@[redacted] john.ruffini[redacted] jtibaldi@[redacted] rdrury@[redacted] rob.ayre@[redacted] tmalone@[redacted] adagan@[redacted] Doug Grigg (dgrigg@[redacted] gkeegan@[redacted] Graham Francis (gfrancis@[redacted] Jayam Tennakoon (jtennakoon@[redacted] Matthew O'Reilly (moreilly@[redacted]
Subject: Wivenhoe Dam Directive #46 at 12:15 on Sunday 16 January 2011

Please find attached a copy of Directive #46 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	16/01/201
	Directive No:	46
	Time:	12:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 13:00 on 16/01/2011

- Open Gate 3 from 6.5 metres to 7.0 metres at 13:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

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From: Dan Spiller [redacted]
Sent: Sunday, January 16, 2011 1:02 PM
To: Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted]
Subject: Data

Peter and Rob,

A couple of other things would be useful for our communications material:

- a dam storage curve with heights and volumes
- the data table from the flood volumes and hydrographs table
- a data table for dam levels for the same period.

We will check with you before using anything externally.

Thanks,
Dan

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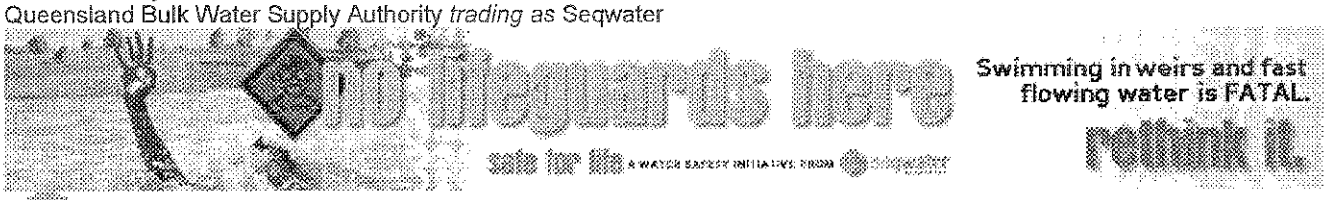
From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 2:14 PM
To: Duty Seq [redacted]
Subject: RE: Somerset Dam Directive #12 at 09:30 on Sunday 16 January 2011

Rob,
Can you resend please as I could not open it.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq[redacted]
Sent: Sunday, 16 January 2011 9:17 AM
To: Glenn Patterson; Agg Dagan; Doug Grigg; druryr[redacted] Graham Keegan; Graham Francis; Jayam Tennakoon; Matthew O'Reilly; Rob Drury
Subject: Somerset Dam Directive #12 at 09:30 on Sunday 16 January 2011

Please find attached Directive #12 for your action

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rachel Lerch [redacted]
Sent: Sunday, January 16, 2011 2:15 PM
To: 'Peter-John.Zaune[redacted]'; 'Trezise.[redacted]
'Susan_hertrich@[redacted]; Cr Graeme Lehmann
[redacted] Bob Bain [redacted] Tony
Jacobs [redacted] Steve Brennan
[redacted] 'Pitman.[redacted]
'Goodger.[redacted] Andy Bickerton
[redacted] 'David.Caughley[redacted]
'CraigX.Smith[redacted]; 'Peter.Varley[redacted]
'Richard.lahse[redacted] 'Qastoogoolawah.oic[redacted]
'Tom.parsonage[redacted]; Rob Drury <rdrury@[redacted]
'michaellukritz@[redacted]'; 'glendolan[redacted]
'russellcross[redacted]; 'Mark.Kelly[redacted]
'Wendy.fry@[redacted]; 'Annabelle.johnstone[redacted];
'gough.[redacted] 'Tanwan.MartinJ[redacted]
'Douglas.[redacted] 'tristan_berrell[redacted]
'richardperry[redacted]; 'garychalmers[redacted]; 'QAS Springfield
OIC' [redacted] 'Peter Dennis'
[redacted]
Subject: Agenda for Disaster Management Meeting today
Attach: 2011-01-16 - Agenda.doc

Hello all

Please find attached.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]
h (07) [redacted]
Fax (07) [redacted]

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Sunday 16th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

AGENDA

	Item	***Report from***
1.	Open meeting & welcome • Attendance • Apologies*	
2.	Review of previous minutes	
3.	Business arising from previous minutes –	
4.	General business –	
5.	• Rapid Damage Assessements • Road Access • Secure Water • Resupply & Needs • Communications • Restoration of Power	
6.	Other Business	
7.	Next Meeting	
8.	Close of meeting	

From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 2:18 PM
To: Rob Drury <rdrury@[redacted]
Subject: FW: Somerset Dam Flood releases
Attach: OPS_Directive_Somerset #12.doc; ATT02620.txt

Rob

Copy of the re-sent Directive as requested.

Regards

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Sunday, 16 January 2011 10:17 AM
To: 'Agg Dagan'
Subject: RE: Somerset Dam Flood releases

Agg

Yes please – sorry will try to resend.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Agg Dagan [mailto:adagan@[redacted]
Sent: Sunday, 16 January 2011 9:58 AM
To: Duty Seq
Subject: RE: Somerset Dam Flood releases

Could not open Attachment Do you want us to close sluice N.

Agg Dagan
Dam Operator
QLD Bulk Water Supply Authority *trading as* Seqwater

QLD Bulk Water Supply Authority *trading as*
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Murrumba Terrace Somerset Dam 4312 Q Australia
Website | www.seqwater.com.au

From: DutyEngineer [mailto:dutyseq@[redacted]
Sent: Sunday, 16 January 2011 9:47 AM
To: Agg Dagan
Subject: RE: Somerset Dam Flood releases

Agg

Expect to close Sluice N today at 10:00 or when you can as soon as possible. But no other gate operations until tonight.

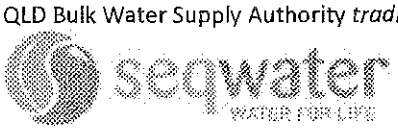
Regards

Rob Ayre

From: Agg Dagan [mailto:adagan@[redacted]
Sent: Sunday, 16 January 2011 8:21 AM
To: Duty Seq
Subject: Somerset Dam Flood releases

Rob can you give me a up date on gate status for Somerset dam as we are going to be doing clean up around the dam and as we have no phones I have to check the Computer on the hour for Directives Thanks

Agg Dagan
Dam Operator
QLD Bulk Water Supply Authority *trading as* Seqwater



QLD Bulk Water Supply Authority *trading as*
Ph (07) [redacted] | Fax (07 [redacted] | M [redacted] | E [redacted]
Murrumba Terrace Somerset Dam 4312 Q Australia
Website | www.seqwater.com.au

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Somerset Dam Operators	Date:	16/01/2011
	Directive No:	12
	Time:	09:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following operations:-

- Fully Close Sluice N at 10:00

Please confirm this gate operation by fax once you have completed the requested operations.

Regards

Rob Ayre

Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 3:18 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] druryr[redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury [redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Dam Directive # 47 at 15:15 on Sunday 16 January 2011
Attach: OPS_Directive_Wivenhoe #47.doc

Please find attached a copy of Directive # 47 for your action

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	16/01/201
	Directive No:	47
	Time:	15:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 16:00 on 16/01/2011

- Open Gate 2 from 6.5 metres to 7.0 metres at 16:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 6:45 PM
To: flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive # 48 at 18:45 on Sunday 16 January 2011
Attach: OPS_Directive_Wivenhoe #48.doc

Please find attached Directive # 48 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) (07) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	16/01/201
	Directive No:	48
	Time:	18:45

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 20:00 on 16/01/2011

- Open Gate 4 from 6.5 metres to 7.0 metres at 20:00 on 16/01/2011.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Rob Ayre
Duty Engineer

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From: Lance McCallum [redacted]
Sent: Sunday, January 16, 2011 6:49 PM
To: Paul Bird <pbird@[redacted] Mike Foster <mfoster@[redacted]
Dan.Hunt[redacted]
Cc: Rob Drury <rdrury@[redacted]
Subject: Re: Zenow Sand and Gravel

Thanks Paul

----- Original Message -----
From: Paul Bird [redacted]
To: Mike Foster <mfoster@[redacted] Lance McCallum; [redacted] <Dan.Hunt@[redacted]
Cc: Rob Drury <rdrury@[redacted]
Sent: Sun Jan 16 18:46:57 2011
Subject: RE: Zenow Sand and Gravel

Hamish Smith from QWI has just called me.. He will ring the Alliance Manager and Jack Paff will be contacted as soon as possible.

Cheers,

Paul

-----Original Message-----
From: Mike Foster
Sent: Sunday, 16 January 2011 15:36
To: 'Lance.McCallum@ministerial.qld.gov.au'; [redacted]
Cc: Paul Bird; Rob Drury
Subject: Re: Zenow Sand and Gravel

Gents ..queensland water infrastructure would be the the vendor

Wyaralong is still being managed through dip.

Paul ...rob d may have a direct contact for qwi.

Cheers mike

----- Original Message -----
From: Lance McCallum <[redacted].au>
To: Hunt Dan [redacted]
Cc: Mike Foster
Sent: Sun Jan 16 14:58:34 2011
Subject: Zenow Sand and Gravel

Dan cc Mike

As discussed, I was speaking to Mr Jack Paff from Zenow Sand and Gravel
today [redacted]

He called regarding the company's offer to purchase 2 water pumps that
have been offered for sale by the Govt following the completion of

Wyaralong Dam. Apparently a tender was put in the Courier about a month ago and Zenow subsequently put in an offer of $41, 000. They are yet to hear back.

The matter has taken on urgency for Zenow due to the floods because their quarry, which is located at Fernvale, has been inundated with water and were they going to purchase the pumps they would nse them to pump water out of the pit to get the quarry (and it's 90 employees) up and running again.

Mr Paff was at pains to point out that he was not trying to pressure the government in anyway, merely that if the pumps were going to Zenow, they would do whatever they could to get them as quickly as possible.

He said that he had been dealing with a Mine and Energy officer by the name of Matthew Grillke (I think that is the right spelling).

Mike - I would have thought seqwater would have been the vendor....??

Could we please get officers to contact Mr Paff urgently to discuss further.

Thanks

Lance

Lance McCallum
Principal Advisor

Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
Minister for Trade
[redacted]
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From: DutyEngineer <dutyseq@[redacted]
Sent: Sunday, January 16, 2011 7:40 PM
To: Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted]
John.Ruffini[redacted] Rob.ayre@[redacted]
Subject: Media Response - the Australian - Hedley 16 1 11.doc
Attach: Media Response - the Australian - Hedley 16 1 11.doc

If any of you get this, please ring me at the FOC ASAP.

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SEQ Water Grid

Media Response

Request – Hedley Thomas
Position - National Chief Correspondent
Media outlet - The Australian & The Weekend Australian
P: [redacted] **F:** [redacted]
E: [redacted]

I am focusing on a story around the relatively limited releases of water on Friday, Saturday and Sunday (Jan 7-9) when the dam's capacity went from a little over 100 per cent to almost 150 per cent.

1. **Why did Seqwater permit the flood storage capacity to build up so much over the weekend?**

Releasing large volumes of water over the weekend would have had major impacts on the rural communities of the Brisbane Valley. Bridges would be cut and communities would be isolated with little notice. This is not an action that is undertaken unless there is certainty that inflows into the dam will result in flood releases that will cause impacts to urban areas. Over the weekend, neither rainfall forecasts nor the rain on the ground indicated with certainty that urban areas would be impacted, so the emphasis at that time was on protecting the rural communities of the Brisbane Valley.

~~Releases were made based on the approved Operational Procedures and rainfall forecasts provided by the Bureau of Meteorology.~~

~~Based on the forecasts provided to us, higher release rates were not required. For example, the forecasts provided to us on the morning of Saturday 8 January 2011 were:~~

~~Saturday: Rain light at times 5-50mm with higher falls along the coast~~
~~Sunday: Widespread rain with totals between 50-100mm~~
~~Monday: Widespread rain again with totals between 50-100mm~~
~~Tuesday: Rain easing with totals between 25-50mm.~~

~~The dam has managed events of this type on multiple occasions without flooding houses.~~

~~Unfortunately, the rainfall that occurred during this event was greater than anticipated - both over the event as a whole and from day to day. Actual rainfall on each of these days was significantly higher, with daily rainfall of up to 300 mm in some areas.~~

~~From late Sunday, combined flows at Moggill were about 4000 cubic metres per second, including dam releases and other flows. This is the limit above which houses begin to be flooded.~~

~~There was no reason to cause inundation of houses at that time, based on the forecasts that continued to be provided over the weekend.~~

2. **Why did Seqwater not release significantly greater volumes on Friday, Saturday and Sunday, prior to the freak rainfall event on Monday over the Toowoomba escarpment?**

safe secure sustainable

Seqwater is not a fortune teller. No agency or person was able to forecast the freak rainfall event at Toowoomba prior to it occurring. Therefore it was not possible to ramp up releases to cater for this freak event before it actually occurred. Certainly not three days before it occurred as suggested.

~~Releases were based on rainfall forecasts provided by the Bureau of Meteorology. Actual rainfall exceeded the forecasts for both the weekend or in the following days. The rainfall event on Monday over the Toowoomba escarpment is one example of this. The persistence and intensity of the rainfall on 11 January 2011 was also unanticipated, as has been stated by the Bureau of Meteorology.~~

3. **What does Seqwater say to the suggestion that its strategy to limit the releases on the weekend meant its storage buffer was limited, necessitating a massive outflow on Tuesday of 645,000 megalitres?**

The outflow from Wivenhoe Dam on Tuesday was 397000 ML, so the question is nonsense.

4. **What does Seqwater say to the suggestion that this 645,000 megalit release was responsible for more than 80 per cent of the peak flow rate (which you advised me last Friday was about 9000 cubic metres per second in Brisbane)?**

The outflow from Wivenhoe Dam on Tuesday was 397000 ML, so the question is nonsense. Otherwise BOM has stated publicly that outflows from Wivenhoe Dam contributed slightly more than half the flood arriving in Brisbane (Courier Main 14 January). Seqwater agrees with this assessment.

5. **What does Seqwater say to the suggestion that its delay in responding to the increasing water levels at Wivenhoe forced its management to take rash action on Tuesday, which produced the flood in Brisbane?**

No rash action was taken at any time during the flood event in managing releases from Wivenhoe Dam. Wivenhoe dam reduced flood levels in Brisbane by up to 2.5 metres in Brisbane city and a metre from the BOM peak flood level forecast. This was done by closing down releases quickly once inflows into the dam had peaked. This was done in accordance with procedures that have been developed by the collective wisdom of Australia's best hydrologists over many years. These include Prof Colin Appelt and Eric Leislighter (check spelling on these names).

About the SEQ Water Grid: Established in June 2008 in response to the crippling Millennium Drought, the SEQ Water Grid represents one of Australia's largest investments in water infrastructure.

Through a network of climate resilient water sources, treatment facilities, new two-way pipes and existing pipelines, the SEQ Water Grid gives the South East Queensland region the

ability to support water demands, water quality, economic prosperity and lifestyle - regardless of climate change and population growth.

For further information on the Water Grid: www.watergrid.com.au

For further details contact the SEQ Water Grid Communications Unit on:

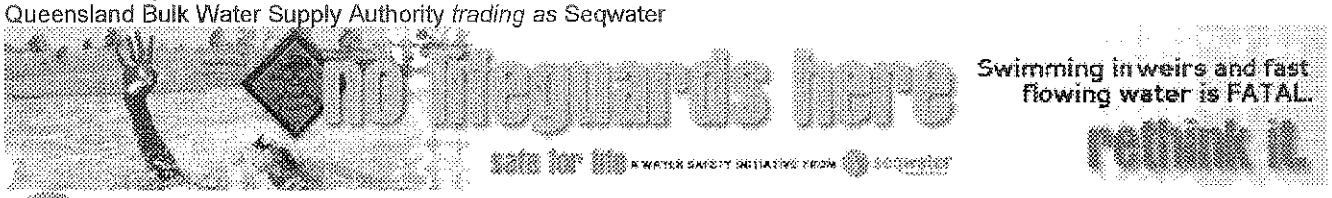
Ph: [redacted] **| Mobile:** [redacted] **| Email:** [redacted]

From: Rob Drury [redacted]
Sent: Sunday, January 16, 2011 7:59 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Brief

John,
I am updating the brief and Report if you want to email your comments and then ring.
And then we can email back the WGM copy with our comments tracked.

Are you okay?

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www[redacted]

From: DutyEngineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 3:22 AM
To: Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted] Jim Pruss <jpruss@[redacted]
Subject: RE: Cabinet in confidence - Ministerial brief - Flood event and Wivenhoe Dam

---

Peter

In relation to the Australian newspaper, the points we need to clearly make are below. A good word smith just needs to tidy it up a bit.

Since Wivenhoe dam was built, the clear lesson history has taught is that decisions to release water cannot be made on forecast rainfall alone. If an approach had been adopted in past events to make prereleases based on forecast rainfall, then without question downstream impacts in the Brisbane Valley would have been significantly worse that those experienced. Additionally it is possible that Wivenhoe may have run dry during the drought that affected south-east Queensland between 2001 and 2008 due to pre-released water being lost to sea rather than stored in the dam. The cost of this would have been enormous.

Unfortunately no person or agency in the world can currently accurately predict rainfall and weather conditions in advance and until our abilities improve in this area, decisions influenced by the weather such as operating dams and managing irrigation on farms will have a high degree of uncertainty when attempting to manage severe weather events such as floods or droughts.

Only weeks ago, persons were publicly calling for water released from Wivenhoe Dam during the October 2010 and December 2010 floods to be retained. Had the government not resisted these calls, the impacts of the current flood on the urban areas of Brisbane would have been significantly worse. Draining down the dam to 90% prior to the current event would have had little to no impact on reducing the damage caused by the event and was not possible in practice due to the flood events experienced in the 25 days leading up to the current event. Draining the dam down further below this level cannot be contemplated because we do not know when the next severe drought will strike and whether it will be worse that the drought recently experienced. Although there are forecasts of rainfall in coming months, the drought may already have started. We just don't know it yet.

When dealing with weather, the benefit of 20/20 hindsight is a wonderful thing and certainly if during the flood of 2001, it was known that at the conclusion of the flood south east Queensland would experience seven years of drought, then the flood compartment of the dam would have been at that time in preparation for the drought and no water would have been released at all. Unfortunately the risk of taking this approach is so extreme that it cannot be contemplated.

Once we can forecast the weather with accuracy, actions like evacuating Grantham the day before it was recently destroyed will be taken. However until that day comes we must deal with the considerable uncertainties of Mother Nature using the collective knowledge of the best engineers and hydrologists available. This is how Wivenhoe Dam is currently managed.

John Tibaldi
Duty Engineer

From: Peter Borrows [mailto:pborrows@[redacted]
Sent: Monday, 17 January 2011 2:04 AM
To: Rob Drury; Duty Seq; Jim Pruss
Cc: Peter Borrows
Subject: Fw: Cabinet in confidence - Ministerial brief - Flood event and Wivenhoe Dam

Fyi.

Peter

From: Bradley John [redacted]
To: Elaina Smouha [redacted]
Cc: Dennien Barry @ SEQWGM [redacted] spiller daniel @ SEQWGM

[redacted] Best Debbie [redacted] Peter Borrows; Reilly Bob [redacted]
Sent: Sun Jan 16 22:35:03 2011
Subject: RE: Cabinet in confidence - Ministerial brief - Flood event and Wivenhoe Dam

Many thanks to all for thier hard work at the end of an exceptionally long week,

I have sent to Minister and look forward to seeing Barry/Dan, Peter Borrows and Bob Reilly at 9 am in Minister Robertson's office,

thanks
John B

From: Elaina Smouha [mailto:[redacted]
Sent: Sunday, 16 January 2011 10:14 PM
To: Bradley John
Cc: Dennien Barry @ SEQWGM; spiller daniel @ SEQWGM; WaterGridMedia; Best Debbie; pborrows
Subject: Cabinet in confidence - Ministerial brief - Flood event and Wivenhoe Dam

John

Attached is the Ministerial Brief and accompanying attachments for the Emergency Cabinet meeting scheduled on 17 January 2011.

Regards

Elaina

Elaina Smouha
Director, Governance and Regulatory Compliance
SEQ Water Grid Manager
Phone: (07) [redacted] Mobile: [redacted] | Fax: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

+----------+

Think B4U Print

1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere

3 sheets of A4 paper = 1 litre of water

+----------+

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From: Rohan Thorogood <757471de-3588a196-1b00d9f4-24eac86c[redacted]
Sent: Monday, January 17, 2011 7:56 AM
To: 'Lake Somerset Holiday Park [[redacted] 'Julie and Geoff Wade' [redacted] 'Camp Somerset' [redacted] 'John Wordsworth' [redacted] 'somersetdamstore[redacted] 'fernvalefutures[redacted] 'evic[redacted] 'grand.hotelesk[redacted] 'info[redacted]
Cc: COMMS Staff [redacted] WD Users <WDUsers@[redacted] Donna Gregory <dgregory@[redacted] Dom Courtney [redacted] Douglas Hunt [redacted] SD Staff [redacted] Andrew Watkinson <awatkinson@[redacted] Justin Lee [redacted] Michael Hall <mhall@[redacted]
Subject: Wivenenhoe and Somerset recreation

Good Morning,
'lood activities are drawing to an end.
Somerset is out of flood mode and returned to near full supply, and Wivenhoe will be similar by Wednesday.
Unfortunately the majority of sites still have issues to be addressed.
Water sampling will be undertaken this week to determine if primary recreation (i.e. swimming and skiing) can be reopened.
Wivenhoe and Somerset remain closed to water based recreation activities.
At this stage the following recreation areas for the associated reasons –

Recreation Area	Issues forcing closure
Lake Somerset Holiday Park	Issues with STP
The Spit	Clean up required
Somerset Day Area	Clean up required, amenities non operational
Somerset Park Campgrounds	Clean up required, amenities non operational
Hamon Cove	Site still inundated, clean up required
Logan Inlet	Site still inundated, clean up required, WTP off line
Captain Logan Camp	Site still inundated, clean up required, WTP off line
Lumley Hill	Site still inundated, clean up required, WTP off line
Wivenhoe information Centre	Clean up required, WTP off line
Cormorant Bay	Clean up required, WTP off line
Spillway Viewing area/Atkinson's crossing	Clean up required, WTP off line, Site severely eroded and will be closed for a long period
Billies/Hays	Site still inaccessible

Some of these sites have been inundated by up to 7 meters of water, so the clean up is substantial.
Regards
Rohan Thorogood
Coordinator(Central)
Catchment Services and Group Support
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater

Ph (07)[redacted] Fax (07)[redacted] | M[redacted] | E[redacted]
PO Box 37 Fernvale 4306

Website | www.seqwater.com.au

Don't be DAM Stupid Dangerous behaviour affects everyone **rethink it.**

safe for life A WATER SAFETY INITIATIVE FROM

From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 8:27 AM
To: Rob Drury <[redacted] 'Dan Spiller' <Daniel.Spiller[redacted];
Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted]
Arminda Roberts <aroberts@[redacted] Tara King <tking@[redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
'peter_aller[redacted] Scott.Denner[redacted] Mike Foster
<mfoster@[redacted]
Cc: 'paulhbird@gmail.com'; 'arminda.robert[redacted] 'tararuffles[redacted] 'dkcr'
[redacted] 'seqwgm[redacted]; 'Seqwater.[redacted]
Subject: RE: Technical Report W59
Attach: Technical_Situation_Report_W59.docx

Attached is report W59.

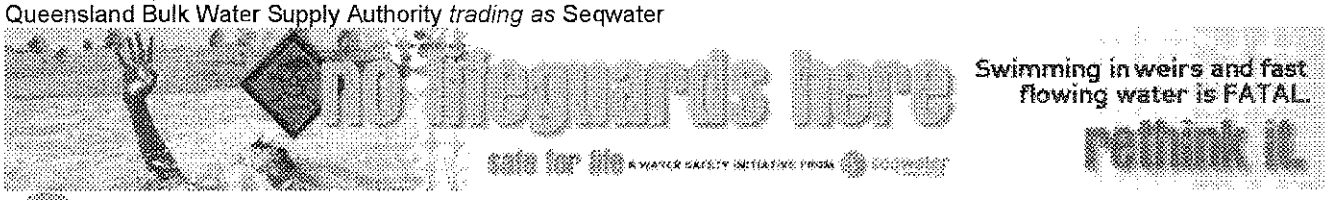
Somerset almost to 100%, only a valve is open.

Wivenhoe to be closed around Wednesday, closing sequence may start today.

North Pine closed.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



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Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W59	Date of TSR release	17.1.2011	Time of TSR release	7am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Gradual release of stored floodwaters with minimal impact.	
Strategy	• Peak inflows into Wivenhoe were in excess of 12000 cumecs. • Most of Somerset drained into Wivenhoe. • Manage releases from Wivenhoe to maintain around 3500cumecs at Moggill • Begin closing of Wivenhoe aiming at around Wednesday for final closure. This is also prior to any higher tide levels.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6am Somerset was 99.07m and 382,829ML at 100.8% and discharging through cone valves. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by around Wednesday 19th January with a closing sequence to start today some time.

At 6am Wivenhoe Dam was 69.4 m AHD at 1,441,983ML and 123.8% and dropping and discharging around 3,477cumecs and this flow will be maintained until the closing sequence begins. Aim is for final closure on Wednesday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 6am North Pine Dam was 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A release of around 6,800megalitres a day is being made through the emergency gates. The Lake Level is dropping and the gate should be closed around Tuesday next week. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	18.1.2011	Time	9am	or Event	

From: Lance McCallum [redacted]
Sent: Monday, January 17, 2011 8:56 AM
To: Paul Bird [redacted]
Cc: Rob Drury [redacted]
Subject: RE: Zenow Sand and Gravel

Paul - can you let me know when Mr Paff has been called please - and how it went. Thanks

-----Original Message-----
From: Paul Bird [mailto:p[redacted]
Sent: Sunday, 16 January 2011 6:47 PM
To: Mike Foster; Lance McCallum; [redacted]
Cc: Rob Drury
Subject: RE: Zenow Sand and Gravel

Hamish Smith from QWI has just called me.. He will ring the Alliance Manager and Jack Paff will be contacted as soon as possible.

Cheers,

Paul

-----Original Message-----
From: Mike Foster
Sent: Suuday, 16 January 2011 15:36
To: 'Lance.McCallum[redacted] 'Dan.Huut[redacted]
Cc: Paul Bird; Rob Drury
Subject: Re: Zeuow Sand and Gravel

Gents ..queensland water infrastructure would be the the vendor

Wyaralong is still being managed through dip.

Paul ...rob d may have a direct contact for qwi.

Cheers mike

----- Original Message -----
From: Lance McCallum [redacted]
To: Hunt Dan [redacted]
Cc: Mike Foster
Sent: Sun Jan 16 14:58:34 2011
Subject: Zenow Sand and Gravel

Dan cc Mike

As discussed, I was speakiug to Mr Jack Paff from Zenow Sand and Gravel today ([redacted]

He called regarding the company's offer to purchase 2 water pumps that have been offered for sale by the Govt following the completion of Wyaralong Dam. Apparently a tender was put in the Courier about a month ago and Zenow subsequently put in an offer of $41, 000. They are yet to hear back.

The matter has taken on urgency for Zenow due to the floods because their quarry, which is located at Fernvale, has been inundated with water and were they going to purchase the pumps they would use them to pump water out of the pit to get the quarry (and it's 90 employees) up and running again.

Mr Paff was at pains to point out that he was not trying to pressure the government in anyway, merely that if the pumps were going to Zenow, they would do whatever they could to get them as quickly as possible.

He said that he had been dealing with a Mine and Energy officer by the name of Matthew Grillke (I think that is the right spelling).

Mike - I would have thought seqwater would have been the vendor....??

Could we please get officers to contact Mr Paff urgently to discuss further.

Thanks

Lance

Lance McCallum
Principal Advisor

Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
Minister for Trade
P [redacted]
M: [redacted]
P Please consider the environment before printing this email

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From: Tara King [redacted]
Sent: Monday, January 17, 2011 9:22 AM
To: Rob Drury [redacted]
Cc: Paul Bird [redacted]
Subject: Rob, please approve
Attach: 17 Jan 0900.doc

Hi Rob,

Please review.

Thanks,
Tara

TARA KING
Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [redacted] | Fax [redacted] | E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

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1800 INFO LINE SCRIPT

Thanks for calling the SEQ Water Grid release hotline

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

As at 9.00am on Monday 17 January, the following applies:

SOMERSET DAM:
The dam is at 100% capacity and discharging through cone valves. All sluice gates are closed.

WIVENHOE DAM:
Wivenhoe Dam is at 123%, dropping slowly and discharging around 299,000 megalitres a day, and this flow will be maintained until the closing sequence begins. At this stage, gates are expected to mid week.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

Due to a combination of Lockyer Creek, local runoff and Wivenhoe releases, Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge Colleges Crossing, Fernvale Bridge, and Mt Crosby Weir Bridge may be inundated until the middle of next week.

NORTH PINE DAM:
All gates are closed.

LESLIE HARRISON DAM:
No releases.

HINZE DAM:
Around 6,800 megalitres per day is being released through the emergency gates.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood situation, even if roads are open.

This information will be updated on Tuesday 17 January.

From: Dan Spiller <Daniel.Spiller@[redacted]
Sent: Monday, January 17, 2011 9:28 AM
To: Rob Drury <rdrury@[redacted]
Subject: Re: Technical Report W59

Rob,

The LM is very anxious about the closure sequence.

Can you provide any further details for 10? Verbal is fine if I can call at 9.45.

I presume you are also speaking to the BCC blokes.

Dan

On 17/01/2011, at 8:27 AM, "Rob Drury" <rdrury@[redacted] wrote:

Attached is report W59.

Somerset almost to 100%, only a valve is open.

Wivenhoe to be closed around Wednesday, closing sequence may start today.

North Pine closed.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority *trading as* Seqwater

<image001.jpg>

<image002.png>

Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E rdrury@[redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au

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From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 9:43 AM
To: 'Dan Spiller' <Daniel.Spiller[redacted]
Subject: RE: Technical Report W59

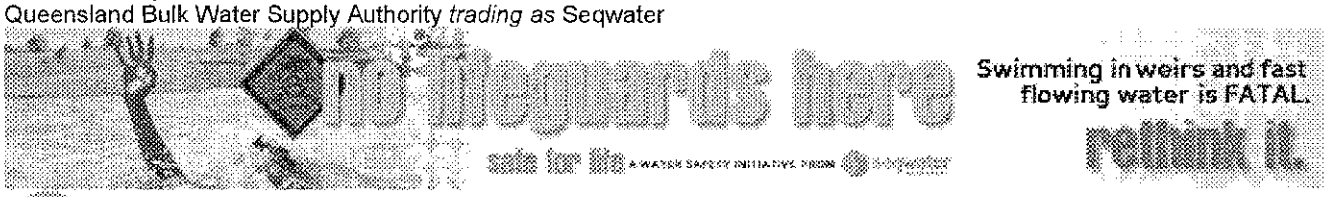
The FOC is tracking the levels closely and if it is all on track, they will make a call around lunchtime and hopefully begin a closing sequence mid-afternoon, but can't be 100% sure quite yet.

And final closure still planned for Wednesday, probably in the morning but that will be monitored tomorrow.

They will ensure BCC is aware of the plans and timing once they have a more definite time.
And let ICC and Somerset know as well re their bridges.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
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From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 9:47 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

The FOC is planning to initiate a closing sequence some time this afternoon if levels of the dam are tracking properly. With final closure Wednesday, probably in the morning at this stage.

They will give you a call later today once they have a better idea of timing.

Rob

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6am Somerset was 99.07m and 382,829ML at 100.8% and discharging through cone valves. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The releases from Wivenhoe Dam are being managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component by around Wednesday 19th January with a closing sequence to start today some time.

At 6am Wivenhoe Dam was 69.4 m AHD at 1,441,983ML and 123.8% and dropping and discharging around 3,477cumecs and this flow will be maintained until the closing sequence begins. Aim is for final closure on Wednesday.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

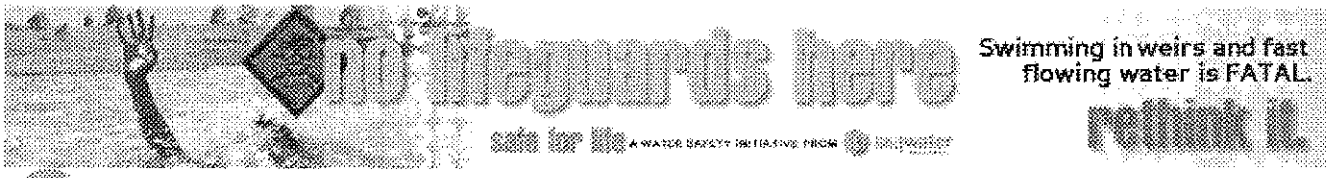
North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 6am North Pine Dam was 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

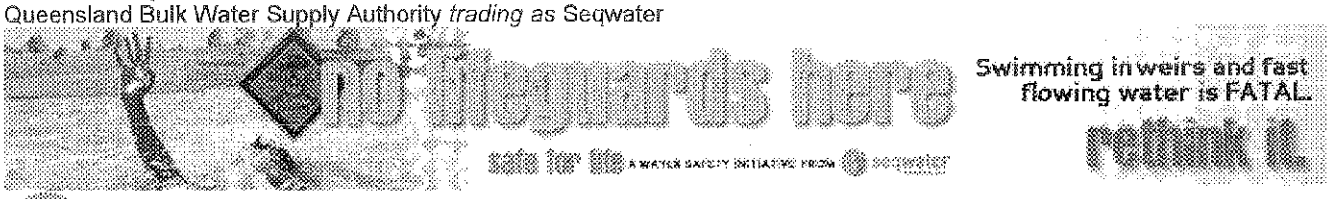
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 9:50 AM
To: Duty Seq <dutyseq@[redacted]
Subject: Closing sequence

I know you will do this as a procedure but ICC and Somerset will be keenly interested in the closing sequence as well as BCC so maybe as soon as you have an idea let them all know.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

service provider.

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 10:07 AM
To: Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted]
Cc: [redacted] John Tibaldi <jtibaldi@[redacted] Terry Malone <tmalone@[redacted]
Subject: Comparison of Lake Level Records
Attach: WDHeadwaterLevelsJan2011.xls

Peter

Attached is a spreadsheet which provides a comparison between the records from the automatic gauges and the manually read readings.

It help explains why people reached the wrong conclusions.

Regards
Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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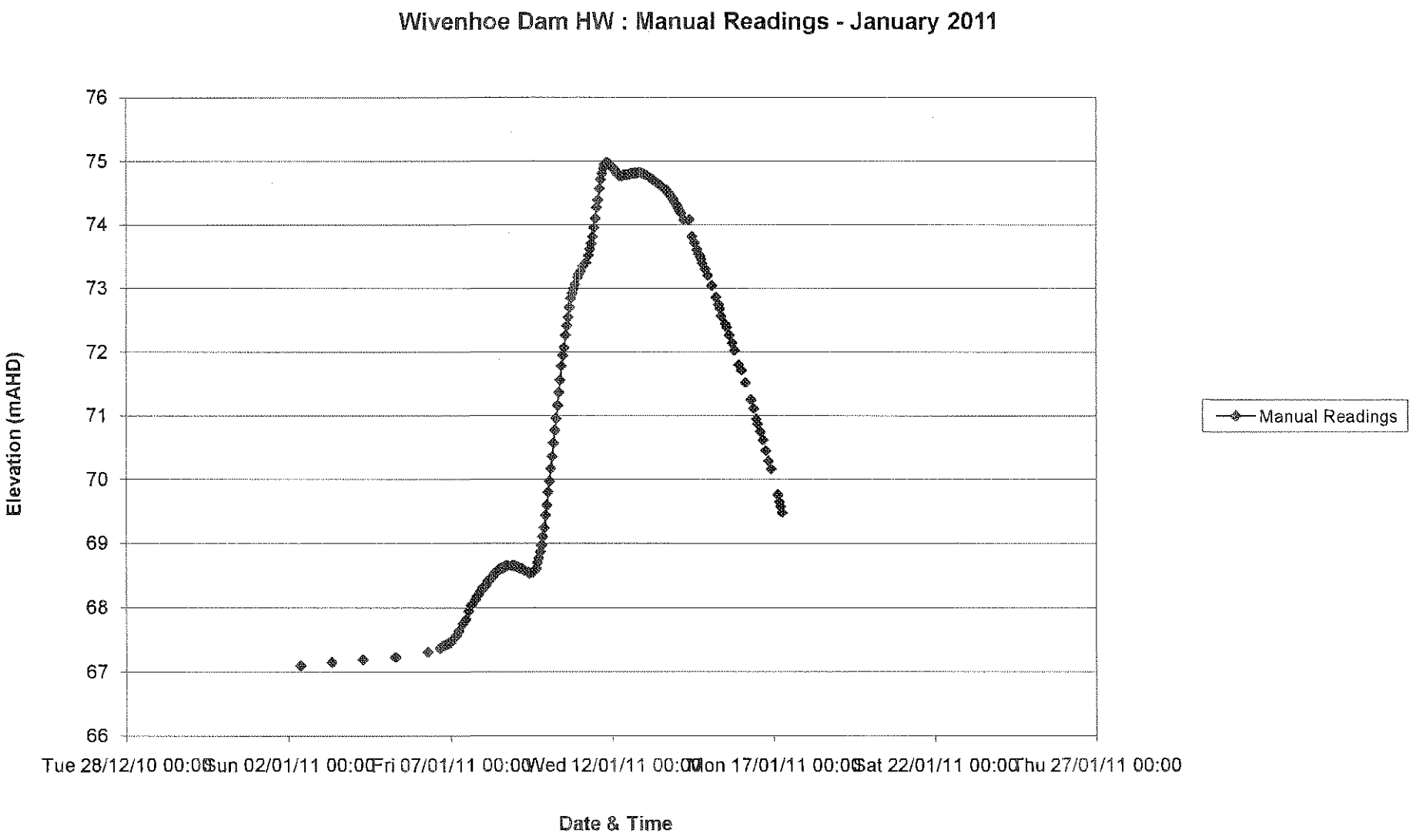
Wivenhoe Dam HW : Manual Readings - January 2011
Elevation (mAHD)
76
75
74
73
72
71
70
69
68
67
66
Tue 28/12/10 00:00
Sun 02/01/11 00:00
Fri 07/01/11 00:00
Wed 12/01/11 00:00
Mon 17/01/11 00:00
Sat 22/01/11 00:00
Thu 27/01/11 00:00
Date & Time
Manual Readings

	A	B
1	Wivenhoe Dam Manually Read HW	
2		
3	Sun 02/01/11 09:00	67.1
4	Sun 02/01/11 10:00	
5	Sun 02/01/11 11:00	
6	Sun 02/01/11 12:00	
7	Sun 02/01/11 13:00	
8	Sun 02/01/11 14:00	
9	Sun 02/01/11 15:00	
10	Sun 02/01/11 16:00	
11	Sun 02/01/11 17:00	
12	Sun 02/01/11 18:00	
13	Sun 02/01/11 19:00	
14	Sun 02/01/11 20:00	
15	Sun 02/01/11 21:00	
16	Sun 02/01/11 22:00	
17	Sun 02/01/11 23:00	
18	Mon 03/01/11 00:00	
19	Mon 03/01/11 01:00	
20	Mon 03/01/11 02:00	
21	Mon 03/01/11 03:00	
22	Mon 03/01/11 04:00	
23	Mon 03/01/11 05:00	
24	Mon 03/01/11 06:00	
25	Mon 03/01/11 07:00	
26	Mon 03/01/11 08:00	67.15
27	Mon 03/01/11 09:00	
28	Mon 03/01/11 10:00	
29	Mon 03/01/11 11:00	
30	Mon 03/01/11 12:00	
31	Mon 03/01/11 13:00	
32	Mon 03/01/11 14:00	
33	Mon 03/01/11 15:00	
34	Mon 03/01/11 16:00	
35	Mon 03/01/11 17:00	
36	Mon 03/01/11 18:00	
37	Mon 03/01/11 19:00	
38	Mon 03/01/11 20:00	
39	Mon 03/01/11 21:00	
40	Mon 03/01/11 22:00	
41	Mon 03/01/11 23:00	
42	Tue 04/01/11 00:00	
43	Tue 04/01/11 01:00	
44	Tue 04/01/11 02:00	
45	Tue 04/01/11 03:00	
46	Tue 04/01/11 04:00	
47	Tue 04/01/11 05:00	

	A	B
48	Tue 04/01/11 06:00	
49	Tue 04/01/11 07:00	67.19
50	Tue 04/01/11 08:00	
51	Tue 04/01/11 09:00	
52	Tue 04/01/11 10:00	
53	Tue 04/01/11 11:00	
54	Tue 04/01/11 12:00	
55	Tue 04/01/11 13:00	
56	Tue 04/01/11 14:00	
57	Tue 04/01/11 15:00	
58	Tue 04/01/11 16:00	
59	Tue 04/01/11 17:00	
60	Tue 04/01/11 18:00	
61	Tue 04/01/11 19:00	
62	Tue 04/01/11 20:00	
63	Tue 04/01/11 21:00	
64	Tue 04/01/11 22:00	
65	Tue 04/01/11 23:00	
66	Wed 05/01/11 00:00	
67	Wed 05/01/11 01:00	
68	Wed 05/01/11 02:00	
69	Wed 05/01/11 03:00	
70	Wed 05/01/11 04:00	
71	Wed 05/01/11 05:00	
72	Wed 05/01/11 06:00	
73	Wed 05/01/11 07:00	67.23
74	Wed 05/01/11 08:00	
75	Wed 05/01/11 09:00	
76	Wed 05/01/11 10:00	
77	Wed 05/01/11 11:00	
78	Wed 05/01/11 12:00	
79	Wed 05/01/11 13:00	
80	Wed 05/01/11 14:00	
81	Wed 05/01/11 15:00	
82	Wed 05/01/11 16:00	
83	Wed 05/01/11 17:00	
84	Wed 05/01/11 18:00	
85	Wed 05/01/11 19:00	
86	Wed 05/01/11 20:00	
87	Wed 05/01/11 21:00	
88	Wed 05/01/11 22:00	
89	Wed 05/01/11 23:00	
90	Thu 06/01/11 00:00	
91	Thu 06/01/11 01:00	
92	Thu 06/01/11 02:00	
93	Thu 06/01/11 03:00	
94	Thu 06/01/11 04:00	

	A	B
95	Thu 06/01/11 05:00	
96	Thu 06/01/11 06:00	
97	Thu 06/01/11 07:00	67.31
98	Thu 06/01/11 08:00	
99	Thu 06/01/11 09:00	
100	Thu 06/01/11 10:00	
101	Thu 06/01/11 11:00	
102	Thu 06/01/11 12:00	
103	Thu 06/01/11 13:00	
104	Thu 06/01/11 14:00	
105	Thu 06/01/11 15:00	
106	Thu 06/01/11 16:00	67.37
107	Thu 06/01/11 17:00	67.39
108	Thu 06/01/11 18:00	67.4
109	Thu 06/01/11 19:00	67.405
110	Thu 06/01/11 20:00	67.42
111	Thu 06/01/11 21:00	67.425
112	Thu 06/01/11 22:00	67.44
113	Thu 06/01/11 23:00	
114	Fri 07/01/11 00:00	67.46
115	Fri 07/01/11 01:00	
116	Fri 07/01/11 02:00	67.52
117	Fri 07/01/11 03:00	
118	Fri 07/01/11 04:00	67.57
119	Fri 07/01/11 05:00	
120	Fri 07/01/11 06:00	67.64
121	Fri 07/01/11 07:00	
122	Fri 07/01/11 08:00	
123	Fri 07/01/11 09:00	67.75
124	Fri 07/01/11 10:00	
125	Fri 07/01/11 11:00	67.81
126	Fri 07/01/11 12:00	
127	Fri 07/01/11 13:00	67.94
128	Fri 07/01/11 14:00	
129	Fri 07/01/11 15:00	68.03
130	Fri 07/01/11 16:00	68.06
131	Fri 07/01/11 17:00	
132	Fri 07/01/11 18:00	68.12
133	Fri 07/01/11 19:00	68.17
134	Fri 07/01/11 20:00	68.19
135	Fri 07/01/11 21:00	68.22
136	Fri 07/01/11 22:00	68.26
137	Fri 07/01/11 23:00	68.28
138	Sat 08/01/11 00:00	68.32
139	Sat 08/01/11 01:00	68.34
140	Sat 08/01/11 02:00	68.35
141	Sat 08/01/11 03:00	68.41

	A	B
142	Sat 08/01/11 04:00	68.41
143	Sat 08/01/11 05:00	68.45
144	Sat 08/01/11 06:00	68.46
145	Sat 08/01/11 07:00	68.48
146	Sat 08/01/11 08:00	68.52
147	Sat 08/01/11 09:00	68.55
148	Sat 08/01/11 10:00	68.56
149	Sat 08/01/11 11:00	68.59
150	Sat 08/01/11 12:00	68.6
151	Sat 08/01/11 13:00	68.61
152	Sat 08/01/11 14:00	68.61
153	Sat 08/01/11 15:00	68.63
154	Sat 08/01/11 16:00	68.64
155	Sat 08/01/11 17:00	68.65
156	Sat 08/01/11 18:00	68.65
157	Sat 08/01/11 19:00	
158	Sat 08/01/11 20:00	
159	Sat 08/01/11 21:00	68.65
160	Sat 08/01/11 22:00	68.65
161	Sat 08/01/11 23:00	68.65
162	Sun 09/01/11 00:00	68.64
163	Sun 09/01/11 01:00	68.63
164	Sun 09/01/11 02:00	68.62
165	Sun 09/01/11 03:00	
166	Sun 09/01/11 04:00	68.6
167	Sun 09/01/11 05:00	68.6
168	Sun 09/01/11 06:00	68.58
169	Sun 09/01/11 07:00	
170	Sun 09/01/11 08:00	
171	Sun 09/01/11 09:00	68.55
172	Sun 09/01/11 10:00	68.53
173	Sun 09/01/11 11:00	68.54
174	Sun 09/01/11 12:00	68.54
175	Sun 09/01/11 13:00	
176	Sun 09/01/11 14:00	68.58
177	Sun 09/01/11 15:00	68.61
178	Sun 09/01/11 16:00	68.7
179	Sun 09/01/11 17:00	68.77
180	Sun 09/01/11 18:00	68.86
181	Sun 09/01/11 19:00	68.97
182	Sun 09/01/11 20:00	69.1
183	Sun 09/01/11 21:00	69.24
184	Sun 09/01/11 22:00	69.44
185	Sun 09/01/11 23:00	69.6
186	Mon 10/01/11 00:00	69.8
187	Mon 10/01/11 01:00	69.97
188	Mon 10/01/11 02:00	70.17

	A	B
189	Mon 10/01/11 03:00	70.36
190	Mon 10/01/11 04:00	70.57
191	Mon 10/01/11 05:00	70.77
192	Mon 10/01/11 06:00	70.96
193	Mon 10/01/11 07:00	71.16
194	Mon 10/01/11 08:00	71.36
195	Mon 10/01/11 09:00	71.56
196	Mon 10/01/11 10:00	71.78
197	Mon 10/01/11 11:00	71.95
198	Mon 10/01/11 12:00	72.07
199	Mon 10/01/11 13:00	72.26
200	Mon 10/01/11 14:00	72.41
201	Mon 10/01/11 15:00	72.54
202	Mon 10/01/11 16:00	72.7
203	Mon 10/01/11 17:00	72.84
204	Mon 10/01/11 18:00	72.92
205	Mon 10/01/11 19:00	72.99
206	Mon 10/01/11 20:00	73.06
207	Mon 10/01/11 21:00	
208	Mon 10/01/11 22:00	73.17
209	Mon 10/01/11 23:00	73.22
210	Tue 11/01/11 00:00	73.26
211	Tue 11/01/11 01:00	
212	Tue 11/01/11 02:00	73.35
213	Tue 11/01/11 03:00	
214	Tue 11/01/11 04:00	73.4
215	Tue 11/01/11 05:00	
216	Tue 11/01/11 06:00	73.51
217	Tue 11/01/11 07:00	73.61
218	Tue 11/01/11 08:00	73.7
219	Tue 11/01/11 09:00	73.81
220	Tue 11/01/11 10:00	73.95
221	Tue 11/01/11 11:00	74.1
222	Tue 11/01/11 12:00	74.27
223	Tue 11/01/11 13:00	74.39
224	Tue 11/01/11 14:00	74.57
225	Tue 11/01/11 15:00	74.71
226	Tue 11/01/11 16:00	74.81
227	Tue 11/01/11 17:00	74.89
228	Tue 11/01/11 18:00	74.95
229	Tue 11/01/11 19:00	74.97
230	Tue 11/01/11 20:00	74.97
231	Tue 11/01/11 21:00	74.95
232	Tue 11/01/11 22:00	74.95
233	Tue 11/01/11 23:00	74.92
234	Wed 12/01/11 00:00	74.91
235	Wed 12/01/11 01:00	74.87

	A	B
236	Wed 12/01/11 02:00	74.86
237	Wed 12/01/11 03:00	74.81
238	Wed 12/01/11 04:00	74.8
239	Wed 12/01/11 05:00	74.77
240	Wed 12/01/11 06:00	74.77
241	Wed 12/01/11 07:00	74.76
242	Wed 12/01/11 08:00	74.78
243	Wed 12/01/11 09:00	74.78
244	Wed 12/01/11 10:00	74.78
245	Wed 12/01/11 11:00	74.78
246	Wed 12/01/11 12:00	74.79
247	Wed 12/01/11 13:00	74.79
248	Wed 12/01/11 14:00	74.81
249	Wed 12/01/11 15:00	74.81
250	Wed 12/01/11 16:00	74.8
251	Wed 12/01/11 17:00	74.82
252	Wed 12/01/11 18:00	74.8
253	Wed 12/01/11 19:00	74.82
254	Wed 12/01/11 20:00	74.82
255	Wed 12/01/11 21:00	74.82
256	Wed 12/01/11 22:00	74.81
257	Wed 12/01/11 23:00	
258	Thu 13/01/11 00:00	74.79
259	Thu 13/01/11 01:00	
260	Thu 13/01/11 02:00	74.765
261	Thu 13/01/11 03:00	
262	Thu 13/01/11 04:00	74.74
263	Thu 13/01/11 05:00	
264	Thu 13/01/11 06:00	74.71
265	Thu 13/01/11 07:00	
266	Thu 13/01/11 08:00	
267	Thu 13/01/11 09:00	
268	Thu 13/01/11 10:00	74.64
269	Thu 13/01/11 11:00	
270	Thu 13/01/11 12:00	74.61
271	Thu 13/01/11 13:00	74.59
272	Thu 13/01/11 14:00	74.57
273	Thu 13/01/11 15:00	
274	Thu 13/01/11 16:00	74.55
275	Thu 13/01/11 17:00	74.51
276	Thu 13/01/11 18:00	74.5
277	Thu 13/01/11 19:00	74.46
278	Thu 13/01/11 20:00	
279	Thu 13/01/11 21:00	74.405
280	Thu 13/01/11 22:00	74.36
281	Thu 13/01/11 23:00	74.335
282	Fri 14/01/11 00:00	74.3

	A	B
283	Fri 14/01/11 01:00	74.26
284	Fri 14/01/11 02:00	74.22
285	Fri 14/01/11 03:00	74.18
286	Fri 14/01/11 04:00	
287	Fri 14/01/11 05:00	74.08
288	Fri 14/01/11 06:00	
289	Fri 14/01/11 07:00	
290	Fri 14/01/11 08:00	
291	Fri 14/01/11 09:00	74.08
292	Fri 14/01/11 10:00	
293	Fri 14/01/11 11:00	73.81
294	Fri 14/01/11 12:00	
295	Fri 14/01/11 13:00	73.71
296	Fri 14/01/11 14:00	
297	Fri 14/01/11 15:00	73.6
298	Fri 14/01/11 16:00	73.54
299	Fri 14/01/11 17:00	73.5
300	Fri 14/01/11 18:00	73.45
301	Fri 14/01/11 19:00	73.39
302	Fri 14/01/11 20:00	
303	Fri 14/01/11 21:00	73.3
304	Fri 14/01/11 22:00	
305	Fri 14/01/11 23:00	73.2
306	Sat 15/01/11 00:00	
307	Sat 15/01/11 01:00	
308	Sat 15/01/11 02:00	73.04
309	Sat 15/01/11 03:00	
310	Sat 15/01/11 04:00	
311	Sat 15/01/11 05:00	72.86
312	Sat 15/01/11 06:00	
313	Sat 15/01/11 07:00	72.74
314	Sat 15/01/11 08:00	72.68
315	Sat 15/01/11 09:00	72.56
316	Sat 15/01/11 10:00	
317	Sat 15/01/11 11:00	
318	Sat 15/01/11 12:00	72.44
319	Sat 15/01/11 13:00	72.39
320	Sat 15/01/11 14:00	
321	Sat 15/01/11 15:00	72.27
322	Sat 15/01/11 16:00	
323	Sat 15/01/11 17:00	72.14
324	Sat 15/01/11 18:00	
325	Sat 15/01/11 19:00	72.03
326	Sat 15/01/11 20:00	
327	Sat 15/01/11 21:00	
328	Sat 15/01/11 22:00	71.8
329	Sat 15/01/11 23:00	

	A	B
330	Sun 16/01/11 00:00	71.71
331	Sun 16/01/11 01:00	
332	Sun 16/01/11 02:00	
333	Sun 16/01/11 03:00	71.52
334	Sun 16/01/11 04:00	
335	Sun 16/01/11 05:00	
336	Sun 16/01/11 06:00	
337	Sun 16/01/11 07:00	71.25
338	Sun 16/01/11 08:00	
339	Sun 16/01/11 09:00	71.11
340	Sun 16/01/11 10:00	
341	Sun 16/01/11 11:00	70.95
342	Sun 16/01/11 12:00	70.87
343	Sun 16/01/11 13:00	
344	Sun 16/01/11 14:00	70.75
345	Sun 16/01/11 15:00	
346	Sun 16/01/11 16:00	70.62
347	Sun 16/01/11 17:00	
348	Sun 16/01/11 18:00	70.45
349	Sun 16/01/11 19:00	
350	Sun 16/01/11 20:00	70.29
351	Sun 16/01/11 21:00	
352	Sun 16/01/11 22:00	70.16
353	Sun 16/01/11 23:00	
354	Mon 17/01/11 00:00	
355	Mon 17/01/11 01:00	
356	Mon 17/01/11 02:00	
357	Mon 17/01/11 03:00	69.76
358	Mon 17/01/11 04:00	69.65
359	Mon 17/01/11 05:00	69.58
360	Mon 17/01/11 06:00	69.485
361	Mon 17/01/11 07:00	
362	Mon 17/01/11 08:00	
363	Mon 17/01/11 09:00	
364	Mon 17/01/11 10:00	
365	Mon 17/01/11 11:00	
366	Mon 17/01/11 12:00	
367	Mon 17/01/11 13:00	
368	Mon 17/01/11 14:00	
369	Mon 17/01/11 15:00	
370	Mon 17/01/11 16:00	
371	Mon 17/01/11 17:00	
372	Mon 17/01/11 18:00	
373	Mon 17/01/11 19:00	
374	Mon 17/01/11 20:00	
375	Mon 17/01/11 21:00	
376	Mon 17/01/11 22:00	

	A	B
377	Mon 17/01/11 23:00	
378	Tue 18/01/11 00:00	
379	Tue 18/01/11 01:00	
380	Tue 18/01/11 02:00	
381	Tue 18/01/11 03:00	
382	Tue 18/01/11 04:00	
383	Tue 18/01/11 05:00	
384	Tue 18/01/11 06:00	
385	Tue 18/01/11 07:00	
386	Tue 18/01/11 08:00	
387	Tue 18/01/11 09:00	
388	Tue 18/01/11 10:00	
389	Tue 18/01/11 11:00	
390	Tue 18/01/11 12:00	
391	Tue 18/01/11 13:00	
392	Tue 18/01/11 14:00	
393	Tue 18/01/11 15:00	
394	Tue 18/01/11 16:00	
395	Tue 18/01/11 17:00	
396	Tue 18/01/11 18:00	
397	Tue 18/01/11 19:00	
398	Tue 18/01/11 20:00	
399	Tue 18/01/11 21:00	
400	Tue 18/01/11 22:00	
401	Tue 18/01/11 23:00	
402	Wed 19/01/11 00:00	
403	Wed 19/01/11 01:00	
404	Wed 19/01/11 02:00	
405	Wed 19/01/11 03:00	
406	Wed 19/01/11 04:00	
407	Wed 19/01/11 05:00	
408	Wed 19/01/11 06:00	
409	Wed 19/01/11 07:00	
410	Wed 19/01/11 08:00	
411	Wed 19/01/11 09:00	
412	Wed 19/01/11 10:00	
413	Wed 19/01/11 11:00	
414	Wed 19/01/11 12:00	
415	Wed 19/01/11 13:00	
416	Wed 19/01/11 14:00	
417	Wed 19/01/11 15:00	
418	Wed 19/01/11 16:00	
419	Wed 19/01/11 17:00	
420	Wed 19/01/11 18:00	
421	Wed 19/01/11 19:00	
422	Wed 19/01/11 20:00	
423	Wed 19/01/11 21:00	

	A	B
424	Wed 19/01/11 22:00	
425	Wed 19/01/11 23:00	
426	Thu 20/01/11 00:00	
427	Thu 20/01/11 01:00	
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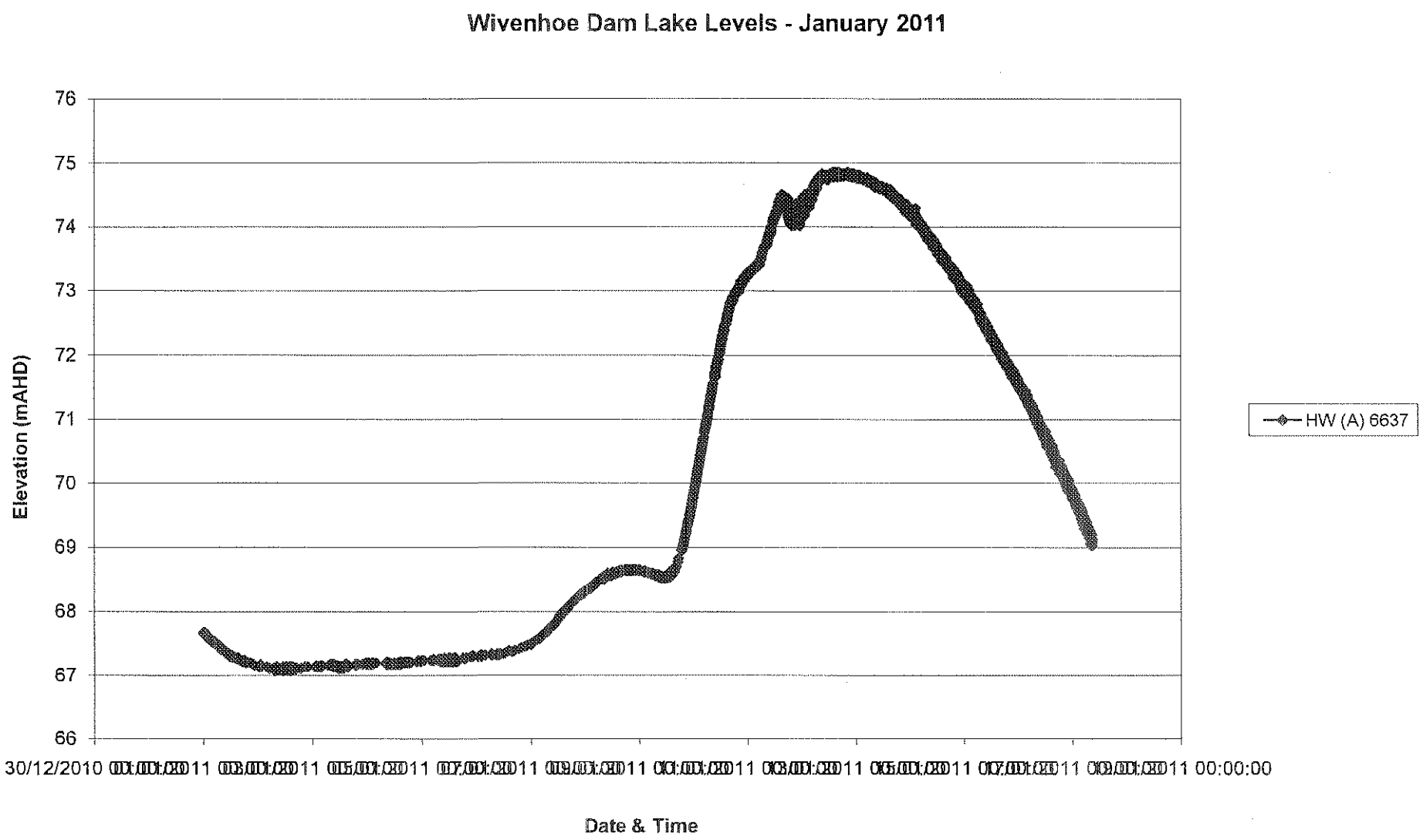
Wivenhoe Dam Lake Levels - January 2011
76
75
74
73
72
71
70
69
68
67
66
Elevation (mAHD)
30/12/2010 00:00:00
11 00:00:00
Date & Time
HW (A) 6637

RD5-1004

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4	20110101003405	67.670		01/01/2011 00:34:05	67.67
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8	20110101010304	67.630		01/01/2011 01:03:04	67.63
9	20110101010804	67.610		01/01/2011 01:08:04	67.61
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47	20110101064904	67.450		01/01/2011 06:49:04	67.45

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1994	20110112014634	74.410		12/01/2011 01:46:34	74.41
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2015	20110112021435	74.430		12/01/2011 02:14:35	74.43
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2107	20110112040834	74.450		12/01/2011 04:08:34	74.45
2108	20110112040935	74.490		12/01/2011 04:09:35	74.49
2109	20110112041035	74.410		12/01/2011 04:10:35	74.41
2110	20110112041135	74.530		12/01/2011 04:11:35	74.53
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2113	20110112041435	74.450		12/01/2011 04:14:35	74.45
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2117	20110112041935	74.490		12/01/2011 04:19:35	74.49
2118	20110112042035	74.450		12/01/2011 04:20:35	74.45
2119	20110112042135	74.430		12/01/2011 04:21:35	74.43
2120	20110112042235	74.470		12/01/2011 04:22:35	74.47
2121	20110112042535	74.450		12/01/2011 04:25:35	74.45
2122	20110112042935	74.490		12/01/2011 04:29:35	74.49
2123	20110112043035	74.410		12/01/2011 04:30:35	74.41
2124	20110112043135	74.490		12/01/2011 04:31:35	74.49
2125	20110112043234	74.430		12/01/2011 04:32:34	74.43
2126	20110112043434	74.490		12/01/2011 04:34:34	74.49
2127	20110112043535	74.430		12/01/2011 04:35:35	74.43
2128	20110112043635	74.450		12/01/2011 04:36:35	74.45
2129	20110112043734	74.470		12/01/2011 04:37:34	74.47
2130	20110112043835	74.450		12/01/2011 04:38:35	74.45
2131	20110112044035	74.430		12/01/2011 04:40:35	74.43
2132	20110112044335	74.490		12/01/2011 04:43:35	74.49
2133	20110112044534	74.550		12/01/2011 04:45:34	74.55
2134	20110112044734	74.590		12/01/2011 04:47:34	74.59
2135	20110112044834	74.550		12/01/2011 04:48:34	74.55
2136	20110112044935	74.530		12/01/2011 04:49:35	74.53
2137	20110112045034	74.590		12/01/2011 04:50:34	74.59
2138	20110112045235	74.570		12/01/2011 04:52:35	74.57
2139	20110112045335	74.590		12/01/2011 04:53:35	74.59
2140	20110112045535	74.510		12/01/2011 04:55:35	74.51
2141	20110112045634	74.570		12/01/2011 04:56:34	74.57
2142	20110112045735	74.530		12/01/2011 04:57:35	74.53
2143	20110112045834	74.550		12/01/2011 04:58:34	74.55
2144	20110112050135	74.550		12/01/2011 05:01:35	74.55
2145	20110112050235	74.590		12/01/2011 05:02:35	74.59
2146	20110112050335	74.550		12/01/2011 05:03:35	74.55
2147	20110112050434	74.510		12/01/2011 05:04:34	74.51
2148	20110112050535	74.590		12/01/2011 05:05:35	74.59
2149	20110112050634	74.550		12/01/2011 05:06:34	74.55
2150	20110112050734	74.530		12/01/2011 05:07:34	74.53
2151	20110112050835	74.590		12/01/2011 05:08:35	74.59
2152	20110112051135	74.610		12/01/2011 05:11:35	74.61
2153	20110112051235	74.590		12/01/2011 05:12:35	74.59
2154	20110112051335	74.530		12/01/2011 05:13:35	74.53
2155	20110112051435	74.570		12/01/2011 05:14:35	74.57
2156	20110112051534	74.650		12/01/2011 05:15:34	74.65
2157	20110112051635	74.550		12/01/2011 05:16:35	74.55
2158	20110112051734	74.630		12/01/2011 05:17:34	74.63
2159	20110112051835	74.590		12/01/2011 05:18:35	74.59
2160	20110112051934	74.570		12/01/2011 05:19:34	74.57
2161	20110112052135	74.530		12/01/2011 05:21:35	74.53
2162	20110112052235	74.550		12/01/2011 05:22:35	74.55

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2164	20110112052535	74.570		12/01/2011 05:25:35	74.57
2165	20110112052635	74.550		12/01/2011 05:26:35	74.55
2166	20110112052735	74.610		12/01/2011 05:27:35	74.61
2167	20110112052834	74.550		12/01/2011 05:28:34	74.55
2168	20110112052935	74.590		12/01/2011 05:29:35	74.59
2169	20110112053034	74.550		12/01/2011 05:30:34	74.55
2170	20110112053134	74.590		12/01/2011 05:31:34	74.59
2171	20110112053235	74.510		12/01/2011 05:32:35	74.51
2172	20110112053335	74.530		12/01/2011 05:33:35	74.53
2173	20110112053435	74.610		12/01/2011 05:34:35	74.61
2174	20110112053535	74.550		12/01/2011 05:35:35	74.55
2175	20110112053934	74.510		12/01/2011 05:39:34	74.51
2176	20110112054034	74.550		12/01/2011 05:40:34	74.55
2177	20110112054134	74.610		12/01/2011 05:41:34	74.61
2178	20110112054235	74.630		12/01/2011 05:42:35	74.63
2179	20110112054635	74.670		12/01/2011 05:46:35	74.67
2180	20110112054734	74.650		12/01/2011 05:47:34	74.65
2181	20110112054835	74.610		12/01/2011 05:48:35	74.61
2182	20110112054934	74.650		12/01/2011 05:49:34	74.65
2183	20110112055234	74.690		12/01/2011 05:52:34	74.69
2184	20110112055434	74.650		12/01/2011 05:54:34	74.65
2185	20110112055635	74.630		12/01/2011 05:56:35	74.63
2186	20110112055734	74.670		12/01/2011 05:57:34	74.67
2187	20110112060034	74.690		12/01/2011 06:00:34	74.69
2188	20110112060134	74.650		12/01/2011 06:01:34	74.65
2189	20110112060334	74.630		12/01/2011 06:03:34	74.63
2190	20110112060634	74.670		12/01/2011 06:06:34	74.67
2191	20110112060834	74.650		12/01/2011 06:08:34	74.65
2192	20110112060935	74.670		12/01/2011 06:09:35	74.67
2193	20110112061035	74.690		12/01/2011 06:10:35	74.69
2194	20110112061134	74.650		12/01/2011 06:11:34	74.65
2195	20110112061235	74.610		12/01/2011 06:12:35	74.61
2196	20110112061334	74.630		12/01/2011 06:13:34	74.63
2197	20110112061434	74.650		12/01/2011 06:14:34	74.65
2198	20110112061634	74.670		12/01/2011 06:16:34	74.67
2199	20110112061735	74.650		12/01/2011 06:17:35	74.65
2200	20110112061934	74.590		12/01/2011 06:19:34	74.59
2201	20110112062035	74.610		12/01/2011 06:20:35	74.61
2202	20110112062134	74.650		12/01/2011 06:21:34	74.65
2203	20110112062335	74.670		12/01/2011 06:23:35	74.67
2204	20110112062435	74.610		12/01/2011 06:24:35	74.61
2205	20110112062635	74.650		12/01/2011 06:26:35	74.65
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2207	20110112063234	74.650		12/01/2011 06:32:34	74.65
2208	20110112063335	74.630		12/01/2011 06:33:35	74.63
2209	20110112063435	74.670		12/01/2011 06:34:35	74.67

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2212	20110112063834	74.690		12/01/2011 06:38:34	74.69
2213	20110112063934	74.650		12/01/2011 06:39:34	74.65
2214	20110112064034	74.730		12/01/2011 06:40:34	74.73
2215	20110112064134	74.690		12/01/2011 06:41:34	74.69
2216	20110112064334	74.730		12/01/2011 06:43:34	74.73
2217	20110112064434	74.690		12/01/2011 06:44:34	74.69
2218	20110112064619	74.690		12/01/2011 06:46:19	74.69
2219	20110112064634	74.710		12/01/2011 06:46:34	74.71
2220	20110112064735	74.730		12/01/2011 06:47:35	74.73
2221	20110112065134	74.710		12/01/2011 06:51:34	74.71
2222	20110112065334	74.730		12/01/2011 06:53:34	74.73
2223	20110112065534	74.710		12/01/2011 06:55:34	74.71
2224	20110112070035	74.730		12/01/2011 07:00:35	74.73
2225	20110112070134	74.710		12/01/2011 07:01:34	74.71
2226	20110112070234	74.750		12/01/2011 07:02:34	74.75
2227	20110112070334	74.730		12/01/2011 07:03:34	74.73
2228	20110112070534	74.690		12/01/2011 07:05:34	74.69
2229	20110112070634	74.730		12/01/2011 07:06:34	74.73
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2232	20110112071034	74.710		12/01/2011 07:10:34	74.71
2233	20110112071234	74.730		12/01/2011 07:12:34	74.73
2234	20110112071334	74.690		12/01/2011 07:13:34	74.69
2235	20110112071434	74.750		12/01/2011 07:14:34	74.75
2236	20110112071534	74.710		12/01/2011 07:15:34	74.71
2237	20110112071834	74.690		12/01/2011 07:18:34	74.69
2238	20110112072834	74.750		12/01/2011 07:28:34	74.75
2239	20110112072934	74.690		12/01/2011 07:29:34	74.69
2240	20110112073235	74.710		12/01/2011 07:32:35	74.71
2241	20110112073535	74.750		12/01/2011 07:35:35	74.75
2242	20110112073634	74.730		12/01/2011 07:36:34	74.73
2243	20110112073734	74.790		12/01/2011 07:37:34	74.79
2244	20110112073834	74.710		12/01/2011 07:38:34	74.71
2245	20110112073934	74.750		12/01/2011 07:39:34	74.75
2246	20110112074034	74.770		12/01/2011 07:40:34	74.77
2247	20110112074534	74.790		12/01/2011 07:45:34	74.79
2248	20110112074635	74.750		12/01/2011 07:46:35	74.75
2249	20110112074734	74.790		12/01/2011 07:47:34	74.79
2250	20110112074935	74.770		12/01/2011 07:49:35	74.77
2251	20110112075434	74.790		12/01/2011 07:54:34	74.79
2252	20110112075633	74.770		12/01/2011 07:56:33	74.77
2253	20110112080235	74.790		12/01/2011 08:02:35	74.79
2254	20110112080334	74.770		12/01/2011 08:03:34	74.77
2255	20110112082234	74.750		12/01/2011 08:22:34	74.75
2256	20110112082634	74.770		12/01/2011 08:26:34	74.77

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2258	20110112082834	74.770		12/01/2011 08:28:34	74.77
2259	20110112084234	74.710		12/01/2011 08:42:34	74.71
2260	20110112084334	74.750		12/01/2011 08:43:34	74.75
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2262	20110112084634	74.790		12/01/2011 08:46:34	74.79
2263	20110112084934	74.770		12/01/2011 08:49:34	74.77
2264	20110112085734	74.810		12/01/2011 08:57:34	74.81
2265	20110112085834	74.830		12/01/2011 08:58:34	74.83
2266	20110112085934	74.770		12/01/2011 08:59:34	74.77
2267	20110112090135	74.810		12/01/2011 09:01:35	74.81
2268	20110112090334	74.750		12/01/2011 09:03:34	74.75
2269	20110112090534	74.790		12/01/2011 09:05:34	74.79
2270	20110112090734	74.770		12/01/2011 09:07:34	74.77
2271	20110112090934	74.830		12/01/2011 09:09:34	74.83
2272	20110112091034	74.730		12/01/2011 09:10:34	74.73
2273	20110112091235	74.770		12/01/2011 09:12:35	74.77
2274	20110112091435	74.790		12/01/2011 09:14:35	74.79
2275	20110112091534	74.770		12/01/2011 09:15:34	74.77
2276	20110112092134	74.790		12/01/2011 09:21:34	74.79
2277	20110112092234	74.770		12/01/2011 09:22:34	74.77
2278	20110112092535	74.790		12/01/2011 09:25:35	74.79
2279	20110112092734	74.770		12/01/2011 09:27:34	74.77
2280	20110112094134	74.790		12/01/2011 09:41:34	74.79
2281	20110112094534	74.770		12/01/2011 09:45:34	74.77
2282	20110112094619	74.770		12/01/2011 09:46:19	74.77
2283	20110112095034	74.770		12/01/2011 09:50:34	74.77
2284	20110112095534	74.790		12/01/2011 09:55:34	74.79
2285	20110112095633	74.770		12/01/2011 09:56:33	74.77
2286	20110112095735	74.790		12/01/2011 09:57:35	74.79
2287	20110112101134	74.770		12/01/2011 10:11:34	74.77
2288	20110112101234	74.790		12/01/2011 10:12:34	74.79
2289	20110112101533	74.810		12/01/2011 10:15:33	74.81
2290	20110112101634	74.790		12/01/2011 10:16:34	74.79
2291	20110112103933	74.770		12/01/2011 10:39:33	74.77
2292	20110112104334	74.790		12/01/2011 10:43:34	74.79
2293	20110112112434	74.810		12/01/2011 11:24:34	74.81
2294	20110112112634	74.730		12/01/2011 11:26:34	74.73
2295	20110112112734	74.810		12/01/2011 11:27:34	74.81
2296	20110112112834	74.790		12/01/2011 11:28:34	74.79
2297	20110112113534	74.810		12/01/2011 11:35:34	74.81
2298	20110112113634	74.790		12/01/2011 11:36:34	74.79
2299	20110112114533	74.770		12/01/2011 11:45:33	74.77
2300	20110112114634	74.790		12/01/2011 11:46:34	74.79
2301	20110112114734	74.770		12/01/2011 11:47:34	74.77
2302	20110112114834	74.790		12/01/2011 11:48:34	74.79
2303	20110112115433	74.810		12/01/2011 11:54:33	74.81

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2305	20110112120733	74.810		12/01/2011 12:07:33	74.81
2306	20110112121034	74.790		12/01/2011 12:10:34	74.79
2307	20110112121333	74.810		12/01/2011 12:13:33	74.81
2308	20110112121434	74.790		12/01/2011 12:14:34	74.79
2309	20110112121934	74.810		12/01/2011 12:19:34	74.81
2310	20110112122234	74.790		12/01/2011 12:22:34	74.79
2311	20110112122534	74.830		12/01/2011 12:25:34	74.83
2312	20110112122634	74.790		12/01/2011 12:26:34	74.79
2313	20110112122834	74.810		12/01/2011 12:28:34	74.81
2314	20110112123134	74.790		12/01/2011 12:31:34	74.79
2315	20110112123334	74.810		12/01/2011 12:33:34	74.81
2316	20110112123434	74.770		12/01/2011 12:34:34	74.77
2317	20110112123934	74.790		12/01/2011 12:39:34	74.79
2318	20110112124034	74.810		12/01/2011 12:40:34	74.81
2319	20110112124618	74.810		12/01/2011 12:46:18	74.81
2320	20110112125034	74.790		12/01/2011 12:50:34	74.79
2321	20110112125134	74.810		12/01/2011 12:51:34	74.81
2322	20110112125934	74.790		12/01/2011 12:59:34	74.79
2323	20110112130134	74.810		12/01/2011 13:01:34	74.81
2324	20110112130234	74.790		12/01/2011 13:02:34	74.79
2325	20110112130434	74.810		12/01/2011 13:04:34	74.81
2326	20110112131434	74.830		12/01/2011 13:14:34	74.83
2327	20110112131534	74.810		12/01/2011 13:15:34	74.81
2328	20110112131733	74.830		12/01/2011 13:17:33	74.83
2329	20110112132034	74.810		12/01/2011 13:20:34	74.81
2330	20110112132634	74.830		12/01/2011 13:26:34	74.83
2331	20110112132734	74.810		12/01/2011 13:27:34	74.81
2332	20110112133334	74.810		12/01/2011 13:33:34	74.81
2333	20110112134234	74.830		12/01/2011 13:42:34	74.83
2334	20110112134634	74.830		12/01/2011 13:46:34	74.83
2335	20110112134734	74.810		12/01/2011 13:47:34	74.81
2336	20110112135034	74.850		12/01/2011 13:50:34	74.85
2337	20110112135134	74.830		12/01/2011 13:51:34	74.83
2338	20110112135334	74.810		12/01/2011 13:53:34	74.81
2339	20110112140634	74.770		12/01/2011 14:06:34	74.77
2340	20110112140733	74.810		12/01/2011 14:07:33	74.81
2341	20110112141234	74.790		12/01/2011 14:12:34	74.79
2342	20110112141333	74.810		12/01/2011 14:13:33	74.81
2343	20110112141533	74.770		12/01/2011 14:15:33	74.77
2344	20110112141633	74.810		12/01/2011 14:16:33	74.81
2345	20110112141833	74.850		12/01/2011 14:18:33	74.85
2346	20110112141934	74.810		12/01/2011 14:19:34	74.81
2347	20110112142334	74.830		12/01/2011 14:23:34	74.83
2348	20110112142433	74.790		12/01/2011 14:24:33	74.79
2349	20110112142534	74.810		12/01/2011 14:25:34	74.81
2350	20110112142633	74.830		12/01/2011 14:26:33	74.83

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2351	20110112142734	74.810		12/01/2011 14:27:34	74.81
2352	20110112142833	74.830		12/01/2011 14:28:33	74.83
2353	20110112142933	74.810		12/01/2011 14:29:33	74.81
2354	20110112143034	74.830		12/01/2011 14:30:34	74.83
2355	20110112143133	74.810		12/01/2011 14:31:33	74.81
2356	20110112143434	74.830		12/01/2011 14:34:34	74.83
2357	20110112143634	74.810		12/01/2011 14:36:34	74.81
2358	20110112144934	74.830		12/01/2011 14:49:34	74.83
2359	20110112145233	74.810		12/01/2011 14:52:33	74.81
2360	20110112145834	74.830		12/01/2011 14:58:34	74.83
2361	20110112150333	74.790		12/01/2011 15:03:33	74.79
2362	20110112150433	74.810		12/01/2011 15:04:33	74.81
2363	20110112151133	74.850		12/01/2011 15:11:33	74.85
2364	20110112151233	74.810		12/01/2011 15:12:33	74.81
2365	20110112152634	74.790		12/01/2011 15:26:34	74.79
2366	20110112152833	74.810		12/01/2011 15:28:33	74.81
2367	20110112153034	74.830		12/01/2011 15:30:34	74.83
2368	20110112153133	74.810		12/01/2011 15:31:33	74.81
2369	20110112153633	74.790		12/01/2011 15:36:33	74.79
2370	20110112153733	74.810		12/01/2011 15:37:33	74.81
2371	20110112153833	74.830		12/01/2011 15:38:33	74.83
2372	20110112153932	74.810		12/01/2011 15:39:32	74.81
2373	20110112154534	74.830		12/01/2011 15:45:34	74.83
2374	20110112154618	74.830		12/01/2011 15:46:18	74.83
2375	20110112154633	74.810		12/01/2011 15:46:33	74.81
2376	20110112154733	74.830		12/01/2011 15:47:33	74.83
2377	20110112155033	74.810		12/01/2011 15:50:33	74.81
2378	20110112155434	74.830		12/01/2011 15:54:34	74.83
2379	20110112155533	74.810		12/01/2011 15:55:33	74.81
2380	20110112155733	74.810		12/01/2011 15:57:33	74.81
2381	20110112160033	74.850		12/01/2011 16:00:33	74.85
2382	20110112160133	74.790		12/01/2011 16:01:33	74.79
2383	20110112160333	74.850		12/01/2011 16:03:33	74.85
2384	20110112160434	74.810		12/01/2011 16:04:34	74.81
2385	20110112160533	74.790		12/01/2011 16:05:33	74.79
2386	20110112160634	74.810		12/01/2011 16:06:34	74.81
2387	20110112160733	74.770		12/01/2011 16:07:33	74.77
2388	20110112160833	74.810		12/01/2011 16:08:33	74.81
2389	20110112160933	74.830		12/01/2011 16:09:33	74.83
2390	20110112161033	74.790		12/01/2011 16:10:33	74.79
2391	20110112161133	74.810		12/01/2011 16:11:33	74.81
2392	20110112161434	74.830		12/01/2011 16:14:34	74.83
2393	20110112161833	74.810		12/01/2011 16:18:33	74.81
2394	20110112162233	74.790		12/01/2011 16:22:33	74.79
2395	20110112162333	74.830		12/01/2011 16:23:33	74.83
2396	20110112162433	74.790		12/01/2011 16:24:33	74.79
2397	20110112162534	74.830		12/01/2011 16:25:34	74.83

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2401	20110112163433	74.830		12/01/2011 16:34:33	74.83
2402	20110112163634	74.810		12/01/2011 16:36:34	74.81
2403	20110112163734	74.790		12/01/2011 16:37:34	74.79
2404	20110112164033	74.850		12/01/2011 16:40:33	74.85
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2407	20110112164433	74.830		12/01/2011 16:44:33	74.83
2408	20110112164533	74.810		12/01/2011 16:45:33	74.81
2409	20110112164934	74.790		12/01/2011 16:49:34	74.79
2410	20110112165133	74.810		12/01/2011 16:51:33	74.81
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2425	20110112180734	74.810		12/01/2011 18:07:34	74.81
2426	20110112180934	74.830		12/01/2011 18:09:34	74.83
2427	20110112181133	74.810		12/01/2011 18:11:33	74.81
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2429	20110112182433	74.790		12/01/2011 18:24:33	74.79
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2431	20110112182633	74.790		12/01/2011 18:26:33	74.79
2432	20110112182733	74.830		12/01/2011 18:27:33	74.83
2433	20110112182834	74.810		12/01/2011 18:28:34	74.81
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2435	20110112184033	74.830		12/01/2011 18:40:33	74.83
2436	20110112184133	74.810		12/01/2011 18:41:33	74.81
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2438	20110112184618	74.830		12/01/2011 18:46:18	74.83
2439	20110112184733	74.810		12/01/2011 18:47:33	74.81
2440	20110112185633	74.790		12/01/2011 18:56:33	74.79
2441	20110112185733	74.810		12/01/2011 18:57:33	74.81
2442	20110112190133	74.830		12/01/2011 19:01:33	74.83
2443	20110112190333	74.810		12/01/2011 19:03:33	74.81
2444	20110112190532	74.830		12/01/2011 19:05:32	74.83

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2447	20110112191033	74.810		12/01/2011 19:10:33	74.81
2448	20110112191633	74.830		12/01/2011 19:16:33	74.83
2449	20110112191733	74.810		12/01/2011 19:17:33	74.81
2450	20110112193034	74.830		12/01/2011 19:30:34	74.83
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2452	20110112193932	74.830		12/01/2011 19:39:32	74.83
2453	20110112194134	74.810		12/01/2011 19:41:34	74.81
2454	20110112194334	74.830		12/01/2011 19:43:34	74.83
2455	20110112194533	74.810		12/01/2011 19:45:33	74.81
2456	20110112195032	74.830		12/01/2011 19:50:32	74.83
2457	20110112195233	74.810		12/01/2011 19:52:33	74.81
2458	20110112195433	74.830		12/01/2011 19:54:33	74.83
2459	20110112195634	74.810		12/01/2011 19:56:34	74.81
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2461	20110112202333	74.830		12/01/2011 20:23:33	74.83
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2464	20110112202933	74.810		12/01/2011 20:29:33	74.81
2465	20110112203633	74.810		12/01/2011 20:36:33	74.81
2466	20110112203933	74.830		12/01/2011 20:39:33	74.83
2467	20110112204032	74.790		12/01/2011 20:40:32	74.79
2468	20110112204132	74.810		12/01/2011 20:41:32	74.81
2469	20110112204633	74.830		12/01/2011 20:46:33	74.83
2470	20110112204833	74.790		12/01/2011 20:48:33	74.79
2471	20110112204932	74.810		12/01/2011 20:49:32	74.81
2472	20110112205534	74.810		12/01/2011 20:55:34	74.81
2473	20110112205733	74.810		12/01/2011 20:57:33	74.81
2474	20110112210133	74.790		12/01/2011 21:01:33	74.79
2475	20110112210533	74.810		12/01/2011 21:05:33	74.81
2476	20110112210933	74.830		12/01/2011 21:09:33	74.83
2477	20110112211133	74.790		12/01/2011 21:11:33	74.79
2478	20110112211332	74.810		12/01/2011 21:13:32	74.81
2479	20110112211433	74.790		12/01/2011 21:14:33	74.79
2480	20110112211533	74.810		12/01/2011 21:15:33	74.81
2481	20110112212033	74.790		12/01/2011 21:20:33	74.79
2482	20110112212233	74.830		12/01/2011 21:22:33	74.83
2483	20110112212333	74.810		12/01/2011 21:23:33	74.81
2484	20110112212633	74.790		12/01/2011 21:26:33	74.79
2485	20110112212833	74.810		12/01/2011 21:28:33	74.81
2486	20110112214618	74.810		12/01/2011 21:46:18	74.81
2487	20110112214633	74.830		12/01/2011 21:46:33	74.83
2488	20110112215134	74.790		12/01/2011 21:51:34	74.79
2489	20110112215533	74.810		12/01/2011 21:55:33	74.81
2490	20110112215832	74.830		12/01/2011 21:58:32	74.83
2491	20110112215933	74.810		12/01/2011 21:59:33	74.81

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2494	20110112221133	74.810		12/01/2011 22:11:33	74.81
2495	20110112221633	74.770		12/01/2011 22:16:33	74.77
2496	20110112221833	74.810		12/01/2011 22:18:33	74.81
2497	20110112222133	74.790		12/01/2011 22:21:33	74.79
2498	20110112222233	74.830		12/01/2011 22:22:33	74.83
2499	20110112222332	74.810		12/01/2011 22:23:32	74.81
2500	20110112222432	74.790		12/01/2011 22:24:32	74.79
2501	20110112223132	74.810		12/01/2011 22:31:32	74.81
2502	20110112223233	74.790		12/01/2011 22:32:33	74.79
2503	20110112223333	74.810		12/01/2011 22:33:33	74.81
2504	20110112223733	74.810		12/01/2011 22:37:33	74.81
2505	20110112224033	74.790		12/01/2011 22:40:33	74.79
2506	20110112224132	74.830		12/01/2011 22:41:32	74.83
2507	20110112224233	74.810		12/01/2011 22:42:33	74.81
2508	20110112224534	74.790		12/01/2011 22:45:34	74.79
2509	20110112224633	74.810		12/01/2011 22:46:33	74.81
2510	20110112224833	74.790		12/01/2011 22:48:33	74.79
2511	20110112224933	74.770		12/01/2011 22:49:33	74.77
2512	20110112225033	74.790		12/01/2011 22:50:33	74.79
2513	20110112225532	74.810		12/01/2011 22:55:32	74.81
2514	20110112230133	74.790		12/01/2011 23:01:33	74.79
2515	20110112230832	74.810		12/01/2011 23:08:32	74.81
2516	20110112231032	74.830		12/01/2011 23:10:32	74.83
2517	20110112231132	74.810		12/01/2011 23:11:32	74.81
2518	20110112231233	74.790		12/01/2011 23:12:33	74.79
2519	20110112231632	74.770		12/01/2011 23:16:32	74.77
2520	20110112231733	74.810		12/01/2011 23:17:33	74.81
2521	20110112231832	74.790		12/01/2011 23:18:32	74.79
2522	20110112231932	74.810		12/01/2011 23:19:32	74.81
2523	20110112232132	74.790		12/01/2011 23:21:32	74.79
2524	20110112232433	74.810		12/01/2011 23:24:33	74.81
2525	20110112232732	74.790		12/01/2011 23:27:32	74.79
2526	20110112233432	74.810		12/01/2011 23:34:32	74.81
2527	20110112233733	74.790		12/01/2011 23:37:33	74.79
2528	20110112234133	74.810		12/01/2011 23:41:33	74.81
2529	20110112234233	74.790		12/01/2011 23:42:33	74.79
2530	20110112234332	74.770		12/01/2011 23:43:32	74.77
2531	20110112234433	74.790		12/01/2011 23:44:33	74.79
2532	20110113000433	74.810		13/01/2011 00:04:33	74.81
2533	20110113000533	74.770		13/01/2011 00:05:33	74.77
2534	20110113000633	74.810		13/01/2011 00:06:33	74.81
2535	20110113000732	74.790		13/01/2011 00:07:32	74.79
2536	20110113001032	74.810		13/01/2011 00:10:32	74.81
2537	20110113001232	74.790		13/01/2011 00:12:32	74.79
2538	20110113001832	74.810		13/01/2011 00:18:32	74.81

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2542	20110113002933	74.750		13/01/2011 00:29:33	74.75
2543	20110113003033	74.790		13/01/2011 00:30:33	74.79
2544	20110113003633	74.770		13/01/2011 00:36:33	74.77
2545	20110113003734	74.810		13/01/2011 00:37:34	74.81
2546	20110113003833	74.790		13/01/2011 00:38:33	74.79
2547	20110113004133	74.770		13/01/2011 00:41:33	74.77
2548	20110113004232	74.810		13/01/2011 00:42:32	74.81
2549	20110113004333	74.770		13/01/2011 00:43:33	74.77
2550	20110113004533	74.790		13/01/2011 00:45:33	74.79
2551	20110113004618	74.790		13/01/2011 00:46:18	74.79
2552	20110113004932	74.770		13/01/2011 00:49:32	74.77
2553	20110113005032	74.790		13/01/2011 00:50:32	74.79
2554	20110113005932	74.790		13/01/2011 00:59:32	74.79
2555	20110113010533	74.770		13/01/2011 01:05:33	74.77
2556	20110113010832	74.790		13/01/2011 01:08:32	74.79
2557	20110113011431	74.750		13/01/2011 01:14:31	74.75
2558	20110113011533	74.770		13/01/2011 01:15:33	74.77
2559	20110113011733	74.790		13/01/2011 01:17:33	74.79
2560	20110113013133	74.750		13/01/2011 01:31:33	74.75
2561	20110113013432	74.770		13/01/2011 01:34:32	74.77
2562	20110113013532	74.790		13/01/2011 01:35:32	74.79
2563	20110113013632	74.810		13/01/2011 01:36:32	74.81
2564	20110113013733	74.770		13/01/2011 01:37:33	74.77
2565	20110113013832	74.790		13/01/2011 01:38:32	74.79
2566	20110113014032	74.770		13/01/2011 01:40:32	74.77
2567	20110113014233	74.790		13/01/2011 01:42:33	74.79
2568	20110113014932	74.790		13/01/2011 01:49:32	74.79
2569	20110113015033	74.750		13/01/2011 01:50:33	74.75
2570	20110113015132	74.790		13/01/2011 01:51:32	74.79
2571	20110113015732	74.750		13/01/2011 01:57:32	74.75
2572	20110113015832	74.770		13/01/2011 01:58:32	74.77
2573	20110113015932	74.790		13/01/2011 01:59:32	74.79
2574	20110113020133	74.750		13/01/2011 02:01:33	74.75
2575	20110113020432	74.790		13/01/2011 02:04:32	74.79
2576	20110113020532	74.770		13/01/2011 02:05:32	74.77
2577	20110113021032	74.750		13/01/2011 02:10:32	74.75
2578	20110113021133	74.770		13/01/2011 02:11:33	74.77
2579	20110113021233	74.790		13/01/2011 02:12:33	74.79
2580	20110113021332	74.770		13/01/2011 02:13:32	74.77
2581	20110113021633	74.770		13/01/2011 02:16:33	74.77
2582	20110113022032	74.750		13/01/2011 02:20:32	74.75
2583	20110113022132	74.790		13/01/2011 02:21:32	74.79
2584	20110113022233	74.770		13/01/2011 02:22:33	74.77
2585	20110113022532	74.750		13/01/2011 02:25:32	74.75

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2587	20110113022832	74.750		13/01/2011 02:28:32	74.75
2588	20110113022932	74.770		13/01/2011 02:29:32	74.77
2589	20110113023332	74.750		13/01/2011 02:33:32	74.75
2590	20110113023532	74.770		13/01/2011 02:35:32	74.77
2591	20110113023632	74.750		13/01/2011 02:36:32	74.75
2592	20110113023932	74.770		13/01/2011 02:39:32	74.77
2593	20110113024432	74.750		13/01/2011 02:44:32	74.75
2594	20110113024532	74.770		13/01/2011 02:45:32	74.77
2595	20110113024632	74.750		13/01/2011 02:46:32	74.75
2596	20110113025133	74.770		13/01/2011 02:51:33	74.77
2597	20110113025532	74.730		13/01/2011 02:55:32	74.73
2598	20110113025633	74.750		13/01/2011 02:56:33	74.75
2599	20110113025932	74.770		13/01/2011 02:59:32	74.77
2600	20110113030132	74.730		13/01/2011 03:01:32	74.73
2601	20110113030433	74.750		13/01/2011 03:04:33	74.75
2602	20110113030533	74.770		13/01/2011 03:05:33	74.77
2603	20110113030632	74.750		13/01/2011 03:06:32	74.75
2604	20110113032132	74.730		13/01/2011 03:21:32	74.73
2605	20110113032232	74.750		13/01/2011 03:22:32	74.75
2606	20110113033332	74.770		13/01/2011 03:33:32	74.77
2607	20110113033532	74.750		13/01/2011 03:35:32	74.75
2608	20110113033732	74.770		13/01/2011 03:37:32	74.77
2609	20110113033932	74.750		13/01/2011 03:39:32	74.75
2610	20110113034132	74.770		13/01/2011 03:41:32	74.77
2611	20110113034233	74.750		13/01/2011 03:42:33	74.75
2612	20110113034332	74.770		13/01/2011 03:43:32	74.77
2613	20110113034432	74.750		13/01/2011 03:44:32	74.75
2614	20110113034617	74.750		13/01/2011 03:46:17	74.75
2615	20110113035833	74.730		13/01/2011 03:58:33	74.73
2616	20110113035932	74.750		13/01/2011 03:59:32	74.75
2617	20110113043032	74.730		13/01/2011 04:30:32	74.73
2618	20110113043231	74.750		13/01/2011 04:32:31	74.75
2619	20110113043732	74.730		13/01/2011 04:37:32	74.73
2620	20110113043832	74.750		13/01/2011 04:38:32	74.75
2621	20110113043932	74.710		13/01/2011 04:39:32	74.71
2622	20110113044032	74.750		13/01/2011 04:40:32	74.75
2623	20110113044932	74.750		13/01/2011 04:49:32	74.75
2624	20110113045732	74.730		13/01/2011 04:57:32	74.73
2625	20110113045832	74.750		13/01/2011 04:58:32	74.75
2626	20110113050532	74.730		13/01/2011 05:05:32	74.73
2627	20110113050632	74.770		13/01/2011 05:06:32	74.77
2628	20110113050732	74.730		13/01/2011 05:07:32	74.73
2629	20110113051732	74.750		13/01/2011 05:17:32	74.75
2630	20110113051832	74.730		13/01/2011 05:18:32	74.73
2631	20110113052531	74.690		13/01/2011 05:25:31	74.69
2632	20110113052633	74.710		13/01/2011 05:26:33	74.71

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2634	20110113053832	74.750		13/01/2011 05:38:32	74.75
2635	20110113053933	74.730		13/01/2011 05:39:33	74.73
2636	20110113054631	74.710		13/01/2011 05:46:31	74.71
2637	20110113054932	74.750		13/01/2011 05:49:32	74.75
2638	20110113055033	74.710		13/01/2011 05:50:33	74.71
2639	20110113055132	74.730		13/01/2011 05:51:32	74.73
2640	20110113055532	74.710		13/01/2011 05:55:32	74.71
2641	20110113060133	74.730		13/01/2011 06:01:33	74.73
2642	20110113060432	74.710		13/01/2011 06:04:32	74.71
2643	20110113060831	74.730		13/01/2011 06:08:31	74.73
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2773	20110113125231	74.570		13/01/2011 12:52:31	74.57

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2817	20110113151931	74.490		13/01/2011 15:19:31	74.49
2818	20110113152031	74.530		13/01/2011 15:20:31	74.53
2819	20110113152531	74.590		13/01/2011 15:25:31	74.59
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2825	20110113153331	74.490		13/01/2011 15:33:31	74.49
2826	20110113153431	74.530		13/01/2011 15:34:31	74.53
2827	20110113153631	74.470		13/01/2011 15:36:31	74.47
2828	20110113153730	74.490		13/01/2011 15:37:30	74.49
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2833	20110113154931	74.510		13/01/2011 15:49:31	74.51
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2837	20110113155731	74.530		13/01/2011 15:57:31	74.53
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2844	20110113160730	74.470		13/01/2011 16:07:30	74.47
2845	20110113160831	74.550		13/01/2011 16:08:31	74.55
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2855	20110113162431	74.470		13/01/2011 16:24:31	74.47
2856	20110113162531	74.490		13/01/2011 16:25:31	74.49
2857	20110113163331	74.510		13/01/2011 16:33:31	74.51
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2864	20110113164630	74.470		13/01/2011 16:46:30	74.47
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2872	20110113165730	74.450		13/01/2011 16:57:30	74.45
2873	20110113165931	74.490		13/01/2011 16:59:31	74.49
2874	20110113170031	74.470		13/01/2011 17:00:31	74.47
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2882	20110113171431	74.450		13/01/2011 17:14:31	74.45
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2884	20110113171830	74.470		13/01/2011 17:18:30	74.47
2885	20110113172031	74.430		13/01/2011 17:20:31	74.43
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2892	20110113173931	74.490		13/01/2011 17:39:31	74.49
2893	20110113174030	74.450		13/01/2011 17:40:30	74.45
2894	20110113174530	74.470		13/01/2011 17:45:30	74.47
2895	20110113174630	74.450		13/01/2011 17:46:30	74.45
2896	20110113175031	74.490		13/01/2011 17:50:31	74.49
2897	20110113175130	74.450		13/01/2011 17:51:30	74.45
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2899	20110113175330	74.450		13/01/2011 17:53:30	74.45
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2901	20110113175630	74.470		13/01/2011 17:56:30	74.47
2902	20110113175731	74.450		13/01/2011 17:57:31	74.45
2903	20110113175931	74.430		13/01/2011 17:59:31	74.43
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3653	20110114145428	73.510		14/01/2011 14:54:28	73.51
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4096	20110115021627	72.950		15/01/2011 02:16:27	72.95
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4143	20110115032527	72.830		15/01/2011 03:25:27	72.83
4144	20110115032826	72.850		15/01/2011 03:28:26	72.85
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4174	20110115040926	72.850		15/01/2011 04:09:26	72.85
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4181	20110115041827	72.830		15/01/2011 04:18:27	72.83
4182	20110115041926	72.810		15/01/2011 04:19:26	72.81
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4187	20110115042627	72.850		15/01/2011 04:26:27	72.85
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4189	20110115042827	72.750		15/01/2011 04:28:27	72.75
4190	20110115042926	72.770		15/01/2011 04:29:26	72.77
4191	20110115043026	72.830		15/01/2011 04:30:26	72.83
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4194	20110115043326	72.790		15/01/2011 04:33:26	72.79
4195	20110115043526	72.770		15/01/2011 04:35:26	72.77
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4197	20110115043826	72.790		15/01/2011 04:38:26	72.79
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4216	20110115051127	72.790		15/01/2011 05:11:27	72.79
4217	20110115051226	72.770		15/01/2011 05:12:26	72.77
4218	20110115051826	72.730		15/01/2011 05:18:26	72.73
4219	20110115051926	72.790		15/01/2011 05:19:26	72.79
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4222	20110115052227	72.750		15/01/2011 05:22:27	72.75
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4224	20110115052427	72.770		15/01/2011 05:24:27	72.77
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4229	20110115053426	72.750		15/01/2011 05:34:26	72.75
4230	20110115053527	72.710		15/01/2011 05:35:27	72.71

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4235	20110115054126	72.730		15/01/2011 05:41:26	72.73
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4246	20110115055826	72.730		15/01/2011 05:58:26	72.73
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4248	20110115060326	72.670		15/01/2011 06:03:26	72.67
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4254	20110115061527	72.730		15/01/2011 06:15:27	72.73
4255	20110115061626	72.690		15/01/2011 06:16:26	72.69
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4258	20110115062026	72.710		15/01/2011 06:20:26	72.71
4259	20110115062226	72.650		15/01/2011 06:22:26	72.65
4260	20110115062526	72.670		15/01/2011 06:25:26	72.67
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4266	20110115063526	72.690		15/01/2011 06:35:26	72.69
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4275	20110115064826	72.610		15/01/2011 06:48:26	72.61
4276	20110115065027	72.590		15/01/2011 06:50:27	72.59
4277	20110115065127	72.650		15/01/2011 06:51:27	72.65

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4283	20110115070126	72.590		15/01/2011 07:01:26	72.59
4284	20110115070427	72.630		15/01/2011 07:04:27	72.63
4285	20110115070525	72.610		15/01/2011 07:05:25	72.61
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4287	20110115070826	72.630		15/01/2011 07:08:26	72.63
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4289	20110115071226	72.630		15/01/2011 07:12:26	72.63
4290	20110115071326	72.670		15/01/2011 07:13:26	72.67
4291	20110115071426	72.630		15/01/2011 07:14:26	72.63
4292	20110115071526	72.610		15/01/2011 07:15:26	72.61
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4294	20110115072126	72.610		15/01/2011 07:21:26	72.61
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4299	20110115072827	72.630		15/01/2011 07:28:27	72.63
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4301	20110115073127	72.630		15/01/2011 07:31:27	72.63
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4303	20110115073426	72.630		15/01/2011 07:34:26	72.63
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4312	20110115074926	72.570		15/01/2011 07:49:26	72.57
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4317	20110115075826	72.510		15/01/2011 07:58:26	72.51
4318	20110115075926	72.590		15/01/2011 07:59:26	72.59
4319	20110115080126	72.530		15/01/2011 08:01:26	72.53
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4323	20110115080526	72.530		15/01/2011 08:05:26	72.53
4324	20110115080626	72.550		15/01/2011 08:06:26	72.55

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4329	20110115081726	72.530		15/01/2011 08:17:26	72.53
4330	20110115082025	72.550		15/01/2011 08:20:25	72.55
4331	20110115082225	72.570		15/01/2011 08:22:25	72.57
4332	20110115082526	72.530		15/01/2011 08:25:26	72.53
4333	20110115082726	72.470		15/01/2011 08:27:26	72.47
4334	20110115082926	72.490		15/01/2011 08:29:26	72.49
4335	20110115083026	72.510		15/01/2011 08:30:26	72.51
4336	20110115083226	72.490		15/01/2011 08:32:26	72.49
4337	20110115083325	72.570		15/01/2011 08:33:25	72.57
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4339	20110115083527	72.570		15/01/2011 08:35:27	72.57
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4346	20110115084527	72.510		15/01/2011 08:45:27	72.51
4347	20110115084827	72.530		15/01/2011 08:48:27	72.53
4348	20110115084926	72.490		15/01/2011 08:49:26	72.49
4349	20110115085027	72.530		15/01/2011 08:50:27	72.53
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4354	20110115085926	72.510		15/01/2011 08:59:26	72.51
4355	20110115090126	72.490		15/01/2011 09:01:26	72.49
4356	20110115090226	72.470		15/01/2011 09:02:26	72.47
4357	20110115090726	72.530		15/01/2011 09:07:26	72.53
4358	20110115090826	72.470		15/01/2011 09:08:26	72.47
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4360	20110115091326	72.490		15/01/2011 09:13:26	72.49
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4362	20110115091526	72.510		15/01/2011 09:15:26	72.51
4363	20110115091626	72.490		15/01/2011 09:16:26	72.49
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4365	20110115091926	72.530		15/01/2011 09:19:26	72.53
4366	20110115092026	72.450		15/01/2011 09:20:26	72.45
4367	20110115092426	72.410		15/01/2011 09:24:26	72.41
4368	20110115092526	72.470		15/01/2011 09:25:26	72.47
4369	20110115092626	72.490		15/01/2011 09:26:26	72.49
4370	20110115092725	72.470		15/01/2011 09:27:25	72.47
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4375	20110115093426	72.430		15/01/2011 09:34:26	72.43
4376	20110115093626	72.450		15/01/2011 09:36:26	72.45
4377	20110115093726	72.490		15/01/2011 09:37:26	72.49
4378	20110115093926	72.470		15/01/2011 09:39:26	72.47
4379	20110115094127	72.450		15/01/2011 09:41:27	72.45
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4382	20110115094426	72.410		15/01/2011 09:44:26	72.41
4383	20110115094526	72.450		15/01/2011 09:45:26	72.45
4384	20110115094610	72.450		15/01/2011 09:46:10	72.45
4385	20110115094627	72.410		15/01/2011 09:46:27	72.41
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4415	20110115103226	72.370		15/01/2011 10:32:26	72.37
4416	20110115103425	72.410		15/01/2011 10:34:25	72.41
4417	20110115103526	72.370		15/01/2011 10:35:26	72.37
4418	20110115103726	72.450		15/01/2011 10:37:26	72.45

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4435	20110115110826	72.390		15/01/2011 11:08:26	72.39
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4437	20110115111226	72.370		15/01/2011 11:12:26	72.37
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4453	20110115113426	72.310		15/01/2011 11:34:26	72.31
4454	20110115113725	72.350		15/01/2011 11:37:25	72.35
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4456	20110115113926	72.290		15/01/2011 11:39:26	72.29
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4462	20110115114926	72.330		15/01/2011 11:49:26	72.33
4463	20110115115026	72.270		15/01/2011 11:50:26	72.27
4464	20110115115125	72.350		15/01/2011 11:51:25	72.35
4465	20110115115226	72.310		15/01/2011 11:52:26	72.31

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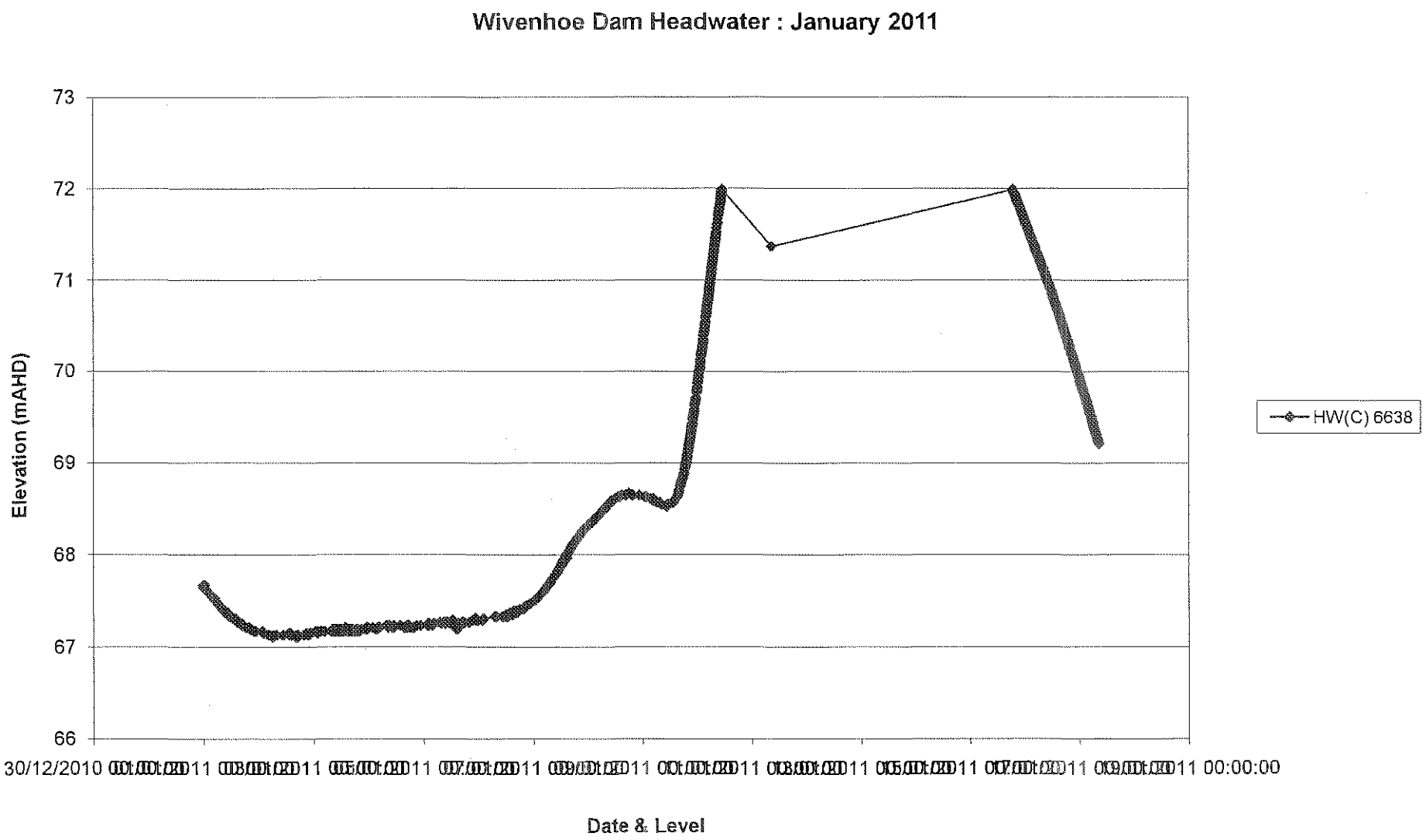
Wivenhoe Dam Headwater : January 2011
73
72
71
70
69
68
67
66
Elevation (mAHD)
HW(C) 6638
30/12/2010
00:00:00
Date & Level

RD5-1139

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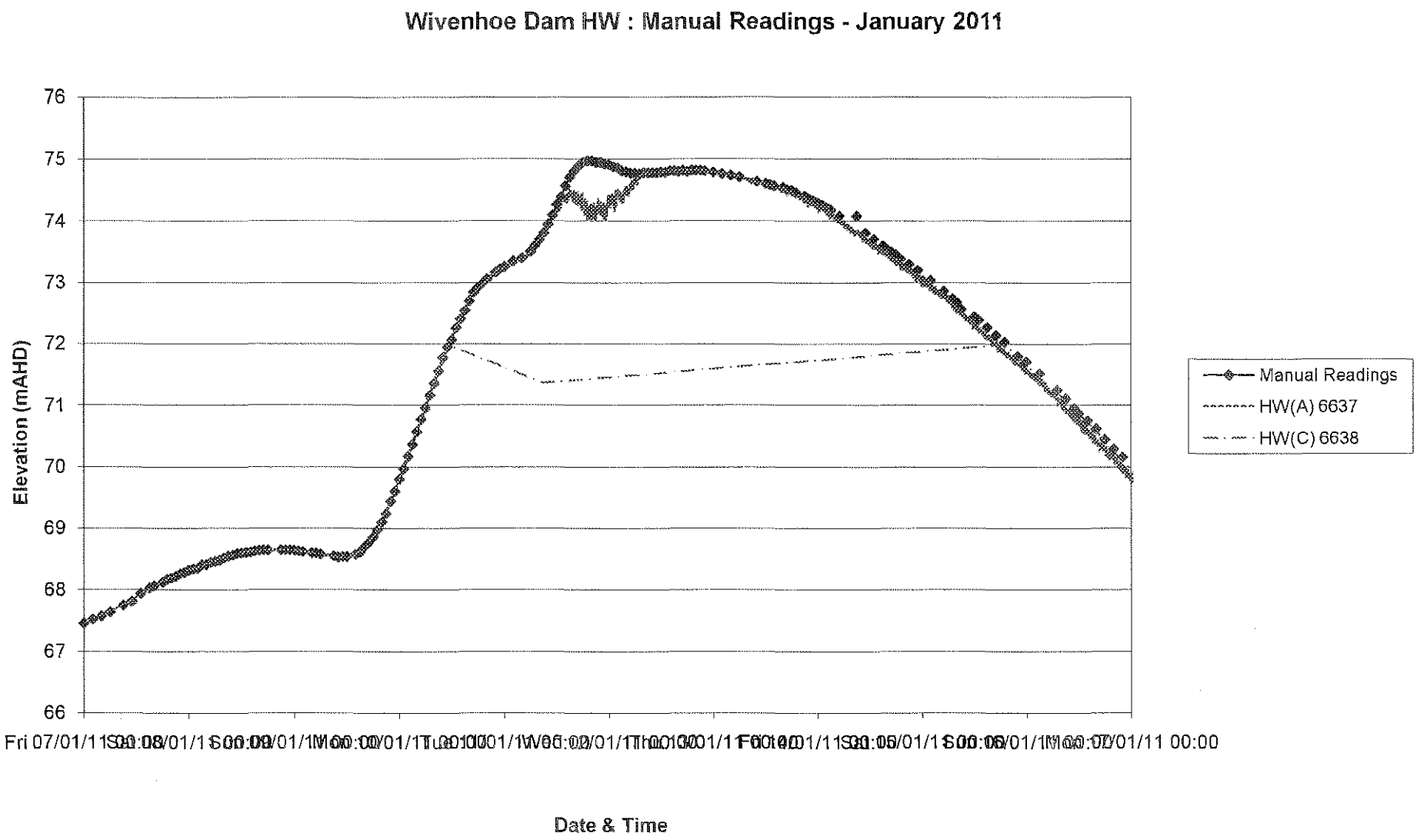

Wivenhoe Dam HW : Manual Readings - January 2011
Elevation (mAHD)
76
75
74
73
72
71
70
69
68
67
66
Fri 07/01/11 00:00
07/01/11 00:00
Date & Time
Manual Readings
HW(A) 6637
HW(C) 6638

RD5-1153

From: Dan Spiller [redacted]
Sent: Monday, January 17, 2011 10:17 AM
To: Rob Drury <rdrury@[redacted]
Cc: Peter Borrows <pborrows@[redacted]
Subject: RE: Technical Report W59

Thanks Rob.

BCC and MRD are very concerned about the integrity of Coronation Drive and the impact of the river level changes as flows reduce. Can you please ensure that BCC endorses the closure sequence, and specifically ask that they consult with their transport areas? It may require a specific meeting with them.

Regards,
Dan

From: Rob Drury [mailto:[redacted]
Sent: Monday, January 17, 2011 9:43 AM
To: Dan Spiller
Subject: RE: Technical Report W59

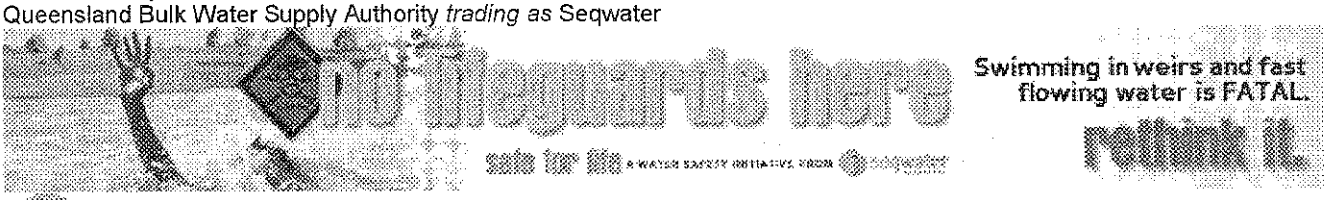
The FOC is tracking the levels closely and if it is all on track, they will make a call around lunchtime and hopefully begin a closing sequence mid-afternoon, but can't be 100% sure quite yet.

And final closure still planned for Wednesday, probably in the morning but that will be monitored tomorrow.

They will ensure BCC is aware of the plans and timing once they have a more definite time.
And let ICC and Somerset know as well re their bridges.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Dan Spiller [mailto[redacted]
Sent: Monday, 17 January 2011 9:28 AM
To: Rob Drury
Subject: Re: Technical Report W59

Rob,

The LM is very anxious about the closure sequence.

Can you provide any further details for 10? Verbal is fine if I can call at 9.45.

I presume you are also speaking to the BCC blokes.

Dan

On 17/01/2011, at 8:27 AM, "Rob Drury" <[redacted]> wrote:

Attached is report W59.

Somerset almost to 100%, only a valve is open.

Wivenhoe to be closed around Wednesday, closing sequence may start today.

North Pine closed.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater
<image001.jpg>
<image002.png>
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

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<Technical_Situation_Report_W59.docx>

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From: Rachel Lerch [redacted]
Sent: Monday, January 17, 2011 11:45 AM
To: 'Emqserops02[redacted] 'Blac1kev[redacted]; 'Peter Dennis' [redacted] 'peta.mille[redacted] 'Beth.moloney[redacted] 'Peter.cavendis[redacted]; 'Shayne.kimlin[redacted]; 'Peter-John.Zauner[redacted] 'Trezise.karlenel[redacted]'; 'Susan_hertrich[redacted] Cr Graeme Lehmann [redacted] Bob Bain [redacted] Tony Jacobs [redacted] Steve Brennan [redacted] 'Pitman.[redacted] 'Goodger.robbies[redacted]; Andy Bickerton [redacted] 'David.Caughley[redacted] 'CraigX.Smith[redacted]; 'Peter.Varley[redacted] 'Richard.lahse[redacted]; 'Qastoogoolawah.[redacted] 'Tom.parsonage[redacted]; Rob Drury <rdrury@[redacted] 'michaellukritz[redacted]; 'glendolan[redacted]'; 'russellcross[redacted] Mark.Kelly@[redacted] 'Wendy.fry[redacted] 'Annabelle.johnstone[redacted] 'gough.dale[redacted] 'Tanwan.Martin.[redacted] 'Douglas.iana[redacted] 'tristan_berrell[redacted] 'richardperry[redacted] 'garychalmers[redacted] 'QAS Springfield OIC' [redacted] 'Peter Dennis' [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: Disaster Management Meeting - Monday 2.30pm
Attach: 2011-01-16 - Minutes of Meeting.doc; 2011-01-17 - Agenda.doc

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Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Monday (17th January 2011) at the Esk Administration Building. Minutes from Sunday's meeting attached. Agenda for today also attached.

If you are unable to attend in person teleconference is available. You will need to dial [redacted] and enter a passcode which is [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch
PA to Manager Corporate & Community Services
Somerset Regional Council
2 Redbank Street, ESK QLD 4312
PO Box 117, ESK QLD 4312
ABN 50 138 958 249
[redacted]
Ph [redacted]
Fax [redacted]

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Sunday 16th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

MINUTES

- **Attendance:**

  Cr Graeme Lehmann (SRC), Bob Bain (SRC), Tony Jacobs (SRC), Geoff (GCC), Adam Hingston (Logan SES), Paul Godwin (Logan SES), Kevin Blackall (NSW Police), Andy Bickerton (SES – Somerset Region), Margareta (EMQ), Peter Dennis (QAS), Sgt Ian Douglas (QPS- Lowood), Gary Madigan (Energex), Peta Miller (QFS), Susan Hertrich (Esk Hospital), Eddie Bennett (EMQ), Rusty Kraut (QFS), Beth Maloney (NT Government), Garth Simpson (Ipswich DCC), Peter Cavendish (DERM), Shayne Kimlin (DERM), Steve (EMT), Bill Doorley (QFS), Craig Campbell (QPS).

  Apologies:
  Wayne Wendt, Peter Zauner (QFS), John Cumner (QPS- Toogoolawah)

- **Rapid Damage Assessments:**
  - Lowood (5 complete, 23 to be completed, believe approximately further 10 completed this morning). Still gathering final numbers. 6 completely inundated, 23 on list yesterday to be completed.
  - Fernvale 200+ homes, approximately 30 to do.
  - Esk 25 completed, no more need to be completed.
  - Outside town approximately 200+ to be done.
  - Still trying to gather information. Some work completed prior to RDA's commencing. Lowood and Fernvale have been collected. No report on Kilcoy. Crew from Moreton Bay have been through. Peta to contact Brisbane Region for this region. No reports from Toogoolawah.
  - No requests for assistance at Kilcoy as yet. **ACTION 1: Need information on affected houses from Kilcoy and Toogoolawah. Peta to contact Brisbane Region for report.**
  - Patrick Estate, Clarendon- statistics still being complied. 23 in Patrick Estate where included in statistics listed above in relation to Lowood.
  - Fernvale: approx. 12 QFS on ground in 5 difference appliances, 25 SES. Currently working together. Numerous community members coming in and registering as volunteers. 230 houses affected, 30 – 40 need to still be cleaned out. Also DCS activity in region.
  - Pool Road- work done to clean houses out. Need to assess liveability of houses and rubbish needs toeb collected from streets. Many private

vehicles being utilised. Trucks and bobcat loaders from SRC also been there for 3 days and will be there for some time yet.

- **Road Access:**
  - Bar 2 highways, now achieved access to most areas on arterial road network. Some are only temporary repairs that will be monitored.
  - Isolated community north of Linville and west of Harlin and one small community in Kipper Creek. Hopefully Harlin and Kipper Creek will be accessible within a week. North of Linville may be a month before access is available.
  - Isolated properties have been listed. Further drops have occurred today. These are being recorded.

  - **ROAD CLOSURES & RESTRICTIONS**
  - CROSSDALE
    - Tooloorum Rd – Toolurum Bridge closed
    - Woodgate Rd
  - FERNVALE
    - Brisbane Valley Hwy closed up to Fernvale
    - Wivenhoe-Somerset Road – Titmarsh Bridge, Bryden
  - GREGORS CREEK
    - Gregors Creek Rd
  - JIMNA
    - Kilcoy-Murgon Road is closed at Jimna due to a landslip.
  - ESK
    - Esk-Crows Nest Rd - Taylors Bridge & Anduramba
  - KILCOY
    - D'Aguilar Hwy – Blackbutt Range
    - Kilcoy-Murgon Rd – Jimna Range closed
    - McCauleys Ln – Dickinson Bridge
    - Monsildale Rd
    - Neurum Rd
    - Sandy Creek Rd – Hubners Bridge
    - Ten Mile Road
  - LOWOOD
    - Brightview Rd
    - Forest Hill-Fernvale Rd – East Lowood
  - MINDEN/MARBURG
    - Strassburgs Rd – closed top end
    - Zabels Road North (Bridge damage)

  - MOORE
    - The D'Aguilar Highway is closed at the Blackbutt Range due to a landslide.
  - MURRUMBA
    - Esk-Kilcoy Rd – at Murrumba
  - REDBANK CREEK
    - Esk Hampton Road is closed due to a roadslip at the top of the range.
    - Esk-Hampton Road is closed at Redbank Creek crossing number 3 due to extensive bridge and pavement damage (2.5k's Hampton side of O'Grady Rd)
  - SOMERSET

    - Esk-Kilcoy Road – at Shaws Gully (1km north spit) & Myers Gully (near Nofz Lane)
- SPLIT YARD CREEK
    - Wivenhoe-Somerset Road is closed to all traffic at Split Yard Creek
- TOOGOOLAWAH
    - Ivory Creek Road (approx 6km north)

- **ROADS OPEN**

Note: Most roads are in poor condition with large potholes, extensive payment damage and undermining, with some roads are reduced to single lane traffic only.

- Forest Hill-Fernvale Road – West of Lowood (Lyons Bridge)
- Warrego Highway - Open with restrictions, please follow detour/directional signage
- Brisbane Valley Highway - Open between the Warrego Highway and Fernvale and again Esk and D'Aguilar Hwy (stop-go at Harlin Bridge)
- D'Aguilar Hwy - open to one lane for vehicles up to 4.5 tonne at Mary Smokes Creek, Royston. Drive with Caution and expect delays. Local traffic to Moore & Linville only.
- Lowood-Minden Rd
- Gatton-Esk Rd – (no load limits)
- Fernvale Rd
- Glamorgan Vale Rd
- Marburg Rd.
- Watson Rd open at Coominya-Connection Rd
- West Rd near Mahons Rd
- Patrick Estate Rd – Pointings Bridge

- Many smaller roads within the Region are open to local traffic

- **Water Supply**
    - Noone from QUU available.
    - Specific concern for Minden and when water will be available.
    - Still not able to access the badly damaged area of the line. **ACTION 2- find out actual information regarding Minden.**
    - Crews at Fernvale requesting non-potable water for clean up. QUU have approved use of some from Atkinson's Dam.
- **Resupply Needs**
    - 3-4 aerial drops this morning. 2 water resupplies by water crossing. England Creek community have been resupplied. 12-13 at Burton's Bridge have been resupplied. **ACTION 3- check on whether Banks St community (5-6 houses) has been resupplied.**
    - **ACTION 4- England Creek Road list to be resupplied to be provided to Ian Douglas. Report from SES on this to be provided to Steve.**
    - Helicopter drops from Linville as staging point have occurred. Supplied enough for 10 days to Mt Stanley, Moore, etc. No necessity for chopper to be returned at this point in time. Unleaded fuel a bit short but essential fuel has been supplied. Car pooling going on to save fuel (when picking up supplies from drop point).
    - Supplies from Esk Hospital to be cleared by tonight.

- **Communications**
  - Communications in Fernvale, landlines restored. Lack of mobile access hampering activities in the field. Ian Douglas advised that EFT working at Fernvale, mobile problems could be due to congestion.
  - Lowood: no ATM, internet, no voice services available last night. Restored at 12.30pm today. EFT still out.
  - From yesterday's SIT REP, Mt Stradbroke, Lowood and Ironbark repeater was out of service. Contributes to congestion, need more repeaters.
  - **ACTION 5- Fernvale: message to ABC radio to conserve power. Generator at 90% capacity, don't want to overload. Those served off the generators at Fernvale need to be advised. Emergency alert system could be considered for this message.**
  - **ACTION 6- In relation to mobile issues, Ipswich DCC to ask State to discuss possible options with Telstra. Tony to put in request as RFA with the identification of specific areas in need.**
  - Lowood Recovery Centre can now be contacted on ph. 5427 8347
  - Offer from LGAQ to source media officer to help at Council. If information is available to Council, local releases have been occurring. If information can be provided to Council, specifically Bob Bain (CEO), Council will dispense.
  - **ACTION 7- Council to take up offer from LGAQ as soon as possible.**
  - Beth offered to assist LGAQ.
  - QFS advise additional repeater sourced. UHF now available. SES have put in repeaters to compliment what QFS are doing.
- **Power Outages**
  - Sections of Wanora & Minden have lost power again after having it restored. Number of places have been restored since yesterday.
  - Fernvale: Control system faults on generator. Should be back online in the next couple of hours. Will restore to part of town that had previously been restored.
  - Section of Banks Creek Road being worked on.
  - Until normal distribution suppliers repaired will be some instability in supply. **ACTION 8- Let Community of Fernvale know that they are not on mains power but a generator at present. This may result in instability in supply.**
  - Moore and Linville have generators heading their way so that some supply is available.
  - Fernvale: main from Wivenhoe substation damaged or down in river. Access an issue there. Looking at getting temporary lines in by helicopter. Hopeful that something done this week. Use generators while assess what damage can be done.
  - Energex advised this information is difficult to get to regional areas due to coverage of Brisbane. Energex's phone number is the primary source of information.
  - Beth advised that even when power is restored there will be issues with electricians needing to fix many homes before the power may be able to be utilised. Need to be frank and need to put these expectations up

on distribution and feeding points. **ACTION 9- Circulate the expectations for power restoration and the need for further work by electricians before power able to be accessed. Energex to talk to their communications people to see what targeted messages they can distribute also.**

- Other Business
  - Water releases from Wivenhoe: Press releases received and put on SRC website when available.
  - SIT REPS: only one agency and one centre have provided
  - **ACTION 10- SIT REPS to be forwarded to Tony Jacobs (SRC) by 4pm TODAY for meeting with Emergency Services crews at 5pm today. MUST BE SENT TO:** [redacted]
  - IMT advise Council had 211 jobs, 80% of which are complete.
  - 50 additional SES from NSW available. **ACTION 11- Assess whether the 50 additional SES from NSW are required.**
  - Lions Club provided food for number of people at Fernvale, up to 2000. Because of power problem people are using facility to get warm mean in addition to the ones that have no housing. Beyond capacity of Lions Club to continue, need assistance. **ACTION 12- Need to confirm numbers of people accessing food at Fernvale centre. Possibly request assistance from Red Cross or Salvation Army.**
  - Lowood evacuation centre housing 30-40 people that will have to stay for some time. Problems with providing provisions. By tomorrow night no ability to provide meals and noone running centre. **ACTION 13- DCS to provide assistance. Formally ask Red Cross and Salvation Army for assistance. Send RFA through to District.**
  - RFA status provided by Craig Campbell: request to resupply Mt Stanley, 500 rations have been delivered.
  - Free service available to download maps in area.
  - Mapping equipment coming tomorrow with GCC.
  - SRC assisting Esk with sourcing fuel supplies as usual channels are unavailable.
  - SRC trying to source traffic controllers. Will contact DDC if further required.
  - Lifeline counsellors available. **ACTION 14- Margaret to check if available at Fernvale.**
  - **ACTION 15- Public Health messages not apparent at Fernvale, etc. Need to be put up on billboards at centres.**
  - Issues with security at Lowood Centre this eventing. Crew to remain throughout the night and remain available 24 hours. There will be a police presence in the Lowood area available for 24 hours. **ACTION 16- Andy to arrange for some SES from Fernvale to go to Lowood for tonight. Source security locally, talk to DDC if require assistance.**
  - **ACTION 17- DCS to investigate semi-permanent housing options.**
  - Profiteering by landlords- Premier has raised this issue. Report to Fair Trading if happening.

- Fernvale has first-aid issues. QAS or St Johns Ambulance to have first aid capability at the Centre. **ACTION 18- If QAS or St John's Ambulance not available, raise through system.**
- There is a medical presence in Lowood.

Next Meeting: 2.30pm Monday 17th January 2011.

Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Monday 17h January 2011
2.30pm
Somerset Regional Council Office Meeting Room

AGENDA

	Item	*Report from*
1.	Open meeting & welcome • Attendance • Apologies*	
2.	Review of previous minutes	
3.	Business arising from previous minutes –	
4.	General business –	
5.	• Rapid Damage Assessments • Road Access • Secure Water • Resupply & Needs • Communications • Restoration of Power	
6.	Other Business	
7.	Next Meeting	
8.	Close of meeting	

Volume 4

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 1:01 PM
To: Peter Allen [redacted] Rob Drury <rdrury@[redacted]
Subject: 72 Hour Forecast Ops Spreadsheet
Attach: SDWD-201101081500-Forecast72hr.xls

Forecast run on Sunday 09/01/11 at 19:30 pm based on BoM rainfall outlook

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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	A	B
1	**General Description**	
2	This is a general spread sheet to test out the operation of Emergency	
3	Flood Control procedures for Somerset Dam	
4		
5	It relies on the inputs from 2% AEP floods concentrated over Somerset Dam	
6	catchment. The option is given in the 'Inflows' work sheet to factor the time base,	
7	and the discharge factor for both Somerset inflows and Wivenhoe inflows	
8		
9	**List of Sheets & Description**	
10		
11	Ops Sheet	Main work sheet with levels, rates of rise etc
12	Wiv-Som Interaction	Interaction curve plot of levels at Wivenhoe Dam and those at Somerset Dam
13	H_W graphs	Headwater graphs for Somerset & Wivenhoe as a function of Time
14	Som Q Graph	Inflows and Outflows for Somerset Dam
15	Wiv Q Graph	Inflows and Outflows for Wivenhoe dam
16	Inflows	Inflow hydrographs for Somerset & Wivenhoe
17	Wiv Discharges	Discharge rating for Wivenhoe ... set at Emergency Control Procedure
18	PLOT+0 Macro	Macro routine for plotting +1, as is and -1 sluice trends
19	Sheet 4	Work sheet which does not want to be hidden
20		
21	**General Use**	
22		
23	1. Initialise columns P, Q and R by setting each cell equal to the value of the cell above it	
24	2. In Row 3 .. set the inital openings eg. 0 regulators, 0 sluices, 8 crest gates	
25	3. Step though each time cycle and determine the operating procedure for Somerset	
26	4. Don't forget ... You need to close down to FSL at the end of the event.	

RD5-1166

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RD5-1167

	A	B	C	D	E	F	G	H
1	Start Date	2/01/2011 9:00					Interaction	
2							Somerset	Wivenhoe
3	Title1	**Somerset Dam**					90.00	60.00
4	Starting Level	99.1					100.45	60.00
5	Starting flow	60					100.45	70.00
6							109.70	80.00
7	Title2	**Wivenhoe Dam**						
8	Starting Level	67.1						
9	Starting flow	130						
10								
11		**Lockyer**						
12	Starting flow	0						
13								
14		**Bremer**						
15	Starting flow	0						
16								
17								
18	Event Title	**December 2010**						
19	Time Step (hrs)	1						

	A	B	C	D	E	F	G
1	WDI						
2	Curve:	Inflow	For	Wivenhoe	(cumecs)		
3	File:	/usr/local/foo/dat/BrisbaneCatchment/CaseOutput/201101081500_72hr/201101081500_72hr.WDI.h0					
4	Number	of	Records:	361			
5	Minimum	Value:	1				
6	Maximum	Value:	2080				
7	20110102090000	1					
8	20110102100000	1					
9	20110102110000	1					
10	20110102120000	1					
11	20110102130000	1					
12	20110102140000	1					
13	20110102150000	1					
14	20110102160000	1					
15	20110102170000	1					
16	20110102180000	1					
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28	20110103060000	1					
29	20110103070000	1					
30	20110103080000	1					
31	20110103090000	1					
32	20110103100000	1					
33	20110103110000	1					
34	20110103120000	1					
35	20110103130000	1					
36	20110103140000	1					
37	20110103150000	1					
38	20110103160000	1					

	H	I	J	K	L	M	N
1			SDI				
2			Curve:	Inflow	For	Somerset	(cumecs)
3			File:	/usr/local/foo/dat/BrisbaneCatchment/CaseOutput/201101081500_72hr/201101081500_72hr.SDI.h0			
4			Number	of	Records:	361	
5			Minimum	Value:	0		
6			Maximum	Value:	873.646		
7			20110102090000	0			
8			20110102100000	0			
9			20110102110000	0			
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28			20110103060000	0			
29			20110103070000	0			
30			20110103080000	0			
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32			20110103100000	0			
33			20110103110000	0			
34			20110103120000	0			
35			20110103130000	0			
36			20110103140000	0			
37			20110103150000	0			
38			20110103160000	44			

	O	P	Q	R	S	T	U	V	W	X
1					Lockyer					
2					Curve:	Discharge	At	Node	17	of
3					File:	/usr/local/foo/dat/BrisbaneCatchment/CaseOutput/201101081500_72hr/201101081500_72hr.SAV.h17				
4					Number	of	Records:	361		
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8					20110102100000	0				
9					20110102110000	0				
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25					20110103030000	0				
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27					20110103050000	0				
28					20110103060000	0				
29					20110103070000	0				
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32					20110103100000	0				
33					20110103110000	0				
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36					20110103140000	0				
37					20110103150000	0				
38					20110103160000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1								Bremer				
2	SAV	-	Lockyer	Creek	at	O'Reilly's	Weir	Curve:	Output	Discharge	For	IPS
3								File:	/usr/local/foo/dat/BrisbaneCatchment/CaseOutput/201101081500_72hr/201101081500_72hr.IPS.h0			
4								Number	of	Records:	361	
5								Minimum	Value:	0		
6								Maximum	Value:	768.555		
7								20110102090000	0			
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29								20110103070000	0			
30								20110103080000	0			
31								20110103090000	0			
32								20110103100000	0			
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	AK	AL	AM	AN	AO	AP
1				**Somerset Outflow**		
2				Curve:	Outflow	For
3				File:	/usr/local/foo/dat/BrisbaneCatchment/CaseOutput/201101081500_72hr/201101081500_72hr.SDO.h0	
4				Number	of	Records:
5				Minimum	Value:	0.686
6				Maximum	Value:	1520.533
7				2.01101E+13	0.686	
8				2.01101E+13	0.686	
9				2.01101E+13	0.686	
10				2.01101E+13	0.686	
11				2.01101E+13	0.686	
12				2.01101E+13	0.686	
13				2.01101E+13	0.686	
14				2.01101E+13	0.686	
15				2.01101E+13	0.686	
16				2.01101E+13	0.686	
17				2.01101E+13	0.686	
18				2.01101E+13	0.686	
19				2.01101E+13	0.686	
20				2.01101E+13	0.686	
21				2.01101E+13	0.686	
22				2.01101E+13	0.686	
23				2.01101E+13	0.687	
24				2.01101E+13	0.687	
25				2.01101E+13	0.687	
26				2.01101E+13	0.687	
27				2.01101E+13	0.687	
28				2.01101E+13	0.687	
29				2.01101E+13	0.687	
30				2.01101E+13	0.687	
31				2.01101E+13	0.687	
32				2.01101E+13	0.687	
33				2.01101E+13	0.687	
34				2.01101E+13	0.687	
35				2.01101E+13	0.687	
36				2.01101E+13	0.687	
37				2.01101E+13	0.687	
38				2.01101E+13	0.687	

	AQ	AR
1		
2	Somerset	(cumecs)
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4	361	
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	A	B	C	D	E	F	G
39	20110103170000	1					
40	20110103180000	1					
41	20110103190000	1					
42	20110103200000	1					
43	20110103210000	1					
44	20110103220000	18					
45	20110103230000	3					
46	20110104000000	2					
47	20110104010000	2					
48	20110104020000	2					
49	20110104030000	2					
50	20110104040000	2					
51	20110104050000	2					
52	20110104060000	2					
53	20110104070000	1					
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55	20110104090000	1					
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69	20110104230000	1					
70	20110105000000	1					
71	20110105010000	1					
72	20110105020000	1					
73	20110105030000	1					
74	20110105040000	1					
75	20110105050000	1					
76	20110105060000	1					

	H	I	J	K	L	M	N
39			20110103170000	111			
40			20110103180000	85			
41			20110103190000	66			
42			20110103200000	54			
43			20110103210000	45			
44			20110103220000	43			
45			20110103230000	34			
46			20110104000000	30			
47			20110104010000	27			
48			20110104020000	24			
49			20110104030000	22			
50			20110104040000	20			
51			20110104050000	18			
52			20110104060000	17			
53			20110104070000	16			
54			20110104080000	15			
55			20110104090000	14			
56			20110104100000	13			
57			20110104110000	12			
58			20110104120000	12			
59			20110104130000	11			
60			20110104140000	10			
61			20110104150000	10			
62			20110104160000	9			
63			20110104170000	9			
64			20110104180000	8			
65			20110104190000	8			
66			20110104200000	8			
67			20110104210000	7			
68			20110104220000	7			
69			20110104230000	7			
70			20110105000000	6			
71			20110105010000	6			
72			20110105020000	6			
73			20110105030000	6			
74			20110105040000	5			
75			20110105050000	5			
76			20110105060000	5			

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41					20110103190000	0				
42					20110103200000	0				
43					20110103210000	0				
44					20110103220000	0				
45					20110103230000	0				
46					20110104000000	0				
47					20110104010000	0				
48					20110104020000	0				
49					20110104030000	0				
50					20110104040000	0				
51					20110104050000	0				
52					20110104060000	0				
53					20110104070000	0				
54					20110104080000	0				
55					20110104090000	0				
56					20110104100000	0				
57					20110104110000	0				
58					20110104120000	0				
59					20110104130000	0				
60					20110104140000	0				
61					20110104150000	0				
62					20110104160000	0				
63					20110104170000	0				
64					20110104180000	0				
65					20110104190000	0				
66					20110104200000	0				
67					20110104210000	0				
68					20110104220000	0				
69					20110104230000	0				
70					20110105000000	0				
71					20110105010000	0				
72					20110105020000	0				
73					20110105030000	0				
74					20110105040000	0				
75					20110105050000	0				
76					20110105060000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
39								20110103170000	0			
40								20110103180000	0			
41								20110103190000	0			
42								20110103200000	0			
43								20110103210000	0			
44								20110103220000	0			
45								20110103230000	0			
46								20110104000000	0			
47								20110104010000	0			
48								20110104020000	0			
49								20110104030000	0			
50								20110104040000	0			
51								20110104050000	0			
52								20110104060000	0			
53								20110104070000	0			
54								20110104080000	0			
55								20110104090000	0			
56								20110104100000	0			
57								20110104110000	0			
58								20110104120000	0			
59								20110104130000	0			
60								20110104140000	0			
61								20110104150000	0			
62								20110104160000	0			
63								20110104170000	0			
64								20110104180000	0			
65								20110104190000	0			
66								20110104200000	0			
67								20110104210000	0			
68								20110104220000	0			
69								20110104230000	0			
70								20110105000000	0			
71								20110105010000	0			
72								20110105020000	0			
73								20110105030000	0			
74								20110105040000	0			
75								20110105050000	0			
76								20110105060000	0			

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41				2.01101E+13	0.687	
42				2.01101E+13	0.687	
43				2.01101E+13	0.687	
44				2.01101E+13	0.687	
45				2.01101E+13	0.687	
46				2.01101E+13	0.687	
47				2.01101E+13	0.687	
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49				2.01101E+13	0.688	
50				2.01101E+13	0.688	
51				2.01101E+13	0.688	
52				2.01101E+13	0.688	
53				2.01101E+13	0.688	
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63				2.01101E+13	0.688	
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66				2.01101E+13	0.688	
67				2.01101E+13	0.688	
68				2.01101E+13	0.688	
69				2.01101E+13	0.688	
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72				2.01101E+13	0.688	
73				2.01101E+13	0.688	
74				2.01101E+13	0.688	
75				2.01101E+13	0.688	
76				2.01101E+13	0.688	

	AQ	AR
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	A	B	C	D	E	F	G
77	20110105070000	1					
78	20110105080000	1					
79	20110105090000	1					
80	20110105100000	1					
81	20110105110000	1					
82	20110105120000	1					
83	20110105130000	1					
84	20110105140000	1					
85	20110105150000	1					
86	20110105160000	1					
87	20110105170000	1					
88	20110105180000	1					
89	20110105190000	149					
90	20110105200000	243					
91	20110105210000	103					
92	20110105220000	99					
93	20110105230000	91					
94	20110106000000	87					
95	20110106010000	84					
96	20110106020000	81					
97	20110106030000	79					
98	20110106040000	77					
99	20110106050000	74					
100	20110106060000	71					
101	20110106070000	68					
102	20110106080000	66					
103	20110106090000	63					
104	20110106100000	62					
105	20110106110000	61					
106	20110106120000	71					
107	20110106130000	90					
108	20110106140000	101					
109	20110106150000	105					
110	20110106160000	111					
111	20110106170000	120					
112	20110106180000	133					
113	20110106190000	151					
114	20110106200000	178					

	H	I	J	K	L	M	N
77			20110105070000	5			
78			20110105080000	5			
79			20110105090000	4			
80			20110105100000	4			
81			20110105110000	4			
82			20110105120000	4			
83			20110105130000	4			
84			20110105140000	4			
85			20110105150000	3			
86			20110105160000	9			
87			20110105170000	20			
88			20110105180000	31			
89			20110105190000	64			
90			20110105200000	125			
91			20110105210000	181			
92			20110105220000	199			
93			20110105230000	182			
94			20110106000000	167			
95			20110106010000	155			
96			20110106020000	145			
97			20110106030000	138			
98			20110106040000	131			
99			20110106050000	125			
100			20110106060000	119			
101			20110106070000	114			
102			20110106080000	109			
103			20110106090000	104			
104			20110106100000	100			
105			20110106110000	106			
106			20110106120000	226			
107			20110106130000	372			
108			20110106140000	358			
109			20110106150000	307			
110			20110106160000	273			
111			20110106170000	253			
112			20110106180000	240			
113			20110106190000	229			
114			20110106200000	220			

	O	P	Q	R	S	T	U	V	W	X
77					20110105070000	0				
78					20110105080000	0				
79					20110105090000	0				
80					20110105100000	0				
81					20110105110000	0				
82					20110105120000	0				
83					20110105130000	0				
84					20110105140000	0				
85					20110105150000	0				
86					20110105160000	0				
87					20110105170000	0				
88					20110105180000	5				
89					20110105190000	14				
90					20110105200000	23				
91					20110105210000	31				
92					20110105220000	37				
93					20110105230000	45				
94					20110106000000	55				
95					20110106010000	67				
96					20110106020000	79				
97					20110106030000	90				
98					20110106040000	101				
99					20110106050000	110				
100					20110106060000	117				
101					20110106070000	123				
102					20110106080000	127				
103					20110106090000	130				
104					20110106100000	132				
105					20110106110000	144				
106					20110106120000	166				
107					20110106130000	176				
108					20110106140000	176				
109					20110106150000	180				
110					20110106160000	187				
111					20110106170000	195				
112					20110106180000	205				
113					20110106190000	214				
114					20110106200000	223				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
77								20110105070000	0			
78								20110105080000	0			
79								20110105090000	0			
80								20110105100000	0			
81								20110105110000	0			
82								20110105120000	0			
83								20110105130000	0			
84								20110105140000	0			
85								20110105150000	0			
86								20110105160000	0			
87								20110105170000	1			
88								20110105180000	1			
89								20110105190000	3			
90								20110105200000	9			
91								20110105210000	28			
92								20110105220000	59			
93								20110105230000	96			
94								20110106000000	126			
95								20110106010000	144			
96								20110106020000	152			
97								20110106030000	152			
98								20110106040000	149			
99								20110106050000	143			
100								20110106060000	135			
101								20110106070000	127			
102								20110106080000	119			
103								20110106090000	111			
104								20110106100000	103			
105								20110106110000	109			
106								20110106120000	138			
107								20110106130000	153			
108								20110106140000	142			
109								20110106150000	134			
110								20110106160000	132			
111								20110106170000	135			
112								20110106180000	142			
113								20110106190000	156			
114								20110106200000	175			

	AK	AL	AM	AN	AO	AP
77				2.01101E+13	0.688	
78				2.01101E+13	0.688	
79				2.01101E+13	0.688	
80				2.01101E+13	0.688	
81				2.01101E+13	0.688	
82				2.01101E+13	0.688	
83				2.01101E+13	0.688	
84				2.01101E+13	0.688	
85				2.01101E+13	0.688	
86				2.01101E+13	0.688	
87				2.01101E+13	0.688	
88				2.01101E+13	0.688	
89				2.01101E+13	0.688	
90				2.01101E+13	0.688	
91				2.01101E+13	0.688	
92				2.01101E+13	0.688	
93				2.01101E+13	0.688	
94				2.01101E+13	0.688	
95				2.01101E+13	0.688	
96				2.01101E+13	0.688	
97				2.01101E+13	0.688	
98				2.01101E+13	0.688	
99				2.01101E+13	0.688	
100				2.01101E+13	0.688	
101				2.01101E+13	0.688	
102				2.01101E+13	0.689	
103				2.01101E+13	0.689	
104				2.01101E+13	0.689	
105				2.01101E+13	0.689	
106				2.01101E+13	0.689	
107				2.01101E+13	0.689	
108				2.01101E+13	0.689	
109				2.01101E+13	0.689	
110				2.01101E+13	0.689	
111				2.01101E+13	0.69	
112				2.01101E+13	0.69	
113				2.01101E+13	0.69	
114				2.01101E+13	0.69	

	AQ	AR
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	A	B	C	D	E	F	G
115	20110106210000	218					
116	20110106220000	277					
117	20110106230000	358					
118	20110107000000	463					
119	20110107010000	653					
120	20110107020000	746					
121	20110107030000	888					
122	20110107040000	1020					
123	20110107050000	1131					
124	20110107060000	1214					
125	20110107070000	1268					
126	20110107080000	1338					
127	20110107090000	1333					
128	20110107100000	1318					
129	20110107110000	1688					
130	20110107120000	1717					
131	20110107130000	1558					
132	20110107140000	1440					
133	20110107150000	1385					
134	20110107160000	1342					
135	20110107170000	1310					
136	20110107180000	1293					
137	20110107190000	1289					
138	20110107200000	1298					
139	20110107210000	1316					
140	20110107220000	1340					
141	20110107230000	1366					
142	20110108000000	1393					
143	20110108010000	1418					
144	20110108020000	1441					
145	20110108030000	1461					
146	20110108040000	1475					
147	20110108050000	1481					
148	20110108060000	1477					
149	20110108070000	1462					
150	20110108080000	1436					
151	20110108090000	1398					
152	20110108100000	1351					

	H	I	J	K	L	M	N
115			20110106210000	212			
116			20110106220000	205			
117			20110106230000	198			
118			20110107000000	193			
119			20110107010000	218			
120			20110107020000	225			
121			20110107030000	208			
122			20110107040000	199			
123			20110107050000	223			
124			20110107060000	231			
125			20110107070000	257			
126			20110107080000	364			
127			20110107090000	359			
128			20110107100000	372			
129			20110107110000	541			
130			20110107120000	681			
131			20110107130000	738			
132			20110107140000	697			
133			20110107150000	640			
134			20110107160000	602			
135			20110107170000	575			
136			20110107180000	559			
137			20110107190000	536			
138			20110107200000	512			
139			20110107210000	488			
140			20110107220000	464			
141			20110107230000	440			
142			20110108000000	416			
143			20110108010000	392			
144			20110108020000	369			
145			20110108030000	347			
146			20110108040000	326			
147			20110108050000	305			
148			20110108060000	286			
149			20110108070000	269			
150			20110108080000	252			
151			20110108090000	236			
152			20110108100000	222			

	O	P	Q	R	S	T	U	V	W	X
115					20110106210000	231				
116					20110106220000	240				
117					20110106230000	249				
118					20110107000000	260				
119					20110107010000	271				
120					20110107020000	285				
121					20110107030000	300				
122					20110107040000	317				
123					20110107050000	337				
124					20110107060000	358				
125					20110107070000	380				
126					20110107080000	402				
127					20110107090000	437				
128					20110107100000	469				
129					20110107110000	487				
130					20110107120000	504				
131					20110107130000	521				
132					20110107140000	537				
133					20110107150000	551				
134					20110107160000	563				
135					20110107170000	573				
136					20110107180000	580				
137					20110107190000	584				
138					20110107200000	586				
139					2011[redacted]	584				
140					20110107220000	579				
141					20110107230000	573				
142					20110108000000	564				
143					20110108010000	554				
144					20110108020000	543				
145					20110108030000	531				
146					20110108040000	518				
147					20110108050000	505				
148					20110108060000	491				
149					20110108070000	477				
150					20110108080000	464				
151					20110108090000	450				
152					20110108100000	436				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
115								20110106210000	200			
116								20110106220000	231			
117								20110106230000	262			
118								20110107000000	289			
119								20110107010000	313			
120								20110107020000	330			
121								20110107030000	341			
122								20110107040000	346			
123								20110107050000	347			
124								20110107060000	343			
125								20110107070000	337			
126								20110107080000	328			
127								20110107090000	346			
128								20110107100000	380			
129								20110107110000	385			
130								20110107120000	379			
131								20110107130000	380			
132								20110107140000	385			
133								20110107150000	389			
134								20110107160000	392			
135								20110107170000	391			
136								20110107180000	387			
137								20110107190000	380			
138								20110107200000	371			
139								20110107210000	359			
140								20110107220000	347			
141								20110107230000	335			
142								20110108000000	322			
143								20110108010000	308			
144								20110108020000	295			
145								20110108030000	282			
146								20110108040000	270			
147								20110108050000	258			
148								20110108060000	246			
149								20110108070000	235			
150								20110108080000	224			
151								20110108090000	214			
152								20110108100000	204			

	AK	AL	AM	AN	AO	AP
115				2.01101E+13	0.69	
116				2.01101E+13	0.69	
117				2.01101E+13	0.69	
118				2.01101E+13	0.691	
119				2.01101E+13	0.691	
120				2.01101E+13	0.691	
121				2.01101E+13	0.691	
122				2.01101E+13	0.691	
123				2.01101E+13	0.691	
124				2.01101E+13	0.692	
125				2.01101E+13	0.692	
126				2.01101E+13	0.692	
127				2.01101E+13	0.692	
128				2.01101E+13	0.692	
129				2.01101E+13	0.693	
130				2.01101E+13	0.693	
131				2.01101E+13	0.694	
132				2.01101E+13	0.695	
133				2.01101E+13	0.695	
134				2.01101E+13	0.696	
135				2.01101E+13	0.697	
136				2.01101E+13	0.697	
137				2.01101E+13	0.698	
138				2.01101E+13	0.698	
139				2.01101E+13	0.698	
140				2.01101E+13	0.699	
141				2.01101E+13	0.699	
142				2.01101E+13	0.7	
143				2.01101E+13	0.7	
144				2.01101E+13	0.7	
145				2.01101E+13	0.7	
146				2.01101E+13	0.701	
147				2.01101E+13	0.701	
148				2.01101E+13	0.701	
149				2.01101E+13	0.701	
150				2.01101E+13	0.701	
151				2.01101E+13	0.701	
152				2.01101E+13	0.701	

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153	20110108110000	1297					
154	20110108120000	1238					
155	20110108130000	1174					
156	20110108140000	1110					
157	20110108150000	1045					
158	20110108160000	981					
159	20110108170000	920					
160	20110108180000	861					
161	20110108190000	805					
162	20110108200000	753					
163	20110108210000	704					
164	20110108220000	659					
165	20110108230000	619					
166	20110109000000	582					
167	20110109010000	547					
168	20110109020000	516					
169	20110109030000	487					
170	20110109040000	460					
171	20110109050000	436					
172	20110109060000	413					
173	20110109070000	392					
174	20110109080000	372					
175	20110109090000	354					
176	20110109100000	336					
177	20110109110000	320					
178	20110109120000	305					
179	20110109130000	290					
180	20110109140000	276					
181	20110109150000	263					
182	20110109160000	251					
183	20110109170000	239					
184	20110109180000	228					
185	20110109190000	218					
186	20110109200000	208					
187	20110109210000	199					
188	20110109220000	191					
189	20110109230000	184					
190	20110110000000	177					

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153			20110108110000	208			
154			20110108120000	196			
155			20110108130000	184			
156			20110108140000	176			
157			20110108150000	172			
158			20110108160000	171			
159			20110108170000	168			
160			20110108180000	164			
161			20110108190000	159			
162			20110108200000	155			
163			20110108210000	150			
164			20110108220000	145			
165			20110108230000	140			
166			20110109000000	135			
167			20110109010000	130			
168			20110109020000	125			
169			20110109030000	121			
170			20110109040000	116			
171			20110109050000	111			
172			20110109060000	107			
173			20110109070000	102			
174			20110109080000	98			
175			20110109090000	93			
176			20110109100000	89			
177			20110109110000	85			
178			20110109120000	81			
179			20110109130000	78			
180			20110109140000	78			
181			20110109150000	78			
182			20110109160000	78			
183			20110109170000	89			
184			20110109180000	103			
185			20110109190000	116			
186			20110109200000	130			
187			20110109210000	157			
188			20110109220000	181			
189			20110109230000	203			
190			20110110000000	218			

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154					20110108120000	409				
155					20110108130000	396				
156					20110108140000	384				
157					20110108150000	372				
158					20110108160000	361				
159					20110108170000	350				
160					20110108180000	339				
161					20110108190000	328				
162					20110108200000	318				
163					20110108210000	308				
164					20110108220000	299				
165					20110108230000	289				
166					20110109000000	280				
167					20110109010000	272				
168					20110109020000	263				
169					20110109030000	255				
170					20110109040000	247				
171					20110109050000	239				
172					20110109060000	231				
173					20110109070000	223				
174					20110109080000	216				
175					20110109090000	209				
176					20110109100000	201				
177					20110109110000	194				
178					20110109120000	188				
179					20110109130000	181				
180					20110109140000	175				
181					20110109150000	168				
182					20110109160000	162				
183					20110109170000	156				
184					20110109180000	150				
185					20110109190000	145				
186					20110109200000	139				
187					20110109210000	134				
188					20110109220000	129				
189					20110109230000	124				
190					20110110000000	119				

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153								20110108110000	195			
154								20110108120000	186			
155								20110108130000	178			
156								20110108140000	172			
157								20110108150000	165			
158								20110108160000	158			
159								20110108170000	151			
160								20110108180000	144			
161								20110108190000	138			
162								20110108200000	132			
163								20110108210000	126			
164								20110108220000	121			
165								20110108230000	116			
166								20110109000000	111			
167								20110109010000	106			
168								20110109020000	102			
169								20110109030000	98			
170								20110109040000	94			
171								20110109050000	90			
172								20110109060000	87			
173								20110109070000	84			
174								20110109080000	81			
175								20110109090000	78			
176								20110109100000	75			
177								20110109110000	72			
178								20110109120000	70			
179								20110109130000	67			
180								20110109140000	65			
181								20110109150000	63			
182								20110109160000	61			
183								20110109170000	60			
184								20110109180000	60			
185								20110109190000	61			
186								20110109200000	62			
187								20110109210000	66			
188								20110109220000	72			
189								20110109230000	79			
190								20110110000000	86			

	AK	AL	AM	AN	AO	AP
153				2.01101E+13	0.701	
154				2.01101E+13	0.701	
155				2.01101E+13	0.701	
156				2.01101E+13	0.701	
157				2.01101E+13	0.701	
158				2.01101E+13	0.701	
159				2.01101E+13	0.701	
160				2.01101E+13	0.702	
161				2.01101E+13	0.702	
162				2.01101E+13	0.702	
163				2.01101E+13	0.702	
164				2.01101E+13	0.702	
165				2.01101E+13	2.403	
166				2.01101E+13	2.837	
167				2.01101E+13	3.284	
168				2.01101E+13	3.737	
169				2.01101E+13	4.193	
170				2.01101E+13	4.649	
171				2.01101E+13	5.101	
172				2.01101E+13	5.546	
173				2.01101E+13	5.982	
174				2.01101E+13	6.408	
175				2.01101E+13	6.822	
176				2.01101E+13	7.223	
177				2.01101E+13	7.611	
178				2.01101E+13	7.984	
179				2.01101E+13	8.342	
180				2.01101E+13	8.695	
181				2.01101E+13	9.052	
182				2.01101E+13	9.411	
183				2.01101E+13	9.805	
184				2.01101E+13	10.27	
185				2.01101E+13	10.814	
186				2.01101E+13	11.441	
187				2.01101E+13	12.193	
188				2.01101E+13	13.107	
189				2.01101E+13	14.179	
190				2.01101E+13	15.386	

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	A	B	C	D	E	F	G
191	20110110010000	172					
192	20110110020000	168					
193	20110110030000	165					
194	20110110040000	164					
195	20110110050000	165					
196	20110110060000	168					
197	20110110070000	174					
198	20110110080000	183					
199	20110110090000	195					
200	20110110100000	210					
201	20110110110000	229					
202	20110110120000	252					
203	20110110130000	279					
204	20110110140000	310					
205	20110110150000	346					
206	20110110160000	385					
207	20110110170000	428					
208	20110110180000	474					
209	20110110190000	523					
210	20110110200000	574					
211	20110110210000	627					
212	20110110220000	691					
213	20110110230000	750					
214	20110111000000	812					
215	20110111010000	870					
216	20110111020000	925					
217	20110111030000	985					
218	20110111040000	1046					
219	20110111050000	1108					
220	20110111060000	1169					
221	20110111070000	1229					
222	20110111080000	1289					
223	20110111090000	1346					
224	20110111100000	1400					
225	20110111110000	1450					
226	20110111120000	1495					
227	20110111130000	1535					
228	20110111140000	1569					

	H	I	J	K	L	M	N
191			20110110010000	228			
192			20110110020000	238			
193			20110110030000	249			
194			20110110040000	277			
195			20110110050000	305			
196			20110110060000	331			
197			20110110070000	356			
198			20110110080000	378			
199			20110110090000	400			
200			20110110100000	421			
201			20110110110000	441			
202			20110110120000	461			
203			20110110130000	479			
204			20110110140000	501			
205			20110110150000	537			
206			20110110160000	571			
207			20110110170000	603			
208			20110110180000	631			
209			20110110190000	658			
210			20110110200000	682			
211			20110110210000	706			
212			20110110220000	737			
213			20110110230000	769			
214			20110111000000	797			
215			20110111010000	819			
216			20110111020000	834			
217			20110111030000	848			
218			20110111040000	861			
219			20110111050000	867			
220			20110111060000	870			
221			20110111070000	874			
222			20110111080000	874			
223			20110111090000	858			
224			20110111100000	843			
225			20110111110000	829			
226			20110111120000	818			
227			20110111130000	807			
228			20110111140000	797			

	O	P	Q	R	S	T	U	V	W	X
191					20110110010000	114				
192					20110110020000	110				
193					20110110030000	106				
194					20110110040000	102				
195					20110110050000	98				
196					20110110060000	94				
197					20110110070000	90				
198					20110110080000	87				
199					20110110090000	83				
200					20110110100000	80				
201					20110110110000	77				
202					20110110120000	74				
203					20110110130000	71				
204					20110110140000	69				
205					20110110150000	67				
206					20110110160000	67				
207					20110110170000	67				
208					20110110180000	66				
209					20110110190000	66				
210					20110110200000	67				
211					20110110210000	67				
212					20110110220000	69				
213					20110110230000	72				
214					20110111000000	75				
215					20110111010000	79				
216					20110111020000	83				
217					20110111030000	86				
218					20110111040000	90				
219					20110111050000	94				
220					20110111060000	97				
221					20110111070000	100				
222					20110111080000	102				
223					20110111090000	103				
224					20110111100000	105				
225					20110111110000	105				
226					20110111120000	106				
227					20110111130000	106				
228					20110111140000	105				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
191								20110110010000	93			
192								20110110020000	100			
193								20110110030000	108			
194								20110110040000	119			
195								20110110050000	134			
196								20110110060000	149			
197								20110110070000	165			
198								20110110080000	182			
199								20110110090000	199			
200								20110110100000	217			
201								20110110110000	236			
202								20110110120000	255			
203								20110110130000	274			
204								20110110140000	294			
205								20110110150000	317			
206								20110110160000	342			
207								20110110170000	367			
208								20110110180000	392			
209								20110110190000	418			
210								20110110200000	445			
211								20110110210000	473			
212								20110110220000	502			
213								20110110230000	534			
214								20110111000000	565			
215								20110111010000	596			
216								20110111020000	625			
217								20110111030000	652			
218								20110111040000	679			
219								20110111050000	703			
220								20110111060000	724			
221								20110111070000	742			
222								20110111080000	756			
223								20110111090000	765			
224								20110111100000	768			
225								20110111110000	769			
226								20110111120000	766			
227								20110111130000	760			
228								20110111140000	751			

	AK	AL	AM	AN	AO	AP
191				2.01101E+13	16.698	
192				2.01101E+13	18.103	
193				2.01101E+13	19.606	
194				2.01101E+13	21.271	
195				2.01101E+13	23.17	
196				2.01101E+13	25.307	
197				2.01101E+13	27.677	
198				2.01101E+13	30.278	
199				2.01101E+13	33.108	
200				2.01101E+13	36.171	
201				2.01101E+13	39.465	
202				2.01101E+13	42.992	
203				2.01101E+13	46.751	
204				2.01101E+13	50.758	
205				2.01101E+13	55.095	
206				2.01101E+13	59.839	
207				2.01101E+13	64.981	
208				2.01101E+13	70.5	
209				2.01101E+13	76.381	
210				2.01101E+13	82.611	
211				2.01101E+13	89.179	
212				2.01101E+13	96.128	
213				2.01101E+13	103.504	
214				2.01101E+13	111.301	
215				2.01101E+13	119.468	
216				2.01101E+13	127.929	
217				2.01101E+13	136.626	
218				2.01101E+13	145.547	
219				2.01101E+13	154.639	
220				2.01101E+13	163.827	
221				2.01101E+13	173.083	
222				2.01101E+13	182.381	
223				2.01101E+13	191.587	
224				2.01101E+13	200.578	
225				2.01101E+13	209.357	
226				2.01101E+13	217.942	
227				2.01101E+13	226.339	
228				2.01101E+13	234.549	

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	A	B	C	D	E	F	G
229	20110111150000	1596					
230	20110111160000	1616					
231	20110111170000	1628					
232	20110111180000	1633					
233	20110111190000	1631					
234	20110111200000	1767					
235	20110111210000	1892					
236	20110111220000	2080					
237	20110111230000	2044					
238	20110112000000	2003					
239	20110112010000	1956					
240	20110112020000	1904					
241	20110112030000	1850					
242	20110112040000	1793					
243	20110112050000	1734					
244	20110112060000	1675					
245	20110112070000	1616					
246	20110112080000	1558					
247	20110112090000	1501					
248	20110112100000	1446					
249	20110112110000	1604					
250	20110112120000	1550					
251	20110112130000	1498					
252	20110112140000	1449					
253	20110112150000	1612					
254	20110112160000	1565					
255	20110112170000	1520					
256	20110112180000	1478					
257	20110112190000	1438					
258	20110112200000	1609					
259	20110112210000	1571					
260	20110112220000	1535					
261	20110112230000	1501					
262	20110113000000	1470					
263	20110113010000	1440					
264	20110113020000	1620					
265	20110113030000	1592					
266	20110113040000	1566					

	H	I	J	K	L	M	N
229			20110111150000	786			
230			20110111160000	735			
231			20110111170000	683			
232			20110111180000	638			
233			20110111190000	598			
234			20110111200000	562			
235			20110111210000	528			
236			20110111220000	496			
237			20110111230000	466			
238			20110112000000	437			
239			20110112010000	411			
240			20110112020000	385			
241			20110112030000	361			
242			20110112040000	338			
243			20110112050000	317			
244			20110112060000	297			
245			20110112070000	278			
246			20110112080000	261			
247			20110112090000	245			
248			20110112100000	229			
249			20110112110000	215			
250			20110112120000	202			
251			20110112130000	189			
252			20110112140000	177			
253			20110112150000	167			
254			20110112160000	156			
255			20110112170000	147			
256			20110112180000	138			
257			20110112190000	130			
258			20110112200000	122			
259			20110112210000	115			
260			20110112220000	108			
261			20110112230000	102			
262			20110113000000	96			
263			20110113010000	90			
264			20110113020000	85			
265			20110113030000	80			
266			20110113040000	76			

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229					20110111150000	105				
230					20110111160000	104				
231					20110111170000	103				
232					20110111180000	102				
233					20110111190000	102				
234					20110111200000	101				
235					20110111210000	101				
236					20110111220000	101				
237					20110111230000	101				
238					20110112000000	102				
239					20110112010000	103				
240					20110112020000	104				
241					20110112030000	105				
242					20110112040000	106				
243					20110112050000	108				
244					20110112060000	110				
245					20110112070000	111				
246					20110112080000	113				
247					20110112090000	115				
248					20110112100000	116				
249					20110112110000	117				
250					20110112120000	119				
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252					20110112140000	120				
253					20110112150000	121				
254					20110112160000	121				
255					20110112170000	121				
256					20110112180000	121				
257					20110112190000	120				
258					20110112200000	120				
259					20110112210000	119				
260					20110112220000	117				
261					20110112230000	116				
262					20110113000000	114				
263					20110113010000	113				
264					20110113020000	111				
265					20110113030000	109				
266					20110113040000	106				

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230								20110111160000	723			
231								20110111170000	700			
232								20110111180000	675			
233								20110111190000	649			
234								20110111200000	621			
235								20110111210000	592			
236								20110111220000	562			
237								20110111230000	532			
238								20110112000000	502			
239								20110112010000	473			
240								20110112020000	445			
241								20110112030000	419			
242								20110112040000	393			
243								20110112050000	369			
244								20110112060000	347			
245								20110112070000	325			
246								20110112080000	305			
247								20110112090000	287			
248								20110112100000	269			
249								20110112110000	253			
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252								20110112140000	211			
253								20110112150000	198			
254								20110112160000	187			
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256								20110112180000	167			
257								20110112190000	158			
258								20110112200000	149			
259								20110112210000	141			
260								20110112220000	134			
261								20110112230000	127			
262								20110113000000	120			
263								20110113010000	114			
264								20110113020000	109			
265								20110113030000	103			
266								20110113040000	98			

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230				2.01101E+13	250.103	
231				2.01101E+13	256.826	
232				2.01101E+13	262.78	
233				2.01101E+13	268.049	
234				2.01101E+13	416.997	
235				2.01101E+13	561.419	
236				2.01101E+13	773.882	
237				2.01101E+13	769.364	
238				2.01101E+13	764.486	
239				2.01101E+13	759.284	
240				2.01101E+13	753.792	
241				2.01101E+13	748.037	
242				2.01101E+13	742.054	
243				2.01101E+13	735.869	
244				2.01101E+13	729.512	
245				2.01101E+13	723.009	
246				2.01101E+13	716.383	
247				2.01101E+13	709.659	
248				2.01101E+13	702.86	
249				2.01101E+13	906.455	
250				2.01101E+13	896.458	
251				2.01101E+13	886.552	
252				2.01101E+13	876.751	
253				2.01101E+13	1076.886	
254				2.01101E+13	1064.333	
255				2.01101E+13	1052.07	
256				2.01101E+13	1040.112	
257				2.01101E+13	1028.467	
258				2.01101E+13	1225.96	
259				2.01101E+13	1212.244	
260				2.01101E+13	1199.079	
261				2.01101E+13	1186.489	
262				2.01101E+13	1174.498	
263				2.01101E+13	1163.139	
264				2.01101E+13	1359.85	
265				2.01101E+13	1347.779	
266				2.01101E+13	1336.864	

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268	20110113060000	1523					
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270	20110113080000	1698					
271	20110113090000	1685					
272	20110113100000	1672					
273	20110113110000	1660					
274	20110113120000	1648					
275	20110113130000	1638					
276	20110113140000	1627					
277	20110113150000	1617					
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279	20110113170000	1331					
280	20110113180000	1186					
281	20110113190000	1046					
282	20110113200000	907					
283	20110113210000	764					
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285	20110113230000	489					
286	20110114000000	349					
287	20110114010000	277					
288	20110114020000	205					
289	20110114030000	133					
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291	20110114050000	127					
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293	20110114070000	122					
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303	20110114170000	102					
304	20110114180000	101					

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268			20110113060000	68			
269			20110113070000	64			
270			20110113080000	60			
271			20110113090000	57			
272			20110113100000	54			
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275			20110113130000	46			
276			20110113140000	43			
277			20110113150000	41			
278			20110113160000	39			
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280			20110113180000	35			
281			20110113190000	33			
282			20110113200000	32			
283			20110113210000	30			
284			20110113220000	29			
285			20110113230000	27			
286			20110114000000	26			
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288			20110114020000	23			
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293			20110114070000	19			
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295			20110114090000	17			
296			20110114100000	16			
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300			20110114140000	13			
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302			20110114160000	12			
303			20110114170000	12			
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269					20110113070000	99				
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271					20110113090000	94				
272					20110113100000	92				
273					20110113110000	89				
274					20110113120000	87				
275					20110113130000	85				
276					20110113140000	82				
277					20110113150000	80				
278					20110113160000	77				
279					20110113170000	75				
280					20110113180000	73				
281					20110113190000	70				
282					20110113200000	68				
283					20110113210000	66				
284					20110113220000	64				
285					20110113230000	62				
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293					20110114070000	47				
294					20110114080000	46				
295					20110114090000	44				
296					20110114100000	43				
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271								20110113090000	78			
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273								20110113110000	72			
274								20110113120000	69			
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279								20110113170000	56			
280								20110113180000	54			
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268				2.01101E+13	1319.372	
269				2.01101E+13	1520.533	
270				2.01101E+13	1517.589	
271				2.01101E+13	1514.61	
272				2.01101E+13	1511.595	
273				2.01101E+13	1508.544	
274				2.01101E+13	1505.457	
275				2.01101E+13	1502.332	
276				2.01101E+13	1499.171	
277				2.01101E+13	1495.972	
278				2.01101E+13	1359.014	
279				2.01101E+13	1222.838	
280				2.01101E+13	1083.34	
281				2.01101E+13	948.536	
282				2.01101E+13	814.3	
283				2.01101E+13	676.533	
284				2.01101E+13	543.208	
285				2.01101E+13	410.213	
286				2.01101E+13	273.448	
287				2.01101E+13	205.022	
288				2.01101E+13	136.652	
289				2.01101E+13	68.318	
290				2.01101E+13	68.313	
291				2.01101E+13	68.308	
292				2.01101E+13	68.304	
293				2.01101E+13	68.299	
294				2.01101E+13	68.294	
295				2.01101E+13	68.288	
296				2.01101E+13	68.283	
297				2.01101E+13	68.278	
298				2.01101E+13	68.273	
299				2.01101E+13	68.267	
300				2.01101E+13	68.262	
301				2.01101E+13	68.256	
302				2.01101E+13	68.25	
303				2.01101E+13	68.245	
304				2.01101E+13	68.239	

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337	20110116030000	77					
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341	20110116070000	76					
342	20110116080000	76					

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306			20110114200000	10			
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313			20110115030000	8			
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315			20110115050000	7			
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317			20110115070000	7			
318			20110115080000	6			
319			20110115090000	6			
320			20110115100000	6			
321			20110115110000	6			
322			20110115120000	5			
323			20110115130000	5			
324			20110115140000	5			
325			20110115150000	5			
326			20110115160000	5			
327			20110115170000	5			
328			20110115180000	4			
329			20110115190000	4			
330			20110115200000	4			
331			20110115210000	4			
332			20110115220000	4			
333			20110115230000	4			
334			20110116000000	4			
335			20110116010000	3			
336			20110116020000	3			
337			20110116030000	3			
338			20110116040000	3			
339			20110116050000	3			
340			20110116060000	3			
341			20110116070000	3			
342			20110116080000	3			

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306					20110114200000	31				
307					20110114210000	30				
308					20110114220000	29				
309					20110114230000	28				
310					20110115000000	27				
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313					20110115030000	24				
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338					20110116040000	12				
339					20110116050000	11				
340					20110116060000	11				
341					20110116070000	11				
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307				2.01101E+13	68.221	
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309				2.01101E+13	68.209	
310				2.01101E+13	68.203	
311				2.01101E+13	68.197	
312				2.01101E+13	68.191	
313				2.01101E+13	68.185	
314				2.01101E+13	68.179	
315				2.01101E+13	68.173	
316				2.01101E+13	68.167	
317				2.01101E+13	68.16	
318				2.01101E+13	68.154	
319				2.01101E+13	68.148	
320				2.01101E+13	68.141	
321				2.01101E+13	68.135	
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326				2.01101E+13	68.103	
327				2.01101E+13	68.096	
328				2.01101E+13	68.09	
329				2.01101E+13	68.083	
330				2.01101E+13	68.077	
331				2.01101E+13	68.07	
332				2.01101E+13	68.063	
333				2.01101E+13	68.057	
334				2.01101E+13	68.05	
335				2.01101E+13	68.044	
336				2.01101E+13	68.037	
337				2.01101E+13	68.03	
338				2.01101E+13	68.023	
339				2.01101E+13	68.017	
340				2.01101E+13	68.01	
341				2.01101E+13	68.003	
342				2.01101E+13	67.997	

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344	20110116100000	75					
345	20110116110000	75					
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356	20110116220000	73					
357	20110116230000	73					
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360	20110117020000	72					
361	20110117030000	72					
362	20110117040000	72					
363	20110117050000	72					
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366	20110117080000	72					
367	20110117090000	72					

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343			20110116090000	3			
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345			20110116110000	2			
346			20110116120000	2			
347			20110116130000	2			
348			20110116140000	2			
349			20110116150000	2			
350			20110116160000	2			
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352			20110116180000	2			
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354			20110116200000	2			
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356			20110116220000	2			
357			20110116230000	2			
358			20110117000000	2			
359			20110117010000	2			
360			20110117020000	2			
361			20110117030000	2			
362			20110117040000	1			
363			20110117050000	1			
364			20110117060000	1			
365			20110117070000	1			
366			20110117080000	1			
367			20110117090000	1			

	O	P	Q	R	S	T	U	V	W	X
343					20110116090000	10				
344					20110116100000	10				
345					20110116110000	10				
346					20110116120000	9				
347					20110116130000	9				
348					20110116140000	9				
349					20110116150000	9				
350					20110116160000	9				
351					20110116170000	8				
352					20110116180000	8				
353					20110116190000	8				
354					20110116200000	8				
355					20110116210000	8				
356					20110116220000	7				
357					20110116230000	7				
358					20110117000000	7				
359					20110117010000	7				
360					20110117020000	7				
361					20110117030000	7				
362					20110117040000	6				
363					20110117050000	6				
364					20110117060000	6				
365					20110117070000	6				
366					20110117080000	6				
367					20110117090000					

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
343								20110116090000	13			
344								20110116100000	13			
345								20110116110000	13			
346								20110116120000	13			
347								20110116130000	12			
348								20110116140000	12			
349								20110116150000	12			
350								20110116160000	12			
351								20110116170000	12			
352								20110116180000	12			
353								20110116190000	12			
354								20110116200000	11			
355								20110116210000	11			
356								20110116220000	11			
357								20110116230000	11			
358								20110117000000	11			
359								20110117010000	11			
360								20110117020000	11			
361								20110117030000	10			
362								20110117040000	10			
363								20110117050000	10			
364								20110117060000	10			
365								20110117070000	10			
366								20110117080000	10			
367								20110117090000	10			

	AK	AL	AM	AN	AO	AP
343				2.01101E+13	67.99	
344				2.01101E+13	67.983	
345				2.01101E+13	67.976	
346				2.01101E+13	67.969	
347				2.01101E+13	67.963	
348				2.01101E+13	67.956	
349				2.01101E+13	67.949	
350				2.01101E+13	67.942	
351				2.01101E+13	67.935	
352				2.01101E+13	67.928	
353				2.01101E+13	67.921	
354				2.01101E+13	67.915	
355				2.01101E+13	67.908	
356				2.01101E+13	67.901	
357				2.01101E+13	67.894	
358				2.01101E+13	67.887	
359				2.01101E+13	67.88	
360				2.01101E+13	67.873	
361				2.01101E+13	67.866	
362				2.01101E+13	67.859	
363				2.01101E+13	67.852	
364				2.01101E+13	67.845	
365				2.01101E+13	67.838	
366				2.01101E+13	67.831	
367				2.01101E+13	67.824	

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Time Factor =	1.00		Date/Time	Wivenhoe Inflow				Somerset Inflow				Locl
2	Flow Factors =	1.00	1.00				BR= 0.9750				BR= 0.9750		
3	Day	Somerset Inflow	Wivenhoe Inflows				BC= 0.0035				BC= 0.0020		
4							BM= 1.0000				BM= 1.0000		
5					Scale Factor= 0.97		1		Scale Factor= 1.08		1		Scale Factor= 1.00
6	0.000	0.0	0.0	Peak (m3/s)	1,716		130	1,721	874		60	981	586
7	0.042	0.0	0.0	Volume (ML)	454,340		80,355	521,066	221,786		27,783	267,313	146,355
8	0.083	0.0	0.0	02/01/2011 09:00	0	0	130	130	0	0	60	60	0
9	0.125	0.0	0.0	02/01/2011 10:00	0	0	127	127	0	0	59	59	0
10	0.167	0.0	0.0	02/01/2011 11:00	0	0	124	124	0	0	57	57	0
11	0.208	0.0	0.0	02/01/2011 12:00	0	0	120	120	0	0	56	56	0
12	0.250	0.0	0.0	02/01/2011 13:00	0	0	117	117	0	0	54	54	0
13	0.292	0.0	0.0	02/01/2011 14:00	0	0	115	115	0	0	53	53	0
14	0.333	0.0	0.0	02/01/2011 15:00	0	0	112	112	0	0	52	52	0
15	0.375	0.2	0.0	02/01/2011 16:00	0	0	109	109	0	0	50	50	0
16	0.417	0.6	0.0	02/01/2011 17:00	0	0	106	106	0	0	49	49	0
17	0.458	1.5	0.0	02/01/2011 18:00	0	0	104	104	0	0	48	48	0
18	0.500	3.2	0.0	02/01/2011 19:00	0	0	101	101	0	0	47	47	0
19	0.542	6.0	0.0	02/01/2011 20:00	0	0	98	98	0	0	45	45	0
20	0.583	10.2	0.0	02/01/2011 21:00	0	0	96	96	0	0	44	44	0
21	0.625	15.7	0.0	02/01/2011 22:00	0	0	94	94	0	0	43	43	0
22	0.667	22.8	0.0	02/01/2011 23:00	0	0	91	91	0	0	42	42	0
23	0.708	31.4	0.0	03/01/2011 00:00	0	0	89	89	0	0	41	41	0
24	0.750	41.4	0.0	03/01/2011 01:00	0	0	87	87	0	0	40	40	0
25	0.792	52.4	0.0	03/01/2011 02:00	0	0	85	85	0	0	39	39	0
26	0.833	63.6	0.0	03/01/2011 03:00	0	0	82	82	0	0	38	38	0
27	0.875	74.3	174.7	03/01/2011 04:00	0	0	80	80	0	0	37	37	0
28	0.917	85.9	36.1	03/01/2011 05:00	0	0	78	78	0	0	36	36	0
29	0.958	110.6	30.9	03/01/2011 06:00	0	0	76	76	0	0	35	35	0
30	1.000	111.1	30.3	03/01/2011 07:00	0	0	74	74	0	0	34	34	0
31	1.042	145.6	36.8	03/01/2011 08:00	0	0	73	73	0	0	34	34	0
32	1.083	150.2	53.6	03/01/2011 09:00	0	0	71	71	0	0	33	33	0
33	1.125	205.3	83.1	03/01/2011 10:00	0	0	69	69	0	0	32	32	0
34	1.167	266.9	157.2	03/01/2011 11:00	0	0	67	67	0	0	31	31	0
35	1.208	457.7	238.5	03/01/2011 12:00	0	0	66	66	0	0	30	30	0
36	1.250	531.4	397.1	03/01/2011 13:00	0	0	64	64	0	0	30	30	0
37	1.292	492.5	362.3	03/01/2011 14:00	0	0	62	62	0	0	29	29	0
38	1.333	506.7	497.4	03/01/2011 15:00	0	0	61	61	0	0	28	28	0
39	1.375	518.0	498.0	03/01/2011 16:00	0	0	59	59	44	47	27	75	0
40	1.417	537.4	520.1	03/01/2011 17:00	0	0	58	58	111	119	27	146	0
41	1.458	605.4	636.9	03/01/2011 18:00	0	0	56	56	85	92	27	118	0
42	1.500	602.4	591.9	03/01/2011 19:00	0	0	55	55	66	72	26	98	0
43	1.542	593.3	589.2	03/01/2011 20:00	0	0	54	54	54	58	25	84	0
44	1.583	612.3	586.5	03/01/2011 21:00	0	0	52	52	45	49	25	74	0

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	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	kyer Creek			Bremer River				Incremental Wivenhoe	Incremental Somerset	Incremental Lockyer	Incremental Bremer			Incremental Somerset Inflow
2		BR= 0.9750				BR= 0.9750								
3		BC= 0.0020				BC= 0.0020								
4		BM= 1.0000				BM= 1.0000								
5		1		Scale Factor= 1.00		1								
6		26	604	769		34	796	-78.0	-36.0	0.0	0.0	2/1/2011 9:00	0.7	0.922
7		11,694	158,049	186,336		14,885	201,220	-76.1	-35.1	0.0	0.0	2/1/2011 10:00	1.6	0.072
8	0	0	0	0	0	0	0	-74.1	-34.2	0.0	0.0	2/1/2011 11:00	1.7	4.878
9	0	0	0	0	0	0	0	-72.3	-33.4	0.0	0.0	2/1/2011 12:00	6.6	24.354
10	0	0	0	0	0	0	0	-70.5	-32.5	0.0	0.0	2/1/2011 13:00	30.9	19.096
11	0	0	0	0	0	0	0	-68.7	-31.7	0.0	0.0	2/1/2011 14:00	50.0	10.636
12	0	0	0	0	0	0	0	-67.0	-30.9	0.0	0.0	2/1/2011 15:00	60.6	2.517
13	0	0	0	0	0	0	0	-65.3	-30.2	0.0	0.0	2/1/2011 16:00	63.2	3.974
14	0	0	0	0	0	0	0	-63.7	-29.4	0.0	0.0	2/1/2011 17:00	67.1	7.182
15	0	0	0	0	0	0	0	-62.1	-28.7	0.0	0.0	2/1/2011 18:00	74.3	8.667000001
16	0	0	0	0	0	0	0	-60.6	-27.9	0.0	0.0	2/1/2011 19:00	83.0	6.976
17	0	0	0	0	0	0	0	-59.0	-27.2	0.0	0.0	2/1/2011 20:00	90.0	9.467000001
18	0	0	0	0	0	0	0	-57.6	-26.6	0.0	0.0	2/1/2011 21:00	99.4	10.12
19	0	0	0	0	0	0	0	-56.1	-25.9	0.0	0.0	2/1/2011 22:00	109.5	8.365
20	0	0	0	0	0	0	0	-54.7	-25.3	0.0	0.0	2/1/2011 23:00	117.9	8.352
21	0	0	0	0	0	0	0	-53.4	-24.6	0.0	0.0	3/1/2011 0:00	126.3	7.775
22	0	0	0	0	0	0	0	-52.0	-24.0	0.0	0.0	3/1/2011 1:00	134.0	6.739
23	0	0	0	0	0	0	0	-50.7	-23.4	0.0	0.0	3/1/2011 2:00	140.8	5.401
24	0	0	0	0	0	0	0	-49.5	-22.8	0.0	0.0	3/1/2011 3:00	146.2	4.07
25	0	0	0	0	0	0	0	-48.2	-22.3	0.0	0.0	3/1/2011 4:00	150.3	20.874
26	0	0	0	0	0	0	0	-47.0	-21.7	0.0	0.0	3/1/2011 5:00	171.1	75.34
27	0	0	0	0	0	0	0	-45.8	-21.2	0.0	0.0	3/1/2011 6:00	246.5	79.647
28	0	0	0	0	0	0	0	-44.7	-20.6	0.0	0.0	3/1/2011 7:00	326.1	83.464
29	0	0	0	0	0	0	0	-43.6	-20.1	0.0	0.0	3/1/2011 8:00	409.6	99.98500001
30	0	0	0	0	0	0	0	-42.5	-19.6	0.0	0.0	3/1/2011 9:00	509.6	14.172
31	0	0	0	0	0	0	0	-41.4	-19.1	0.0	0.0	3/1/2011 10:00	523.7	-7.729
32	0	0	0	0	0	0	0	-40.4	-18.6	0.0	0.0	3/1/2011 11:00	516.0	-6.797
33	0	0	0	0	0	0	0	-39.4	-18.2	0.0	0.0	3/1/2011 12:00	509.2	-6.996
34	0	0	0	0	0	0	0	-38.4	-17.7	0.0	0.0	3/1/2011 13:00	502.2	-8.268
35	0	0	0	0	0	0	0	-37.4	-17.3	0.0	0.0	3/1/2011 14:00	493.9	-3.543
36	0	0	0	0	0	0	0	-36.5	1117.5	0.0	0.0	3/1/2011 15:00	490.4	26.6
37	0	0	0	0	0	0	0	-35.6	1723.9	0.0	0.0	3/1/2011 16:00	517.0	-1.172
38	0	0	0	0	0	0	0	-34.7	-674.5	0.0	0.0	3/1/2011 17:00	515.8	-20.126
39	0	0	0	0	0	0	0	-33.8	-496.9	0.0	0.0	3/1/2011 18:00	495.7	-26.34
40	0	0	0	0	0	0	0	-33.0	-328.6	0.0	0.0	3/1/2011 19:00	469.4	-23.74
41	0	0	0	0	0	0	0	-32.1	-238.8	0.0	0.0	3/1/2011 20:00	445.6	-22.519
42	0	0	0	0	0	0	0	367.1	-76.9	0.0	0.0	3/1/2011 21:00	423.1	-20.099
43	0	0	0	0	0	0	0	-383.8	-250.5	0.0	0.0	3/1/2011 22:00	403.0	-16.978
44	0	0	0	0	0	0	0	-34.8	-117.2	0.0	0.0	3/1/2011 23:00	386.0	-14.456

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	A	B	C	D	E	F	G	H	I	J	K	L	M
45	1.625	625.9	584.3	03/01/2011 22:00	17	17	51	68	43	46	24	71	0
46	1.667	662.0	599.8	03/01/2011 23:00	2	2	50	52	34	37	24	60	0
47	1.708	799.2	649.1	04/01/2011 00:00	2	2	48	50	30	32	23	55	0
48	1.750	1299.8	1361.7	04/01/2011 01:00	1	1	47	49	27	29	23	51	0
49	1.792	1999.5	3002.6	04/01/2011 02:00	1	1	46	47	24	26	22	48	0
50	1.833	2065.8	2038.6	04/01/2011 03:00	1	1	45	46	22	23	22	45	0
51	1.875	1989.5	2363.9	04/01/2011 04:00	1	1	44	45	20	21	21	43	0
52	1.917	1846.4	2090.6	04/01/2011 05:00	1	1	43	44	18	20	21	40	0
53	1.958	1741.2	2058.8	04/01/2011 06:00	1	1	42	43	17	18	20	39	0
54	2.000	1694.4	2065.7	04/01/2011 07:00	1	1	41	41	16	17	20	37	0
55	2.042	1862.0	2395.6	04/01/2011 08:00	1	1	40	40	15	16	19	35	0
56	2.083	1980.7	2564.8	04/01/2011 09:00	1	1	39	39	14	15	19	34	0
57	2.125	2144.5	2633.0	04/01/2011 10:00	1	1	38	38	13	14	18	32	0
58	2.167	2258.7	2810.7	04/01/2011 11:00	1	1	37	37	12	13	18	31	0
59	2.208	2347.2	2953.2	04/01/2011 12:00	1	0	36	36	12	12	18	30	0
60	2.250	2397.3	3130.3	04/01/2011 13:00	0	0	35	35	11	12	17	29	0
61	2.292	2448.8	3362.6	04/01/2011 14:00	0	0	34	34	10	11	17	28	0
62	2.333	2959.6	3781.5	04/01/2011 15:00	0	0	33	34	10	11	16	27	0
63	2.375	3266.8	4115.5	04/01/2011 16:00	0	0	32	33	9	10	16	26	0
64	2.417	3658.0	4624.6	04/01/2011 17:00	0	0	32	32	9	10	16	25	0
65	2.458	3765.7	5084.5	04/01/2011 18:00	0	0	31	31	8	9	15	24	0
66	2.500	3709.4	5340.8	04/01/2011 19:00	0	0	30	30	8	9	15	24	0
67	2.542	3534.4	5536.4	04/01/2011 20:00	0	0	29	30	8	8	15	23	0
68	2.583	3420.3	5826.4	04/01/2011 21:00	0	0	29	29	7	8	14	22	0
69	2.625	3397.8	6114.5	04/01/2011 22:00	0	0	28	28	7	8	14	21	0
70	2.667	3353.7	6363.2	04/01/2011 23:00	0	0	27	27	7	7	14	21	0
71	2.708	3398.9	6545.6	05/01/2011 00:00	0	0	26	27	6	7	13	20	0
72	2.750	3500.2	6758.8	05/01/2011 01:00	0	0	26	26	6	7	13	20	0
73	2.792	3435.9	6861.9	05/01/2011 02:00	0	0	25	25	6	6	13	19	0
74	2.833	3223.6	6652.6	05/01/2011 03:00	0	0	25	25	6	6	12	18	0
75	2.875	2998.8	6466.4	05/01/2011 04:00	0	0	24	24	5	6	12	18	0
76	2.917	2795.1	6232.6	05/01/2011 05:00	0	0	23	23	5	6	12	17	0
77	2.958	2612.1	5969.6	05/01/2011 06:00	0	0	23	23	5	5	11	17	0
78	3.000	2439.2	5689.9	05/01/2011 07:00	0	0	22	22	5	5	11	16	0
79	3.042	2270.2	5399.6	05/01/2011 08:00	0	0	22	22	5	5	11	16	0
80	3.083	2106.8	5101.1	05/01/2011 09:00	0	0	21	21	4	5	11	15	0
81	3.125	1949.8	4796.5	05/01/2011 10:00	0	0	21	21	4	5	10	15	0
82	3.167	1800.6	4488.4	05/01/2011 11:00	0	0	20	20	4	4	10	14	0
83	3.208	1659.9	4180.6	05/01/2011 12:00	0	0	20	20	4	4	10	14	0
84	3.250	1528.5	3877.0	05/01/2011 13:00	0	0	19	19	4	4	10	14	0
85	3.292	1406.6	3581.1	05/01/2011 14:00	0	0	19	19	4	4	9	13	0
86	3.333	1297.8	3296.3	05/01/2011 15:00	0	0	18	18	3	4	9	13	0
87	3.375	1199.1	3025.2	05/01/2011 16:00	0	0	18	18	9	9	9	18	0
88	3.417	1106.2	2769.7	05/01/2011 17:00	0	0	17	17	20	22	9	31	0
89	3.458	1020.4	2531.2	05/01/2011 18:00	0	0	17	17	31	34	9	42	5

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
45	0	0	0	0	0	0	0	-33.3	-96.7	0.0	0.0	4/1/2011 0:00	371.6	-15.247
46	0	0	0	0	0	0	0	-32.0	-81.2	0.0	0.0	4/1/2011 1:00	356.3	-16.077
47	0	0	0	0	0	0	0	-30.8	-69.3	0.0	0.0	4/1/2011 2:00	340.2	-13.884
48	0	0	0	0	0	0	0	-29.7	-60.0	0.0	0.0	4/1/2011 3:00	326.4	-13.201
49	0	0	0	0	0	0	0	-28.6	-52.6	0.0	0.0	4/1/2011 4:00	313.2	-9.530000001
50	0	0	0	0	0	0	0	-27.7	-46.7	0.0	0.0	4/1/2011 5:00	303.6	-6.989
51	0	0	0	0	0	0	0	-26.8	-41.9	0.0	0.0	4/1/2011 6:00	296.6	-9.070000001
52	0	0	0	0	0	0	0	-26.0	-37.9	0.0	0.0	4/1/2011 7:00	287.6	-1.655
53	0	0	0	0	0	0	0	-25.2	-34.7	0.0	0.0	4/1/2011 8:00	285.9	-5.922
54	0	0	0	0	0	0	0	-24.4	-31.9	0.0	0.0	4/1/2011 9:00	280.0	-11.231
55	0	0	0	0	0	0	0	-23.7	-29.6	0.0	0.0	4/1/2011 10:00	268.8	-11.56
56	0	0	0	0	0	0	0	-23.0	-27.6	0.0	0.0	4/1/2011 11:00	257.2	-11.462
57	0	0	0	0	0	0	0	-22.4	-25.9	0.0	0.0	4/1/2011 12:00	245.7	-10.589
58	0	0	0	0	0	0	0	-21.7	-24.4	0.0	0.0	4/1/2011 13:00	235.2	2.839
59	0	0	0	0	0	0	0	-21.1	-23.1	0.0	0.0	4/1/2011 14:00	238.0	131.819
60	0	0	0	0	0	0	0	-20.5	-21.9	0.0	0.0	4/1/2011 15:00	369.8	-16.031
61	0	0	0	0	0	0	0	-20.0	-20.8	0.0	0.0	4/1/2011 16:00	353.8	-49.191
62	0	0	0	0	0	0	0	-19.5	-19.8	0.0	0.0	4/1/2011 17:00	304.6	-30.652
63	0	0	0	0	0	0	0	-18.9	-18.9	0.0	0.0	4/1/2011 18:00	273.9	-10.754
64	0	0	0	0	0	0	0	-18.4	-18.1	0.0	0.0	4/1/2011 19:00	263.2	-10.624
65	0	0	0	0	0	0	0	-18.0	-17.4	0.0	0.0	4/1/2011 20:00	252.6	-18.132
66	0	0	0	0	0	0	0	-17.4	-16.7	0.0	0.0	4/1/2011 21:00	234.4	-17.682
67	0	0	0	0	0	0	0	-17.0	-16.0	0.0	0.0	4/1/2011 22:00	216.7	-14.792
68	0	0	0	0	0	0	0	-16.6	-15.4	0.0	0.0	4/1/2011 23:00	202.0	-13.069
69	0	0	0	0	0	0	0	-16.1	-14.8	0.0	0.0	5/1/2011 0:00	188.9	-11.927
70	0	0	0	0	0	0	0	-15.7	-14.3	0.0	0.0	5/1/2011 1:00	177.0	-11.076
71	0	0	0	0	0	0	0	-15.3	-13.8	0.0	0.0	5/1/2011 2:00	165.9	-10.368
72	0	0	0	0	0	0	0	-14.9	-13.3	0.0	0.0	5/1/2011 3:00	155.5	-9.734000001
73	0	0	0	0	0	0	0	-14.5	-12.8	0.0	0.0	5/1/2011 4:00	145.8	-9.138000001
74	0	0	0	0	0	0	0	-14.2	-12.4	0.0	0.0	5/1/2011 5:00	136.6	-8.57
75	0	0	0	0	0	0	0	-13.8	-12.0	0.0	0.0	5/1/2011 6:00	128.1	-8.024
76	0	0	0	0	0	0	0	-13.4	-11.6	0.0	0.0	5/1/2011 7:00	120.0	-7.501
77	0	0	0	0	0	0	0	-13.1	-11.2	0.0	0.0	5/1/2011 8:00	112.5	-7.001
78	0	0	0	0	0	0	0	-12.8	-10.8	0.0	0.0	5/1/2011 9:00	105.5	-6.527
79	0	0	0	0	0	0	0	-12.5	-10.4	0.0	0.0	5/1/2011 10:00	99.0	-6.08
80	0	0	0	0	0	0	0	-12.1	-10.1	0.0	0.0	5/1/2011 11:00	92.9	-5.66
81	0	0	0	0	0	0	0	-11.8	-9.8	0.0	0.1	5/1/2011 12:00	87.3	-5.267
82	0	0	0	0	0	0	0	-11.5	-9.4	0.0	0.6	5/1/2011 13:00	82.0	-4.902
83	0	0	0	0	0	0	0	-11.2	-9.1	0.1	1.9	5/1/2011 14:00	77.1	-4.562
84	0	0	0	0	0	0	0	-10.9	129.4	0.4	4.7	5/1/2011 15:00	72.5	-4.246
85	0	0	0	0	0	0	0	-10.7	300.0	0.8	9.8	5/1/2011 16:00	68.3	-3.955
86	0	0	0	0	0	0	0	-10.3	275.3	111.4	17.4	5/1/2011 17:00	64.3	-3.685
87	0	0	0	0	0	0	0	3449.3	850.7	230.7	27.1	5/1/2011 18:00	60.7	-3.435
88	0	0	0	1	1	0	1	2204.9	1571.1	203.5	153.3	5/1/2011 19:00	57.2	-3.205
89	5	0	5	1	1	0	1	-3254.6	1476.4	190.5	465.1	5/1/2011 20:00	54.0	-2.991

	A	B	C	D	E	F	G	H	I	J	K	L	M
90	3.500	941.1	2310.4	05/01/2011 19:00	148	144	17	161	64	69	9	78	14
91	3.542	867.8	2107.4	05/01/2011 20:00	242	235	17	252	125	134	9	143	23
92	3.583	800.2	1921.8	05/01/2011 21:00	103	100	17	117	181	196	9	205	31
93	3.625	737.9	1752.9	05/01/2011 22:00	98	95	17	112	199	215	9	224	37
94	3.667	680.5	1599.9	05/01/2011 23:00	91	88	17	105	182	197	9	206	45
95	3.708	627.8	1461.6	06/01/2011 00:00	86	83	17	100	167	180	9	189	55
96	3.750	579.3	1336.9	06/01/2011 01:00	83	81	17	97	155	167	9	176	67
97	3.792	534.7	1224.5	06/01/2011 02:00	81	78	17	95	145	157	9	166	79
98	3.833	493.7	1123.4	06/01/2011 03:00	78	76	16	92	138	149	10	158	90
99	3.875	456.0	1032.4	06/01/2011 04:00	76	74	16	90	131	141	10	151	101
100	3.917	421.4	950.4	06/01/2011 05:00	73	71	16	87	125	135	10	145	110
101	3.958	389.6	876.5	06/01/2011 06:00	71	68	16	84	119	129	10	139	117
102	4.000	361.3	809.8	06/01/2011 07:00	68	66	16	82	114	123	10	133	123
103	4.042	335.8	749.5	06/01/2011 08:00	65	63	16	79	109	118	10	128	127
104	4.083	311.9	694.9	06/01/2011 09:00	63	61	15	76	104	113	10	122	130
105	4.125	289.6	645.4	06/01/2011 10:00	61	59	15	74	100	108	10	117	132
106	4.167	269.5	600.4	06/01/2011 11:00	60	58	15	73	106	114	10	124	144
107	4.208	251.9	559.4	06/01/2011 12:00	70	68	15	83	226	244	10	254	166
108	4.250	236.0	522.1	06/01/2011 13:00	90	87	15	102	372	402	10	413	176
109	4.292	221.1	488.0	06/01/2011 14:00	100	97	15	112	358	387	11	398	176
110	4.333	207.1	456.8	06/01/2011 15:00	104	101	15	116	307	331	11	342	180
111	4.375	194.0	428.2	06/01/2011 16:00	111	107	15	122	273	295	12	307	187
112	4.417	181.8	402.0	06/01/2011 17:00	120	116	15	131	253	274	12	285	195
113	4.458	170.4	377.9	06/01/2011 18:00	132	128	15	143	240	259	12	271	205
114	4.500	159.7	355.9	06/01/2011 19:00	150	146	15	161	229	247	12	259	214
115	4.542	149.7	335.6	06/01/2011 20:00	177	172	15	187	220	237	12	250	223
116	4.583	140.4	316.9	06/01/2011 21:00	218	211	16	227	212	229	13	242	231
117	4.625	131.7	299.6	06/01/2011 22:00	276	268	16	284	205	221	13	234	240
118	4.667	123.5	283.7	06/01/2011 23:00	357	346	17	363	198	214	13	227	249
119	4.708	115.9	268.9	07/01/2011 00:00	462	448	18	467	193	208	13	221	260
120	4.750	108.9	255.1	07/01/2011 01:00	652	633	20	653	218	236	13	249	271
121	4.792	102.3	242.2	07/01/2011 02:00	746	723	22	745	225	243	13	256	285
122	4.833	96.1	230.1	07/01/2011 03:00	887	861	24	885	208	225	13	238	300
123	4.875	90.4	218.6	07/01/2011 04:00	1019	988	27	1016	199	215	13	228	317
124	4.917	85.0	207.8	07/01/2011 05:00	1130	1096	30	1127	223	241	14	255	337
125	4.958	80.0	197.6	07/01/2011 06:00	1214	1177	34	1211	231	249	14	263	358
126	5.000	75.3	187.9	07/01/2011 07:00	1267	1229	37	1267	257	278	14	292	380
127	5.042	71.0	178.6	07/01/2011 08:00	1337	1297	41	1338	364	393	14	407	402
128	5.083	66.9	169.8	07/01/2011 09:00	1333	1293	44	1337	359	388	15	403	437
129	5.125	63.1	161.4	07/01/2011 10:00	1317	1277	48	1325	372	402	15	417	469
130	5.167	59.5	153.4	07/01/2011 11:00	1687	1637	52	1689	541	585	16	601	487
131	5.208	56.2	145.8	07/01/2011 12:00	1716	1665	57	1721	681	736	17	753	504
132	5.250	53.0	138.5	07/01/2011 13:00	1557	1510	61	1571	738	797	18	815	521
133	5.292	50.1	131.6	07/01/2011 14:00	1440	1396	64	1460	697	752	19	772	537
134	5.333	47.4	125.0	07/01/2011 15:00	1384	1343	67	1410	640	691	20	711	551

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
90	14	0	14	3	3	0	3	-106.9	463.2	155.2	748.0	5/1/2011 21:00	51.0	-2.795
91	23	0	23	9	9	0	9	-181.1	-433.8	199.0	882.9	5/1/2011 22:00	48.2	-2.613
92	31	0	31	28	28	0	28	-109.2	-391.6	245.2	733.8	5/1/2011 23:00	45.6	-2.444
93	37	0	37	59	59	0	60	-73.4	-312.4	278.2	439.5	6/1/2011 0:00	43.2	-2.289
94	45	0	45	96	96	0	96	-59.5	-242.6	290.6	184.1	6/1/2011 1:00	40.9	-2.145
95	55	0	56	126	126	1	127	-57.5	-197.9	282.3	19.7	6/1/2011 2:00	38.7	-2.011
96	67	1	67	144	144	1	145	-60.5	-170.6	257.6	-78.5	6/1/2011 3:00	36.7	-1.887
97	79	1	79	152	152	1	153	-64.6	-154.2	222.6	-138.9	6/1/2011 4:00	34.8	-1.772
98	90	1	91	152	152	1	154	-67.5	-143.0	182.8	-175.1	6/1/2011 5:00	33.1	-1.665
99	101	1	102	149	149	2	150	-68.1	-135.5	142.9	-192.6	6/1/2011 6:00	31.4	-1.566
100	110	1	111	143	143	2	145	-65.5	-130.1	105.7	-195.3	6/1/2011 7:00	29.8	-1.474
101	117	1	119	135	135	2	137	-59.4	-125.9	73.1	-187.3	6/1/2011 8:00	28.4	-1.387
102	123	2	125	127	127	2	129	-48.7	-122.3	46.4	-172.5	6/1/2011 9:00	27.0	-1.308
103	127	2	129	119	119	3	121	-19.2	163.8	294.2	143.3	6/1/2011 10:00	25.7	-1.232
104	130	2	132	111	111	3	113	227.8	3125.0	543.2	698.9	6/1/2011 11:00	24.4	-1.163
105	132	2	134	103	103	3	106	453.0	3800.7	247.7	362.9	6/1/2011 12:00	23.3	-1.098
106	144	2	146	109	109	3	112	248.6	-358.3	5.6	-264.2	6/1/2011 13:00	22.2	-1.036
107	166	3	169	138	138	3	141	89.4	-1328.2	93.6	-179.6	6/1/2011 14:00	21.1	-0.98
108	176	3	179	153	153	3	156	150.5	-855.6	172.9	-44.9	6/1/2011 15:00	20.2	-0.926
109	176	3	180	142	142	4	145	212.2	-509.8	215.0	66.9	6/1/2011 16:00	19.2	-0.876
110	180	4	183	134	134	4	138	294.5	-351.9	227.0	187.3	6/1/2011 17:00	18.4	-0.829
111	187	4	191	132	132	4	136	424.0	-277.7	226.5	325.4	6/1/2011 18:00	17.5	-0.785
112	195	4	200	135	135	4	139	631.5	-225.8	220.8	469.4	6/1/2011 19:00	16.7	-0.744
113	205	4	209	142	142	4	147	944.4	-196.5	216.6	614.9	6/1/2011 20:00	16.0	-0.705
114	214	5	219	156	156	5	160	1375.1	-181.5	219.2	751.5	6/1/2011 21:00	15.3	-0.668
115	223	5	228	175	175	5	180	1906.3	-175.2	231.6	752.8	6/1/2011 22:00	14.6	-0.634
116	231	5	237	200	200	5	205	2478.2	-135.4	255.0	661.8	6/1/2011 23:00	14.0	-0.602
117	240	6	246	231	231	5	237	4467.3	668.7	288.6	569.3	7/1/2011 0:00	13.4	-0.571
118	249	6	256	262	262	6	268	2221.8	171.8	330.2	428.5	7/1/2011 1:00	12.8	-0.543
119	260	7	266	289	289	6	296	3350.1	-429.9	377.3	277.4	7/1/2011 2:00	12.3	-0.516
120	271	7	278	313	313	7	319	3136.6	-241.5	426.8	138.4	7/1/2011 3:00	11.8	-0.49
121	285	7	292	330	330	7	337	2664.4	633.4	474.6	21.0	7/1/2011 4:00	11.3	-0.467
122	300	8	308	341	341	8	349	2028.4	201.3	515.5	-72.3	7/1/2011 5:00	10.8	-0.443
123	317	8	325	346	346	8	354	1333.2	695.4	544.0	-142.1	7/1/2011 6:00	10.4	-0.423
124	337	9	345	347	347	9	355	1703.8	2771.1	556.4	-190.8	7/1/2011 7:00	9.9	-0.402
125	358	9	367	343	343	9	352	-19.9	-113.2	838.3	424.6	7/1/2011 8:00	9.5	-0.383
126	380	10	389	337	337	10	346	-280.6	347.9	800.9	826.2	7/1/2011 9:00	9.2	-0.365
127	402	10	413	328	328	10	338	8733.5	4405.8	447.6	134.7	7/1/2011 10:00	8.8	-0.347
128	437	11	447	346	346	10	356	776.2	3655.9	426.6	-121.4	7/1/2011 11:00	8.4	-0.332
129	469	12	481	380	380	11	391	-3612.0	1494.1	422.2	31.6	7/1/2011 12:00	8.1	-0.316
130	487	12	500	385	385	11	396	-2651.2	-1047.8	392.3	124.7	7/1/2011 13:00	7.8	-0.302
131	504	13	517	379	379	12	391	-1209.6	-1452.5	354.1	120.3	7/1/2011 14:00	7.5	-0.288
132	521	14	535	380	380	12	392	-941.3	-966.1	311.8	70.5	7/1/2011 15:00	7.2	-0.275
133	537	14	551	385	385	13	398	-664.7	-683.8	257.4	-9.7	7/1/2011 16:00	6.9	-0.263
134	551	15	566	389	389	13	403	-351.0	-399.3	190.9	-97.6	7/1/2011 17:00	6.7	-0.251

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	A	B	C	D	E	F	G	H	I	J	K	L	M
135	5.375	44.8	118.7	07/01/2011 16:00	1341	1301	70	1371	602	650	21	671	563
136	5.417	42.4	112.8	07/01/2011 17:00	1310	1270	73	1343	575	621	22	642	573
137	5.458	40.2	107.1	07/01/2011 18:00	1292	1253	75	1328	559	603	22	626	580
138	5.500	38.1	101.7	07/01/2011 19:00	1288	1250	78	1327	536	578	23	601	584
139	5.542	36.1	96.7	07/01/2011 20:00	1297	1258	80	1338	512	553	24	577	586
140	5.583	34.2	91.9	07/01/2011 21:00	1315	1276	83	1359	488	527	24	551	584
141	5.625	32.5	87.3	07/01/2011 22:00	1339	1299	85	1384	464	501	24	526	579
142	5.667	30.8	83.0	07/01/2011 23:00	1365	1324	88	1412	440	475	25	500	573
143	5.708	29.3	79.0	08/01/2011 00:00	1392	1350	90	1440	416	449	25	474	564
144	5.750	27.8	75.1	08/01/2011 01:00	1417	1375	93	1468	392	423	25	449	554
145	5.792	26.4	71.5	08/01/2011 02:00	1441	1397	95	1493	369	398	25	424	543
146	5.833	25.1	68.1	08/01/2011 03:00	1460	1417	98	1514	347	374	26	400	531
147	5.875	23.9	64.9	08/01/2011 04:00	1474	1430	100	1531	326	352	26	377	518
148	5.917	22.8	61.8	08/01/2011 05:00	1480	1436	103	1539	305	330	26	355	505
149	5.958	21.7	59.0	08/01/2011 06:00	1477	1432	105	1538	286	309	26	335	491
150	6.000	20.6	56.3	08/01/2011 07:00	1461	1418	108	1525	269	290	26	316	477
151	6.042	19.7	53.8	08/01/2011 08:00	1435	1392	110	1502	252	272	25	297	464
152	6.083	18.8	51.5	08/01/2011 09:00	1398	1356	112	1468	236	255	25	280	450
153	6.125	17.9	49.3	08/01/2011 10:00	1351	1310	114	1424	222	239	25	265	436
154	6.167	17.2	47.3	08/01/2011 11:00	1297	1258	115	1373	208	225	25	250	423
155	6.208	16.4	45.5	08/01/2011 12:00	1237	1200	117	1316	196	211	25	236	409
156	6.250	15.7	44.0	08/01/2011 13:00	1174	1139	118	1256	184	199	25	224	396
157	6.292	15.1	42.8	08/01/2011 14:00	1109	1076	118	1194	176	190	24	214	384
158	6.333	14.5	41.9	08/01/2011 15:00	1044	1013	119	1132	172	186	24	210	372
159	6.375	13.9	41.5	08/01/2011 16:00	981	951	119	1071	171	185	24	209	361
160	6.417	13.4	41.4	08/01/2011 17:00	919	891	120	1011	168	181	24	205	350
161	6.458	12.9	41.8	08/01/2011 18:00	860	834	119	954	164	177	23	200	339
162	6.500	12.4	42.6	08/01/2011 19:00	804	780	119	899	159	172	23	195	328
163	6.542	11.9	43.6	08/01/2011 20:00	752	730	119	848	155	167	23	190	318
164	6.583	11.5	44.9	08/01/2011 21:00	703	682	118	801	150	162	23	184	308
165	6.625	11.0	46.3	08/01/2011 22:00	658	639	117	756	145	156	22	179	299
166	6.667	10.6	47.7	08/01/2011 23:00	617	599	117	715	140	151	22	173	289
167	6.708	10.3	49.0	09/01/2011 00:00	579	562	116	677	135	146	22	168	280
168	6.750	9.9	50.1	09/01/2011 01:00	544	528	115	642	130	141	22	162	272
169	6.792	9.5	51.0	09/01/2011 02:00	512	497	114	610	125	135	21	157	263
170	6.833	9.2	51.6	09/01/2011 03:00	483	468	112	581	121	130	21	151	255
171	6.875	8.9	51.8	09/01/2011 04:00	456	442	111	553	116	125	21	146	247
172	6.917	8.6	51.7	09/01/2011 05:00	431	418	110	527	111	120	20	141	239
173	6.958	8.3	51.3	09/01/2011 06:00	407	395	108	503	107	115	20	135	231
174	7.000	8.0	50.6	09/01/2011 07:00	386	374	107	481	102	110	20	130	223
175	7.042	7.7	49.7	09/01/2011 08:00	366	355	106	460	98	106	20	125	216
176	7.083	7.4	48.6	09/01/2011 09:00	347	336	104	440	93	101	19	120	209
177	7.125	7.2	47.3	09/01/2011 10:00	329	319	103	422	89	96	19	115	201
178	7.167	6.9	45.8	09/01/2011 11:00	312	303	101	404	85	92	19	111	194
179	7.208	6.7	44.3	09/01/2011 12:00	297	288	100	387	81	88	18	106	188

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
135	563	16	579	392	392	14	406	-26.0	-584.3	117.2	-147.3	7/1/2011 18:00	6.4	-0.24
136	573	17	590	391	391	14	405	264.5	-594.1	42.5	-207.3	7/1/2011 19:00	6.2	-0.229
137	580	17	598	387	387	15	401	481.9	-604.4	-28.0	-268.6	7/1/2011 20:00	5.9	-0.219
138	584	18	603	380	380	15	395	613.1	-616.2	-90.9	-285.1	7/1/2011 21:00	5.7	-0.21
139	586	19	604	371	371	15	386	670.5	-622.8	-144.9	-298.4	7/1/2011 22:00	5.5	-0.201
140	584	19	603	359	359	16	375	678.3	-620.0	-189.7	-307.7	7/1/2011 23:00	5.3	-0.192
141	579	20	599	347	347	16	363	655.1	-609.2	-226.1	-312.2	8/1/2011 0:00	5.1	-0.184
142	573	21	593	335	335	16	351	605.2	-594.2	-255.1	-311.8	8/1/2011 1:00	4.9	-0.176
143	564	21	585	322	322	17	338	519.9	-574.3	-277.7	-307.1	8/1/2011 2:00	4.8	-0.169
144	554	22	576	308	308	17	325	387.3	-547.7	-295.0	-299.3	8/1/2011 3:00	4.6	-0.161
145	543	23	565	295	295	17	312	201.5	-520.5	-307.8	-289.3	8/1/2011 4:00	4.4	-0.155
146	531	23	554	282	282	17	299	-31.6	-493.8	-316.7	-278.1	8/1/2011 5:00	4.3	-0.149
147	518	23	541	270	270	17	287	-295.0	-464.4	-322.3	-266.5	8/1/2011 6:00	4.1	-0.143
148	505	24	529	258	258	17	275	-566.0	-435.1	-325.0	-254.9	8/1/2011 7:00	4.0	-0.136
149	491	24	515	246	246	17	263	-822.2	-406.7	-325.1	-243.5	8/1/2011 8:00	3.9	-0.131
150	477	25	502	235	235	17	252	-1045.7	-380.0	-322.9	-232.5	8/1/2011 9:00	3.7	-0.126
151	464	25	489	224	224	17	241	-1225.7	-355.0	-318.8	-221.8	8/1/2011 10:00	3.6	-0.121
152	450	25	475	214	214	17	231	-1357.8	-326.9	-313.1	-211.5	8/1/2011 11:00	3.5	-0.116
153	436	25	462	204	204	17	222	-1443.1	-302.0	-306.1	-201.6	8/1/2011 12:00	3.4	-0.112
154	423	26	448	195	195	17	212	-1486.3	-233.7	-298.0	-153.5	8/1/2011 13:00	3.2	-0.107
155	409	26	435	186	186	17	204	-1494.0	-90.6	-284.5	-153.0	8/1/2011 14:00	3.1	-0.103
156	396	26	422	178	178	17	195	-1473.4	-36.5	-268.5	-186.1	8/1/2011 15:00	3.0	-0.099
157	384	26	410	172	172	17	189	-1431.2	-88.9	-261.5	-170.1	8/1/2011 16:00	2.9	-0.095
158	372	26	398	165	165	17	182	-1373.1	-110.6	-258.8	-160.1	8/1/2011 17:00	2.8	-0.092
159	361	26	387	158	158	17	175	-1303.8	-122.2	-253.3	-153.3	8/1/2011 18:00	2.8	-0.088
160	350	26	376	151	151	17	168	-1227.1	-128.1	-246.5	-147.1	8/1/2011 19:00	2.7	-0.084
161	339	26	365	144	144	17	161	-1146.3	-131.0	-239.2	-140.6	8/1/2011 20:00	2.6	-0.082
162	328	26	355	138	138	16	154	-1064.3	-132.2	-232.0	-133.7	8/1/2011 21:00	2.5	-0.078
163	318	26	344	132	132	16	148	-984.1	-132.6	-225.1	-126.8	8/1/2011 22:00	2.4	-0.076
164	308	26	334	126	126	16	142	-907.8	-132.5	-218.8	-120.2	8/1/2011 23:00	2.3	-0.072
165	299	26	325	121	121	16	137	-837.0	-132.2	-213.0	-113.8	9/1/2011 0:00	2.3	-0.071
166	289	26	315	116	116	16	132	-772.3	-131.6	-207.7	-107.9	9/1/2011 1:00	2.2	-0.067
167	280	26	306	111	111	16	127	-714.0	-130.8	-202.8	-102.3	9/1/2011 2:00	2.1	-0.065
168	272	26	297	106	106	15	122	-661.6	-129.6	-198.4	-97.1	9/1/2011 3:00	2.1	-0.063
169	263	26	289	102	102	15	117	-615.0	-128.1	-194.3	-92.2	9/1/2011 4:00	2.0	-0.06
170	255	26	280	98	98	15	113	-573.4	-126.2	-190.4	-87.6	9/1/2011 5:00	1.9	-0.059
171	247	26	272	94	94	15	109	-536.3	-123.9	-186.7	-83.3	9/1/2011 6:00	1.9	-0.056
172	239	25	264	90	90	15	105	-503.3	-121.3	-183.1	-79.2	9/1/2011 7:00	1.8	-0.054
173	231	25	256	87	87	15	102	-473.8	-118.2	-179.6	-75.4	9/1/2011 8:00	1.8	-0.052
174	223	25	248	84	84	14	98	-447.4	-114.9	-176.1	-71.9	9/1/2011 9:00	1.7	-0.051
175	216	25	241	81	81	14	95	-423.7	-111.4	-172.6	-68.5	9/1/2011 10:00	1.7	-0.049
176	209	25	233	78	78	14	92	-402.2	-107.7	-169.0	-65.3	9/1/2011 11:00	1.6	-0.047
177	201	24	226	75	75	14	89	-382.7	-101.5	-165.3	-62.4	9/1/2011 12:00	1.6	-0.045
178	194	24	219	72	72	14	86	-364.8	-2.1	-161.6	-59.6	9/1/2011 13:00	1.5	-0.044
179	188	24	212	70	70	13	83	-348.2	-9.6	-157.8	-56.9	9/1/2011 14:00	1.5	-0.043

	A	B	C	D	E	F	G	H	I	J	K	L	M
180	7.250	6.5	42.7	09/01/2011 13:00	282	273	98	371	78	84	18	102	181
181	7.292	6.3	41.0	09/01/2011 14:00	268	260	96	356	78	84	18	102	175
182	7.333	6.0	39.3	09/01/2011 15:00	254	247	95	342	78	84	18	102	168
183	7.375	5.8	37.7	09/01/2011 16:00	242	234	93	328	78	84	17	101	162
184	7.417	5.6	36.0	09/01/2011 17:00	230	223	92	315	89	96	17	114	156
185	7.458	5.5	34.4	09/01/2011 18:00	218	212	90	302	103	111	17	128	150
186	7.500	5.3	32.8	09/01/2011 19:00	207	201	89	290	116	125	17	142	145
187	7.542	5.1	31.3	09/01/2011 20:00	197	191	87	278	130	141	17	157	139
188	7.583	4.9	29.8	09/01/2011 21:00	187	182	86	267	157	169	17	186	134
189	7.625	4.8	28.4	09/01/2011 22:00	178	173	84	257	181	196	16	212	129
190	7.667	4.6	27.0	09/01/2011 23:00	170	165	83	247	203	219	17	236	124
191	7.708	4.5	25.7	10/01/2011 00:00	162	157	81	238	218	235	17	252	119
192	7.750	4.3	24.4	10/01/2011 01:00	155	151	80	230	228	246	17	263	114
193	7.792	4.2	23.3	10/01/2011 02:00	150	145	78	223	238	257	17	274	110
194	7.833	4.1	22.1	10/01/2011 03:00	145	141	77	217	249	269	17	286	106
195	7.875	3.9	21.1	10/01/2011 04:00	142	138	75	213	277	299	17	316	102
196	7.917	3.8	20.1	10/01/2011 05:00	141	137	74	211	305	330	17	347	98
197	7.958	3.7	19.1	10/01/2011 06:00	143	138	72	211	331	358	18	376	94
198	8.000	3.6	18.2	10/01/2011 07:00	146	142	71	213	356	384	18	402	90
199	8.042	3.4	17.3	10/01/2011 08:00	152	148	70	218	378	409	18	427	87
200	8.083	3.3	16.5	10/01/2011 09:00	161	157	69	225	400	432	19	451	83
201	8.125	3.2	15.8	10/01/2011 10:00	174	168	68	236	421	455	19	474	80
202	8.167	3.1	15.0	10/01/2011 11:00	189	184	66	250	441	476	20	496	77
203	8.208	3.0	14.4	10/01/2011 12:00	209	203	66	268	461	497	20	517	74
204	8.250	2.9	13.7	10/01/2011 13:00	232	225	65	290	479	518	21	538	71
205	8.292	2.9	13.1	10/01/2011 14:00	259	252	64	316	501	541	21	562	69
206	8.333	2.8	12.5	10/01/2011 15:00	291	282	63	345	537	579	22	601	67
207	8.375	2.7	12.0	10/01/2011 16:00	325	315	63	378	571	617	23	640	67
208	8.417	2.6	11.5	10/01/2011 17:00	363	352	63	415	603	651	23	674	67
209	8.458	2.5	11.0	10/01/2011 18:00	404	392	62	454	631	682	24	706	66
210	8.500	2.4	10.5	10/01/2011 19:00	447	433	62	496	658	710	25	735	66
211	8.542	2.4	10.1	10/01/2011 20:00	491	477	62	539	682	737	26	763	67
212	8.583	2.3	9.7	10/01/2011 21:00	538	521	63	584	706	762	27	789	67
213	8.625	2.2	9.3	10/01/2011 22:00	595	577	63	640	737	796	28	824	69
214	8.667	2.2	8.9	10/01/2011 23:00	647	628	64	691	769	830	28	858	72
215	8.708	2.1	8.6	11/01/2011 00:00	700	679	65	744	797	861	29	890	75
216	8.750	2.0	8.2	11/01/2011 01:00	750	728	65	793	819	885	31	915	79
217	8.792	2.0	7.9	11/01/2011 02:00	797	773	67	840	834	901	32	932	83
218	8.833	1.9	7.6	11/01/2011 03:00	849	823	68	891	848	916	33	948	86
219	8.875	1.9	7.3	11/01/2011 04:00	901	874	69	943	861	930	34	964	90
220	8.917	1.8	7.1	11/01/2011 05:00	953	924	71	995	867	937	35	971	94
221	8.958	1.8	6.8	11/01/2011 06:00	1005	975	72	1047	870	940	36	976	97
222	9.000	1.7	6.6	11/01/2011 07:00	1056	1025	74	1099	874	944	37	980	100
223	9.042	1.7	6.3	11/01/2011 08:00	1106	1073	76	1149	874	944	38	981	102
224	9.083	1.6	6.1	11/01/2011 09:00	1154	1120	78	1198	858	927	39	966	103

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
180	181	24	205	67	67	13	80	-332.7	-4.1	-153.9	-54.4	9/1/2011 15:00	1.4	-0.04
181	175	23	198	65	65	13	78	-318.2	290.1	-150.0	-31.1	9/1/2011 16:00	1.4	-0.04
182	168	23	191	63	63	13	76	-304.3	352.5	-145.9	0.5	9/1/2011 17:00	1.4	-0.038
183	162	23	185	61	61	13	73	-290.9	328.7	-141.9	12.3	9/1/2011 18:00	1.3	-0.037
184	156	23	179	60	60	12	72	-277.5	374.0	-137.8	29.5	9/1/2011 19:00	1.3	-0.036
185	150	22	173	60	60	12	72	-263.9	674.2	-133.7	90.2	9/1/2011 20:00	1.3	-0.035
186	145	22	167	61	61	12	73	-249.4	639.9	-129.6	144.1	9/1/2011 21:00	1.2	-0.033
187	139	22	161	62	62	12	74	-233.4	569.3	-125.5	160.9	9/1/2011 22:00	1.2	-0.033
188	134	22	155	66	66	12	78	-215.0	386.0	-121.5	166.0	9/1/2011 23:00	1.2	-0.031
189	129	21	150	72	72	11	84	-193.4	263.5	-117.5	160.7	10/1/2011 0:00	1.1	-0.03
190	124	21	145	79	79	11	90	-167.6	263.4	-113.5	171.7	10/1/2011 1:00	1.1	-0.03
191	119	21	140	86	86	11	97	-136.5	278.6	-109.6	191.7	10/1/2011 2:00	1.1	-0.028
192	114	20	135	93	93	11	104	-99.5	731.6	-105.8	269.6	10/1/2011 3:00	1.0	-0.027
193	110	20	130	100	100	11	111	-56.0	747.0	-102.0	345.8	10/1/2011 4:00	1.0	-0.027
194	106	20	126	108	108	11	119	-5.8	680.7	-98.3	362.6	10/1/2011 5:00	1.0	-0.026
195	102	20	121	119	119	11	130	50.9	632.2	-94.6	383.9	10/1/2011 6:00	1.0	-0.025
196	98	19	117	134	134	11	145	114.0	597.6	-90.9	404.2	10/1/2011 7:00	0.9	-0.024
197	94	19	113	149	149	11	160	183.5	572.0	-87.3	422.4	10/1/2011 8:00	0.9	-0.024
198	90	19	109	165	165	11	176	259.4	551.8	-83.7	439.1	10/1/2011 9:00	0.9	-0.022
199	87	18	105	182	182	11	193	341.6	534.1	-80.2	453.9	10/1/2011 10:00	0.9	-0.022
200	83	18	101	199	199	11	210	429.8	517.3	-76.8	464.8	10/1/2011 11:00	0.8	-0.022
201	80	18	98	217	217	11	229	522.3	500.3	-73.5	470.5	10/1/2011 12:00	0.8	-0.02
202	77	18	95	236	236	12	247	616.6	575.6	-70.3	484.7	10/1/2011 13:00	0.8	-0.021
203	74	17	91	255	255	12	267	709.3	935.7	-42.0	551.9	10/1/2011 14:00	0.8	-0.019
204	71	17	88	274	274	12	286	796.3	922.6	-15.2	603.7	10/1/2011 15:00	0.8	-0.019
205	69	17	85	294	294	12	307	874.2	828.3	-14.0	606.4	10/1/2011 16:00	0.7	-0.018
206	67	16	84	317	317	13	330	941.0	757.2	-11.2	620.9	10/1/2011 17:00	0.7	-0.018
207	67	16	83	342	342	13	355	996.7	704.0	-6.9	639.1	10/1/2011 18:00	0.7	-0.017
208	67	16	82	367	367	13	380	1043.1	662.8	-0.5	657.9	10/1/2011 19:00	0.7	-0.017
209	66	16	82	392	392	14	406	1082.8	628.8	7.8	674.9	10/1/2011 20:00	0.7	-0.016
210	66	15	82	418	418	14	433	1346.3	840.0	35.5	725.5	10/1/2011 21:00	0.7	-0.016
211	67	15	82	445	445	15	460	1226.0	829.6	65.1	768.6	10/1/2011 22:00	0.6	-0.016
212	67	15	82	473	473	15	488	1259.5	759.6	78.4	770.5	10/1/2011 23:00	0.6	-0.015
213	69	15	83	502	502	16	518	1187.1	606.6	84.8	757.6	11/1/2011 0:00	0.6	-0.014
214	72	14	86	534	534	17	550	1119.3	408.1	80.1	716.6	11/1/2011 1:00	0.6	-0.014
215	75	14	89	565	565	17	582	1227.2	376.8	81.5	684.2	11/1/2011 2:00	0.6	-0.014
216	79	14	93	596	596	18	614	1242.6	380.3	92.2	663.0	11/1/2011 3:00	0.6	-0.013
217	83	14	96	625	625	19	644	1251.4	178.4	84.8	596.0	11/1/2011 4:00	0.5	-0.013
218	86	14	100	652	652	20	672	1251.5	100.4	69.0	513.0	11/1/2011 5:00	0.5	-0.013
219	90	13	104	679	679	21	700	1239.5	111.1	64.1	452.4	11/1/2011 6:00	0.5	-0.012
220	94	13	107	703	703	22	725	1211.7	23.5	52.2	373.4	11/1/2011 7:00	0.5	-0.012
221	97	13	110	724	724	23	746	1165.5	-370.8	35.3	227.9	11/1/2011 8:00	0.5	-0.011
222	100	13	113	742	742	23	765	1099.8	-387.9	24.2	101.5	11/1/2011 9:00	0.5	-0.011
223	102	13	115	756	756	24	781	1014.3	-324.0	14.4	31.3	11/1/2011 10:00	0.5	-0.011
224	103	13	116	765	765	25	790	909.8	-285.4	4.7	-47.8	11/1/2011 11:00	0.5	-0.011

	A	B	C	D	E	F	G	H	I	J	K	L	M
225	9.125	1.6	5.9	11/01/2011 10:00	1199	1163	80	1244	843	910	39	950	105
226	9.167	1.5	5.7	11/01/2011 11:00	1241	1204	82	1286	829	896	40	936	105
227	9.208	1.5	5.5	11/01/2011 12:00	1277	1239	85	1324	818	883	41	924	106
228	9.250	1.4	5.3	11/01/2011 13:00	1309	1270	87	1357	807	871	42	913	106
229	9.292	1.4	5.1	11/01/2011 14:00	1334	1294	89	1384	797	860	42	903	105
230	9.333	1.4	5.0	11/01/2011 15:00	1353	1313	92	1404	786	849	43	892	105
231	9.375	1.3	4.8	11/01/2011 16:00	1366	1325	94	1419	735	794	44	838	104
232	9.417	1.3	4.6	11/01/2011 17:00	1371	1330	96	1426	683	738	44	782	103
233	9.458	1.3	4.5	11/01/2011 18:00	1370	1329	99	1428	638	689	44	733	102
234	9.500	1.2	4.4	11/01/2011 19:00	1363	1322	101	1423	598	646	44	690	102
235	9.542	1.2	4.2	11/01/2011 20:00	1350	1309	103	1412	562	606	45	651	101
236	9.583	1.2	4.1	11/01/2011 21:00	1331	1291	105	1396	528	570	45	614	101
237	9.625	1.1	4.0	11/01/2011 22:00	1306	1266	107	1373	496	536	44	580	101
238	9.667	1.1	3.9	11/01/2011 23:00	1275	1236	108	1345	466	503	44	547	101
239	9.708	1.1	3.7	12/01/2011 00:00	1238	1201	110	1311	437	472	44	517	102
240	9.750	1.0	3.6	12/01/2011 01:00	1196	1161	111	1272	411	443	44	487	103
241	9.792	1.0	3.5	12/01/2011 02:00	1151	1116	112	1228	385	416	44	460	104
242	9.833	1.0	3.4	12/01/2011 03:00	1102	1069	113	1182	361	390	43	433	105
243	9.875	1.0	3.3	12/01/2011 04:00	1050	1019	114	1133	338	366	43	409	106
244	9.917	0.9	3.2	12/01/2011 05:00	998	968	114	1083	317	343	43	385	108
245	9.958	0.9	3.1	12/01/2011 06:00	945	917	115	1032	297	321	42	363	110
246	10.000	0.9	3.1	12/01/2011 07:00	893	866	115	981	278	301	42	343	111
247	10.042	0.9	3.0	12/01/2011 08:00	842	816	115	931	261	282	41	323	113
248	10.083	0.8	2.9	12/01/2011 09:00	792	768	115	883	245	264	41	305	115
249	10.125	0.8	2.8	12/01/2011 10:00	743	721	114	835	229	248	40	288	116
250	10.167	0.8	2.7	12/01/2011 11:00	697	676	114	790	215	232	40	272	117
251	10.208	0.8	2.7	12/01/2011 12:00	653	634	113	747	202	218	39	257	119
252	10.250	0.8	2.6	12/01/2011 13:00	612	593	112	706	189	204	39	243	120
253	10.292	0.7	2.5	12/01/2011 14:00	572	555	112	667	177	192	38	230	120
254	10.333	0.7	2.5	12/01/2011 15:00	535	519	111	630	167	180	37	217	121
255	10.375	0.7	2.4	12/01/2011 16:00	501	486	110	595	156	169	37	206	121
256	10.417	0.7	2.3	12/01/2011 17:00	468	454	108	563	147	159	36	195	121
257	10.458	0.7	2.3	12/01/2011 18:00	438	425	107	532	138	149	36	185	121
258	10.500	0.7	2.2	12/01/2011 19:00	410	397	106	503	130	140	35	175	120
259	10.542	0.6	2.2	12/01/2011 20:00	383	372	105	476	122	132	34	166	120
260	10.583	0.6	2.1	12/01/2011 21:00	359	348	103	451	115	124	34	158	119
261	10.625	0.6	2.1	12/01/2011 22:00	336	326	102	428	108	117	33	150	117
262	10.667	0.6	2.0	12/01/2011 23:00	315	305	100	406	102	110	33	143	116
263	10.708	0.6	2.0	13/01/2011 00:00	295	286	99	385	96	104	32	136	114
264	10.750	0.6	1.9	13/01/2011 01:00	277	269	97	366	90	98	31	129	113
265	10.792	0.6	1.9	13/01/2011 02:00	260	252	96	348	85	92	31	123	111
266	10.833	0.5	1.8	13/01/2011 03:00	244	237	94	331	80	87	30	117	109
267	10.875	0.5	1.8	13/01/2011 04:00	230	223	93	315	76	82	30	111	106
268	10.917	0.5	1.8	13/01/2011 05:00	216	209	91	300	72	77	29	106	104
269	10.958	0.5	1.7	13/01/2011 06:00	203	197	89	286	68	73	28	101	102

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
225	105	13	117	768	768	26	794	787.2	-264.0	-4.1	-120.7	11/1/2011 12:00	0.5	-0.01
226	105	13	118	769	769	27	796	648.8	-252.8	-11.4	-183.0	11/1/2011 13:00	0.4	-0.01
227	106	12	118	766	766	28	794	498.2	-246.7	-16.7	-233.1	11/1/2011 14:00	0.4	-0.01
228	106	12	118	760	760	29	789	341.1	-1317.0	-19.8	-404.5	11/1/2011 15:00	0.4	-0.01
229	105	12	117	751	751	30	781	184.0	-1340.4	-20.8	-554.1	11/1/2011 16:00	0.4	-0.009
230	105	12	117	741	741	30	771	31.9	-1160.4	-19.8	-577.4	11/1/2011 17:00	0.4	-0.009
231	104	12	116	723	723	31	754	-114.3	-1033.4	-17.0	-621.8	11/1/2011 18:00	0.4	-0.009
232	103	12	115	700	700	32	731	-256.4	-943.5	-12.8	-660.9	11/1/2011 19:00	0.4	-0.008
233	102	12	114	675	675	32	707	-397.9	-877.2	-7.6	-689.0	11/1/2011 20:00	0.4	-0.008
234	102	12	114	649	649	33	681	-540.3	-825.0	-1.6	-706.7	11/1/2011 21:00	0.4	-0.009
235	101	12	113	621	621	33	654	-681.6	-780.5	4.8	-713.1	11/1/2011 22:00	0.4	-0.007
236	101	12	113	592	592	33	625	-816.1	-740.3	11.3	-707.7	11/1/2011 23:00	0.4	-0.008
237	101	12	113	562	562	34	596	-937.2	-702.4	17.6	-692.4	12/1/2011 0:00	0.3	-0.008
238	101	11	113	532	532	34	566	-1039.0	-665.7	23.4	-669.7	12/1/2011 1:00	0.3	-0.007
239	102	11	113	502	502	34	536	-1118.1	-629.9	28.5	-642.3	12/1/2011 2:00	0.3	-0.007
240	103	11	114	473	473	34	508	-1173.6	-594.9	32.8	-612.1	12/1/2011 3:00	0.3	-0.007
241	104	11	115	445	445	34	480	-1206.6	-560.9	36.0	-580.3	12/1/2011 4:00	0.3	-0.007
242	105	11	116	419	419	34	453	-1219.6	-527.9	38.0	-548.0	12/1/2011 5:00	0.3	-0.006
243	106	11	118	393	393	34	427	-1215.4	-496.2	39.0	-515.9	12/1/2011 6:00	0.3	-0.007
244	108	11	119	369	369	34	403	-1197.2	-465.9	38.8	-484.4	12/1/2011 7:00	0.3	-0.006
245	110	11	121	347	347	34	380	-1167.9	-437.1	37.4	-454.0	12/1/2011 8:00	0.3	-0.006
246	111	11	122	325	325	34	359	-1130.3	-409.7	35.0	-424.9	12/1/2011 9:00	0.3	-0.006
247	113	11	124	305	305	33	339	-1086.5	-384.0	31.7	-397.3	12/1/2011 10:00	0.3	-0.006
248	115	11	125	287	287	33	320	-1038.5	-359.8	27.5	-371.1	12/1/2011 11:00	0.3	-0.005
249	116	11	127	269	269	33	302	-987.9	-337.1	22.6	-346.6	12/1/2011 12:00	0.3	-0.006
250	117	11	128	253	253	33	286	-936.1	-315.8	17.2	-323.6	12/1/2011 13:00	0.3	-0.005
251	119	11	129	238	238	32	270	-884.2	-296.0	11.5	-302.2	12/1/2011 14:00	0.3	-0.006
252	120	11	130	224	224	32	256	-832.9	-277.4	5.4	-282.2	12/1/2011 15:00	0.3	-0.005
253	120	11	131	211	211	31	242	-782.9	-260.1	-0.8	-263.6	12/1/2011 16:00	0.2	-0.005
254	121	11	131	198	198	31	230	-734.7	-244.0	-7.0	-246.3	12/1/2011 17:00	0.2	-0.005
255	121	11	132	187	187	31	218	-688.6	-229.0	-13.1	-230.2	12/1/2011 18:00	0.2	-0.004
256	121	11	132	177	177	30	207	-644.7	-214.9	-19.0	-215.3	12/1/2011 19:00	0.2	-0.005
257	121	11	131	167	167	30	197	-603.3	-201.8	-24.7	-201.4	12/1/2011 20:00	0.2	-0.005
258	120	11	131	158	158	29	187	-564.4	-189.6	-29.9	-188.7	12/1/2011 21:00	0.2	-0.004
259	120	11	130	149	149	29	178	-527.9	-178.2	-34.9	-176.8	12/1/2011 22:00	0.2	-0.004
260	119	10	129	141	141	29	170	-493.8	-167.6	-39.4	-165.7	12/1/2011 23:00	0.2	-0.005
261	117	10	128	134	134	28	162	-462.1	-157.7	-43.5	-155.5	13/1/2011 0:00	0.2	-0.004
262	116	10	126	127	127	28	154	-432.5	-148.5	-47.1	-146.0	13/1/2011 1:00	0.2	-0.004
263	114	10	125	120	120	27	148	-405.1	-139.8	-50.2	-137.2	13/1/2011 2:00	0.2	-0.004
264	113	10	123	114	114	27	141	-379.6	-131.7	-53.0	-129.0	13/1/2011 3:00	0.2	-0.004
265	111	10	121	109	109	26	135	-356.0	-124.2	-55.3	-121.5	13/1/2011 4:00	0.2	-0.003
266	109	10	119	103	103	26	129	-334.1	-117.2	-57.2	-114.4	13/1/2011 5:00	0.2	-0.004
267	106	10	117	98	98	25	124	-313.8	-110.5	-58.8	-107.9	13/1/2011 6:00	0.2	-0.004
268	104	10	114	94	94	25	119	-294.9	-104.4	-60.0	-101.8	13/1/2011 7:00	0.2	-0.003
269	102	10	112	90	90	25	114	-277.5	-98.6	-60.8	-96.2	13/1/2011 8:00	0.2	-0.003

	A	B	C	D	E	F	G	H	I	J	K	L	M
270	11.000	0.5	1.7	13/01/2011 07:00	191	186	88	273	64	69	28	97	99
271	11.042	0.5	1.6	13/01/2011 08:00	180	175	86	261	60	65	27	92	97
272	11.083	0.5	1.6	13/01/2011 09:00	170	165	85	249	57	62	27	88	94
273	11.125	0.5	1.6	13/01/2011 10:00	160	156	83	239	54	58	26	84	92
274	11.167	0.5	1.5	13/01/2011 11:00	151	147	81	228	51	55	26	81	89
275	11.208	0.4	1.5	13/01/2011 12:00	143	139	80	219	48	52	25	77	87
276	11.250	0.4	1.5	13/01/2011 13:00	135	131	78	210	46	49	25	74	85
277	11.292	0.4	1.4	13/01/2011 14:00	128	124	77	201	43	47	24	71	82
278	11.333	0.4	1.4	13/01/2011 15:00	121	117	75	193	41	44	24	68	80
279	11.375	0.4	1.4	13/01/2011 16:00	115	111	74	185	39	42	23	65	77
280	11.417	0.4	1.3	13/01/2011 17:00	109	105	72	178	37	40	23	63	75
281	11.458	0.4	1.3	13/01/2011 18:00	103	100	71	171	35	38	22	60	73
282	11.500	0.4	1.3	13/01/2011 19:00	98	95	69	164	33	36	22	58	70
283	11.542	0.4	1.3	13/01/2011 20:00	93	90	68	158	32	34	21	55	68
284	11.583	0.4	1.2	13/01/2011 21:00	88	85	67	152	30	33	21	53	66
285	11.625	0.4	1.2	13/01/2011 22:00	83	81	65	146	29	31	20	51	64
286	11.667	0.3	1.2	13/01/2011 23:00	79	77	64	141	27	29	20	49	62
287	11.708	0.3	1.2	14/01/2011 00:00	75	73	63	136	26	28	19	47	60
288	11.750	0.3	1.1	14/01/2011 01:00	72	70	61	131	25	27	19	46	58
289	11.792	0.3	1.1	14/01/2011 02:00	68	66	60	126	23	25	18	44	56
290	11.833	0.3	1.1	14/01/2011 03:00	65	63	59	122	22	24	18	42	54
291	11.875	0.3	1.1	14/01/2011 04:00	62	60	57	117	21	23	18	41	52
292	11.917	0.3	1.0	14/01/2011 05:00	59	57	56	113	20	22	17	39	50
293	11.958	0.3	1.0	14/01/2011 06:00	56	54	55	109	19	21	17	38	49
294	12.000	0.3	1.0	14/01/2011 07:00	54	52	54	106	19	20	16	36	47
295	12.042	0.3	1.0	14/01/2011 08:00	51	50	53	102	18	19	16	35	46
296	12.083	0.3	1.0	14/01/2011 09:00	49	47	51	99	17	18	16	34	44
297	12.125	0.3	0.9	14/01/2011 10:00	46	45	50	95	16	17	15	33	43
298	12.167	0.3	0.9	14/01/2011 11:00	44	43	49	92	15	17	15	32	41
299	12.208	0.3	0.9	14/01/2011 12:00	42	41	48	89	15	16	15	31	40
300	12.250	0.3	0.9	14/01/2011 13:00	41	39	47	86	14	15	14	30	39
301	12.292	0.3	0.9	14/01/2011 14:00	39	38	46	84	13	15	14	29	37
302	12.333	0.2	0.9	14/01/2011 15:00	37	36	45	81	13	14	14	28	36
303	12.375	0.2	0.8	14/01/2011 16:00	35	34	44	78	12	13	13	27	35
304	12.417	0.2	0.8	14/01/2011 17:00	34	33	43	76	12	13	13	26	34
305	12.458	0.2	0.8	14/01/2011 18:00	32	32	42	74	11	12	13	25	33
306	12.500	0.2	0.8	14/01/2011 19:00	31	30	41	71	11	12	12	24	32
307	12.542	0.2	0.8	14/01/2011 20:00	30	29	40	69	10	11	12	23	31
308	12.583	0.2	0.8	14/01/2011 21:00	29	28	39	67	10	11	12	23	30
309	12.625	0.2	0.8	14/01/2011 22:00	27	27	38	65	10	10	12	22	29
310	12.667	0.2	0.7	14/01/2011 23:00	26	25	37	63	9	10	11	21	28
311	12.708	0.2	0.7	15/01/2011 00:00	25	24	37	61	9	9	11	21	27
312	12.750	0.2	0.7	15/01/2011 01:00	24	23	36	59	8	9	11	20	26
313	12.792	0.2	0.7	15/01/2011 02:00	23	22	35	57	8	9	11	19	25
314	12.833	0.2	0.7	15/01/2011 03:00	22	22	34	56	8	8	10	19	24

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
270	99	10	109	85	85	24	110	-261.3	-93.2	-61.3	-90.9	13/1/2011 9:00	0.2	-0.004
271	97	10	107	82	82	24	105	-246.3	-88.1	-61.6	-86.0	13/1/2011 10:00	0.2	-0.003
272	94	10	104	78	78	23	101	-232.3	-83.4	-61.7	-81.4	13/1/2011 11:00	0.2	-0.003
273	92	10	102	75	75	23	97	-219.4	-78.9	-61.4	-77.2	13/1/2011 12:00	0.2	-0.003
274	89	10	99	72	72	22	94	-207.3	-74.8	-61.0	-73.2	13/1/2011 13:00	0.2	-0.004
275	87	10	97	69	69	22	91	-196.1	-70.9	-60.5	-69.5	13/1/2011 14:00	0.2	-0.003
276	85	10	94	66	66	22	87	-185.7	-67.2	-59.8	-66.0	13/1/2011 15:00	0.2	-0.002
277	82	10	92	63	63	21	84	-175.9	-63.8	-58.9	-62.8	13/1/2011 16:00	0.2	-0.003
278	80	10	89	61	61	21	81	-166.9	-60.5	-57.9	-59.7	13/1/2011 17:00	0.2	-0.003
279	77	9	87	58	58	20	79	-158.4	-57.5	-56.9	-56.9	13/1/2011 18:00	0.2	-0.003
280	75	9	84	56	56	20	76	-150.4	-54.6	-55.7	-54.2	13/1/2011 19:00	0.1	-0.003
281	73	9	82	54	54	20	74	-143.0	-51.9	-54.5	-51.7	13/1/2011 20:00	0.1	-0.002
282	70	9	79	52	52	19	71	-136.0	-49.4	-53.2	-49.3	13/1/2011 21:00	0.1	-0.003
283	68	9	77	50	50	19	69	-129.5	-47.0	-52.0	-47.1	13/1/2011 22:00	0.1	-0.002
284	66	9	75	48	48	18	67	-123.4	-44.8	-50.7	-45.0	13/1/2011 23:00	0.1	-0.003
285	64	9	73	47	47	18	65	-117.6	-42.6	-49.3	-43.1	14/1/2011 0:00	0.1	-0.002
286	62	9	70	45	45	18	63	-112.2	-40.7	-48.0	-41.2	14/1/2011 1:00	0.1	-0.002
287	60	9	68	44	44	17	61	-107.1	-38.8	-46.6	-39.4	14/1/2011 2:00	0.1	-0.003
288	58	9	66	42	42	17	59	-102.3	-37.0	-45.3	-37.7	14/1/2011 3:00	0.1	-0.002
289	56	8	64	41	41	17	57	-97.7	-35.3	-43.9	-36.1	14/1/2011 4:00	0.1	-0.002
290	54	8	62	39	39	16	56	-93.5	-33.7	-42.6	-34.6	14/1/2011 5:00	0.1	-0.002
291	52	8	60	38	38	16	54	-89.4	-32.2	-41.3	-33.2	14/1/2011 6:00	0.1	-0.002
292	50	8	59	37	37	16	53	-85.6	-30.8	-40.0	-31.8	14/1/2011 7:00	0.1	-0.002
293	49	8	57	36	36	15	51	-82.0	-29.5	-38.8	-30.5	14/1/2011 8:00	0.1	-0.003
294	47	8	55	35	35	15	50	-78.6	-28.2	-37.5	-29.2	14/1/2011 9:00	0.1	-0.001
295	46	8	53	34	34	15	48	-75.4	-27.0	-36.3	-28.1	14/1/2011 10:00	0.1	-0.002
296	44	8	52	33	33	14	47	-72.3	-25.8	-35.1	-27.0	14/1/2011 11:00	0.1	-0.002
297	43	8	50	32	32	14	46	-69.3	-24.8	-34.0	-25.9	14/1/2011 12:00	0.1	-0.002
298	41	8	49	31	31	14	45	-66.6	-23.8	-32.9	-24.9	14/1/2011 13:00	0.1	-0.002
299	40	7	47	30	30	13	44	-64.0	-22.8	-31.8	-23.9	14/1/2011 14:00	0.1	-0.002
300	39	7	46	29	29	13	43	-61.5	-21.8	-30.8	-23.0	14/1/2011 15:00	0.1	-0.002
301	37	7	44	29	29	13	42	-59.1	-21.0	-29.7	-22.1	14/1/2011 16:00	0.1	-0.001
302	36	7	43	28	28	13	41	-56.8	-20.1	-28.7	-21.3	14/1/2011 17:00	0.1	-0.002
303	35	7	42	27	27	12	40	-54.7	-19.3	-27.8	-20.5	14/1/2011 18:00	0.1	-0.002
304	34	7	41	27	27	12	39	-52.6	-18.6	-26.9	-19.7	14/1/2011 19:00	0.1	-0.001
305	33	7	39	26	26	12	38	-50.7	-17.9	-26.0	-19.0	14/1/2011 20:00	0.1	-0.002
306	32	7	38	25	25	12	37	-48.8	-17.2	-25.1	-18.3	14/1/2011 21:00	0.1	-0.001
307	31	7	37	25	25	11	36	-47.0	-16.5	-24.3	-17.7	14/1/2011 22:00	0.1	-0.002
308	30	6	36	24	24	11	35	-45.4	-15.9	-23.5	-17.1	14/1/2011 23:00	0.1	-0.001
309	29	6	35	24	24	11	35	-43.7	-15.3	-22.7	-16.5	15/1/2011 0:00	0.1	-0.002
310	28	6	34	23	23	11	34	-42.2	-14.8	-21.9	-15.9	15/1/2011 1:00	0.1	-0.001
311	27	6	33	23	23	10	33	-40.7	-14.2	-21.2	-15.4	15/1/2011 2:00	0.1	-0.002
312	26	6	32	22	22	10	32	-39.3	-13.7	-20.5	-14.9	15/1/2011 3:00	0.1	-0.001
313	25	6	31	22	22	10	32	-37.9	-13.2	-19.8	-14.4	15/1/2011 4:00	0.1	-0.001
314	24	6	30	21	21	10	31	-36.6	-12.7	-19.2	-14.0	15/1/2011 5:00	0.1	-0.002

	A	B	C	D	E	F	G	H	I	J	K	L	M
315	12.875	0.2	0.7	15/01/2011 04:00	21	21	33	54	7	8	10	18	24
316	12.917	0.2	0.7	15/01/2011 05:00	21	20	33	53	7	8	10	18	23
317	12.958	0.2	0.7	15/01/2011 06:00	20	19	32	51	7	7	10	17	22
318	13.000	0.2	0.6	15/01/2011 07:00	19	18	31	50	7	7	9	17	22
319	13.042	0.2	0.6	15/01/2011 08:00	18	18	30	48	6	7	9	16	21
320	13.083	0.2	0.6	15/01/2011 09:00	18	17	30	47	6	7	9	16	20
321	13.125	0.2	0.6	15/01/2011 10:00	17	16	29	45	6	6	9	15	20
322	13.167	0.2	0.6	15/01/2011 11:00	16	16	28	44	6	6	9	15	19
323	13.208	0.2	0.6	15/01/2011 12:00	16	15	28	43	5	6	8	14	19
324	13.250	0.2	0.6	15/01/2011 13:00	15	15	27	42	5	6	8	14	18
325	13.292	0.2	0.6	15/01/2011 14:00	15	14	26	41	5	6	8	13	17
326	13.333	0.2	0.6	15/01/2011 15:00	14	14	26	39	5	5	8	13	17
327	13.375	0.2	0.6	15/01/2011 16:00	13	13	25	38	5	5	8	13	16
328	13.417	0.2	0.6	15/01/2011 17:00	13	13	25	37	5	5	7	12	16
329	13.458	0.2	0.6	15/01/2011 18:00	13	12	24	36	4	5	7	12	16
330	13.500	0.2	0.6	15/01/2011 19:00	12	12	24	35	4	5	7	12	15
331	13.542	0.2	0.6	15/01/2011 20:00	12	11	23	34	4	4	7	11	15
332	13.583	0.2	0.6	15/01/2011 21:00	11	11	22	33	4	4	7	11	14
333	13.625	0.2	0.6	15/01/2011 22:00	11	11	22	32	4	4	7	11	14
334	13.667	0.2	0.6	15/01/2011 23:00	10	10	21	32	4	4	6	10	13
335	13.708	0.2	0.6	16/01/2011 00:00	10	10	21	31	4	4	6	10	13
336	13.750	0.2	0.6	16/01/2011 01:00	10	9	20	30	3	4	6	10	13
337	13.792	0.2	0.6	16/01/2011 02:00	9	9	20	29	3	4	6	10	12
338	13.833	0.2	0.6	16/01/2011 03:00	9	9	19	28	3	3	6	9	12
339	13.875	0.2	0.6	16/01/2011 04:00	9	9	19	28	3	3	6	9	12
340	13.917	0.2	0.6	16/01/2011 05:00	9	8	19	27	3	3	6	9	11
341	13.958	0.2	0.6	16/01/2011 06:00	8	8	18	26	3	3	5	9	11
342	14.000	0.2	0.6	16/01/2011 07:00	8	8	18	25	3	3	5	8	11
343	14.042	0.2	0.6	16/01/2011 08:00	8	7	17	25	3	3	5	8	11
344	14.083	0.2	0.6	16/01/2011 09:00	7	7	17	24	3	3	5	8	10
345	14.125	0.2	0.6	16/01/2011 10:00	7	7	16	24	3	3	5	8	10
346	14.167	0.2	0.6	16/01/2011 11:00	7	7	16	23	2	3	5	7	10
347	14.208	0.2	0.6	16/01/2011 12:00	7	7	16	22	2	3	5	7	9
348	14.250	0.2	0.6	16/01/2011 13:00	7	6	15	22	2	3	5	7	9
349	14.292	0.2	0.6	16/01/2011 14:00	6	6	15	21	2	2	4	7	9
350	14.333	0.2	0.6	16/01/2011 15:00	6	6	15	21	2	2	4	7	9
351	14.375	0.2	0.6	16/01/2011 16:00	6	6	14	20	2	2	4	7	9
352	14.417	0.2	0.6	16/01/2011 17:00	6	6	14	20	2	2	4	6	8
353	14.458	0.2	0.6	16/01/2011 18:00	6	5	14	19	2	2	4	6	8
354	14.500	0.2	0.6	16/01/2011 19:00	5	5	13	19	2	2	4	6	8
355	14.542	0.2	0.6	16/01/2011 20:00	5	5	13	18	2	2	4	6	8
356	14.583	0.2	0.6	16/01/2011 21:00	5	5	13	18	2	2	4	6	8
357	14.625	0.2	0.6	16/01/2011 22:00	5	5	12	17	2	2	4	6	7
358	14.667	0.2	0.6	16/01/2011 23:00	5	5	12	17	2	2	4	5	7
359	14.708	0.2	0.6	17/01/2011 00:00	5	5	12	16	2	2	3	5	7

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
315	24	6	29	21	21	10	30	-35.4	-12.3	-18.5	-13.5	15/1/2011 6:00	0.1	-0.001
316	23	6	29	20	20	9	30	-34.2	-11.9	-17.9	-13.1	15/1/2011 7:00	0.1	-0.001
317	22	6	28	20	20	9	29	-33.0	-11.4	-17.4	-12.7	15/1/2011 8:00	0.1	-0.002
318	22	5	27	20	20	9	29	-31.9	-11.0	-16.8	-12.4	15/1/2011 9:00	0.1	-0.001
319	21	5	26	19	19	9	28	-30.9	-10.6	-16.3	-12.0	15/1/2011 10:00	0.1	-0.001
320	20	5	26	19	19	9	28	-29.9	-10.3	-15.7	-11.6	15/1/2011 11:00	0.1	-0.001
321	20	5	25	19	19	9	27	-28.9	-9.9	-15.2	-11.3	15/1/2011 12:00	0.1	-0.001
322	19	5	24	18	18	8	27	-28.0	-9.6	-14.8	-11.0	15/1/2011 13:00	0.1	-0.001
323	19	5	24	18	18	8	26	-27.1	-9.3	-14.3	-10.7	15/1/2011 14:00	0.1	-0.002
324	18	5	23	18	18	8	26	-26.2	-9.0	-13.8	-10.4	15/1/2011 15:00	0.1	-0.001
325	17	5	22	17	17	8	25	-25.4	-8.7	-13.4	-10.1	15/1/2011 16:00	0.1	-0.001
326	17	5	22	17	17	8	25	-24.6	-8.4	-13.0	-9.9	15/1/2011 17:00	0.1	-0.067
327	16	5	21	17	17	8	24	-23.8	-8.1	-12.6	-9.6	15/1/2011 18:00		
328	16	5	21	17	17	7	24	-23.1	-7.8	-12.2	-9.4	15/1/2011 19:00		
329	16	4	20	16	16	7	24	-22.3	-7.6	-11.8	-9.2	15/1/2011 20:00		
330	15	4	20	16	16	7	23	-21.7	-7.4	-11.5	-8.9	15/1/2011 21:00		
331	15	4	19	16	16	7	23	-21.0	-7.1	-11.1	-8.7	15/1/2011 22:00		
332	14	4	19	16	16	7	22	-20.4	-6.9	-10.8	-8.5	15/1/2011 23:00		
333	14	4	18	15	15	7	22	-19.8	-6.7	-10.5	-8.3	16/1/2011 0:00		
334	13	4	18	15	15	6	22	-19.2	-6.5	-10.1	-8.1	16/1/2011 1:00		
335	13	4	17	15	15	6	21	-18.6	-6.3	-9.8	-7.9	16/1/2011 2:00		
336	13	4	17	15	15	6	21	-18.0	-6.1	-9.5	-7.7	16/1/2011 3:00		
337	12	4	16	14	14	6	21	-17.5	-5.9	-9.3	-7.6	16/1/2011 4:00		
338	12	4	16	14	14	6	20	-17.0	-5.7	-9.0	-7.4	16/1/2011 5:00		
339	12	4	15	14	14	6	20	-16.5	-5.6	-8.7	-7.2	16/1/2011 6:00		
340	11	4	15	14	14	6	20	-16.0	-5.4	-8.5	-7.1	16/1/2011 7:00		
341	11	4	15	14	14	6	19	-15.6	-5.2	-8.2	-6.9	16/1/2011 8:00		
342	11	4	14	13	13	6	19	-15.1	-5.1	-8.0	-6.8	16/1/2011 9:00		
343	11	3	14	13	13	5	19	-14.7	-4.9	-7.8	-6.6	16/1/2011 10:00		
344	10	3	14	13	13	5	18	-14.2	-4.8	-7.5	-6.5	16/1/2011 11:00		
345	10	3	13	13	13	5	18	-13.9	-4.6	-7.3	-6.4	16/1/2011 12:00		
346	10	3	13	13	13	5	18	-13.5	-4.5	-7.1	-6.2	16/1/2011 13:00		
347	9	3	13	13	13	5	18	-13.1	-4.3	-6.9	-6.1	16/1/2011 14:00		
348	9	3	12	12	12	5	17	-12.7	-4.3	-6.7	-6.0	16/1/2011 15:00		
349	9	3	12	12	12	5	17	-12.3	-4.1	-6.5	-5.9	16/1/2011 16:00		
350	9	3	12	12	12	5	17	-12.0	-4.0	-6.4	-5.7	16/1/2011 17:00		
351	9	3	11	12	12	5	17	-11.7	-3.9	-6.2	-5.6	16/1/2011 18:00		
352	8	3	11	12	12	5	16	-11.4	-3.8	-6.0	-5.5	16/1/2011 19:00		
353	8	3	11	12	12	4	16	-11.0	-3.7	-5.9	-5.4	16/1/2011 20:00		
354	8	3	11	12	12	4	16	-10.7	-3.6	-5.7	-5.3	16/1/2011 21:00		
355	8	3	10	11	11	4	16	-10.4	-3.4	-5.5	-5.2	16/1/2011 22:00		
356	8	3	10	11	11	4	15	-10.1	-3.4	-5.4	-5.1	16/1/2011 23:00		
357	7	3	10	11	11	4	15	-9.9	-3.3	-5.3	-5.0	17/1/2011 0:00		
358	7	3	10	11	11	4	15	-9.6	-3.2	-5.1	-4.9	17/1/2011 1:00		
359	7	3	10	11	11	4	15	-9.4	-3.1	-5.0	-4.8	17/1/2011 2:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
360	14.750	0.2	0.6	17/01/2011 01:00	5	4	12	16	2	2	3	5	7
361	14.792	0.2	0.6	17/01/2011 02:00	4	4	11	16	2	2	3	5	7
362	14.833	0.2	0.6	17/01/2011 03:00	4	4	11	15	2	2	3	5	7
363	14.875	0.2	0.6	17/01/2011 04:00	4	4	11	15	1	2	3	5	6
364	14.917	0.2	0.6	17/01/2011 05:00	4	4	10	14	1	2	3	5	6
365	14.958	0.2	0.6	17/01/2011 06:00	4	4	10	14	1	1	3	5	6
366	15.000	0.2	0.6	17/01/2011 07:00	4	4	10	14	1	1	3	4	6
367	15.042	0.2	0.6	17/01/2011 08:00	4	4	10	13	1	1	3	4	6
368	15.083	0.2	0.6	17/01/2011 09:00	4	4	10	13	1	1	3	4	0
369	15.125	0.2	0.6	17/01/2011 10:00	0	0	9	9	0	0	3	3	0
370	15.167	0.2	0.6	17/01/2011 11:00	0	0	9	9	0	0	3	3	0
371	15.208	0.2	0.6	17/01/2011 12:00	0	0	9	9	0	0	3	3	0
372	15.250	0.2	0.6	17/01/2011 13:00	0	0	9	9	0	0	3	3	0
373	15.292	0.2	0.6	17/01/2011 14:00	0	0	8	8	0	0	2	2	0
374	15.333	0.2	0.6	17/01/2011 15:00	0	0	8	8	0	0	2	2	0
375	15.375	0.2	0.6	17/01/2011 16:00	0	0	8	8	0	0	2	2	0
376	15.417	0.2	0.6	17/01/2011 17:00	0	0	8	8	0	0	2	2	0
377	15.458	0.2	0.6	17/01/2011 18:00	0	0	8	8	0	0	2	2	0
378	15.500	0.2	0.6	17/01/2011 19:00	0	0	7	7	0	0	2	2	0
379	15.542	0.2	0.6	17/01/2011 20:00	0	0	7	7	0	0	2	2	0
380	15.583	0.2	0.6	17/01/2011 21:00	0	0	7	7	0	0	2	2	0
381	15.625	0.2	0.6	17/01/2011 22:00	0	0	7	7	0	0	2	2	0
382	15.667	0.2	0.6	17/01/2011 23:00	0	0	7	7	0	0	2	2	0
383	15.708	0.2	0.6	18/01/2011 00:00	0	0	7	7	0	0	2	2	0
384	15.750	0.2	0.6	18/01/2011 01:00	0	0	6	6	0	0	2	2	0
385	15.792	0.2	0.6	18/01/2011 02:00	0	0	6	6	0	0	2	2	0
386	15.833	0.2	0.6	18/01/2011 03:00	0	0	6	6	0	0	2	2	0
387	15.875	0.2	0.6	18/01/2011 04:00	0	0	6	6	0	0	2	2	0
388	15.917	0.2	0.6	18/01/2011 05:00	0	0	6	6	0	0	2	2	0
389	15.958	0.2	0.6	18/01/2011 06:00	0	0	6	6	0	0	2	2	0
390	16.000	0.2	0.6	18/01/2011 07:00	0	0	5	5	0	0	2	2	0
391	16.042	0.2	0.6	18/01/2011 08:00	0	0	5	5	0	0	2	2	0
392	16.083	0.2	0.6	18/01/2011 09:00	0	0	5	5	0	0	2	2	0
393	16.125	0.2	0.6	18/01/2011 10:00	0	0	5	5	0	0	1	1	0
394	16.167	0.2	0.6	18/01/2011 11:00	0	0	5	5	0	0	1	1	0
395	16.208	0.2	0.6	18/01/2011 12:00	0	0	5	5	0	0	1	1	0
396	16.250	0.2	0.6	18/01/2011 13:00	0	0	5	5	0	0	1	1	0
397	16.292	0.2	0.6	18/01/2011 14:00	0	0	5	5	0	0	1	1	0
398	16.333	0.2	0.6	18/01/2011 15:00	0	0	4	4	0	0	1	1	0
399	16.375	0.2	0.6	18/01/2011 16:00	0	0	4	4	0	0	1	1	0
400	16.417	0.2	0.6	18/01/2011 17:00	0	0	4	4	0	0	1	1	0
401	16.458	0.2	0.6	18/01/2011 18:00	0	0	4	4	0	0	1	1	0
402	16.500	0.2	0.6	18/01/2011 19:00	0	0	4	4	0	0	1	1	0
403	16.542	0.2	0.6	18/01/2011 20:00	0	0	4	4	0	0	1	1	0
404	16.583	0.2	0.6	18/01/2011 21:00	0	0	4	4	0	0	1	1	0

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
360	7	2	9	11	11	4	15	-9.1	-3.0	-4.8	-4.7	17/1/2011 3:00		
361	7	2	9	11	11	4	14	-8.8	-2.9	-4.7	-4.7	17/1/2011 4:00		
362	7	2	9	10	10	4	14	-8.6	-2.8	-4.6	-4.6	17/1/2011 5:00		
363	6	2	9	10	10	4	14	-8.4	-2.8	-4.5	-4.5	17/1/2011 6:00		
364	6	2	8	10	10	4	14	-8.2	-2.7	-4.3	-4.4	17/1/2011 7:00		
365	6	2	8	10	10	3	14	-5.4	-2.6	-139.8	-4.3	17/1/2011 8:00		
366	6	2	8	10	10	3	13	-92.5	-34.7	-1.3	-234.9	17/1/2011 9:00		
367	6	2	8	10	10	3	13	-5.6	-1.6	-1.2	-1.9	17/1/2011 10:00		
368	0	2	2	10	10	3	13	-5.4	-1.6	-1.2	-1.9	17/1/2011 11:00		
369	0	2	2	0	0	3	3	-5.3	-1.6	-1.2	-1.8	17/1/2011 12:00		
370	0	2	2	0	0	3	3	-5.2	-1.5	-1.1	-1.8	17/1/2011 13:00		
371	0	2	2	0	0	3	3	-5.0	-1.5	-1.1	-1.7	17/1/2011 14:00		
372	0	2	2	0	0	3	3	-4.9	-1.4	-1.1	-1.7	17/1/2011 15:00		
373	0	2	2	0	0	3	3	-4.8	-1.4	-1.1	-1.7	17/1/2011 16:00		
374	0	2	2	0	0	3	3	-4.7	-1.4	-1.0	-1.6	17/1/2011 17:00		
375	0	2	2	0	0	3	3	-4.5	-1.3	-1.0	-1.6	17/1/2011 18:00		
376	0	2	2	0	0	3	3	-4.4	-1.3	-1.0	-1.5	17/1/2011 19:00		
377	0	2	2	0	0	3	3	-4.3	-1.3	-1.0	-1.5	17/1/2011 20:00		
378	0	2	2	0	0	3	3	-4.2	-1.2	-0.9	-1.5	17/1/2011 21:00		
379	0	2	2	0	0	2	2	-4.1	-1.2	-0.9	-1.4	17/1/2011 22:00		
380	0	2	2	0	0	2	2	-4.0	-1.2	-0.9	-1.4	17/1/2011 23:00		
381	0	2	2	0	0	2	2	-3.9	-1.2	-0.9	-1.3	18/1/2011 0:00		
382	0	1	1	0	0	2	2	-3.8	-1.1	-0.8	-1.3	18/1/2011 1:00		
383	0	1	1	0	0	2	2	-3.7	-1.1	-0.8	-1.3	18/1/2011 2:00		
384	0	1	1	0	0	2	2	-3.6	-1.1	-0.8	-1.2	18/1/2011 3:00		
385	0	1	1	0	0	2	2	-3.5	-1.0	-0.8	-1.2	18/1/2011 4:00		
386	0	1	1	0	0	2	2	-3.4	-1.0	-0.8	-1.2	18/1/2011 5:00		
387	0	1	1	0	0	2	2	-3.4	-1.0	-0.7	-1.2	18/1/2011 6:00		
388	0	1	1	0	0	2	2	-3.3	-1.0	-0.7	-1.1	18/1/2011 7:00		
389	0	1	1	0	0	2	2	-3.2	-0.9	-0.7	-1.1	18/1/2011 8:00		
390	0	1	1	0	0	2	2	-3.1	-0.9	-0.7	-1.1	18/1/2011 9:00		
391	0	1	1	0	0	2	2	-3.0	-0.9	-0.7	-1.0	18/1/2011 10:00		
392	0	1	1	0	0	2	2	-3.0	-0.9	-0.7	-1.0	18/1/2011 11:00		
393	0	1	1	0	0	2	2	-2.9	-0.8	-0.6	-1.0	18/1/2011 12:00		
394	0	1	1	0	0	2	2	-2.8	-0.8	-0.6	-1.0	18/1/2011 13:00		
395	0	1	1	0	0	2	2	-2.7	-0.8	-0.6	-0.9	18/1/2011 14:00		
396	0	1	1	0	0	2	2	-2.7	-0.8	-0.6	-0.9	18/1/2011 15:00		
397	0	1	1	0	0	2	2	-2.6	-0.8	-0.6	-0.9	18/1/2011 16:00		
398	0	1	1	0	0	2	2	-2.5	-0.7	-0.6	-0.9	18/1/2011 17:00		
399	0	1	1	0	0	1	1	-2.5	-0.7	-0.5	-0.9	18/1/2011 18:00		
400	0	1	1	0	0	1	1	-2.4	-0.7	-0.5	-0.8	18/1/2011 19:00		
401	0	1	1	0	0	1	1	-2.4	-0.7	-0.5	-0.8	18/1/2011 20:00		
402	0	1	1	0	0	1	1	-2.3	-0.7	-0.5	-0.8	18/1/2011 21:00		
403	0	1	1	0	0	1	1	-2.2	-0.7	-0.5	-0.8	18/1/2011 22:00		
404	0	1	1	0	0	1	1	-2.2	-0.6	-0.5	-0.8	18/1/2011 23:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
405	16.625	0.2	0.6	18/01/2011 22:00	0	0	4	4	0	0	1	1	0
406	16.667	0.2	0.6	18/01/2011 23:00	0	0	4	4	0	0	1	1	0
407	16.708	0.2	0.6	19/01/2011 00:00	0	0	4	4	0	0	1	1	0
408	16.750	0.2	0.6	19/01/2011 01:00	0	0	3	3	0	0	1	1	0
409	16.792	0.2	0.6	19/01/2011 02:00	0	0	3	3	0	0	1	1	0
410	16.833	0.2	0.6	19/01/2011 03:00	0	0	3	3	0	0	1	1	0
411	16.875	0.2	0.6	19/01/2011 04:00	0	0	3	3	0	0	1	1	0
412	16.917	0.2	0.6	19/01/2011 05:00	0	0	3	3	0	0	1	1	0
413	16.958	0.2	0.6	19/01/2011 06:00	0	0	3	3	0	0	1	1	0
414	17.000	0.2	0.6	19/01/2011 07:00	0	0	3	3	0	0	1	1	0
415	17.042	0.2	0.6	19/01/2011 08:00	0	0	3	3	0	0	1	1	0
416	17.083	0.2	0.6	19/01/2011 09:00	0	0	3	3	0	0	1	1	0
417	17.125	0.2	0.6	19/01/2011 10:00	0	0	3	3	0	0	1	1	0
418	17.167	0.2	0.6	19/01/2011 11:00	0	0	3	3	0	0	1	1	0
419	17.208	0.2	0.6	19/01/2011 12:00	0	0	3	3	0	0	1	1	0
420	17.250	0.2	0.6	19/01/2011 13:00	0	0	3	3	0	0	1	1	0
421	17.292	0.2	0.6	19/01/2011 14:00	0	0	2	2	0	0	1	1	0
422	17.333	0.2	0.6	19/01/2011 15:00	0	0	2	2	0	0	1	1	0
423	17.375	0.2	0.6	19/01/2011 16:00	0	0	2	2	0	0	1	1	0
424	17.417	0.2	0.6	19/01/2011 17:00	0	0	2	2	0	0	1	1	0
425	17.458	0.2	0.6	19/01/2011 18:00	0	0	2	2	0	0	1	1	0
426	17.500	0.2	0.6	19/01/2011 19:00	0	0	2	2	0	0	1	1	0
427	17.542	0.2	0.6	19/01/2011 20:00	0	0	2	2	0	0	1	1	0
428	17.583	0.2	0.6	19/01/2011 21:00	0	0	2	2	0	0	1	1	0
429	17.625	0.2	0.6	19/01/2011 22:00	0	0	2	2	0	0	1	1	0
430	17.667	0.2	0.6	19/01/2011 23:00	0	0	2	2	0	0	1	1	0
431	17.708	0.2	0.6	20/01/2011 00:00	0	0	2	2	0	0	1	1	0
432	17.750	0.2	0.6	20/01/2011 01:00	0	0	2	2	0	0	1	1	0
433	17.792	0.2	0.6	20/01/2011 02:00	0	0	2	2	0	0	1	1	0
434	17.833	0.2	0.6	20/01/2011 03:00	0	0	2	2	0	0	1	1	0
435	17.875	0.2	0.6	20/01/2011 04:00	0	0	2	2	0	0	1	1	0
436	17.917	0.2	0.6	20/01/2011 05:00	0	0	2	2	0	0	1	1	0
437	17.958	0.2	0.6	20/01/2011 06:00	0	0	2	2	0	0	0	0	0
438	18.000	0.2	0.6	20/01/2011 07:00	0	0	2	2	0	0	0	0	0
439	18.042	0.2	0.6	20/01/2011 08:00	0	0	2	2	0	0	0	0	0
440	18.083	0.2	0.6	20/01/2011 09:00	0	0	2	2	0	0	0	0	0
441	18.125	0.2	0.6	20/01/2011 10:00	0	0	1	1	0	0	0	0	0
442	18.167	0.2	0.6	20/01/2011 11:00	0	0	1	1	0	0	0	0	0
443	18.208	0.2	0.6	20/01/2011 12:00	0	0	1	1	0	0	0	0	0
444	18.250	0.2	0.6	20/01/2011 13:00	0	0	1	1	0	0	0	0	0
445	18.292	0.2	0.6	20/01/2011 14:00	0	0	1	1	0	0	0	0	0
446	18.333	0.2	0.6	20/01/2011 15:00	0	0	1	1	0	0	0	0	0
447	18.375	0.2	0.6	20/01/2011 16:00	0	0	1	1	0	0	0	0	0
448	18.417	0.2	0.6	20/01/2011 17:00	0	0	1	1	0	0	0	0	0
449	18.458	0.2	0.6	20/01/2011 18:00	0	0	1	1	0	0	0	0	0

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
405	0	1	1	0	0	1	1	-2.1	-0.6	-0.5	-0.7	19/1/2011 0:00		
406	0	1	1	0	0	1	1	-2.1	-0.6	-0.5	-0.7	19/1/2011 1:00		
407	0	1	1	0	0	1	1	-2.0	-0.6	-0.4	-0.7	19/1/2011 2:00		
408	0	1	1	0	0	1	1	-2.0	-0.6	-0.4	-0.7	19/1/2011 3:00		
409	0	1	1	0	0	1	1	-1.9	-0.6	-0.4	-0.7	19/1/2011 4:00		
410	0	1	1	0	0	1	1	-1.9	-0.6	-0.4	-0.6	19/1/2011 5:00		
411	0	1	1	0	0	1	1	-1.8	-0.5	-0.4	-0.6	19/1/2011 6:00		
412	0	1	1	0	0	1	1	-1.8	-0.5	-0.4	-0.6	19/1/2011 7:00		
413	0	1	1	0	0	1	1	-1.7	-0.5	-0.4	-0.6	19/1/2011 8:00		
414	0	1	1	0	0	1	1	-1.7	-0.5	-0.4	-0.6	19/1/2011 9:00		
415	0	1	1	0	0	1	1	-1.6	-0.5	-0.4	-0.6	19/1/2011 10:00		
416	0	1	1	0	0	1	1	-1.6	-0.5	-0.4	-0.6	19/1/2011 11:00		
417	0	1	1	0	0	1	1	-1.6	-0.5	-0.3	-0.5	19/1/2011 12:00		
418	0	1	1	0	0	1	1	-1.5	-0.5	-0.3	-0.5	19/1/2011 13:00		
419	0	1	1	0	0	1	1	-1.5	-0.4	-0.3	-0.5	19/1/2011 14:00		
420	0	1	1	0	0	1	1	-1.5	-0.4	-0.3	-0.5	19/1/2011 15:00		
421	0	1	1	0	0	1	1	-1.4	-0.4	-0.3	-0.5	19/1/2011 16:00		
422	0	1	1	0	0	1	1	-1.4	-0.4	-0.3	-0.5	19/1/2011 17:00		
423	0	1	1	0	0	1	1	-1.3	-0.4	-0.3	-0.5	19/1/2011 18:00		
424	0	1	1	0	0	1	1	-1.3	-0.4	-0.3	-0.5	19/1/2011 19:00		
425	0	0	0	0	0	1	1	-1.3	-0.4	-0.3	-0.4	19/1/2011 20:00		
426	0	0	0	0	0	1	1	-1.2	-0.4	-0.3	-0.4	19/1/2011 21:00		
427	0	0	0	0	0	1	1	-1.2	-0.4	-0.3	-0.4	19/1/2011 22:00		
428	0	0	0	0	0	1	1	-1.2	-0.4	-0.3	-0.4	19/1/2011 23:00		
429	0	0	0	0	0	1	1	-1.2	-0.3	-0.3	-0.4	20/1/2011 0:00		
430	0	0	0	0	0	1	1	-1.1	-0.3	-0.2	-0.4	20/1/2011 1:00		
431	0	0	0	0	0	1	1	-1.1	-0.3	-0.2	-0.4	20/1/2011 2:00		
432	0	0	0	0	0	1	1	-1.1	-0.3	-0.2	-0.4	20/1/2011 3:00		
433	0	0	0	0	0	1	1	-1.0	-0.3	-0.2	-0.4	20/1/2011 4:00		
434	0	0	0	0	0	1	1	-1.0	-0.3	-0.2	-0.4	20/1/2011 5:00		
435	0	0	0	0	0	1	1	-1.0	-0.3	-0.2	-0.3	20/1/2011 6:00		
436	0	0	0	0	0	1	1	-1.0	-0.3	-0.2	-0.3	20/1/2011 7:00		
437	0	0	0	0	0	1	1	-0.9	-0.3	-0.2	-0.3	20/1/2011 8:00		
438	0	0	0	0	0	1	1	-0.9	-0.3	-0.2	-0.3	20/1/2011 9:00		
439	0	0	0	0	0	1	1	-0.9	-0.3	-0.2	-0.3	20/1/2011 10:00		
440	0	0	0	0	0	1	1	-0.9	-0.3	-0.2	-0.3	20/1/2011 11:00		
441	0	0	0	0	0	1	1	-0.9	-0.3	-0.2	-0.3	20/1/2011 12:00		
442	0	0	0	0	0	1	1	-0.8	-0.2	-0.2	-0.3	20/1/2011 13:00		
443	0	0	0	0	0	0	0	-0.8	-0.2	-0.2	-0.3	20/1/2011 14:00		
444	0	0	0	0	0	0	0	-0.8	-0.2	-0.2	-0.3	20/1/2011 15:00		
445	0	0	0	0	0	0	0	-0.8	-0.2	-0.2	-0.3	20/1/2011 16:00		
446	0	0	0	0	0	0	0	-0.8	-0.2	-0.2	-0.3	20/1/2011 17:00		
447	0	0	0	0	0	0	0	-0.7	-0.2	-0.2	-0.3	20/1/2011 18:00		
448	0	0	0	0	0	0	0	-0.7	-0.2	-0.2	-0.2	20/1/2011 19:00		
449	0	0	0	0	0	0	0	-0.7	-0.2	-0.2	-0.2	20/1/2011 20:00		

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450	18.500	0.2	0.6	20/01/2011 19:00	0	0	1	1	0	0	0	0	0
451	18.542	0.2	0.6	20/01/2011 20:00	0	0	1	1	0	0	0	0	0
452	18.583	0.2	0.6	20/01/2011 21:00	0	0	1	1	0	0	0	0	0
453	18.625	0.2	0.6	20/01/2011 22:00	0	0	1	1	0	0	0	0	0
454	18.667	0.2	0.6	20/01/2011 23:00	0	0	1	1	0	0	0	0	0
455	18.708	0.2	0.6	21/01/2011 00:00	0	0	1	1	0	0	0	0	0
456	18.750	0.2	0.6	21/01/2011 01:00	0	0	1	1	0	0	0	0	0
457	18.792	0.2	0.6	21/01/2011 02:00	0	0	1	1	0	0	0	0	0
458	18.833	0.2	0.6	21/01/2011 03:00	0	0	1	1	0	0	0	0	0
459	18.875	0.2	0.6	21/01/2011 04:00	0	0	1	1	0	0	0	0	0
460	18.917	0.2	0.6	21/01/2011 05:00	0	0	1	1	0	0	0	0	0
461	18.958	0.2	0.6	21/01/2011 06:00	0	0	1	1	0	0	0	0	0
462	19.000	0.2	0.6	21/01/2011 07:00	0	0	1	1	0	0	0	0	0
463	19.042	0.2	0.6	21/01/2011 08:00	0	0	1	1	0	0	0	0	0
464	19.083	0.2	0.6	21/01/2011 09:00	0	0	1	1	0	0	0	0	0
465	19.125	0.2	0.6	21/01/2011 10:00	0	0	1	1	0	0	0	0	0
466	19.167	0.2	0.6	21/01/2011 11:00	0	0	1	1	0	0	0	0	0
467	19.208	0.2	0.6	21/01/2011 12:00	0	0	1	1	0	0	0	0	0
468	19.250	0.2	0.6	21/01/2011 13:00	0	0	1	1	0	0	0	0	0
469	19.292	0.2	0.6	21/01/2011 14:00	0	0	1	1	0	0	0	0	0
470	19.333	0.2	0.6	21/01/2011 15:00	0	0	1	1	0	0	0	0	0
471	19.375	0.2	0.6	21/01/2011 16:00	0	0	1	1	0	0	0	0	0
472	19.417	0.2	0.6	21/01/2011 17:00	0	0	1	1	0	0	0	0	0
473	19.458	0.2	0.6	21/01/2011 18:00	0	0	1	1	0	0	0	0	0
474	19.500	0.2	0.6	21/01/2011 19:00	0	0	1	1	0	0	0	0	0
475	19.542	0.2	0.6	21/01/2011 20:00	0	0	1	1	0	0	0	0	0
476	19.583	0.2	0.6	21/01/2011 21:00	0	0	1	1	0	0	0	0	0
477	19.625	0.2	0.6	21/01/2011 22:00	0	0	1	1	0	0	0	0	0
478	19.667	0.2	0.6	21/01/2011 23:00	0	0	1	1	0	0	0	0	0
479	19.708	0.2	0.6	22/01/2011 00:00	0	0	1	1	0	0	0	0	0
480	19.750	0.2	0.6	22/01/2011 01:00	0	0	1	1	0	0	0	0	0
481	19.792	0.2	0.6	22/01/2011 02:00	0	0	1	1	0	0	0	0	0
482	19.833	0.2	0.6	22/01/2011 03:00	0	0	1	1	0	0	0	0	0
483	19.875	0.2	0.6	22/01/2011 04:00	0	0	1	1	0	0	0	0	0
484	19.917	0.2	0.6	22/01/2011 05:00	0	0	1	1	0	0	0	0	0
485	19.958	0.2	0.6	22/01/2011 06:00	0	0	0	0	0	0	0	0	0
486	20.000	0.2	0.6	22/01/2011 07:00	0	0	0	0	0	0	0	0	0
487				22/01/2011 08:00	0	0	0	0	0	0	0	0	0
488				22/01/2011 09:00	0	0	0	0	0	0	0	0	0
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450	0	0	0	0	0	0	0	-0.7	-0.2	-0.1	-0.2	20/1/2011 21:00		
451	0	0	0	0	0	0	0	-0.7	-0.2	-0.1	-0.2	20/1/2011 22:00		
452	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	20/1/2011 23:00		
453	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 0:00		
454	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 1:00		
455	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 2:00		
456	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 3:00		
457	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 4:00		
458	0	0	0	0	0	0	0	-0.6	-0.2	-0.1	-0.2	21/1/2011 5:00		
459	0	0	0	0	0	0	0	-0.5	-0.2	-0.1	-0.2	21/1/2011 6:00		
460	0	0	0	0	0	0	0	-0.5	-0.2	-0.1	-0.2	21/1/2011 7:00		
461	0	0	0	0	0	0	0	-0.5	-0.2	-0.1	-0.2	21/1/2011 8:00		
462	0	0	0	0	0	0	0	-0.5	-0.1	-0.1	-0.2	21/1/2011 9:00		
463	0	0	0	0	0	0	0	-0.5	-0.1	-0.1	-0.2	21/1/2011 10:00		
464	0	0	0	0	0	0	0	-0.5	-0.1	-0.1	-0.2	21/1/2011 11:00		
465	0	0	0	0	0	0	0	-0.5	-0.1	-0.1	-0.2	21/1/2011 12:00		
466	0	0	0	0	0	0	0	-0.5	-0.1	-0.1	-0.2	21/1/2011 13:00		
467	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.2	21/1/2011 14:00		
468	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 15:00		
469	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 16:00		
470	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 17:00		
471	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 18:00		
472	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 19:00		
473	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 20:00		
474	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 21:00		
475	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 22:00		
476	0	0	0	0	0	0	0	-0.4	-0.1	-0.1	-0.1	21/1/2011 23:00		
477	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 0:00		
478	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 1:00		
479	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 2:00		
480	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 3:00		
481	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 4:00		
482	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 5:00		
483	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 6:00		
484	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 7:00		
485	0	0	0	0	0	0	0	-0.3	-0.1	-0.1	-0.1	22/1/2011 8:00		
486	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	22/1/2011 9:00		
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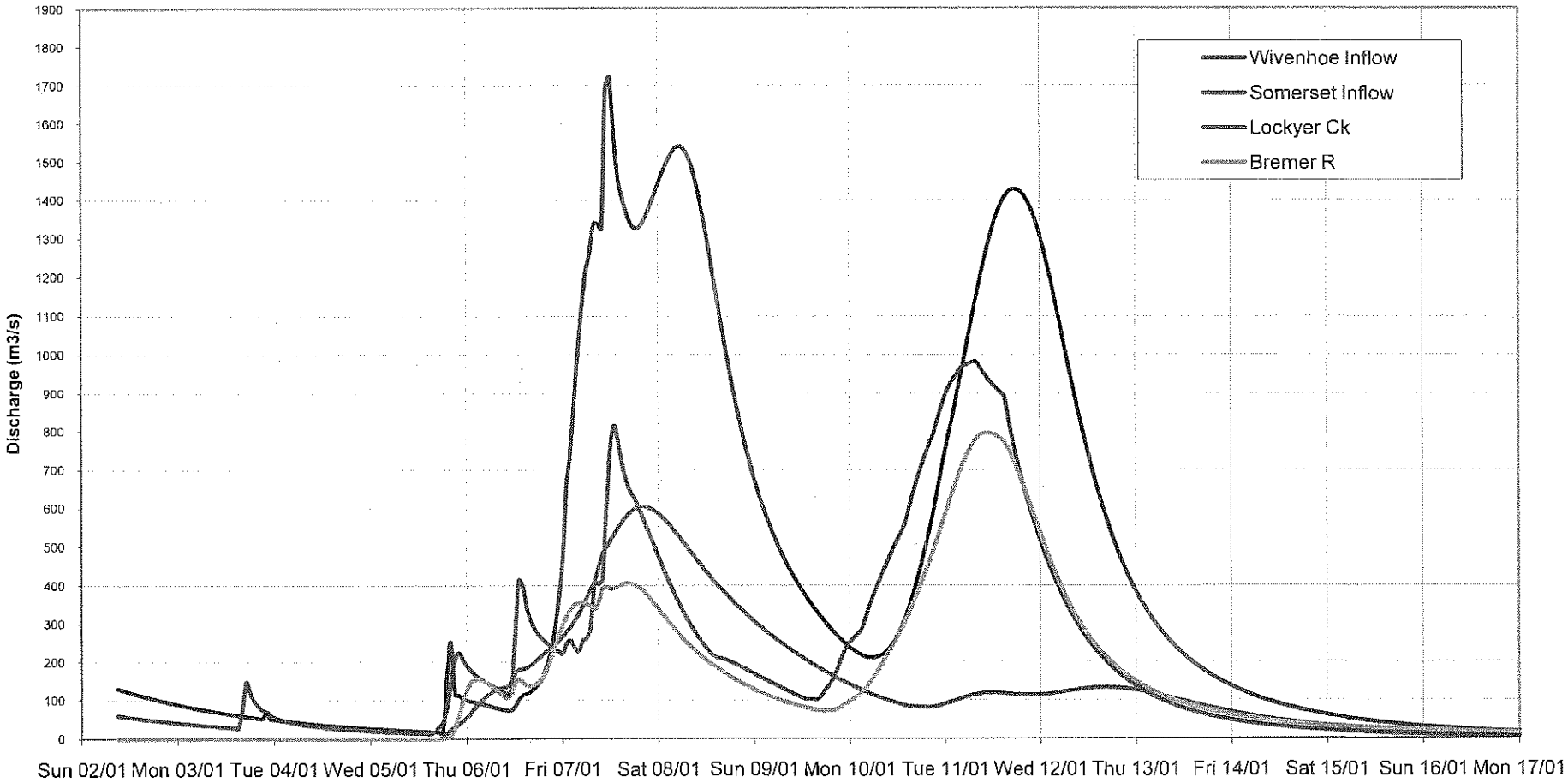
Brisbane R Flows - Forecast Rainfall



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1			2	16	hrs		60 minutes	Somerset												
2	Wivenhoe Inflow	Somerset Inflow	Lockyer Creek	Bremer River	Somerset Change in Storage	Wivenhoe Change in Storage	Date/Time	Cal Lake Level	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)	Rec Gauge Boards	No of Regulators Op	No of Sluices Open	No of Gates Open	Hydro	Total Somerset Discharge	1	2	3
3	m3/s	m3/s	m3/s	m3/s	ML	ML		m AHD	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)					m3/s	m3/s			
4	130	60	124	87			Sun 02/01/11 09:00	99.10				99.10	0.5	0.0	8	0	34	0.0	0.0	0.0
5	127	59	120	85	0.0021	0.0038	Sun 02/01/11 10:00	99.10	1187.66	-50.28	-597.21		0.5	0.0	8	0	34	0.0	0.0	0.0
6	124	57	117	82	0.0020	0.0037	Sun 02/01/11 11:00	99.10	1187.88	-47.28	-561.63		0.5	0.0	8	0	34	0.0	0.0	0.0
7	120	56	115	80	0.0018	0.0036	Sun 02/01/11 12:00	99.11	1188.09	-44.35	-526.94		0.5	0.0	8	0	34	0.0	0.0	0.0
8	117	54	112	78	0.0017	0.0035	Sun 02/01/11 13:00	99.11	1188.29	-41.50	-493.11		0.5	0.0	8	0	34	0.0	0.0	0.0
9	115	53	109	76	0.0016	0.0034	Sun 02/01/11 14:00	99.11	1188.47	-38.72	-460.14		0.5	0.0	8	0	34	0.0	0.0	0.0
10	112	52	106	74	0.0015	0.0033	Sun 02/01/11 15:00	99.11	1188.64	-36.01	-427.99		0.5	0.0	8	0	34	0.0	0.0	0.0
11	109	50	104	73	0.0014	0.0032	Sun 02/01/11 16:00	99.11	1188.80	-33.37	-396.65		0.5	0.0	8	0	34	0.0	0.0	0.0
12	106	49	101	71	0.0013	0.0031	Sun 02/01/11 17:00	99.11	1188.95	-30.79	-366.09		0.5	0.0	8	0	34	0.0	0.0	0.0
13	104	48	98	69	0.0012	0.0030	Sun 02/01/11 18:00	99.11	1189.09	-28.28	-336.29		0.5	0.0	8	0	34	0.0	0.0	0.0
14	101	47	96	67	0.0011	0.0029	Sun 02/01/11 19:00	99.12	1189.21	-25.84	-307.24		0.5	0.0	8	0	34	0.0	0.0	0.0
15	98	45	94	66	0.0010	0.0028	Sun 02/01/11 20:00	99.12	1189.33	-23.45	-278.92		0.5	0.0	8	0	34	0.0	0.0	0.0
16	96	44	91	64	0.0009	0.0027	Sun 02/01/11 21:00	99.12	1189.43	-21.13	-251.31		0.5	0.0	8	0	34	0.0	0.0	0.0
17	94	43	89	62	0.0008	0.0027	Sun 02/01/11 22:00	99.12	1189.52	-18.86	-224.39		0.5	0.0	8	0	34	0.0	0.0	0.0
18	91	42	87	61	0.0007	0.0026	Sun 02/01/11 23:00	99.12	1189.61	-16.66	-198.14		0.5	0.0	8	0	34	0.0	0.0	0.0
19	89	41	85	59	0.0006	0.0025	Mon 03/01/11 00:00	99.12	1189.68	-14.50	-172.55		0.5	0.0	8	0	34	0.0	0.0	0.0
20	87	40	82	58	0.0005	0.0024	Mon 03/01/11 01:00	99.12	1189.74	-12.41	-147.60		0.5	0.0	8	0	34	0.0	0.0	0.0
21	85	39	80	56	0.0004	0.0023	Mon 03/01/11 02:00	99.12	1189.80	-10.36	-123.28		0.5	0.0	8	0	34	0.0	0.0	0.0
22	82	38	78	55	0.0003	0.0023	Mon 03/01/11 03:00	99.12	1189.84	-8.37	-99.56		0.5	0.0	8	0	34	0.0	0.0	0.0
23	80	37	76	54	0.0003	0.0022	Mon 03/01/11 04:00	99.12	1189.88	-6.42	-76.44		0.5	0.0	8	0	34	0.0	0.0	0.0
24	78	36	74	52	0.0002	0.0021	Mon 03/01/11 05:00	99.12	1189.91	-4.53	-53.90		0.5	0.0	8	0	34	0.0	0.0	0.0
25	76	35	73	68	0.0001	0.0021	Mon 03/01/11 06:00	99.12	1189.93	-2.68	-31.92		0.5	0.0	8	0	34	0.0	0.0	0.0
26	74	34	71	52	0.0000	0.0020	Mon 03/01/11 07:00	99.12	1189.94	-0.88	-10.49		0.5	0.0	8	0	34	0.0	0.0	0.0
27	73	34	69	50	0.0000	0.0019	Mon 03/01/11 08:00	99.12	1189.95	0.87	10.40	99.20	0.5	0.0	8	0	34	0.0	0.0	0.0
28	71	33	67	49	-0.0001	0.0019	Mon 03/01/11 09:00	99.12	1189.94	2.59	30.76		0.5	0.0	8	0	34	0.0	0.0	0.0
29	69	32	66	47	-0.0002	0.0018	Mon 03/01/11 10:00	99.12	1189.93	4.25	50.62		0.5	0.0	8	0	34	0.0	0.0	0.0
30	67	31	64	46	-0.0002	0.0018	Mon 03/01/11 11:00	99.12	1189.91	5.88	69.98		0.5	0.0	8	0	34	0.0	0.0	0.0
31	66	30	62	45	-0.0003	0.0017	Mon 03/01/11 12:00	99.12	1189.89	7.47	88.85		0.5	0.0	8	0	34	0.0	0.0	0.0

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1	Wivenhoe															1702	1839		Inflo	
2	4	5	No of increments	Regulator + Hydro	1	2	3	4	5	Total Wivenhoe Discharge	Cal Lake Level	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	Rec Gauge Boards	Lowood Flo	Moggill Flow		Stanley R	Upper Brisbane R
3				m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m AHD	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	m AHD	m3/s	m3/s		ML	ML
4	0.0	0.0	0	50	0	0	0	0	0	50	67.100				67.10	50	50		0	0
5	0.0	0.0	0	50	0	0	0	0	0	50	67.104	91.1	2970	2706		50	50		211	456
6	0.0	0.0	0	50	0	0	0	0	0	50	67.107	88.5	2971	2629		50	50		416	901
7	0.0	0.0	0	50	0	0	0	0	0	50	67.111	85.9	2971	2554		50	50		616	1,335
8	0.0	0.0	0	50	0	0	0	0	0	50	67.115	83.5	2972	2481		50	50		811	1,758
9	0.0	0.0	0	50	0	0	0	0	0	50	67.118	81.0	2973	2409		50	50		1,002	2,170
10	0.0	0.0	0	50	0	0	0	0	0	50	67.121	78.7	2973	2340		50	50		1,187	2,572
11	0.0	0.0	0	50	0	0	0	0	0	50	67.124	76.4	2974	2272		50	50		1,368	2,964
12	0.0	0.0	0	50	0	0	0	0	0	50	67.127	74.2	2974	2206		50	50		1,545	3,346
13	0.0	0.0	0	50	0	0	0	0	0	50	67.130	72.0	2975	2141		50	50		1,717	3,719
14	0.0	0.0	0	50	0	0	0	0	0	50	67.133	69.8	2975	2078		50	50		1,884	4,082
15	0.0	0.0	0	50	0	0	0	0	0	50	67.136	67.8	2976	2017		50	50		2,048	4,437
16	0.0	0.0	0	50	0	0	0	0	0	50	67.139	65.8	2976	1957		50	50		2,207	4,782
17	0.0	0.0	0	50	0	0	0	0	0	50	67.142	63.8	2977	1899		50	50		2,363	5,119
18	0.0	0.0	0	50	0	0	0	0	0	50	67.144	61.9	2977	1842		50	50		2,514	5,447
19	0.0	0.0	0	50	0	0	0	0	0	50	67.147	60.0	2978	1787		50	50		2,662	5,767
20	0.0	0.0	0	50	0	0	0	0	0	50	67.149	58.2	2978	1733		50	50		2,806	6,079
21	0.0	0.0	0	50	0	0	0	0	0	50	67.151	56.4	2979	1680		50	50		2,946	6,384
22	0.0	0.0	0	50	0	0	0	0	0	50	67.154	54.7	2979	1628		50	50		3,083	6,680
23	0.0	0.0	0	50	0	0	0	0	0	50	67.156	53.0	2980	1578		50	50		3,217	6,970
24	0.0	0.0	0	50	0	0	0	0	0	50	67.158	51.3	2980	1530		50	50		3,347	7,252
25	0.0	0.0	0	50	0	0	0	0	0	50	67.160	49.7	2980	1482		50	50		3,474	7,527
26	0.0	0.0	0	50	0	0	0	0	0	50	67.162	48.2	2981	1436		50	50		3,598	7,795
27	0.0	0.0	0	50	0	0	0	0	0	50	67.164	46.6	2981	1390	67.15	50	50		3,718	8,056
28	0.0	0.0	0	50	0	0	0	0	0	50	67.166	45.2	2981	1346		50	50		3,836	8,311
29	0.0	0.0	0	50	0	0	0	0	0	50	67.168	43.7	2982	1303		50	50		3,951	8,560
30	0.0	0.0	0	50	0	0	0	0	0	50	67.170	42.3	2982	1261		50	50		4,062	8,802
31	0.0	0.0	0	50	0	0	0	0	0	50	67.171	40.9	2982	1220		50	50		4,172	9,038

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	AO	AP	AQ	AR	AS	AT
1	vs			Outflows		
2	Upper Brisbane + Somerset Outflow	Total		Somerset	Wivenhoe	
3		ML		ML	ML	
4	123	0		123	180	
5	703	667		246	360	
6	1,271	1,317		369	540	
7	1,828	1,951		493	720	
8	2,374	2,569		616	900	
9	2,909	3,172		739	1,080	
10	3,434	3,759		862	1,260	
11	3,950	4,332		985	1,440	
12	4,455	4,891		1,108	1,620	
13	4,951	5,436		1,232	1,800	
14	5,437	5,967		1,355	1,980	
15	5,915	6,484		1,478	2,160	
16	6,383	6,989		1,601	2,340	
17	6,843	7,481		1,724	2,520	
18	7,295	7,961		1,848	2,700	
19	7,738	8,429		1,971	2,880	
20	8,173	8,885		2,094	3,060	
21	8,601	9,330		2,217	3,240	
22	9,021	9,764		2,340	3,420	
23	9,433	10,186		2,464	3,600	
24	9,838	10,599		2,587	3,780	
25	10,237	11,001		2,710	3,960	
26	10,628	11,393		2,833	4,140	
27	11,013	11,775		2,956	4,320	
28	11,391	12,147		3,079	4,500	
29	11,762	12,510		3,203	4,680	
30	12,128	12,865		3,326	4,860	
31	12,487	13,210		3,449	5,040	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
32	64	30	61	44	-0.0004	0.0016	**Mon 03/01/11 13:00**	99.12	1189.85	9.01	107.26		0.5	0.0	8	0	**34**	0.0	0.0	0.0
33	62	29	59	43	-0.0004	0.0016	**Mon 03/01/11 14:00**	99.12	1189.81	10.52	125.20		0.5	0.0	8	0	**34**	0.0	0.0	0.0
34	61	28	58	41	-0.0005	0.0015	**Mon 03/01/11 15:00**	99.12	1189.77	11.99	142.69		0.5	0.0	8	0	**34**	0.0	0.0	0.0
35	59	75	56	40	0.0014	0.0015	**Mon 03/01/11 16:00**	99.12	1189.71	-34.25	-407.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0
36	58	146	55	39	0.0064	0.0014	**Mon 03/01/11 17:00**	99.13	1189.86	-153.64	-1828.14		0.5	0.0	8	0	**34**	0.0	0.0	0.0
37	56	118	54	38	0.0082	0.0014	**Mon 03/01/11 18:00**	99.14	1190.54	-197.62	-2352.73		0.5	0.0	8	0	**34**	0.0	0.0	0.0
38	55	98	52	37	0.0062	0.0013	**Mon 03/01/11 19:00**	99.14	1191.42	-148.30	-1766.89		0.5	0.0	8	0	**34**	0.0	0.0	0.0
39	54	84	51	36	0.0047	0.0013	**Mon 03/01/11 20:00**	99.15	1192.08	-113.59	-1354.07		0.5	0.0	8	0	**34**	0.0	0.0	0.0
40	52	74	50	35	0.0037	0.0013	**Mon 03/01/11 21:00**	99.15	1192.58	-89.75	-1070.30		0.5	0.0	8	0	**34**	0.0	0.0	0.0
41	68	71	48	34	0.0032	0.0015	**Mon 03/01/11 22:00**	99.15	1192.98	-76.48	-912.38		0.5	0.0	8	0	**34**	0.0	0.0	0.0
42	52	60	47	34	0.0026	0.0015	**Mon 03/01/11 23:00**	99.16	1193.31	-62.74	-748.66		0.5	0.0	8	0	**34**	0.0	0.0	0.0
43	50	55	46	33	0.0020	0.0012	**Tue 04/01/11 00:00**	99.16	1193.59	-47.32	-564.81		0.5	0.0	8	0	**34**	0.0	0.0	0.0
44	49	51	45	32	0.0016	0.0011	**Tue 04/01/11 01:00**	99.16	1193.80	-38.35	-457.83		0.5	0.0	8	0	**34**	0.0	0.0	0.0
45	47	48	44	31	0.0013	0.0011	**Tue 04/01/11 02:00**	99.16	1193.97	-30.89	-368.82		0.5	0.0	8	0	**34**	0.0	0.0	0.0
46	46	45	43	30	0.0010	0.0010	**Tue 04/01/11 03:00**	99.16	1194.11	-24.58	-293.52		0.5	0.0	8	0	**34**	0.0	0.0	0.0
47	45	43	42	30	0.0008	0.0010	**Tue 04/01/11 04:00**	99.16	1194.22	-19.16	-228.86		0.5	0.0	8	0	**34**	0.0	0.0	0.0
48	44	40	41	29	0.0006	0.0010	**Tue 04/01/11 05:00**	99.16	1194.30	-14.45	-172.57		0.5	0.0	8	0	**34**	0.0	0.0	0.0
49	43	39	40	28	0.0004	0.0009	**Tue 04/01/11 06:00**	99.16	1194.37	-10.29	-122.92		0.5	0.0	8	0	**34**	0.0	0.0	0.0
50	41	37	39	27	0.0003	0.0009	**Tue 04/01/11 07:00**	99.16	1194.41	-6.58	-78.63	99.26	0.5	0.0	8	0	**34**	0.0	0.0	0.0
51	40	35	38	27	0.0001	0.0008	**Tue 04/01/11 08:00**	99.16	1194.44	-3.24	-38.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0
52	39	34	37	26	0.0000	0.0008	**Tue 04/01/11 09:00**	99.16	1194.46	-0.20	-2.40		0.5	0.0	8	0	**34**	0.0	0.0	0.0
53	38	32	36	25	-0.0001	0.0008	**Tue 04/01/11 10:00**	99.16	1194.46	2.59	30.91		0.5	0.0	8	0	**34**	0.0	0.0	0.0
54	37	31	35	25	-0.0002	0.0007	**Tue 04/01/11 11:00**	99.16	1194.45	5.16	61.68		0.5	0.0	8	0	**34**	0.0	0.0	0.0
55	36	30	34	24	-0.0003	0.0007	**Tue 04/01/11 12:00**	99.16	1194.42	7.56	90.29		0.5	0.0	8	0	**34**	0.0	0.0	0.0
56	35	29	33	23	-0.0004	0.0007	**Tue 04/01/11 13:00**	99.16	1194.39	9.80	117.05		0.5	0.0	8	0	**34**	0.0	0.0	0.0
57	34	28	32	23	-0.0005	0.0006	**Tue 04/01/11 14:00**	99.16	1194.35	11.90	142.18		0.5	0.0	8	0	**34**	0.0	0.0	0.0
58	34	27	32	22	-0.0006	0.0006	**Tue 04/01/11 15:00**	99.16	1194.29	13.89	165.90		0.5	0.0	8	0	**34**	0.0	0.0	0.0
59	33	26	31	22	-0.0007	0.0006	**Tue 04/01/11 16:00**	99.16	1194.23	15.77	188.36		0.5	0.0	8	0	**34**	0.0	0.0	0.0
60	32	25	30	21	-0.0007	0.0006	**Tue 04/01/11 17:00**	99.16	1194.16	17.56	209.68		0.5	0.0	8	0	**34**	0.0	0.0	0.0
61	31	24	29	21	-0.0008	0.0005	**Tue 04/01/11 18:00**	99.16	1194.08	19.26	229.99		0.5	0.0	8	0	**34**	0.0	0.0	0.0
62	30	24	29	20	-0.0009	0.0005	**Tue 04/01/11 19:00**	99.16	1194.00	20.88	249.37		0.5	0.0	8	0	**34**	0.0	0.0	0.0
63	30	23	28	20	-0.0009	0.0005	**Tue 04/01/11 20:00**	99.16	1193.91	22.44	267.89		0.5	0.0	8	0	**34**	0.0	0.0	0.0
64	29	22	27	19	-0.0010	0.0005	**Tue 04/01/11 21:00**	99.16	1193.81	23.93	285.65		0.5	0.0	8	0	**34**	0.0	0.0	0.0
65	28	21	26	19	-0.0011	0.0004	**Tue 04/01/11 22:00**	99.16	1193.70	25.36	302.69		0.5	0.0	8	0	**34**	0.0	0.0	0.0
66	27	21	26	18	-0.0011	0.0004	**Tue 04/01/11 23:00**	99.15	1193.59	26.73	319.04		0.5	0.0	8	0	**34**	0.0	0.0	0.0
67	27	20	25	18	-0.0012	0.0004	**Wed 05/01/11 00:00**	99.15	1193.47	28.05	334.76		0.5	0.0	8	0	**34**	0.0	0.0	0.0

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
32	0.0	0.0	**0**	50	0	0	0	0	0	50	67.173	39.6	2983	1180		50	50		4,278	9,269
33	0.0	0.0	**0**	50	0	0	0	0	0	50	67.175	38.3	2983	1142		50	50		4,381	9,493
34	0.0	0.0	**0**	50	0	0	0	0	0	50	67.176	37.0	2983	1104		50	50		4,483	9,712
35	0.0	0.0	**0**	50	0	0	0	0	0	50	67.178	35.7	2984	1067		50	50		4,751	9,926
36	0.0	0.0	**0**	50	0	0	0	0	0	50	67.179	34.5	2984	1031		50	50		5,279	10,134
37	0.0	0.0	**0**	50	0	0	0	0	0	50	67.180	33.4	2984	996		50	50		5,705	10,337
38	0.0	0.0	**0**	50	0	0	0	0	0	50	67.182	32.2	2984	961		50	50		6,056	10,535
39	0.0	0.0	**0**	50	0	0	0	0	0	50	67.183	31.1	2985	928		50	50		6,358	10,728
40	0.0	0.0	**0**	50	0	0	0	0	0	50	67.184	30.0	2985	896		50	50		6,625	10,916
41	0.0	0.0	**0**	50	0	0	0	0	0	50	67.186	35.6	2985	1063		50	50		6,880	11,159
42	0.0	0.0	**0**	50	0	0	0	0	0	50	67.187	35.3	2985	1055		50	50		7,097	11,345
43	0.0	0.0	**0**	50	0	0	0	0	0	50	67.188	28.3	2986	846		50	50		7,297	11,525
44	0.0	0.0	**0**	50	0	0	0	0	0	50	67.190	27.2	2986	812		50	50		7,482	11,700
45	0.0	0.0	**0**	50	0	0	0	0	0	50	67.191	26.1	2986	779		50	50		7,655	11,871
46	0.0	0.0	**0**	50	0	0	0	0	0	50	67.192	25.0	2986	748		50	50		7,818	12,037
47	0.0	0.0	**0**	50	0	0	0	0	0	50	67.193	24.0	2986	717		50	50		7,972	12,198
48	0.0	0.0	**0**	50	0	0	0	0	0	50	67.194	23.0	2987	688		50	50		8,117	12,356
49	0.0	0.0	**0**	50	0	0	0	0	0	50	67.195	22.1	2987	660		50	50		8,256	12,509
50	0.0	0.0	**0**	50	0	0	0	0	0	50	67.195	21.2	2987	633	**67.19**	50	50		8,389	12,658
51	0.0	0.0	**0**	50	0	0	0	0	0	50	67.196	20.3	2987	606		50	50		8,516	12,803
52	0.0	0.0	**0**	50	0	0	0	0	0	50	67.197	19.4	2987	581		50	50		8,637	12,944
53	0.0	0.0	**0**	50	0	0	0	0	0	50	67.198	18.6	2987	556		50	50		8,754	13,082
54	0.0	0.0	**0**	50	0	0	0	0	0	50	67.199	17.8	2988	532		50	50		8,866	13,216
55	0.0	0.0	**0**	50	0	0	0	0	0	50	67.199	17.0	2988	509		50	50		8,975	13,347
56	0.0	0.0	**0**	50	0	0	0	0	0	50	67.200	16.3	2988	486		50	50		9,079	13,474
57	0.0	0.0	**0**	50	0	0	0	0	0	50	67.201	15.5	2988	464		50	50		9,180	13,598
58	0.0	0.0	**0**	50	0	0	0	0	0	50	67.201	14.8	2988	443		50	50		9,277	13,719
59	0.0	0.0	**0**	50	0	0	0	0	0	50	67.202	14.1	2988	422		50	50		9,371	13,837
60	0.0	0.0	**0**	50	0	0	0	0	0	50	67.202	13.4	2988	401		50	50		9,462	13,952
61	0.0	0.0	**0**	50	0	0	0	0	0	50	67.203	12.8	2988	382		50	50		9,550	14,064
62	0.0	0.0	**0**	50	0	0	0	0	0	50	67.203	12.1	2989	363		50	50		9,635	14,173
63	0.0	0.0	**0**	50	0	0	0	0	0	50	67.204	11.5	2989	344		50	50		9,717	14,280
64	0.0	0.0	**0**	50	0	0	0	0	0	50	67.204	10.9	2989	326		50	50		9,797	14,383
65	0.0	0.0	**0**	50	0	0	0	0	0	50	67.205	10.3	2989	308		50	50		9,874	14,484
66	0.0	0.0	**0**	50	0	0	0	0	0	50	67.205	9.7	2989	291		50	50		9,949	14,583
67	0.0	0.0	**0**	50	0	0	0	0	0	50	67.206	9.2	2989	274		50	50		10,021	14,679

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	AO	AP	AQ	AR	AS	AT
32	12,841	13,546		3,572	5,220	
33	13,189	13,875		3,695	5,400	
34	13,531	14,195		3,819	5,580	
35	13,867	14,677		3,942	5,760	
36	14,199	15,412		4,065	5,940	
37	14,525	16,041		4,188	6,120	
38	14,846	16,591		4,311	6,300	
39	15,162	17,086		4,435	6,480	
40	15,474	17,541		4,558	6,660	
41	15,840	18,039		4,681	6,840	
42	16,149	18,442		4,804	7,020	
43	16,453	18,822		4,928	7,200	
44	16,751	19,182		5,051	7,380	
45	17,045	19,526		5,174	7,560	
46	17,334	19,855		5,298	7,740	
47	17,619	20,170		5,421	7,920	
48	17,900	20,473		5,544	8,100	
49	18,176	20,765		5,667	8,280	
50	18,449	21,047		5,791	8,460	
51	18,717	21,319		5,914	8,640	
52	18,982	21,582		6,037	8,820	
53	19,243	21,836		6,161	9,000	
54	19,500	22,083		6,284	9,180	
55	19,754	22,322		6,407	9,360	
56	20,005	22,553		6,530	9,540	
57	20,252	22,778		6,654	9,720	
58	20,496	22,996		6,777	9,900	
59	20,738	23,208		6,900	10,080	
60	20,976	23,414		7,024	10,260	
61	21,211	23,614		7,147	10,440	
62	21,443	23,808		7,270	10,620	
63	21,673	23,996		7,393	10,800	
64	21,900	24,180		7,517	10,980	
65	22,124	24,358		7,640	11,160	
66	22,346	24,531		7,763	11,340	
67	22,565	24,700		7,886	11,520	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
68	26	20	25	17	-0.0012	0.0004	**Wed 05/01/11 01:00**	99.15	1193.35	29.32	349.89		0.5	0.0	8	0	**34**	0.0	0.0	0.0
69	25	19	24	17	-0.0013	0.0003	**Wed 05/01/11 02:00**	99.15	1193.22	30.54	364.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0
70	25	18	23	161	-0.0013	0.0003	**Wed 05/01/11 03:00**	99.15	1193.08	31.72	378.48		0.5	0.0	8	0	**34**	0.0	0.0	0.0
71	24	18	23	252	-0.0014	0.0003	**Wed 05/01/11 04:00**	99.15	1192.94	32.86	392.01		0.5	0.0	8	0	**34**	0.0	0.0	0.0
72	23	17	22	117	-0.0014	0.0003	**Wed 05/01/11 05:00**	99.15	1192.79	33.96	405.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0
73	23	17	22	112	-0.0015	0.0003	**Wed 05/01/11 06:00**	99.15	1192.64	35.02	417.66		0.5	0.0	8	0	**34**	0.0	0.0	0.0
74	22	16	21	105	-0.0015	0.0002	**Wed 05/01/11 07:00**	99.14	1192.49	36.04	429.83	99.28	0.5	0.0	8	0	**34**	0.0	0.0	0.0
75	22	16	21	100	-0.0015	0.0002	**Wed 05/01/11 08:00**	99.14	1192.33	37.03	441.58		0.5	0.0	8	0	**34**	0.0	0.0	0.0
76	21	15	20	97	-0.0016	0.0002	**Wed 05/01/11 09:00**	99.14	1192.16	37.99	452.92		0.5	0.0	8	0	**34**	0.0	0.0	0.0
77	21	15	20	95	-0.0016	0.0002	**Wed 05/01/11 10:00**	99.14	1192.00	38.92	463.87		0.5	0.0	8	0	**34**	0.0	0.0	0.0
78	20	14	19	92	-0.0017	0.0002	**Wed 05/01/11 11:00**	99.14	1191.82	39.81	474.47		0.5	0.0	8	0	**34**	0.0	0.0	0.0
79	20	14	19	90	-0.0017	0.0001	**Wed 05/01/11 12:00**	99.14	1191.65	40.68	484.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0
80	19	14	18	87	-0.0017	0.0001	**Wed 05/01/11 13:00**	99.13	1191.47	41.52	494.64		0.5	0.0	8	0	**34**	0.0	0.0	0.0
81	19	13	18	84	-0.0018	0.0001	**Wed 05/01/11 14:00**	99.13	1191.28	42.33	504.22		0.5	0.0	8	0	**34**	0.0	0.0	0.0
82	18	13	17	82	-0.0018	0.0001	**Wed 05/01/11 15:00**	99.13	1191.10	43.11	513.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0
83	18	18	17	79	-0.0016	0.0001	**Wed 05/01/11 16:00**	99.13	1190.91	38.06	453.29		0.5	0.0	8	0	**34**	0.0	0.0	0.0
84	17	31	17	76	-0.0008	0.0001	**Wed 05/01/11 17:00**	99.13	1190.74	20.03	238.56		0.5	0.0	8	0	**34**	0.0	0.0	0.0
85	17	42	17	74	0.0002	0.0000	**Wed 05/01/11 18:00**	99.13	1190.65	-4.12	-49.10		0.5	0.0	8	0	**34**	0.0	0.0	0.0
86	161	78	17	73	0.0021	0.0024	**Wed 05/01/11 19:00**	99.13	1190.67	-51.41	-612.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0
87	252	143	17	83	0.0064	0.0064	**Wed 05/01/11 20:00**	99.14	1190.89	-153.07	-1822.93		0.5	0.0	8	0	**34**	0.0	0.0	0.0
88	117	205	17	102	0.0117	0.0057	**Wed 05/01/11 21:00**	99.15	1191.57	-280.86	-3346.63		0.5	0.0	8	0	**34**	0.0	0.0	0.0
89	112	224	17	112	0.0151	0.0033	**Wed 05/01/11 22:00**	99.16	1192.82	-361.86	-4316.29		0.5	0.0	8	0	**34**	0.0	0.0	0.0
90	105	206	17	116	0.0151	0.0031	**Wed 05/01/11 23:00**	99.18	1194.42	-362.58	-4330.78		0.5	0.0	8	0	**34**	0.0	0.0	0.0
91	100	189	17	122	0.0136	0.0029	**Thu 06/01/11 00:00**	99.19	1196.03	-327.57	-3917.84		0.5	0.0	8	0	**34**	0.0	0.0	0.0
92	97	176	16	131	0.0124	0.0028	**Thu 06/01/11 01:00**	99.20	1197.49	-297.76	-3565.62		0.5	0.0	8	0	**34**	0.0	0.0	0.0
93	95	166	16	143	0.0114	0.0027	**Thu 06/01/11 02:00**	99.22	1198.81	-274.27	-3287.91		0.5	0.0	8	0	**34**	0.0	0.0	0.0
94	92	158	16	161	0.0107	0.0026	**Thu 06/01/11 03:00**	99.23	1200.03	-255.62	-3067.49		0.5	0.0	8	0	**34**	0.0	0.0	0.0
95	90	151	16	187	0.0100	0.0025	**Thu 06/01/11 04:00**	99.24	1201.17	-240.02	-2883.09		0.5	0.0	8	0	**34**	0.0	0.0	0.0
96	87	145	16	227	0.0094	0.0024	**Thu 06/01/11 05:00**	99.25	1202.24	-226.29	-2720.54		0.5	0.0	8	0	**34**	0.0	0.0	0.0
97	84	139	16	284	0.0089	0.0023	**Thu 06/01/11 06:00**	99.26	1203.25	-213.74	-2571.81		0.5	0.0	8	0	**34**	0.0	0.0	0.0
98	82	133	15	363	0.0084	0.0022	**Thu 06/01/11 07:00**	99.26	1204.20	-202.00	-2432.47	99.34	0.5	0.0	8	0	**34**	0.0	0.0	0.0
99	79	128	15	467	0.0080	0.0022	**Thu 06/01/11 08:00**	99.27	1205.10	-190.82	-2299.58		0.5	0.0	8	0	**34**	0.0	0.0	0.0
100	76	122	15	653	0.0075	0.0021	**Thu 06/01/11 09:00**	99.28	1205.96	-180.06	-2171.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0
101	74	117	15	745	0.0071	0.0020	**Thu 06/01/11 10:00**	99.29	1206.76	-169.65	-2047.24		0.5	0.0	8	0	**34**	0.0	0.0	0.0
102	73	124	15	885	0.0071	0.0019	**Thu 06/01/11 11:00**	99.29	1207.52	-171.25	-2067.87		0.5	0.0	8	0	**34**	0.0	0.0	0.0
103	83	254	15	1016	0.0128	0.0021	**Thu 06/01/11 12:00**	99.31	1208.29	-307.22	-3712.12		0.5	0.0	8	0	**34**	0.0	0.0	0.0

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
68	0.0	0.0	**0**	50	0	0	0	0	0	50	67.206	8.6	2989	258		50	50		10,091	14,772
69	0.0	0.0	**0**	50	0	0	0	0	0	50	67.206	8.1	2989	242		50	50		10,159	14,864
70	0.0	0.0	**0**	50	0	0	0	0	0	50	67.207	7.6	2989	226		50	50		10,225	14,952
71	0.0	0.0	**0**	50	0	0	0	0	0	50	67.207	7.1	2989	211		50	50		10,289	15,039
72	0.0	0.0	**0**	50	0	0	0	0	0	50	67.207	6.6	2989	196		50	50		10,351	15,124
73	0.0	0.0	**0**	50	0	0	0	0	0	50	67.207	6.1	2989	182		50	50		10,412	15,206
74	0.0	0.0	**0**	50	0	0	0	0	0	50	67.208	5.6	2989	168	**67.23**	50	50		10,470	15,286
75	0.0	0.0	**0**	50	0	0	0	0	0	50	67.208	5.2	2989	154		50	50		10,527	15,365
76	0.0	0.0	**0**	50	0	0	0	0	0	50	67.208	4.7	2989	141		50	51		10,582	15,441
77	0.0	0.0	**0**	50	0	0	0	0	0	50	67.208	4.3	2989	128		50	51		10,635	15,515
78	0.0	0.0	**0**	50	0	0	0	0	0	50	67.208	3.9	2989	115		50	53		10,687	15,588
79	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	3.4	2990	103		50	59		10,738	15,659
80	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	3.0	2990	91		50	78		10,786	15,728
81	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	2.7	2990	79		50	110		10,834	15,795
82	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	2.3	2990	68		50	146		10,880	15,860
83	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	1.9	2990	57		50	177		10,945	15,924
84	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	1.5	2990	46		50	195		11,056	15,987
85	0.0	0.0	**0**	50	0	0	0	0	0	50	67.209	1.2	2990	35		50	203		11,208	16,047
86	0.0	0.0	**0**	50	0	0	0	0	0	50	67.212	58.7	2990	1755		50	204		11,487	16,626
87	0.0	0.0	**0**	50	0	0	0	0	0	50	67.218	153.2	2990	4582		50	200		12,002	17,534
88	0.0	0.0	**0**	50	0	0	0	0	0	50	67.224	135.6	2991	4057		55	199		12,739	17,955
89	0.0	0.0	**0**	50	0	0	0	0	0	50	67.227	79.4	2992	2377		64	202		13,545	18,360
90	0.0	0.0	**0**	50	0	0	0	0	0	50	67.230	74.6	2993	2233		73	202		14,286	18,737
91	0.0	0.0	**0**	50	0	0	0	0	0	50	67.233	69.8	2993	2088		81	202		14,968	19,098
92	0.0	0.0	**0**	50	0	0	0	0	0	50	67.236	66.7	2994	1997		87	201		15,603	19,448
93	0.0	0.0	**0**	50	0	0	0	0	0	50	67.238	64.5	2994	1931		95	202		16,202	19,790
94	0.0	0.0	**0**	50	0	0	0	0	0	50	67.241	62.5	2995	1872		106	218		16,771	20,122
95	0.0	0.0	**0**	50	0	0	0	0	0	50	67.243	60.5	2995	1813		117	259		17,315	20,446
96	0.0	0.0	**0**	50	0	0	0	0	0	50	67.246	58.4	2996	1751		129	286		17,835	20,759
97	0.0	0.0	**0**	50	0	0	0	0	0	50	67.248	56.2	2996	1685		141	287		18,335	21,063
98	0.0	0.0	**0**	50	0	0	0	0	0	50	67.250	54.0	2997	1617	**67.31**	152	290		18,813	21,357
99	0.0	0.0	**0**	50	0	0	0	0	0	50	67.253	51.7	2997	1551		161	297		19,273	21,640
100	0.0	0.0	**0**	50	0	0	0	0	0	50	67.255	49.7	2998	1488		169	308		19,713	21,915
101	0.0	0.0	**0**	50	0	0	0	0	0	50	67.257	47.8	2998	1434		175	321		20,135	22,182
102	0.0	0.0	**0**	50	0	0	0	0	0	50	67.259	46.7	2998	1401		179	339		20,582	22,447
103	0.0	0.0	**0**	50	0	0	0	0	0	50	67.261	50.2	2999	1505		182	362		21,497	22,746

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	AO	AP	AQ	AR	AS	AT
68	22,782	24,864		8,010	11,700	
69	22,996	25,023		8,133	11,880	
70	23,209	25,178		8,256	12,060	
71	23,419	25,329		8,379	12,240	
72	23,626	25,475		8,503	12,420	
73	23,832	25,618		8,626	12,600	
74	24,036	25,757		8,749	12,780	
75	24,237	25,892		8,872	12,960	
76	24,437	26,023		8,996	13,140	
77	24,634	26,151		9,119	13,320	
78	24,830	26,275		9,242	13,500	
79	25,024	26,396		9,365	13,680	
80	25,216	26,514		9,488	13,860	
81	25,407	26,629		9,612	14,040	
82	25,595	26,740		9,735	14,220	
83	25,782	26,870		9,858	14,400	
84	25,968	27,043		9,981	14,580	
85	26,152	27,255		10,105	14,760	
86	26,853	28,113		10,228	14,940	
87	27,885	29,537		10,351	15,120	
88	28,429	30,694		10,474	15,300	
89	28,957	31,904		10,598	15,480	
90	29,458	33,023		10,721	15,660	
91	29,943	34,066		10,844	15,840	
92	30,416	35,052		10,968	16,020	
93	30,881	35,992		11,091	16,200	
94	31,337	36,894		11,214	16,380	
95	31,783	37,761		11,338	16,560	
96	32,221	38,595		11,461	16,740	
97	32,648	39,398		11,585	16,920	
98	33,065	40,170		11,708	17,100	
99	33,472	40,913		11,832	17,280	
100	33,870	41,628		11,955	17,460	
101	34,261	42,317		12,079	17,640	
102	34,649	43,028		12,202	17,820	
103	35,071	44,242		12,326	18,000	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
104	102	413	15	1127	0.0247	0.0026	**Thu 06/01/11 13:00**	99.33	1209.66	-593.12	-7174.76		0.5	0.0	8	0	**35**	0.0	0.0	0.0
105	112	398	15	1211	0.0306	0.0031	**Thu 06/01/11 14:00**	99.36	1212.32	-733.77	-8895.59		0.5	0.0	8	0	**35**	0.0	0.0	0.0
106	116	342	15	1267	0.0276	0.0033	**Thu 06/01/11 15:00**	99.39	1215.62	-662.37	-8051.90		0.5	0.0	8	0	**35**	0.0	0.0	0.0
107	122	307	15	1338	0.0238	0.0035	**Thu 06/01/11 16:00**	99.41	1218.60	-571.12	-6959.60	99.44	0.5	0.0	8	0	**35**	0.0	0.0	0.0
108	131	285	15	1337	0.0214	0.0037	**Thu 06/01/11 17:00**	99.43	1221.17	-513.98	-6276.53	99.45	0.5	0.0	8	0	**35**	0.0	0.0	0.0
109	143	271	15	1325	0.0199	0.0041	**Thu 06/01/11 18:00**	99.45	1223.49	-477.76	-5845.37	99.46	0.5	0.0	8	0	**35**	0.0	0.0	0.0
110	161	259	16	1689	0.0188	0.0046	**Thu 06/01/11 19:00**	99.47	1225.66	-451.21	-5530.29	99.46	0.5	0.0	8	0	**35**	0.0	0.0	0.0
111	187	250	16	1721	0.0179	0.0053	**Thu 06/01/11 20:00**	99.49	1227.70	-429.93	-5278.29	99.46	0.5	0.0	8	0	**35**	0.0	0.0	0.0
112	227	242	17	1571	0.0172	0.0064	**Thu 06/01/11 21:00**	99.51	1229.65	-412.06	-5066.90	99.49	0.5	0.0	8	0	**35**	0.0	0.0	0.0
113	284	234	18	1460	0.0165	0.0080	**Thu 06/01/11 22:00**	99.52	1231.52	-396.07	-4877.65	99.51	0.5	0.0	8	0	**35**	0.0	0.0	0.0
114	363	227	20	1410	0.0159	0.0103	**Thu 06/01/11 23:00**	99.54	1233.32	-381.01	-4699.07	99.51	0.5	0.0	8	0	**35**	0.0	0.0	0.0
115	467	221	22	1371	0.0153	0.0133	**Fri 07/01/11 00:00**	99.56	1235.05	-367.88	-4543.57	99.52	0.5	0.0	8	0	**35**	0.0	0.0	0.0
116	653	249	24	1343	0.0162	0.0181	**Fri 07/01/11 01:00**	99.57	1236.73	-388.93	-4810.00	99.55	0.5	0.0	8	0	**35**	0.0	0.0	0.0
117	745	256	27	1328	0.0176	0.0227	**Fri 07/01/11 02:00**	99.59	1238.50	-422.29	-5230.02	99.55	0.5	0.0	8	0	**35**	0.0	0.0	0.0
118	885	238	30	1327	0.0171	0.0265	**Fri 07/01/11 03:00**	99.61	1240.43	-411.21	-5100.73	99.57	0.5	0.0	8	0	**35**	0.0	0.0	0.0
119	1016	228	34	1338	0.0160	0.0309	**Fri 07/01/11 04:00**	99.62	1242.31	-383.54	-4764.78	99.58	0.5	0.0	8	0	**35**	0.0	0.0	0.0
120	1127	255	37	1359	0.0166	0.0349	**Fri 07/01/11 05:00**	99.64	1244.06	-398.73	-4960.49	99.60	0.5	0.0	8	0	**35**	0.0	0.0	0.0
121	1211	263	41	1384	0.0180	0.0380	**Fri 07/01/11 06:00**	99.66	1245.89	-431.63	-5377.62	99.59	0.5	0.0	8	0	**35**	0.0	0.0	0.0
122	1267	292	44	1412	0.0195	0.0402	**Fri 07/01/11 07:00**	99.68	1247.87	-466.86	-5825.74	99.60	0.5	0.0	8	0	**35**	0.0	0.0	0.0
123	1338	407	48	1440	0.0252	0.0422	**Fri 07/01/11 08:00**	99.70	1250.01	-604.70	-7558.75	99.63	0.5	0.0	8	0	**35**	0.0	0.0	0.0
124	1337	403	52	1468	0.0296	0.0432	**Fri 07/01/11 09:00**	99.73	1252.79	-709.40	-8887.34		0.5	0.0	8	0	**35**	0.0	0.0	0.0
125	1325	417	57	1493	0.0299	0.0429	**Fri 07/01/11 10:00**	99.76	1256.06	-716.87	-9004.25	99.66	0.5	0.0	8	0	**35**	0.0	0.0	0.0
126	1689	601	61	1514	0.0377	0.0485	**Fri 07/01/11 11:00**	99.80	1259.37	-903.68	-11380.67		0.5	0.0	8	0	**35**	0.0	0.0	0.0
127	1721	753	64	1531	0.0508	0.0548	**Fri 07/01/11 12:00**	99.85	1263.55	-1219.66	-15410.96	99.76	0.5	0.0	8	0	**35**	0.0	0.0	0.0
128	1571	815	67	1539	0.0590	0.0527	**Fri 07/01/11 13:00**	99.91	1269.21	-1417.05	-17985.23		0.5	0.0	8	0	**35**	0.0	0.0	0.0
129	1460	772	70	1538	0.0595	0.0484	**Fri 07/01/11 14:00**	99.97	1275.80	-1427.14	-18207.57	99.90	0.5	0.0	8	0	**35**	0.0	0.0	0.0
130	1410	711	73	1525	0.0551	0.0457	**Fri 07/01/11 15:00**	100.02	1282.48	-1322.18	-16956.58	99.94	0.5	0.0	8	0	**35**	0.0	0.0	0.5
131	1371	671	75	1502	0.0509	0.0436	**Fri 07/01/11 16:00**	100.07	1288.68	-1221.91	-15746.47		0.5	0.0	8	0	**35**	0.0	0.0	1.0
132	1343	642	78	1468	0.0480	0.0408	**Fri 07/01/11 17:00**	100.12	1294.43	-1152.69	-14920.80	100.04	1.0	0.0	8	0	**70**	0.0	0.0	1.5
133	1328	626	80	1424	0.0434	0.0395	**Fri 07/01/11 18:00**	100.17	1299.88	-1041.58	-13539.31	100.11	1.0	0.0	8	0	**70**	0.0	0.0	2.0
134	1327	601	83	1373	0.0417	0.0376	**Fri 07/01/11 19:00**	100.21	1304.81	-999.86	-13046.30	100.15	0.0	1.0	8	0	**206**	0.0	0.0	2.5
135	1338	577	85	1316	0.0293	0.0404	**Fri 07/01/11 20:00**	100.24	1309.56	-702.54	-9200.19	100.17	0.0	1.0	8	0	**206**	0.0	0.0	3.0
136	1359	551	88	1256	0.0273	0.0393	**Fri 07/01/11 21:00**	100.26	1312.91	-654.90	-8598.28	100.21	0.0	1.0	8	0	**206**	0.0	0.0	3.5
137	1384	526	90	1194	0.0253	0.0384	**Fri 07/01/11 22:00**	100.29	1316.03	-606.78	-7985.49	100.25	0.0	1.0	8	0	**206**	0.0	0.5	3.5
138	1412	500	93	1132	0.0233	0.0375	**Fri 07/01/11 23:00**	100.31	1318.93	-558.30	-7363.66	100.28	0.0	1.0	8	0	**206**	0.0	0.5	3.5
139	1440	474	95	1071	0.0212	0.0367	**Sat 08/01/11 00:00**	100.33	1321.61	-510.00	-6740.15	100.31	0.0	1.0	8	0	**206**	0.0	1.0	3.5

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
104	0.0	0.0	**0**	50	0	0	0	0	0	50	67.263	61.5	2999	1846		184	389		22,982	23,112
105	0.0	0.0	**0**	50	0	0	0	0	0	50	67.266	73.2	2999	2197		196	433		24,414	23,516
106	0.0	0.0	**0**	50	0	0	0	0	0	50	67.270	78.9	3000	2366		219	487		25,646	23,934
107	0.0	0.0	**0**	50	0	0	0	0	0	50	67.273	82.9	3001	2487	**67.37**	229	525		26,751	24,373
108	0.0	0.0	**0**	50	0	0	0	0	0	50	67.277	88.9	3001	2668	**67.39**	230	549		27,778	24,845
109	0.0	0.0	**0**	50	0	0	0	0	0	50	67.281	97.3	3002	2922	**67.40**	233	571		28,753	25,361
110	0.0	0.0	**0**	50	0	0	0	0	0	50	67.285	109.3	3003	3282	**67.41**	241	589		29,686	25,941
111	0.0	0.0	**0**	50	0	0	0	0	0	50	67.291	126.8	3003	3810	**67.42**	250	604		30,586	26,615
112	0.0	0.0	**0**	50	0	0	0	0	0	50	67.297	153.0	3004	4598	**67.43**	259	614		31,455	27,431
113	0.0	0.0	**0**	50	0	0	0	0	0	50	67.305	191.6	3006	5758	**67.44**	269	621		32,298	28,453
114	0.0	0.0	**0**	50	0	0	0	0	0	50	67.315	246.0	3007	7399		278	624		33,114	29,761
115	0.0	0.0	**0**	50	0	0	0	0	0	50	67.329	318.8	3009	9591	**67.46**	287	625		33,910	31,441
116	0.0	0.0	**0**	50	0	0	0	0	0	50	67.347	433.8	3011	13064		296	652		34,807	33,791
117	0.0	0.0	**0**	50	0	0	0	0	0	50	67.369	544.3	3015	16409	**67.52**	306	696		35,729	36,474
118	0.0	0.0	**0**	50	0	0	0	0	0	50	67.396	635.9	3019	19195		316	712		36,586	39,660
119	0.0	0.0	**0**	50	0	0	0	0	0	50	67.427	742.1	3024	22439	**67.57**	328	719		37,408	43,316
120	0.0	0.0	**0**	50	0	0	0	0	0	50	67.462	836.5	3029	25339		342	734		38,324	47,372
121	0.0	0.0	**0**	50	0	0	0	0	0	50	67.500	912.1	3035	27686	**67.64**	358	755		39,271	51,732
122	0.0	0.0	**0**	50	0	0	0	0	0	50	67.540	965.3	3042	29367		375	778		40,322	56,292
123	0.0	0.0	**0**	50	0	0	0	0	0	50	67.582	1012.7	3050	30886		395	801		41,788	61,108
124	0.0	0.0	**0**	50	0	0	0	0	0	50	67.625	1037.7	3057	31728	**67.75**	417	822		43,238	65,921
125	0.0	0.0	**0**	50	0	0	0	0	0	50	67.668	1030.2	3065	31578		439	841		44,740	70,691
126	0.0	0.0	**0**	50	0	0	0	0	0	50	67.717	1165.1	3073	35805	**67.81**	463	858		46,902	76,772
127	0.0	0.0	**0**	50	0	0	0	0	0	50	67.772	1316.0	3082	40560		497	884		49,614	82,969
128	0.0	0.0	**0**	50	0	0	0	0	0	50	67.824	1266.0	3092	39143	**67.94**	531	906		52,549	88,624
129	0.0	0.0	**0**	50	0	0	0	0	0	50	67.873	1161.1	3102	36012		550	913		55,327	93,882
130	0.0	0.0	**1**	13	0	0	51	0	0	64	67.918	1095.7	3110	34083	**68.03**	581	932		57,887	98,958
131	0.0	0.0	**2**	13	0	0	103	0	0	116	67.962	1047.5	3119	32669	**68.06**	650	988		60,302	103,893
132	0.0	0.0	**3**	13	0	0	154	0	0	167	68.003	979.7	3127	30633		718	1043		62,615	108,728
133	0.0	0.0	**4**	13	0	0	204	0	0	217	68.042	948.8	3134	29739	**68.12**	783	1095		64,867	113,511
134	0.0	0.0	**5**	13	0	0	254	0	0	267	68.080	902.2	3142	28342	**68.17**	845	1145		67,032	118,290
135	0.0	0.0	**6**	13	0	0	302	0	0	315	68.120	969.7	3148	30531	**68.19**	905	1192		69,108	123,108
136	0.0	0.0	**7**	13	0	0	350	0	0	363	68.160	942.4	3156	29742	**68.22**	960	1235		71,094	127,999
137	0.0	0.0	**8**	13	0	52	350	0	0	415	68.198	921.6	3163	29152	**68.26**	1018	1281		72,987	132,981
138	0.5	0.0	**9**	13	0	52	351	52	0	468	68.236	900.2	3170	28537	**68.28**	1072	1324		74,786	138,064
139	0.5	0.0	**10**	13	0	104	351	52	0	520	68.272	879.8	3177	27952	**68.32**	1124	1365		76,492	143,249

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	AO	AP	AQ	AR	AS	AT
104	35,562	46,095		12,450	18,180	
105	36,089	47,930		12,573	18,360	
106	36,631	49,580		12,697	18,540	
107	37,194	51,124		12,821	18,720	
108	37,790	52,623		12,945	18,900	
109	38,430	54,114		13,069	19,080	
110	39,133	55,627		13,193	19,260	
111	39,932	57,201		13,317	19,440	
112	40,871	58,886		13,441	19,620	
113	42,018	60,751		13,565	19,800	
114	43,450	62,876		13,689	19,980	
115	45,254	65,352		13,813	20,160	
116	47,728	68,598		13,937	20,340	
117	50,535	72,203		14,061	20,520	
118	53,845	76,247		14,185	20,700	
119	57,626	80,724		14,310	20,880	
120	61,806	85,696		14,434	21,060	
121	66,291	91,003		14,558	21,240	
122	70,975	96,614		14,683	21,420	
123	75,915	102,897		14,807	21,600	
124	80,852	109,159		14,931	21,780	
125	85,747	115,431		15,056	21,960	
126	91,953	123,675		15,181	22,140	
127	98,275	132,583		15,305	22,320	
128	104,055	141,173		15,430	22,500	
129	109,437	149,209		15,555	22,680	
130	114,638	156,845		15,680	22,911	
131	119,699	164,195		15,806	23,327	
132	124,784	171,343		16,056	23,927	
133	129,818	178,378		16,307	24,708	
134	135,334	185,322		17,044	25,667	
135	140,889	192,216		17,781	26,802	
136	146,518	199,092		18,519	28,107	
137	152,239	205,968		19,257	29,601	
138	158,060	212,850		19,996	31,284	
139	163,984	219,742		20,735	33,157	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
140	1468	449	98	1011	0.0193	0.0358	**Sat 08/01/11 01:00**	100.35	1324.05	-462.49	-6123.66	**100.34**	0.0	1.0	8	0	**206**	0.0	1.0	3.5
141	1493	424	100	954	0.0173	0.0349	**Sat 08/01/11 02:00**	100.37	1326.27	-416.22	-5520.22	**100.36**	0.0	1.0	8	0	**206**	0.5	1.0	3.5
142	1514	400	103	899	0.0155	0.0339	**Sat 08/01/11 03:00**	100.39	1328.27	-371.49	-4934.38	**100.39**	0.0	1.0	8	0	**206**	0.5	1.0	3.5
143	1531	377	105	848	0.0137	0.0328	**Sat 08/01/11 04:00**	100.40	1330.06	-328.70	-4371.96	**100.41**	0.0	1.0	8	0	**206**	0.5	1.5	3.5
144	1539	355	108	801	0.0120	0.0314	**Sat 08/01/11 05:00**	100.41	1331.64	-288.11	-3836.61	**100.42**	0.0	1.0	8	0	**206**	0.5	1.5	3.5
145	1538	335	110	756	0.0104	0.0298	**Sat 08/01/11 06:00**	100.42	1333.03	-249.69	-3328.38	**100.43**	0.0	1.0	8	0	**207**	1.0	1.5	3.5
146	1525	316	112	715	0.0089	0.0279	**Sat 08/01/11 07:00**	100.43	1334.23	-213.48	-2848.36	**100.44**	0.0	1.0	8	0	**207**	1.0	1.5	3.5
147	1502	297	114	677	0.0075	0.0257	**Sat 08/01/11 08:00**	100.44	1335.26	-179.58	-2397.82	**100.46**	0.0	1.0	8	0	**207**	1.0	1.5	4.0
148	1468	280	115	642	0.0062	0.0233	**Sat 08/01/11 09:00**	100.44	1336.13	-147.91	-1976.23	**100.46**	0.0	1.0	8	0	**207**	1.0	2.0	4.0
149	1424	265	117	610	0.0049	0.0204	**Sat 08/01/11 10:00**	100.45	1336.84	-118.36	-1582.32	**100.47**	0.0	1.0	8	0	**207**	1.0	2.0	4.0
150	1373	250	118	581	0.0038	0.0173	**Sat 08/01/11 11:00**	100.45	1337.42	-90.80	-1214.36	**100.46**	0.0	1.0	8	0	**207**	1.5	2.0	4.0
151	1316	236	118	553	0.0027	0.0140	**Sat 08/01/11 12:00**	100.46	1337.85	-65.24	-872.87	**100.45**	0.0	2.0	8	0	**413**	1.5	2.0	4.0
152	1256	224	119	527	-0.0137	0.0169	**Sat 08/01/11 13:00**	100.44	1338.17	328.90	4401.22	**100.45**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
153	1194	214	119	503	-0.0145	0.0134	**Sat 08/01/11 14:00**	100.43	1336.58	349.11	4666.12	**100.44**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
154	1132	210	120	481	-0.0151	0.0099	**Sat 08/01/11 15:00**	100.41	1334.89	361.50	4825.62	**100.42**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
155	1071	209	119	460	-0.0153	0.0080	**Sat 08/01/11 16:00**	100.40	1333.15	366.53	4886.45	**100.41**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
156	1011	205	119	440	-0.0155	0.0061	**Sat 08/01/11 17:00**	100.38	1331.38	371.52	4946.39	**100.40**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
157	954	200	119	422	-0.0158	0.0043	**Sat 08/01/11 18:00**	100.37	1329.60	379.31	5043.32	**100.38**	0.0	2.0	8	0	**413**	1.5	2.5	4.0
158	899	195	118	404	-0.0162	0.0026	**Sat 08/01/11 19:00**	100.35	1327.77	388.38	5156.85		0.0	2.0	8	0	**412**	1.5	2.5	4.0
159	848	190	117	387	-0.0166	0.0010	**Sat 08/01/11 20:00**	100.33	1325.91	398.15	5279.09		0.0	2.0	8	0	**412**	1.5	2.5	4.0
160	801	184	117	371	-0.0170	-0.0006	**Sat 08/01/11 21:00**	100.32	1324.00	408.28	5405.66		0.0	2.0	8	0	**412**	1.5	2.5	4.0
161	756	179	116	356	-0.0174	-0.0020	**Sat 08/01/11 22:00**	100.30	1322.04	418.61	5534.21		0.0	2.0	8	0	**412**	1.5	2.5	4.0
162	715	173	115	342	-0.0179	-0.0033	**Sat 08/01/11 23:00**	100.28	1320.03	429.04	5663.49		0.0	2.0	8	0	**412**	1.5	2.5	4.5
163	677	168	114	328	-0.0183	-0.0059	**Sun 09/01/11 00:00**	100.26	1317.98	439.52	5792.82		0.0	2.0	8	0	**412**	1.5	2.5	4.5
164	642	162	112	315	-0.0188	-0.0070	**Sun 09/01/11 01:00**	100.24	1315.88	450.03	5921.86		0.0	2.0	8	0	**412**	1.5	2.5	4.5
165	610	157	111	302	-0.0192	-0.0081	**Sun 09/01/11 02:00**	100.22	1313.74	460.55	6050.37		0.0	2.0	8	0	**412**	1.5	2.5	4.5
166	581	151	110	290	-0.0196	-0.0090	**Sun 09/01/11 03:00**	100.21	1311.54	471.06	6178.11		0.0	2.0	8	0	**411**	1.5	2.5	4.5
167	553	146	108	278	-0.0201	-0.0099	**Sun 09/01/11 04:00**	100.18	1309.30	481.54	6304.78		0.0	2.0	8	0	**411**	2.0	2.5	4.5
168	527	141	107	267	-0.0205	-0.0123	**Sun 09/01/11 05:00**	100.16	1307.01	491.97	6430.03		0.0	2.0	8	0	**411**	2.0	2.5	4.5
169	503	135	106	257	-0.0209	-0.0130	**Sun 09/01/11 06:00**	100.14	1304.67	502.31	6553.51		0.0	2.0	8	0	**411**	2.0	2.5	4.5
170	481	130	104	247	-0.0214	-0.0137	**Sun 09/01/11 07:00**	100.12	1302.29	512.54	6674.81		0.0	2.0	8	0	**411**	2.0	2.5	4.5
171	460	125	103	238	-0.0218	-0.0144	**Sun 09/01/11 08:00**	100.10	1299.87	522.63	6793.53		0.0	2.0	8	0	**411**	2.0	2.5	4.5
172	440	120	101	230	-0.0222	-0.0150	**Sun 09/01/11 09:00**	100.08	1297.39	532.55	6909.33		0.0	2.0	8	0	**410**	2.0	2.5	4.5
173	422	115	100	223	-0.0226	-0.0156	**Sun 09/01/11 10:00**	100.06	1294.88	542.28	7021.90		0.0	2.0	8	0	**410**	2.0	2.5	4.5
174	404	111	98	217	-0.0230	-0.0161	**Sun 09/01/11 11:00**	100.03	1292.32	551.79	7130.97		0.0	2.0	8	0	**410**	2.0	2.5	4.5
175	387	106	96	213	-0.0234	-0.0183	**Sun 09/01/11 12:00**	100.01	1289.73	561.08	7236.33		0.0	2.0	8	0	**410**	2.0	2.5	4.5

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
140	1.0	0.0	**11**	13	0	104	352	104	0	573	68.308	859.1	3184	27353	**68.34**	1173	1404		78,107	148,533
141	1.0	0.0	**12**	13	52	104	353	104	0	626	68.343	837.3	3190	26714	**68.35**	1220	1441		79,633	153,906
142	1.0	0.5	**13**	13	52	104	353	104	52	679	68.377	813.5	3197	26006	**68.41**	1265	1477		81,073	159,358
143	1.0	0.5	**14**	13	52	156	354	105	52	732	68.410	786.3	3203	25185	**68.41**	1308	1512		82,431	164,869
144	1.5	0.5	**15**	13	52	157	354	157	52	785	68.441	754.5	3209	24212	**68.45**	1351	1546		83,710	170,409
145	1.5	0.5	**16**	13	105	157	355	157	52	839	68.471	716.3	3215	23027	**68.46**	1393	1581		84,916	175,944
146	1.5	1.0	**17**	13	105	157	355	157	105	892	68.499	670.1	3220	21580	**68.48**	1434	1616		86,052	181,436
147	1.5	1.0	**18**	13	105	157	402	157	105	940	68.524	615.8	3226	19864	**68.52**	1469	1643		87,122	186,842
148	1.5	1.0	**19**	13	105	209	403	157	105	992	68.548	558.0	3230	18026	**68.55**	1508	1675		88,132	192,125
149	2.0	1.0	**20**	13	105	209	403	209	105	1045	68.568	489.6	3235	15836	**68.56**	1547	1708		89,084	197,251
150	2.0	1.0	**21**	13	158	209	404	209	105	1098	68.585	415.2	3238	13446	**68.59**	1586	1741		89,984	202,194
151	2.0	1.5	**22**	13	158	209	404	209	158	1151	68.599	335.6	3242	10880	**68.60**	1626	1774		90,834	206,932
152	2.0	1.5	**23**	13	158	260	404	209	158	1202	68.616	405.9	3244	13167	**68.61**	1664	1806		91,639	211,454
153	2.5	1.5	**24**	13	158	260	404	260	158	1253	68.630	322.3	3247	10467	**68.61**	1702	1839		92,409	215,754
154	2.5	1.5	**24**	13	158	260	405	260	158	1254	68.640	238.3	3250	7745	**68.63**	1689	1821		93,165	219,829
155	2.5	1.5	**24**	13	158	260	405	260	158	1254	68.648	192.1	3252	6245	**68.64**	1677	1803		93,916	223,683
156	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.654	146.9	3253	4779	**68.65**	1665	1787		94,654	227,322
157	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.658	103.4	3254	3366	**68.65**	1653	1771		95,374	230,756
158	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.661	62.0	3255	2019		1642	1755		96,077	233,994
159	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.662	22.9	3255	747		1631	1740		96,760	237,048
160	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.661	-13.6	3256	-444		1620	1726		97,424	239,930
161	2.5	1.5	**24**	13	158	260	405	260	158	1255	68.659	-47.7	3256	-1551		1610	1711		98,068	242,652
162	2.5	1.5	**25**	13	158	260	451	260	158	1301	68.656	-79.1	3255	-2576		1645	1743		98,692	245,226
163	2.5	1.5	**25**	13	158	260	451	260	158	1300	68.650	-142.0	3255	-4622		1635	1730		99,296	247,665
164	2.5	1.5	**25**	13	158	260	451	260	158	1300	68.643	-168.7	3253	-5489		1625	1717		99,881	249,978
165	2.5	1.5	**25**	13	158	260	450	260	158	1300	68.635	-193.3	3252	-6287		1615	1704		100,445	252,175
166	2.5	1.5	**25**	13	158	260	450	260	158	1299	68.626	-216.0	3251	-7023		1605	1691		100,990	254,265
167	2.5	1.5	**26**	13	209	260	450	260	158	1350	68.616	-237.0	3249	-7701		1647	1731		101,516	256,256
168	2.5	1.5	**26**	13	209	260	450	260	158	1349	68.604	-294.6	3247	-9566		1638	1718		102,022	258,154
169	2.5	1.5	**26**	13	209	260	449	260	158	1348	68.591	-312.7	3245	-10145		1629	1707		102,509	259,967
170	2.5	1.5	**26**	13	209	259	449	259	158	1348	68.577	-329.5	3243	-10685		1620	1695		102,978	261,699
171	2.5	1.5	**26**	13	209	259	449	259	158	1347	68.562	-345.3	3240	-11188		1611	1684		103,428	263,355
172	2.5	1.5	**26**	13	209	259	448	259	157	1346	68.547	-360.1	3237	-11659		1602	1674		103,861	264,941
173	2.5	1.5	**26**	13	209	259	448	259	157	1345	68.532	-374.1	3235	-12102		1593	1665		104,277	266,459
174	2.5	2.0	**27**	13	208	259	448	259	208	1395	68.516	-387.4	3232	-12518		1636	1708		104,676	267,914
175	2.5	2.0	**27**	13	208	258	447	258	208	1394	68.497	-438.0	3229	-14142		1627	1701		105,058	269,308

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	AO	AP	AQ	AR	AS	AT
140	170,006	226,640		21,474	35,221	
141	176,120	233,540		22,213	37,476	
142	182,311	240,432		22,953	39,922	
143	188,561	247,299		23,692	42,559	
144	194,841	254,119		24,432	45,386	
145	201,116	260,860		25,172	48,406	
146	207,348	267,487		25,912	51,618	
147	213,494	273,964		26,652	55,003	
148	219,517	280,257		27,392	58,576	
149	225,384	286,336		28,133	62,337	
150	231,067	292,177		28,873	66,289	
151	237,286	297,766		30,354	70,432	
152	243,289	303,093		31,835	74,760	
153	249,068	308,162		33,315	79,273	
154	254,623	312,994		34,794	83,787	
155	259,957	317,599		36,274	88,303	
156	265,075	321,976		37,752	92,821	
157	269,987	326,130		39,231	97,339	
158	274,703	330,071		40,709	101,857	
159	279,234	333,808		42,186	106,376	
160	283,593	337,354		43,664	110,895	
161	287,792	340,720		45,140	115,413	
162	291,843	343,919		46,616	120,096	
163	295,757	346,961		48,092	124,778	
164	299,545	349,858		49,567	129,458	
165	303,217	352,620		51,042	134,136	
166	306,781	355,255		52,516	138,813	
167	310,245	357,771		53,989	143,673	
168	313,616	360,176		55,462	148,530	
169	316,901	362,476		56,935	153,384	
170	320,105	364,677		58,406	158,235	
171	323,233	366,784		59,878	163,083	
172	326,289	368,802		61,348	167,928	
173	329,277	370,736		62,818	172,769	
174	332,202	372,590		64,288	177,791	
175	335,065	374,367		65,757	182,809	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
176	371	102	95	211	-0.0238	-0.0187	**Sun 09/01/11 13:00**	99.99	1287.09	570.02	7336.68		0.0	2.0	8	0	**410**	2.0	2.5	4.5
177	356	102	93	211	-0.0240	-0.0192	**Sun 09/01/11 14:00**	99.96	1284.41	574.90	7384.14		0.0	2.0	8	0	**410**	2.0	2.5	4.5
178	342	102	92	213	-0.0240	-0.0197	**Sun 09/01/11 15:00**	99.94	1281.72	576.23	7385.61		0.0	2.0	8	0	**409**	2.0	2.5	4.5
179	328	101	90	218	-0.0241	-0.0201	**Sun 09/01/11 16:00**	99.91	1279.02	577.63	7388.07		0.0	2.0	8	0	**409**	2.0	2.5	4.5
180	315	114	89	225	-0.0236	-0.0205	**Sun 09/01/11 17:00**	99.89	1276.33	567.31	7240.69		0.0	2.0	8	0	**409**	2.0	2.5	4.5
181	302	128	87	236	-0.0226	-0.0209	**Sun 09/01/11 18:00**	99.87	1273.68	542.92	6915.09		0.0	2.0	8	0	**409**	2.5	2.5	4.5
182	290	142	86	250	-0.0215	-0.0228	**Sun 09/01/11 19:00**	99.85	1271.15	516.88	6570.36		0.0	2.0	8	0	**409**	2.5	2.5	4.5
183	278	157	84	268	-0.0204	-0.0232	**Sun 09/01/11 20:00**	99.83	1268.75	489.86	6215.06		0.0	2.0	8	0	**408**	2.5	2.5	4.5
184	267	186	83	290	-0.0187	-0.0235	**Sun 09/01/11 21:00**	99.81	1266.48	449.06	5687.20		0.0	2.0	8	0	**408**	2.5	2.5	4.5
185	257	212	81	316	-0.0166	-0.0239	**Sun 09/01/11 22:00**	99.79	1264.39	397.56	5026.73		0.0	2.0	8	0	**408**	2.0	2.5	4.5
186	247	236	80	345	-0.0146	-0.0226	**Sun 09/01/11 23:00**	99.78	1262.55	350.01	4419.11		0.0	2.0	8	0	**408**	2.0	2.5	4.5
187	238	252	78	378	-0.0130	-0.0229	**Mon 10/01/11 00:00**	99.76	1260.93	312.37	3938.80		0.0	2.0	8	0	**408**	2.0	2.5	4.5
188	230	263	77	415	-0.0119	-0.0231	**Mon 10/01/11 01:00**	99.75	1259.49	286.75	3611.64		0.0	2.0	8	0	**408**	2.0	2.5	4.5
189	223	274	75	454	-0.0111	-0.0234	**Mon 10/01/11 02:00**	99.74	1258.16	265.94	3345.97		0.0	2.0	8	0	**408**	2.0	2.5	4.5
190	217	286	74	496	-0.0102	-0.0219	**Mon 10/01/11 03:00**	99.73	1256.94	244.48	3072.90		0.0	2.0	8	0	**408**	2.0	2.5	4.5
191	213	316	72	539	-0.0085	-0.0221	**Mon 10/01/11 04:00**	99.72	1255.81	204.33	2565.94		0.0	2.0	8	0	**408**	2.0	2.5	4.5
192	211	347	71	584	-0.0061	-0.0222	**Mon 10/01/11 05:00**	99.71	1254.87	145.44	1825.07		0.0	2.0	8	0	**408**	2.0	2.5	4.5
193	211	376	70	640	-0.0037	-0.0222	**Mon 10/01/11 06:00**	99.71	1254.20	88.51	1110.07		0.0	2.0	8	0	**408**	1.5	2.5	4.5
194	213	402	69	691	-0.0015	-0.0206	**Mon 10/01/11 07:00**	99.71	1253.79	36.12	452.92		0.0	2.0	8	0	**408**	1.5	2.5	4.5
195	218	427	68	744	0.0005	-0.0204	**Mon 10/01/11 08:00**	99.71	1253.62	-12.94	-162.27		0.0	2.0	8	0	**408**	1.5	2.5	4.5
196	225	451	66	793	0.0025	-0.0202	**Mon 10/01/11 09:00**	99.71	1253.68	-59.58	-746.98		0.0	2.0	8	0	**408**	1.5	2.5	4.5
197	236	474	66	840	0.0043	-0.0184	**Mon 10/01/11 10:00**	99.72	1253.96	-104.35	-1308.44		0.0	2.0	8	0	**408**	1.5	2.5	4.5
198	250	496	65	891	0.0061	-0.0179	**Mon 10/01/11 11:00**	99.72	1254.44	-147.53	-1850.62		0.0	2.0	8	0	**408**	1.5	2.0	4.5
199	268	517	64	943	0.0079	-0.0159	**Mon 10/01/11 12:00**	99.73	1255.12	-189.24	-2375.23		0.0	2.0	8	0	**408**	1.5	2.0	4.5
200	290	538	63	995	0.0096	-0.0152	**Mon 10/01/11 13:00**	99.74	1255.99	-229.51	-2882.57		0.0	2.0	8	0	**408**	1.5	2.0	4.5
201	316	562	63	1047	0.0113	-0.0128	**Mon 10/01/11 14:00**	99.75	1257.05	-271.97	-3418.74		0.0	2.0	8	0	**408**	1.5	2.0	4.5
202	345	601	63	1099	0.0138	-0.0119	**Mon 10/01/11 15:00**	99.77	1258.30	-331.58	-4172.32		0.0	2.0	8	0	**408**	1.0	2.0	4.5
203	378	640	62	1149	0.0169	-0.0093	**Mon 10/01/11 16:00**	99.78	1259.84	-404.73	-5098.95		0.0	2.0	8	0	**408**	1.0	2.0	4.5
204	415	674	62	1198	0.0197	-0.0081	**Mon 10/01/11 17:00**	99.80	1261.71	-473.27	-5971.31		0.0	2.0	8	0	**408**	1.0	2.0	4.0
205	454	706	62	1244	0.0223	-0.0055	**Mon 10/01/11 18:00**	99.82	1263.90	-534.89	-6760.46		0.0	2.0	8	0	**408**	1.0	2.0	4.0
206	496	735	63	1286	0.0246	-0.0042	**Mon 10/01/11 19:00**	99.85	1266.38	-591.21	-7487.01		0.0	2.0	8	0	**409**	1.0	2.0	4.0
207	539	763	63	1324	0.0268	-0.0012	**Mon 10/01/11 20:00**	99.88	1269.12	-643.43	-8165.93		0.0	2.0	8	0	**409**	1.0	2.0	4.0
208	584	789	64	1357	0.0288	0.0002	**Mon 10/01/11 21:00**	99.90	1272.12	-692.30	-8806.87		0.0	2.0	8	0	**409**	1.0	1.5	4.0
209	640	824	65	1384	0.0312	0.0034	**Mon 10/01/11 22:00**	99.94	1275.34	-747.72	-9536.02		0.0	2.0	8	0	**409**	1.0	1.5	4.0
210	691	858	65	1404	0.0338	0.0068	**Mon 10/01/11 23:00**	99.97	1278.83	-810.52	-10365.15		0.0	2.0	8	0	**410**	1.0	1.5	4.0
211	744	890	67	1419	0.0362	0.0084	**Tue 11/01/11 00:00**	100.01	1282.63	-869.59	-11153.63		0.0	2.0	8	0	**410**	0.5	1.5	4.0

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
176	2.5	2.0	**27**	13	208	258	447	258	208	1393	68.479	-449.9	3225	-14510		1618	1696		105,426	270,645
177	2.5	2.0	**27**	13	208	258	446	258	208	1391	68.459	-461.2	3222	-14859		1610	1694		105,793	271,928
178	2.5	2.0	**27**	13	208	258	446	258	208	1390	68.440	-472.0	3218	-15191		1602	1692		106,159	273,158
179	2.5	2.0	**27**	13	208	258	446	258	208	1389	68.420	-482.3	3215	-15505		1594	1691		106,524	274,338
180	2.5	2.0	**27**	13	207	257	445	257	207	1388	68.399	-492.2	3211	-15804		1586	1689		106,933	275,471
181	2.5	2.0	**28**	13	257	257	445	257	207	1436	68.378	-501.6	3207	-16088		1627	1739		107,394	276,557
182	2.5	2.0	**28**	13	257	257	444	257	207	1435	68.355	-548.0	3203	-17554		1620	1739		107,905	277,601
183	2.5	2.0	**28**	13	257	257	444	257	207	1433	68.332	-556.6	3199	-17805		1612	1742		108,472	278,602
184	2.5	2.0	**28**	13	256	256	443	256	207	1431	68.309	-564.7	3195	-18042		1604	1749		109,140	279,564
185	2.5	2.0	**27**	13	206	256	443	256	206	1380	68.285	-572.4	3191	-18264		1547	1707		109,904	280,489
186	2.5	2.0	**27**	13	206	256	442	256	206	1379	68.262	-542.3	3186	-17279		1540	1715		110,754	281,378
187	2.5	2.0	**27**	13	206	255	442	255	206	1377	68.239	-549.0	3182	-17470		1533	1725		111,661	282,236
188	2.5	2.0	**27**	13	206	255	441	255	206	1376	68.216	-555.1	3178	-17641		1526	1736		112,608	283,064
189	2.5	1.5	**26**	13	205	255	441	255	155	1324	68.193	-560.5	3174	-17788		1468	1697		113,594	283,867
190	2.5	1.5	**26**	13	205	255	440	255	155	1322	68.171	-526.7	3169	-16694		1462	1709		114,622	284,650
191	2.5	1.5	**26**	13	205	254	440	254	155	1321	68.149	-530.2	3165	-16780		1456	1723		115,760	285,417
192	2.5	1.5	**26**	13	205	254	439	254	154	1319	68.127	-532.3	3161	-16826		1450	1736		117,010	286,177
193	2.5	1.5	**25**	13	154	254	439	254	154	1268	68.105	-532.9	3157	-16825		1393	1700		118,362	286,935
194	2.5	1.5	**25**	13	154	254	438	254	154	1267	68.084	-493.6	3153	-15563		1388	1717		119,809	287,701
195	2.5	1.5	**25**	13	154	253	438	253	154	1265	68.064	-490.6	3149	-15451		1382	1737		121,346	288,485
196	2.0	1.5	**24**	13	154	253	437	204	154	1215	68.043	-485.5	3145	-15272		1328	1708		122,968	289,295
197	2.0	1.5	**24**	13	154	253	437	204	154	1214	68.025	-440.6	3142	-13844		1323	1729		124,673	290,145
198	2.0	1.5	**23**	13	154	204	436	204	154	1164	68.007	-430.7	3138	-13517		1269	1702		126,459	291,046
199	2.0	1.5	**23**	13	154	204	436	204	154	1163	67.991	-380.6	3135	-11931		1265	1725		128,322	292,011
200	2.0	1.0	**22**	13	153	203	436	203	103	1111	67.976	-365.0	3132	-11432		1209	1697		130,259	293,055
201	2.0	1.0	**22**	13	153	203	435	203	103	1111	67.963	-307.4	3129	-9620		1205	1724		132,284	294,191
202	2.0	1.0	**21**	13	102	203	435	203	102	1059	67.951	-285.9	3127	-8939		1151	1701		134,448	295,434
203	2.0	1.0	**21**	13	102	203	435	203	102	1059	67.942	-222.4	3125	-6950		1147	1730		136,751	296,796
204	2.0	1.0	**20**	13	102	203	391	203	102	1015	67.934	-195.3	3123	-6100		1100	1714		139,178	298,289
205	2.0	1.0	**20**	13	102	203	391	203	102	1014	67.928	-132.1	3122	-4125		1098	1742		141,719	299,923
206	1.5	1.0	**19**	13	102	203	391	153	102	964	67.924	-100.8	3121	-3145		1047	1720		144,366	301,707
207	1.5	1.0	**19**	13	102	203	391	153	102	964	67.923	-29.5	3120	-920		1047	1747		147,112	303,647
208	1.5	1.0	**18**	13	102	153	391	153	102	914	67.923	4.8	3120	149		996	1721		149,952	305,750
209	1.5	0.5	**17**	13	102	153	391	153	51	863	67.926	82.2	3120	2564		945	1691		152,918	308,055
210	1.5	0.5	**17**	13	102	153	391	153	51	864	67.933	162.9	3120	5081		945	1710		156,008	310,543
211	1.5	0.5	**16**	13	51	153	391	153	51	813	67.942	202.6	3122	6324		895	1675		159,213	313,221

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	AO	AP	AQ	AR	AS	AT
176	337,870	376,071		67,225	187,823	
177	340,620	377,721		68,692	192,832	
178	343,317	379,317		70,159	197,836	
179	345,963	380,862		71,625	202,836	
180	348,561	382,403		73,091	207,831	
181	351,113	383,952		74,556	213,001	
182	353,621	385,506		76,020	218,166	
183	356,086	387,074		77,484	223,324	
184	358,511	388,704		78,947	228,477	
185	360,898	390,393		80,410	233,446	
186	363,250	392,132		81,872	238,409	
187	365,570	393,896		83,334	243,367	
188	367,860	395,672		84,796	248,319	
189	370,124	397,461		86,257	253,084	
190	372,368	399,272		87,719	257,845	
191	374,597	401,178		89,180	262,600	
192	376,817	403,187		90,640	267,350	
193	379,036	405,298		92,101	271,914	
194	381,263	407,511		93,562	276,474	
195	383,507	409,831		95,022	281,029	
196	385,778	412,264		96,483	285,403	
197	388,089	414,818		97,944	289,774	
198	390,451	417,505		99,405	293,964	
199	392,877	420,333		100,866	298,152	
200	395,382	423,314		102,327	302,153	
201	397,980	426,475		103,789	306,152	
202	400,685	429,882		105,251	309,965	
203	403,510	433,547		106,714	313,777	
204	406,466	437,467		108,177	317,430	
205	409,564	441,643		109,641	321,081	
206	412,812	446,073		111,105	324,553	
207	416,218	450,759		112,570	328,024	
208	419,786	455,702		114,036	331,316	
209	423,558	460,973		115,503	334,424	
210	427,514	466,552		116,971	337,533	
211	431,660	472,434		118,439	340,458	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
212	793	915	68	1426	0.0383	0.0117	**Tue 11/01/11 01:00**	100.04	1286.70	-919.41	-11830.14		0.0	2.0	8	0	**410**	0.5	1.5	4.0
213	840	932	69	1428	0.0398	0.0132	**Tue 11/01/11 02:00**	100.08	1291.03	-955.09	-12330.51		0.0	2.0	8	0	**410**	0.5	1.5	4.0
214	891	948	71	1423	0.0409	0.0148	**Tue 11/01/11 03:00**	100.12	1295.53	-981.51	-12715.70		0.0	2.0	8	0	**411**	0.5	1.5	4.0
215	943	964	72	1412	0.0419	0.0164	**Tue 11/01/11 04:00**	100.17	1300.17	-1006.55	-13086.84		0.0	2.0	8	0	**411**	0.5	1.5	4.0
216	995	971	74	1396	0.0427	0.0180	**Tue 11/01/11 05:00**	100.21	1304.94	-1023.70	-13358.63		0.0	2.0	8	0	**411**	0.5	1.5	4.0
217	1047	976	76	1373	0.0429	0.0197	**Tue 11/01/11 06:00**	100.25	1309.80	-1029.95	-13490.33		0.0	2.0	8	0	**412**	0.5	1.5	4.0
218	1099	980	78	1345	0.0431	0.0213	**Tue 11/01/11 07:00**	100.30	1314.71	-1033.56	-13588.35		0.0	2.0	8	0	**412**	0.5	1.5	4.0
219	1149	981	80	1311	0.0431	0.0229	**Tue 11/01/11 08:00**	100.34	1319.65	-1034.21	-13647.87		0.0	2.0	8	0	**412**	0.5	1.5	4.0
220	1198	966	82	1272	0.0424	0.0244	**Tue 11/01/11 09:00**	100.38	1324.60	-1016.64	-13466.45		0.0	2.0	8	0	**413**	1.0	1.5	4.0
221	1244	950	85	1228	0.0410	0.0242	**Tue 11/01/11 10:00**	100.42	1329.49	-983.80	-13079.46		0.0	2.0	8	0	**413**	1.0	1.5	4.0
222	1286	936	87	1182	0.0397	0.0255	**Tue 11/01/11 11:00**	100.46	1334.23	-953.07	-12716.07		0.0	3.0	8	0	**620**	1.0	1.5	4.0
223	1324	924	89	1133	0.0232	0.0333	**Tue 11/01/11 12:00**	100.48	1338.83	-555.95	-7443.20		0.0	3.0	8	0	**621**	1.0	1.5	4.0
224	1357	913	92	1083	0.0222	0.0327	**Tue 11/01/11 13:00**	100.51	1341.52	-533.35	-7154.96		0.0	4.0	8	0	**828**	1.0	1.5	4.0
225	1384	903	94	1032	0.0059	0.0400	**Tue 11/01/11 14:00**	100.51	1344.10	-142.53	-1915.77		0.0	4.0	8	0	**828**	1.0	2.0	4.0
226	1404	892	96	981	0.0051	0.0391	**Tue 11/01/11 15:00**	100.52	1344.80	-123.46	-1660.32		0.0	4.0	8	0	**829**	1.0	2.0	4.0
227	1419	838	99	931	0.0027	0.0395	**Tue 11/01/11 16:00**	100.52	1345.39	-64.91	-873.36		0.0	4.0	8	0	**829**	1.0	2.0	4.0
228	1426	782	101	883	-0.0014	0.0381	**Tue 11/01/11 17:00**	100.52	1345.71	34.04	458.10		0.0	4.0	8	0	**829**	1.0	2.0	4.5
229	1428	733	103	835	-0.0053	0.0367	**Tue 11/01/11 18:00**	100.51	1345.54	126.87	1707.03		0.0	4.0	8	0	**828**	1.0	2.0	4.5
230	1423	690	105	790	-0.0087	0.0365	**Tue 11/01/11 19:00**	100.51	1344.93	208.09	2798.60		0.0	4.0	8	0	**828**	1.5	2.0	4.5
231	1412	651	107	747	-0.0117	0.0345	**Tue 11/01/11 20:00**	100.49	1343.92	281.17	3778.76		0.0	4.0	8	0	**828**	1.5	2.0	4.5
232	1396	614	108	706	-0.0145	0.0339	**Tue 11/01/11 21:00**	100.48	1342.56	348.50	4678.76		0.0	4.0	8	0	**827**	1.5	2.0	4.5
233	1373	580	110	667	-0.0171	0.0316	**Tue 11/01/11 22:00**	100.46	1340.87	411.56	5518.42		0.0	4.0	8	0	**827**	1.5	2.0	4.5
234	1345	547	111	630	-0.0196	0.0307	**Tue 11/01/11 23:00**	100.44	1338.88	471.29	6310.00		0.0	4.0	8	0	**826**	1.5	2.0	4.5
235	1311	517	112	595	-0.0220	0.0296	**Wed 12/01/11 00:00**	100.42	1336.60	528.35	7061.89		0.0	4.0	8	0	**826**	1.5	2.5	4.5
236	1272	487	113	563	-0.0243	0.0268	**Wed 12/01/11 01:00**	100.40	1334.05	582.84	7775.33		0.0	4.0	8	0	**826**	1.5	2.5	4.5
237	1228	460	114	532	-0.0264	0.0254	**Wed 12/01/11 02:00**	100.37	1331.24	634.79	8450.64		0.0	4.0	8	0	**825**	1.5	2.5	4.5
238	1182	433	114	503	-0.0285	0.0239	**Wed 12/01/11 03:00**	100.34	1328.19	684.31	9088.90		0.0	4.0	8	0	**825**	1.5	2.5	4.5
239	1133	409	115	476	-0.0305	0.0208	**Wed 12/01/11 04:00**	100.31	1324.90	731.45	9691.03		0.0	4.0	8	0	**824**	1.5	2.5	4.5
240	1083	385	115	451	-0.0323	0.0192	**Wed 12/01/11 05:00**	100.28	1321.39	776.30	10257.93		0.0	4.0	8	0	**824**	1.5	2.5	4.5
241	1032	363	115	428	-0.0341	0.0176	**Wed 12/01/11 06:00**	100.24	1317.68	818.91	10790.63		0.0	4.0	8	0	**823**	1.5	2.5	4.5
242	981	343	115	406	-0.0358	0.0160	**Wed 12/01/11 07:00**	100.21	1313.77	859.39	11290.35		0.0	4.0	8	0	**823**	2.0	2.5	4.5
243	931	323	114	385	-0.0374	0.0128	**Wed 12/01/11 08:00**	100.17	1309.67	897.81	11758.44		0.0	4.0	8	0	**822**	2.0	2.5	4.5
244	883	305	114	366	-0.0389	0.0113	**Wed 12/01/11 09:00**	100.13	1305.41	934.29	12196.36		0.0	4.0	8	0	**822**	2.0	2.5	4.5
245	835	288	113	348	-0.0404	0.0098	**Wed 12/01/11 10:00**	100.09	1300.98	968.93	12605.64		0.0	4.0	8	0	**821**	2.0	2.5	4.5
246	790	272	112	331	-0.0417	0.0083	**Wed 12/01/11 11:00**	100.05	1296.40	1001.84	12987.85		0.0	4.0	8	0	**820**	2.0	2.5	4.5
247	747	257	112	315	-0.0430	0.0069	**Wed 12/01/11 12:00**	100.01	1291.67	1033.12	13344.58		0.0	4.0	8	0	**820**	2.0	2.5	4.5

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
212	1.5	0.5	**16**	13	51	153	391	153	51	813	67.953	281.0	3123	8775		897	1687		162,509	316,076
213	1.5	0.5	**16**	13	51	153	391	153	51	814	67.967	317.6	3125	9925		900	1694		165,865	319,100
214	1.5	0.5	**16**	13	51	153	392	153	51	814	67.981	354.7	3128	11093		904	1699		169,278	322,307
215	1.5	0.5	**16**	13	51	154	392	154	51	815	67.998	393.6	3130	12321		908	1701		172,749	325,701
216	1.5	0.5	**16**	13	51	154	392	154	51	816	68.016	432.8	3133	13561		912	1701		176,246	329,283
217	1.5	0.5	**16**	13	51	154	393	154	51	816	68.036	471.9	3137	14803		916	1697		179,758	333,052
218	1.5	0.5	**16**	13	51	154	393	154	51	817	68.057	510.7	3140	16039		921	1692		183,287	337,008
219	1.5	0.5	**16**	13	52	154	394	154	52	818	68.080	548.7	3144	17252		925	1680		186,819	341,145
220	1.5	0.5	**17**	13	103	154	394	154	52	871	68.104	585.3	3148	18428		981	1712		190,296	345,457
221	1.5	0.5	**17**	13	103	155	395	155	52	872	68.128	580.6	3153	18306		984	1691		193,714	349,933
222	1.5	0.5	**17**	13	103	155	395	155	52	873	68.154	612.8	3157	19347		987	1669		197,084	354,562
223	1.5	1.0	**18**	13	104	155	396	155	104	926	68.187	798.6	3162	25253		1042	1696		200,411	359,328
224	1.5	1.0	**18**	13	104	155	396	155	104	927	68.220	784.0	3168	24838		1044	1670		203,699	364,212
225	1.5	1.0	**19**	13	104	206	397	155	104	980	68.260	961.0	3174	30503		1097	1693		206,948	369,192
226	1.5	1.0	**19**	13	104	206	398	156	104	981	68.299	937.5	3182	29826		1099	1665		210,161	374,248
227	2.0	1.0	**20**	13	104	207	399	207	104	1034	68.338	947.4	3189	30208		1152	1688		213,176	379,355
228	2.0	1.0	**21**	13	104	207	445	207	104	1081	68.376	914.0	3196	29211		1198	1706		215,990	384,489
229	2.0	1.0	**21**	13	105	208	445	208	105	1083	68.413	880.1	3203	28191		1199	1679		218,630	389,628
230	2.0	1.0	**22**	13	157	208	446	208	105	1136	68.450	875.5	3210	28100		1252	1705		221,115	394,750
231	2.0	1.0	**22**	13	157	208	447	208	105	1138	68.484	827.5	3216	26616		1253	1681		223,458	399,834
232	2.0	1.5	**23**	13	157	208	448	208	157	1192	68.518	814.0	3223	26235		1306	1710		225,670	404,858
233	2.0	1.5	**23**	13	157	209	448	209	157	1194	68.549	757.5	3229	24461		1307	1688		227,758	409,801
234	2.0	1.5	**23**	13	158	209	449	209	158	1196	68.580	735.7	3235	23798		1309	1667		229,729	414,641
235	2.0	1.5	**24**	13	158	260	450	209	158	1248	68.610	709.8	3241	23001		1360	1699		231,589	419,359
236	2.0	1.5	**24**	13	158	260	450	210	158	1249	68.636	642.8	3246	20867		1362	1682		233,343	423,937
237	2.0	1.5	**24**	13	158	260	451	210	158	1251	68.662	610.1	3251	19833		1363	1666		234,998	428,359
238	2.5	1.5	**25**	13	158	261	451	261	158	1303	68.686	574.7	3256	18711		1416	1701		236,558	432,613
239	2.5	1.5	**25**	13	158	261	452	261	158	1304	68.707	500.2	3260	16307		1418	1688		238,029	436,691
240	2.5	1.5	**25**	13	159	261	452	261	159	1305	68.726	461.9	3264	15076		1420	1676		239,416	440,588
241	2.5	1.5	**25**	13	159	261	453	261	159	1306	68.744	423.1	3268	13824		1422	1664		240,724	444,302
242	2.5	1.5	**26**	13	211	262	453	262	159	1359	68.760	384.3	3271	12570		1476	1706		241,957	447,834
243	2.5	1.5	**26**	13	211	262	453	262	159	1360	68.772	308.0	3274	10083		1479	1696		243,120	451,186
244	2.5	1.5	**26**	13	211	262	454	262	159	1360	68.784	270.7	3276	8868		1481	1688		244,218	454,363
245	2.5	1.5	**26**	13	211	262	454	262	159	1361	68.793	234.5	3278	7688		1483	1680		245,255	457,370
246	2.5	1.5	**26**	13	211	262	454	262	159	1361	68.802	199.7	3280	6551		1485	1672		246,233	460,215
247	2.5	1.5	**26**	13	211	262	454	262	159	1362	68.809	166.4	3282	5461		1487	1665		247,158	462,904

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	AO	AP	AQ	AR	AS	AT
212	435,986	478,585		119,909	343,386	
213	440,480	484,965		121,380	346,315	
214	445,159	491,586		122,852	349,246	
215	450,026	498,450		124,325	352,180	
216	455,082	505,529		125,799	355,116	
217	460,327	512,810		127,274	358,055	
218	465,759	520,294		128,751	360,996	
219	471,373	527,964		130,229	363,941	
220	477,164	535,752		131,708	367,075	
221	483,121	543,648		133,187	370,213	
222	489,972	551,647		135,409	373,354	
223	496,961	559,739		137,633	376,687	
224	504,812	567,910		140,600	380,025	
225	512,761	576,141		143,568	383,551	
226	520,785	584,409		146,537	387,084	
227	528,862	592,531		149,507	390,806	
228	536,965	600,479		152,476	394,697	
229	545,073	608,258		155,444	398,595	
230	553,162	615,865		158,412	402,686	
231	561,211	623,292		161,377	406,784	
232	569,199	630,528		164,341	411,076	
233	577,104	637,559		167,303	415,374	
234	584,905	644,370		170,264	419,678	
235	592,583	650,948		173,224	424,170	
236	600,120	657,281		176,182	428,667	
237	607,498	663,357		179,139	433,169	
238	614,708	669,171		182,095	437,858	
239	621,740	674,720		185,049	442,552	
240	628,589	680,004		188,001	447,249	
241	635,253	685,026		190,951	451,951	
242	641,733	689,791		193,900	456,842	
243	648,032	694,306		196,846	461,737	
244	654,153	698,581		199,790	466,634	
245	660,102	702,625		202,732	471,533	
246	665,887	706,448		205,672	476,434	
247	671,513	710,062		208,609	481,336	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
248	706	243	111	300	-0.0443	0.0056	**Wed 12/01/11 13:00**	99.96	1286.82	1062.88	13677.36		0.0	4.0	8	0	**819**	2.0	2.5	4.5
249	667	230	110	286	-0.0455	0.0028	**Wed 12/01/11 14:00**	99.92	1281.83	1091.23	13987.72		0.0	4.0	8	0	**818**	2.0	2.5	4.5
250	630	217	108	273	-0.0466	0.0016	**Wed 12/01/11 15:00**	99.87	1276.73	1118.25	14277.06		0.0	4.0	8	0	**818**	2.0	2.5	4.5
251	595	206	107	261	-0.0477	0.0005	**Wed 12/01/11 16:00**	99.82	1271.52	1144.05	14546.79		0.0	4.0	8	0	**817**	2.0	2.5	4.5
252	563	195	106	249	-0.0487	-0.0006	**Wed 12/01/11 17:00**	99.77	1266.20	1168.71	14798.20		0.0	4.0	8	0	**816**	2.0	2.5	4.5
253	532	185	105	239	-0.0497	-0.0016	**Wed 12/01/11 18:00**	99.72	1260.79	1192.31	15032.48		0.0	4.0	8	0	**815**	2.0	2.5	4.5
254	503	175	103	228	-0.0506	-0.0025	**Wed 12/01/11 19:00**	99.67	1255.29	1214.93	15250.80		0.0	4.0	8	0	**815**	2.0	2.5	4.5
255	476	166	102	219	-0.0515	-0.0033	**Wed 12/01/11 20:00**	99.62	1249.70	1236.64	15454.23		0.0	4.0	8	0	**814**	2.0	2.5	4.5
256	451	158	100	210	-0.0524	-0.0041	**Wed 12/01/11 21:00**	99.57	1244.03	1257.51	15643.75		0.0	4.0	8	0	**813**	2.0	2.5	4.5
257	428	150	99	201	-0.0532	-0.0049	**Wed 12/01/11 22:00**	99.52	1238.28	1277.60	15820.29		0.0	4.0	8	0	**812**	2.5	2.5	4.5
258	406	143	97	193	-0.0540	-0.0072	**Wed 12/01/11 23:00**	99.46	1232.46	1296.97	15984.70		0.0	4.0	8	0	**811**	2.5	2.5	4.5
259	385	136	96	185	-0.0548	-0.0078	**Thu 13/01/11 00:00**	99.41	1226.58	1315.67	16137.80		0.0	4.0	8	0	**811**	2.5	2.5	4.5
260	366	129	94	178	-0.0556	-0.0085	**Thu 13/01/11 01:00**	99.35	1220.63	1333.76	16280.34		0.0	4.0	8	0	**810**	2.5	2.5	4.5
261	348	123	93	171	-0.0563	-0.0090	**Thu 13/01/11 02:00**	99.30	1214.63	1351.28	16413.00		0.0	3.0	8	0	**607**	2.5	2.5	4.5
262	331	117	91	164	-0.0403	-0.0158	**Thu 13/01/11 03:00**	99.26	1208.57	966.68	11682.96		0.0	3.0	8	0	**606**	2.5	2.5	4.5
263	315	111	89	158	-0.0409	-0.0162	**Thu 13/01/11 04:00**	99.21	1204.25	980.50	11807.61		0.0	3.0	8	0	**606**	2.5	2.5	4.5
264	300	106	88	152	-0.0414	-0.0167	**Thu 13/01/11 05:00**	99.17	1199.87	993.79	11924.28		0.0	2.0	8	0	**404**	2.5	2.5	4.5
265	286	101	86	146	-0.0251	-0.0233	**Thu 13/01/11 06:00**	99.15	1195.46	601.56	7191.35		0.0	2.0	8	0	**403**	2.5	2.5	4.5
266	273	97	85	141	-0.0255	-0.0237	**Thu 13/01/11 07:00**	99.12	1192.79	612.06	7300.57		0.0	2.0	8	0	**403**	2.5	2.5	4.5
267	261	92	83	136	-0.0259	-0.0257	**Thu 13/01/11 08:00**	99.10	1190.08	622.09	7403.33		0.0	2.0	8	0	**403**	2.5	2.5	4.5
268	249	88	81	131	-0.0263	-0.0260	**Thu 13/01/11 09:00**	99.07	1187.33	631.67	7500.04		0.0	1.0	8	0	**201**	2.5	2.5	4.5
269	239	84	80	126	-0.0097	-0.0326	**Thu 13/01/11 10:00**	99.06	1184.54	232.87	2758.43		0.0	1.0	8	0	**201**	2.5	2.5	4.5
270	228	81	78	122	-0.0100	-0.0329	**Thu 13/01/11 11:00**	99.05	1183.52	240.66	2848.19		0.0	1.0	8	0	**201**	2.5	2.5	4.5
271	219	77	77	117	-0.0103	-0.0332	**Thu 13/01/11 12:00**	99.04	1182.46	248.05	2933.03		0.0	1.0	8	0	**201**	2.5	2.5	4.5
272	210	74	75	113	-0.0106	-0.0335	**Thu 13/01/11 13:00**	99.03	1181.37	255.06	3013.24		0.0	1.0	8	0	**201**	2.5	2.5	4.5
273	201	71	74	109	-0.0109	-0.0337	**Thu 13/01/11 14:00**	99.02	1180.25	261.73	3089.11		0.0	1.0	8	0	**201**	2.5	2.5	4.5
274	193	68	72	106	-0.0112	-0.0340	**Thu 13/01/11 15:00**	99.01	1179.10	268.08	3160.93		0.0	1.0	8	0	**201**	2.5	2.5	4.5
275	185	65	71	102	-0.0114	-0.0342	**Thu 13/01/11 16:00**	99.00	1177.92	274.12	3228.92		1.0	0.0	8	0	**69**	2.5	2.5	4.5
276	178	63	69	99	-0.0004	-0.0386	**Thu 13/01/11 17:00**	99.00	1176.72	9.70	114.18		1.0	0.0	8	0	**69**	2.5	2.5	4.5
277	171	60	68	95	-0.0006	-0.0388	**Thu 13/01/11 18:00**	99.00	1176.67	14.98	176.30		1.0	0.0	8	0	**69**	2.5	2.5	4.5
278	164	58	67	92	-0.0008	-0.0390	**Thu 13/01/11 19:00**	98.99	1176.61	20.00	235.27		1.0	0.0	8	0	**69**	2.5	2.5	4.5
279	158	55	65	89	-0.0010	-0.0392	**Thu 13/01/11 20:00**	98.99	1176.52	24.76	291.28		1.0	0.0	8	0	**69**	2.5	2.5	4.5
280	152	53	64	86	-0.0012	-0.0394	**Thu 13/01/11 21:00**	98.99	1176.41	29.28	344.51		1.0	0.0	8	0	**69**	2.5	2.5	4.5
281	146	51	63	84	-0.0014	-0.0396	**Thu 13/01/11 22:00**	98.99	1176.28	33.59	395.12		1.0	0.0	8	0	**69**	2.5	2.5	4.5
282	141	49	61	81	-0.0016	-0.0398	**Thu 13/01/11 23:00**	98.99	1176.14	37.69	443.28		1.0	0.0	8	0	**69**	2.5	2.5	4.5
283	136	47	60	78	-0.0017	-0.0400	**Fri 14/01/11 00:00**	98.99	1175.97	41.59	489.11		1.0	0.0	8	0	**69**	2.5	2.5	4.5

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
248	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.814	134.7	3283	4422		1541	1711		248,032	465,444
249	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.817	66.6	3284	2188		1542	1704		248,859	467,844
250	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.819	38.3	3284	1257		1544	1698		249,641	470,112
251	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.819	11.5	3285	379		1545	1692		250,382	472,254
252	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.819	-13.6	3285	-447		1545	1686		251,084	474,279
253	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.817	-37.2	3285	-1223		1546	1681		251,749	476,194
254	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.815	-59.4	3284	-1950		1546	1675		252,380	478,006
255	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.811	-80.1	3284	-2632		1546	1669		252,979	479,721
256	2.5	2.0	**27**	13	211	262	454	262	211	1414	68.807	-99.6	3283	-3269		1545	1664		253,547	481,345
257	2.5	2.0	**28**	13	262	262	454	262	211	1464	68.802	-117.8	3283	-3866		1595	1709		254,087	482,885
258	2.5	2.0	**28**	13	262	262	454	262	211	1464	68.795	-172.1	3282	-5647		1594	1703		254,600	484,346
259	2.5	2.0	**28**	13	262	262	454	262	211	1463	68.787	-188.0	3280	-6166		1592	1698		255,088	485,732
260	2.5	2.0	**28**	13	262	262	454	262	211	1463	68.779	-202.9	3279	-6652		1590	1692		255,553	487,049
261	2.5	2.0	**28**	13	262	262	453	262	211	1462	68.770	-216.8	3277	-7106		1588	1686		255,995	488,302
262	2.5	2.0	**28**	13	261	261	453	261	211	1461	68.754	-378.1	3276	-12385		1586	1680		256,416	489,493
263	2.5	2.0	**28**	13	261	261	453	261	211	1460	68.738	-390.0	3273	-12763		1583	1673		256,817	490,628
264	2.5	2.0	**28**	13	261	261	452	261	210	1459	68.721	-401.1	3270	-13116		1580	1667		257,200	491,709
265	2.5	2.0	**28**	13	261	261	452	261	210	1457	68.698	-559.8	3267	-18288		1576	1660		257,565	492,740
266	2.5	2.5	**29**	13	261	261	451	261	261	1506	68.674	-569.5	3262	-18580		1623	1704		257,914	493,724
267	2.5	2.5	**29**	13	260	260	451	260	260	1505	68.648	-615.9	3258	-20066		1619	1698		258,246	494,664
268	2.5	2.5	**29**	13	260	260	450	260	260	1503	68.622	-624.4	3253	-20314		1615	1691		258,565	495,562
269	2.5	2.5	**29**	13	260	260	449	260	260	1501	68.590	-781.3	3248	-25379		1610	1684		258,869	496,421
270	2.5	2.5	**29**	13	259	259	449	259	259	1498	68.557	-788.9	3242	-25579		1605	1676		259,160	497,243
271	2.5	2.5	**29**	13	259	259	448	259	259	1496	68.524	-796.1	3236	-25765		1600	1669		259,438	498,030
272	2.5	2.5	**29**	13	258	258	447	258	258	1494	68.490	-803.0	3230	-25937		1596	1662		259,705	498,784
273	2.5	2.5	**29**	13	258	258	446	258	258	1491	68.456	-809.4	3224	-26095		1591	1655		259,960	499,508
274	2.5	2.5	**29**	13	258	258	446	258	258	1489	68.423	-815.5	3218	-26242		1586	1648		260,205	500,201
275	2.5	2.5	**29**	13	257	257	445	257	257	1487	68.388	-821.3	3211	-26378		1581	1642		260,439	500,867
276	2.5	2.5	**29**	13	257	257	444	257	257	1484	68.350	-926.0	3205	-29682		1576	1635		260,664	501,507
277	2.5	2.5	**29**	13	256	256	443	256	256	1481	68.311	-931.4	3198	-29788		1570	1628		260,880	502,121
278	2.5	2.5	**29**	13	256	256	442	256	256	1479	68.272	-936.6	3191	-29886		1565	1621		261,088	502,712
279	2.5	2.5	**29**	13	255	255	441	255	255	1476	68.233	-941.5	3184	-29975		1560	1614		261,287	503,280
280	2.5	2.5	**29**	13	255	255	441	255	255	1473	68.193	-946.2	3177	-30056		1555	1607		261,478	503,827
281	2.5	2.5	**29**	13	254	254	440	254	254	1470	68.154	-950.7	3169	-30129		1550	1601		261,662	504,353
282	2.5	2.5	**29**	13	254	254	439	254	254	1467	68.114	-954.9	3162	-30194		1544	1594		261,839	504,860
283	2.5	2.5	**29**	13	253	253	438	253	253	1465	68.074	-959.0	3155	-30254		1539	1588		262,010	505,348

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	AO	AP	AQ	AR	AS	AT
248	676,988	713,476		211,544	486,427	
249	682,321	716,703		214,477	491,518	
250	687,519	719,753		217,407	496,610	
251	692,588	722,637		220,334	501,702	
252	697,538	725,363		223,259	506,794	
253	702,375	727,944		226,181	511,885	
254	707,106	730,386		229,100	516,976	
255	711,738	732,700		232,017	522,066	
256	716,276	734,892		234,930	527,155	
257	720,726	736,972		237,841	532,427	
258	725,094	738,946		240,749	537,696	
259	729,386	740,820		243,654	542,964	
260	733,605	742,602		246,555	548,230	
261	737,031	744,296		248,729	553,494	
262	740,395	745,909		250,902	558,754	
263	743,700	747,445		253,072	564,010	
264	746,227	748,909		254,518	569,262	
265	748,703	750,305		255,963	574,508	
266	751,132	751,638		257,408	579,931	
267	753,515	752,910		258,852	585,348	
268	755,135	754,127		259,573	590,758	
269	756,715	755,290		260,295	596,160	
270	758,259	756,403		261,016	601,554	
271	759,767	757,468		261,737	606,940	
272	761,242	758,489		262,458	612,317	
273	762,686	759,468		263,179	617,686	
274	764,101	760,406		263,899	623,047	
275	765,012	761,307		264,145	628,399	
276	765,898	762,171		264,391	633,741	
277	766,758	763,002		264,637	639,073	
278	767,595	763,800		264,883	644,396	
279	768,409	764,567		265,129	649,709	
280	769,201	765,305		265,374	655,012	
281	769,973	766,016		265,620	660,304	
282	770,726	766,699		265,866	665,587	
283	771,460	767,358		266,112	670,859	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
284	131	46	59	76	-0.0019	-0.0401	**Fri 14/01/11 01:00**	98.99	1175.79	45.31	532.75		1.0	0.0	8	0	**69**	2.5	2.5	4.5
285	126	44	57	74	-0.0020	-0.0403	**Fri 14/01/11 02:00**	98.98	1175.59	48.86	574.34		1.0	0.0	8	0	**69**	2.5	2.5	4.5
286	122	42	56	71	-0.0022	-0.0404	**Fri 14/01/11 03:00**	98.98	1175.38	52.24	613.98		1.0	0.0	8	0	**69**	2.5	2.5	4.5
287	117	41	55	69	-0.0023	-0.0406	**Fri 14/01/11 04:00**	98.98	1175.15	55.47	651.80		1.0	0.0	8	0	**69**	2.5	2.5	4.5
288	113	39	54	67	-0.0024	-0.0407	**Fri 14/01/11 05:00**	98.98	1174.90	58.55	687.89		1.0	0.0	8	0	**69**	2.5	2.5	4.5
289	109	38	53	65	-0.0026	-0.0408	**Fri 14/01/11 06:00**	98.97	1174.65	61.49	722.34		1.0	0.0	8	0	**69**	2.5	2.5	4.5
290	106	36	51	63	-0.0027	-0.0410	**Fri 14/01/11 07:00**	98.97	1174.38	64.31	755.23		1.0	0.0	8	0	**69**	2.5	2.5	4.5
291	102	35	50	61	-0.0028	-0.0395	**Fri 14/01/11 08:00**	98.97	1174.10	67.00	786.66		1.0	0.0	8	0	**69**	2.0	2.5	4.5
292	99	34	49	59	-0.0029	-0.0381	**Fri 14/01/11 09:00**	98.97	1173.80	69.58	816.73		1.0	0.0	8	0	**69**	2.0	2.5	4.5
293	95	33	48	57	-0.0030	-0.0382	**Fri 14/01/11 10:00**	98.96	1173.50	72.05	845.49		1.0	0.0	8	0	**69**	2.0	2.5	4.5
294	92	32	47	56	-0.0031	-0.0367	**Fri 14/01/11 11:00**	98.96	1173.18	74.41	873.00		1.0	0.0	8	0	**69**	1.5	2.5	4.5
295	89	31	46	54	-0.0032	-0.0352	**Fri 14/01/11 12:00**	98.96	1172.86	76.68	899.33		1.0	0.0	8	0	**69**	1.5	2.5	4.0
296	86	30	45	53	-0.0033	-0.0339	**Fri 14/01/11 13:00**	98.95	1172.52	78.85	924.55		1.0	0.0	8	0	**69**	1.5	2.5	4.0
297	84	29	44	51	-0.0034	-0.0324	**Fri 14/01/11 14:00**	98.95	1172.18	80.94	948.74		1.0	0.0	8	0	**69**	1.5	2.5	4.0
298	81	28	43	50	-0.0035	-0.0325	**Fri 14/01/11 15:00**	98.95	1171.83	82.94	971.90		0.0	0.0	8	0	**0**	1.5	2.0	4.0
299	78	27	42	48	0.0023	-0.0333	**Fri 14/01/11 16:00**	98.95	1171.46	-55.58	-651.09		0.0	0.0	8	0	**0**	1.5	2.0	4.0
300	76	26	41	47	0.0022	-0.0318	**Fri 14/01/11 17:00**	98.95	1171.71	-53.74	-629.67		0.0	0.0	8	0	**0**	1.0	2.0	4.0
301	74	25	40	45	0.0022	-0.0302	**Fri 14/01/11 18:00**	98.95	1171.94	-51.97	-609.11		0.0	0.0	8	0	**0**	1.0	2.0	4.0
302	71	24	39	44	0.0021	-0.0287	**Fri 14/01/11 19:00**	98.96	1172.17	-50.28	-589.37		0.0	0.0	8	0	**0**	1.0	2.0	4.0
303	69	23	38	43	0.0020	-0.0288	**Fri 14/01/11 20:00**	98.96	1172.39	-48.65	-570.40		0.0	0.0	8	0	**0**	1.0	1.5	4.0
304	67	23	37	42	0.0020	-0.0272	**Fri 14/01/11 21:00**	98.96	1172.60	-47.09	-552.16		0.0	0.0	8	0	**0**	1.0	1.5	4.0
305	65	22	37	41	0.0019	-0.0257	**Fri 14/01/11 22:00**	98.96	1172.81	-45.59	-534.62		0.0	0.0	8	0	**0**	0.5	1.5	4.0
306	63	21	36	39	0.0018	-0.0241	**Fri 14/01/11 23:00**	98.96	1173.01	-44.14	-517.76		0.0	0.0	8	0	**0**	0.5	1.5	4.0
307	61	21	35	38	0.0018	-0.0225	**Sat 15/01/11 00:00**	98.96	1173.20	-42.75	-501.53		0.0	0.0	8	0	**0**	0.5	1.5	4.0
308	59	20	34	37	0.0017	-0.0226	**Sat 15/01/11 01:00**	98.97	1173.39	-41.41	-485.91		0.0	0.0	8	0	**0**	0.5	1.0	4.0
309	57	19	33	36	0.0017	-0.0210	**Sat 15/01/11 02:00**	98.97	1173.57	-40.12	-470.87		0.0	0.0	8	0	**0**	0.5	1.0	4.0
310	56	19	33	35	0.0016	-0.0194	**Sat 15/01/11 03:00**	98.97	1173.74	-38.88	-456.39		0.0	0.0	8	0	**0**	0.0	1.0	4.0
311	54	18	32	34	0.0016	-0.0178	**Sat 15/01/11 04:00**	98.97	1173.91	-37.69	-442.44		0.0	0.0	8	0	**0**	0.0	1.0	4.0
312	53	18	31	33	0.0015	-0.0162	**Sat 15/01/11 05:00**	98.97	1174.08	-36.54	-428.99		0.0	0.0	8	0	**0**	0.0	1.0	4.0
313	51	17	30	32	0.0015	-0.0162	**Sat 15/01/11 06:00**	98.97	1174.24	-35.43	-416.03		0.0	0.0	8	0	**0**	0.0	0.5	4.0
314	50	17	30	32	0.0014	-0.0146	**Sat 15/01/11 07:00**	98.98	1174.39	-34.36	-403.53		0.0	0.0	8	0	**0**	0.0	0.5	3.5
315	48	16	29	31	0.0014	-0.0132	**Sat 15/01/11 08:00**	98.98	1174.54	-33.33	-391.46		0.0	0.0	8	0	**0**	0.0	0.5	3.5
316	47	16	28	30	0.0013	-0.0116	**Sat 15/01/11 09:00**	98.98	1174.69	-32.33	-379.82		0.0	0.0	8	0	**0**	0.0	0.0	3.5
317	45	15	28	29	0.0013	-0.0100	**Sat 15/01/11 10:00**	98.98	1174.83	-31.37	-368.58		0.0	0.0	8	0	**0**	0.0	0.0	3.5
318	44	15	27	28	0.0013	-0.0101	**Sat 15/01/11 11:00**	98.98	1174.97	-30.45	-357.73		0.0	0.0	8	0	**0**	0.0	0.0	3.0
319	43	14	26	28	0.0012	-0.0086	**Sat 15/01/11 12:00**	98.98	1175.10	-29.55	-347.26		0.0	0.0	8	0	**0**	0.0	0.0	2.5

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
284	2.5	2.5	**29**	13	253	253	437	253	253	1462	68.034	-962.9	3147	-30306		1534	1582		262,173	505,819
285	2.5	2.5	**29**	13	252	252	436	252	252	1459	67.993	-966.7	3140	-30353		1529	1575		262,331	506,273
286	2.5	2.5	**29**	13	252	252	435	252	252	1456	67.953	-970.3	3133	-30395		1524	1569		262,483	506,711
287	2.5	2.5	**29**	13	251	251	434	251	251	1453	67.912	-973.7	3125	-30430		1519	1563		262,630	507,133
288	2.5	2.5	**29**	13	251	251	433	251	251	1450	67.872	-977.0	3118	-30461		1514	1557		262,771	507,541
289	2.5	2.5	**29**	13	250	250	432	250	250	1447	67.831	-980.2	3110	-30487		1510	1551		262,907	507,935
290	2.5	2.0	**28**	13	250	250	431	250	202	1396	67.790	-983.2	3103	-30509		1456	1497		263,038	508,315
291	2.5	2.0	**27**	13	201	250	430	250	201	1345	67.750	-948.7	3095	-29364		1404	1443		263,164	508,683
292	2.5	2.0	**27**	13	201	249	430	249	201	1342	67.712	-913.9	3088	-28224		1399	1438		263,287	509,038
293	2.5	1.5	**26**	13	200	249	429	249	151	1291	67.674	-916.6	3081	-28243		1346	1384		263,405	509,382
294	2.5	1.5	**25**	13	151	248	428	248	151	1239	67.637	-880.8	3074	-27078		1293	1330		263,518	509,714
295	2.5	1.5	**24**	13	151	248	384	248	151	1194	67.602	-844.9	3068	-25917		1246	1282		263,628	510,035
296	2.0	1.5	**23**	13	151	247	383	199	151	1144	67.568	-813.6	3061	-24904		1194	1230		263,735	510,346
297	2.0	1.5	**23**	13	150	247	383	199	150	1142	67.536	-778.3	3055	-23776		1191	1226		263,837	510,647
298	2.0	1.5	**22**	13	150	199	382	199	150	1093	67.503	-780.5	3049	-23797		1140	1174		263,937	510,939
299	2.0	1.0	**21**	13	150	199	381	199	100	1041	67.470	-799.1	3043	-24317		1087	1120		264,033	511,221
300	2.0	1.0	**20**	13	100	198	381	198	100	990	67.438	-762.0	3037	-23144		1035	1067		264,126	511,494
301	1.5	1.0	**19**	13	100	198	380	149	100	940	67.408	-724.9	3031	-21974		983	1015		264,215	511,759
302	1.5	1.0	**19**	13	100	198	379	149	100	939	67.379	-688.4	3026	-20829		981	1012		264,302	512,015
303	1.5	1.0	**18**	13	100	149	379	149	100	889	67.351	-690.3	3021	-20851		930	960		264,387	512,264
304	1.5	0.5	**17**	13	100	149	378	149	50	838	67.323	-653.6	3015	-19709		878	908		264,468	512,505
305	1.5	0.5	**16**	13	50	149	378	149	50	787	67.298	-615.7	3010	-18535		826	855		264,547	512,739
306	1.0	0.5	**15**	13	50	148	377	99	50	737	67.274	-577.7	3006	-17363		775	803		264,623	512,965
307	1.0	0.5	**15**	13	50	148	377	99	50	737	67.251	-540.0	3001	-16208		773	801		264,697	513,185
308	1.0	0.5	**14**	13	50	99	376	99	50	687	67.229	-541.6	2997	-16233		722	749		264,769	513,398
309	1.0	0.0	**13**	13	50	99	376	99	0	636	67.208	-503.8	2993	-15080		670	698		264,839	513,605
310	1.0	0.0	**12**	13	0	99	376	99	0	586	67.188	-465.5	2989	-13915		619	646		264,906	513,806
311	0.5	0.0	**11**	13	0	99	375	49	0	536	67.170	-427.1	2986	-12753		569	595		264,971	514,001
312	0.5	0.0	**11**	13	0	99	375	49	0	536	67.154	-388.7	2983	-11593		567	593		265,035	514,190
313	0.5	0.0	**10**	13	0	49	374	49	0	486	67.138	-389.9	2980	-11619		516	542		265,096	514,374
314	0.5	0.0	**9**	13	0	49	331	49	0	443	67.123	-351.4	2977	-10460		472	497		265,156	514,553
315	0.0	0.0	**8**	13	0	49	331	0	0	393	67.110	-318.0	2974	-9458		422	446		265,214	514,726
316	0.0	0.0	**7**	13	0	0	331	0	0	344	67.099	-279.3	2972	-8301		372	396		265,270	514,894
317	0.0	0.0	**7**	13	0	0	331	0	0	344	67.088	-240.6	2970	-7145		371	394		265,324	515,058
318	0.0	0.0	**6**	13	0	0	286	0	0	299	67.078	-241.7	2968	-7173		326	349		265,377	515,217
319	0.0	0.0	**5**	13	0	0	241	0	0	254	67.070	-207.1	2966	-6142		280	302		265,428	515,371

	AO	AP	AQ	AR	AS	AT
284	772,177	767,993		266,358	676,122	
285	772,877	768,604		266,604	681,374	
286	773,560	769,194		266,849	686,615	
287	774,228	769,763		267,095	691,847	
288	774,882	770,312		267,341	697,067	
289	775,522	770,842		267,587	702,278	
290	776,148	771,353		267,832	707,303	
291	776,761	771,848		268,078	712,145	
292	777,362	772,325		268,324	716,978	
293	777,951	772,786		268,570	721,624	
294	778,529	773,232		268,815	726,085	
295	779,096	773,664		269,061	730,384	
296	779,653	774,081		269,307	734,503	
297	780,199	774,485		269,552	738,615	
298	780,491	774,875		269,552	742,549	
299	780,773	775,253		269,552	746,299	
300	781,046	775,620		269,552	749,864	
301	781,311	775,974		269,552	753,249	
302	781,567	776,318		269,552	756,629	
303	781,816	776,650		269,552	759,830	
304	782,057	776,973		269,552	762,848	
305	782,291	777,286		269,552	765,682	
306	782,517	777,589		269,552	768,337	
307	782,737	777,883		269,552	770,988	
308	782,951	778,168		269,552	773,461	
309	783,158	778,444		269,552	775,752	
310	783,358	778,712		269,552	777,863	
311	783,553	778,973		269,552	779,794	
312	783,743	779,225		269,552	781,723	
313	783,926	779,470		269,552	783,473	
314	784,105	779,708		269,552	785,068	
315	784,278	779,940		269,552	786,484	
316	784,447	780,164		269,552	787,722	
317	784,610	780,382		269,552	788,959	
318	784,769	780,594		269,552	790,037	
319	784,924	780,800		269,552	790,951	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
320	42	14	26	27	0.0012	-0.0071	**Sat 15/01/11 13:00**	98.98	1175.23	-28.69	-337.15		0.0	0.0	8	0	**0**	0.0	0.0	2.0
321	41	13	25	26	0.0012	-0.0056	**Sat 15/01/11 14:00**	98.98	1175.36	-27.85	-327.37		0.0	0.0	8	0	**0**	0.0	0.0	1.5
322	39	13	25	25	0.0011	-0.0040	**Sat 15/01/11 15:00**	98.99	1175.48	-27.05	-317.91		0.0	0.0	8	0	**0**	0.0	0.0	1.5
323	38	13	24	25	0.0011	-0.0041	**Sat 15/01/11 16:00**	98.99	1175.60	-26.27	-308.78		0.0	0.0	8	0	**0**	0.0	0.0	1.0
324	37	12	24	24	0.0011	-0.0025	**Sat 15/01/11 17:00**	98.99	1175.71	-25.51	-299.95		0.0	0.0	8	0	**0**	0.0	0.0	0.5
325	36	12	23	24	0.0010	-0.0009	**Sat 15/01/11 18:00**	98.99	1175.82	-24.78	-291.41		0.0	0.0	8	0	**0**	0.0	0.0	0.0
326	35	12	22	23	0.0010	0.0008	**Sat 15/01/11 19:00**	98.99	1175.93	-24.08	-283.14		0.0	0.0	8	0	**0**	0.0	0.0	0.0
327	34	11	22	22	0.0010	0.0007	**Sat 15/01/11 20:00**	98.99	1176.04	-23.40	-275.14		0.0	0.0	8	0	**0**	0.0	0.0	0.0
328	33	11	21	22	0.0009	0.0007	**Sat 15/01/11 21:00**	98.99	1176.14	-22.74	-267.40		0.0	0.0	8	0	**0**	0.0	0.0	0.0
329	32	11	21	21	0.0009	0.0007	**Sat 15/01/11 22:00**	98.99	1176.24	-22.10	-259.91		0.0	0.0	8	0	**0**	0.0	0.0	0.0
330	32	10	20	21	0.0009	0.0006	**Sat 15/01/11 23:00**	98.99	1176.34	-21.48	-252.67		0.0	0.0	8	0	**0**	0.0	0.0	0.0
331	31	10	20	20	0.0009	0.0006	**Sun 16/01/11 00:00**	98.99	1176.43	-20.88	-245.64		0.0	0.0	8	0	**0**	0.0	0.0	0.0
332	30	10	19	20	0.0008	0.0006	**Sun 16/01/11 01:00**	99.00	1176.52	-20.30	-238.83		0.0	0.0	8	0	**0**	0.0	0.0	0.0
333	29	10	19	19	0.0008	0.0006	**Sun 16/01/11 02:00**	99.00	1176.61	-19.74	-232.24		0.0	0.0	8	0	**0**	0.0	0.0	0.0
334	28	9	19	19	0.0008	0.0005	**Sun 16/01/11 03:00**	99.00	1176.70	-19.19	-225.85		0.0	0.0	8	0	**0**	0.0	0.0	0.0
335	28	9	18	18	0.0008	0.0005	**Sun 16/01/11 04:00**	99.00	1176.78	-18.67	-219.66		0.0	0.0	8	0	**0**	0.0	0.0	0.0
336	27	9	18	18	0.0008	0.0005	**Sun 16/01/11 05:00**	99.00	1176.86	-18.16	-213.67		0.0	0.0	8	0	**0**	0.0	0.0	0.0
337	26	9	17	17	0.0007	0.0005	**Sun 16/01/11 06:00**	99.00	1176.94	-17.66	-207.86		0.0	0.0	8	0	**0**	0.0	0.0	0.0
338	25	8	17	17	0.0007	0.0004	**Sun 16/01/11 07:00**	99.00	1177.02	-17.18	-202.21		0.0	0.0	8	0	**0**	0.0	0.0	0.0
339	25	8	16	16	0.0007	0.0004	**Sun 16/01/11 08:00**	99.00	1177.10	-16.71	-196.74		0.0	0.0	8	0	**0**	0.0	0.0	0.0
340	24	8	16	16	0.0007	0.0004	**Sun 16/01/11 09:00**	99.00	1177.17	-16.26	-191.45		0.0	0.0	8	0	**0**	0.0	0.0	0.0
341	24	8	16	16	0.0007	0.0004	**Sun 16/01/11 10:00**	99.00	1177.24	-15.83	-186.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0
342	23	7	15	15	0.0006	0.0003	**Sun 16/01/11 11:00**	99.00	1177.31	-15.40	-181.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0
343	22	7	15	15	0.0006	0.0003	**Sun 16/01/11 12:00**	99.00	1177.38	-14.99	-176.47		0.0	0.0	8	0	**0**	0.0	0.0	0.0
344	22	7	15	14	0.0006	0.0003	**Sun 16/01/11 13:00**	99.00	1177.44	-14.59	-171.77		0.0	0.0	8	0	**0**	0.0	0.0	0.0
345	21	7	14	14	0.0006	0.0003	**Sun 16/01/11 14:00**	99.00	1177.51	-14.20	-167.21		0.0	0.0	8	0	**0**	0.0	0.0	0.0
346	21	7	14	14	0.0006	0.0003	**Sun 16/01/11 15:00**	99.01	1177.57	-13.82	-162.80		0.0	0.0	8	0	**0**	0.0	0.0	0.0
347	20	7	14	13	0.0006	0.0002	**Sun 16/01/11 16:00**	99.01	1177.63	-13.46	-158.49		0.0	0.0	8	0	**0**	0.0	0.0	0.0
348	20	6	13	13	0.0005	0.0002	**Sun 16/01/11 17:00**	99.01	1177.69	-13.10	-154.32		0.0	0.0	8	0	**0**	0.0	0.0	0.0
349	19	6	13	9	0.0005	0.0002	**Sun 16/01/11 18:00**	99.01	1177.75	-12.76	-150.27		0.0	0.0	8	0	**0**	0.0	0.0	0.0
350	19	6	13	9	0.0005	0.0002	**Sun 16/01/11 19:00**	99.01	1177.80	-12.42	-146.34		0.0	0.0	8	0	**0**	0.0	0.0	0.0
351	18	6	12	9	0.0005	0.0002	**Sun 16/01/11 20:00**	99.01	1177.86	-12.10	-142.52		0.0	0.0	8	0	**0**	0.0	0.0	0.0
352	18	6	12	9	0.0005	0.0002	**Sun 16/01/11 21:00**	99.01	1177.91	-11.78	-138.80		0.0	0.0	8	0	**0**	0.0	0.0	0.0
353	17	6	12	8	0.0005	0.0001	**Sun 16/01/11 22:00**	99.01	1177.96	-11.48	-135.18		0.0	0.0	8	0	**0**	0.0	0.0	0.0
354	17	5	12	8	0.0005	0.0001	**Sun 16/01/11 23:00**	99.01	1178.01	-11.18	-131.68		0.0	0.0	8	0	**0**	0.0	0.0	0.0
355	16	5	11	8	0.0005	0.0001	**Mon 17/01/11 00:00**	99.01	1178.06	-10.89	-128.28		0.0	0.0	8	0	**0**	0.0	0.0	0.0

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
320	0.0	0.0	4	13	0	0	194	0	0	207	67.063	-171.4	2964	-5082		232	255		265,478	515,522
321	0.0	0.0	3	13	0	0	147	0	0	160	67.057	-134.8	2963	-3993		184	206		265,527	515,667
322	0.0	0.0	3	13	0	0	147	0	0	160	67.053	-97.1	2962	-2877		183	205		265,574	515,809
323	0.0	0.0	2	13	0	0	98	0	0	111	67.049	-98.0	2961	-2902		134	155		265,619	515,947
324	0.0	0.0	1	13	0	0	49	0	0	62	67.046	-59.5	2961	-1763		84	105		265,664	516,081
325	0.0	0.0	0	13	0	0	0	0	0	13	67.046	-20.6	2960	-609		35	55		265,707	516,212
326	0.0	0.0	0	13	0	0	0	0	0	13	67.046	18.4	2960	546		34	54		265,749	516,339
327	0.0	0.0	0	13	0	0	0	0	0	13	67.047	17.6	2960	522		34	53		265,789	516,462
328	0.0	0.0	0	13	0	0	0	0	0	13	67.048	16.9	2960	500		33	53		265,829	516,582
329	0.0	0.0	0	13	0	0	0	0	0	13	67.048	16.1	2960	478		33	52		265,867	516,699
330	0.0	0.0	0	13	0	0	0	0	0	13	67.049	15.4	2961	456		32	51		265,905	516,813
331	0.0	0.0	0	13	0	0	0	0	0	13	67.050	14.7	2961	436		32	50		265,941	516,923
332	0.0	0.0	0	13	0	0	0	0	0	13	67.050	14.0	2961	415		31	49		265,976	517,031
333	0.0	0.0	0	13	0	0	0	0	0	13	67.051	13.4	2961	396		31	49		266,011	517,136
334	0.0	0.0	0	13	0	0	0	0	0	13	67.051	12.7	2961	377		30	48		266,044	517,238
335	0.0	0.0	0	13	0	0	0	0	0	13	67.052	12.1	2961	359		30	47		266,076	517,337
336	0.0	0.0	0	13	0	0	0	0	0	13	67.052	11.5	2961	341		29	47		266,108	517,434
337	0.0	0.0	0	13	0	0	0	0	0	13	67.053	10.9	2961	324		29	46		266,139	517,528
338	0.0	0.0	0	13	0	0	0	0	0	13	67.053	10.4	2961	307		28	45		266,169	517,619
339	0.0	0.0	0	13	0	0	0	0	0	13	67.054	9.8	2961	291		28	45		266,198	517,709
340	0.0	0.0	0	13	0	0	0	0	0	13	67.054	9.3	2961	275		28	44		266,226	517,795
341	0.0	0.0	0	13	0	0	0	0	0	13	67.054	8.8	2962	260		27	43		266,254	517,880
342	0.0	0.0	0	13	0	0	0	0	0	13	67.055	8.3	2962	245		27	43		266,281	517,962
343	0.0	0.0	0	13	0	0	0	0	0	13	67.055	7.8	2962	230		27	42		266,307	518,043
344	0.0	0.0	0	13	0	0	0	0	0	13	67.055	7.3	2962	216		26	42		266,332	518,121
345	0.0	0.0	0	13	0	0	0	0	0	13	67.056	6.8	2962	203		26	41		266,357	518,197
346	0.0	0.0	0	13	0	0	0	0	0	13	67.056	6.4	2962	189		26	41		266,381	518,271
347	0.0	0.0	0	13	0	0	0	0	0	13	67.056	6.0	2962	176		25	40		266,404	518,344
348	0.0	0.0	0	13	0	0	0	0	0	13	67.056	5.5	2962	164		25	40		266,427	518,414
349	0.0	0.0	0	13	0	0	0	0	0	13	67.057	5.1	2962	152		25	39		266,449	518,483
350	0.0	0.0	0	13	0	0	0	0	0	13	67.057	4.7	2962	140		24	39		266,471	518,550
351	0.0	0.0	0	13	0	0	0	0	0	13	67.057	4.3	2962	128		24	38		266,492	518,615
352	0.0	0.0	0	13	0	0	0	0	0	13	67.057	4.0	2962	117		24	38		266,513	518,678
353	0.0	0.0	0	13	0	0	0	0	0	13	67.057	3.6	2962	106		24	37		266,533	518,740
354	0.0	0.0	0	13	0	0	0	0	0	13	67.057	3.2	2962	96		23	37		266,552	518,801
355	0.0	0.0	0	13	0	0	0	0	0	13	67.058	2.9	2962	85		23	36		266,571	518,859

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	AO	AP	AQ	AR	AS	AT
320	785,074	781,000		269,552	791,698	
321	785,220	781,194		269,552	792,274	
322	785,362	781,383		269,552	792,849	
323	785,500	781,567		269,552	793,250	
324	785,634	781,745		269,552	793,473	
325	785,764	781,919		269,552	793,520	
326	785,891	782,087		269,552	793,567	
327	786,014	782,251		269,552	793,614	
328	786,135	782,411		269,552	793,661	
329	786,251	782,566		269,552	793,707	
330	786,365	782,717		269,552	793,754	
331	786,476	782,864		269,552	793,801	
332	786,583	783,007		269,552	793,848	
333	786,688	783,146		269,552	793,895	
334	786,790	783,282		269,552	793,941	
335	786,889	783,414		269,552	793,988	
336	786,986	783,542		269,552	794,035	
337	787,080	783,667		269,552	794,082	
338	787,172	783,788		269,552	794,129	
339	787,261	783,906		269,552	794,175	
340	787,348	784,022		269,552	794,222	
341	787,432	784,134		269,552	794,269	
342	787,515	784,243		269,552	794,316	
343	787,595	784,349		269,552	794,363	
344	787,673	784,453		269,552	794,409	
345	787,749	784,554		269,552	794,456	
346	787,823	784,652		269,552	794,503	
347	787,896	784,748		269,552	794,550	
348	787,966	784,841		269,552	794,597	
349	788,035	784,932		269,552	794,643	
350	788,102	785,021		269,552	794,690	
351	788,167	785,107		269,552	794,737	
352	788,231	785,191		269,552	794,784	
353	788,292	785,273		269,552	794,831	
354	788,353	785,353		269,552	794,877	
355	788,412	785,431		269,552	794,924	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
356	16	5	11	8	0.0004	0.0001	**Mon 17/01/11 01:00**	99.01	1178.11	-10.61	-124.96		0.0	0.0	8	0	**0**	0.0	0.0	0.0
357	16	5	11	8	0.0004	0.0001	**Mon 17/01/11 02:00**	99.01	1178.16	-10.33	-121.75		0.0	0.0	8	0	**0**	0.0	0.0	0.0
358	15	5	10	7	0.0004	0.0001	**Mon 17/01/11 03:00**	99.01	1178.20	-10.07	-118.63		0.0	0.0	8	0	**0**	0.0	0.0	0.0
359	15	5	10	7	0.0004	0.0001	**Mon 17/01/11 04:00**	99.01	1178.25	-9.81	-115.58		0.0	0.0	8	0	**0**	0.0	0.0	0.0
360	14	5	10	7	0.0004	0.0001	**Mon 17/01/11 05:00**	99.01	1178.29	-9.56	-112.62		0.0	0.0	8	0	**0**	0.0	0.0	0.0
361	14	5	10	7	0.0004	0.0000	**Mon 17/01/11 06:00**	99.01	1178.33	-9.31	-109.75		0.0	0.0	8	0	**0**	0.0	0.0	0.0
362	14	4	10	7	0.0004	0.0000	**Mon 17/01/11 07:00**	99.01	1178.37	-9.08	-106.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0
363	13	4	9	7	0.0004	0.0000	**Mon 17/01/11 08:00**	99.01	1178.41	-8.85	-104.24		0.0	0.0	8	0	**0**	0.0	0.0	0.0
364	13	4	9	6	0.0004	0.0000	**Mon 17/01/11 09:00**	99.01	1178.45	-8.62	-101.60		0.0	0.0	8	0	**0**	0.0	0.0	0.0
365	9	3	9	6	0.0003	-0.0001	**Mon 17/01/11 10:00**	99.01	1178.49	-7.04	-82.96		0.0	0.0	8	0	**0**	0.0	0.0	0.0
366	9	3	9	6	0.0002	-0.0001	**Mon 17/01/11 11:00**	99.01	1178.52	-5.50	-64.82		0.0	0.0	8	0	**0**	0.0	0.0	0.0
367	9	3	8	6	0.0002	-0.0001	**Mon 17/01/11 12:00**	99.01	1178.54	-5.36	-63.20		0.0	0.0	8	0	**0**	0.0	0.0	0.0
368	9	3	8	6	0.0002	-0.0001	**Mon 17/01/11 13:00**	99.01	1178.57	-5.23	-61.62		0.0	0.0	8	0	**0**	0.0	0.0	0.0
369	8	2	8	6	0.0002	-0.0002	**Mon 17/01/11 14:00**	99.01	1178.59	-5.10	-60.08		0.0	0.0	8	0	**0**	0.0	0.0	0.0
370	8	2	8	5	0.0002	-0.0002	**Mon 17/01/11 15:00**	99.01	1178.61	-4.97	-58.57		0.0	0.0	8	0	**0**	0.0	0.0	0.0
371	8	2	8	5	0.0002	-0.0002	**Mon 17/01/11 16:00**	99.01	1178.63	-4.85	-57.11		0.0	0.0	8	0	**0**	0.0	0.0	0.0
372	8	2	7	5	0.0002	-0.0002	**Mon 17/01/11 17:00**	99.01	1178.66	-4.72	-55.68		0.0	0.0	8	0	**0**	0.0	0.0	0.0
373	8	2	7	5	0.0002	-0.0002	**Mon 17/01/11 18:00**	99.02	1178.68	-4.61	-54.29		0.0	0.0	8	0	**0**	0.0	0.0	0.0
374	7	2	7	5	0.0002	-0.0002	**Mon 17/01/11 19:00**	99.02	1178.70	-4.49	-52.93		0.0	0.0	8	0	**0**	0.0	0.0	0.0
375	7	2	7	5	0.0002	-0.0002	**Mon 17/01/11 20:00**	99.02	1178.72	-4.38	-51.61		0.0	0.0	8	0	**0**	0.0	0.0	0.0
376	7	2	7	5	0.0002	-0.0002	**Mon 17/01/11 21:00**	99.02	1178.74	-4.27	-50.32		0.0	0.0	8	0	**0**	0.0	0.0	0.0
377	7	2	7	5	0.0002	-0.0002	**Mon 17/01/11 22:00**	99.02	1178.75	-4.16	-49.06		0.0	0.0	8	0	**0**	0.0	0.0	0.0
378	7	2	6	4	0.0002	-0.0002	**Mon 17/01/11 23:00**	99.02	1178.77	-4.06	-47.83		0.0	0.0	8	0	**0**	0.0	0.0	0.0
379	7	2	6	4	0.0002	-0.0002	**Tue 18/01/11 00:00**	99.02	1178.79	-3.96	-46.64		0.0	0.0	8	0	**0**	0.0	0.0	0.0
380	6	2	6	4	0.0002	-0.0002	**Tue 18/01/11 01:00**	99.02	1178.81	-3.86	-45.47		0.0	0.0	8	0	**0**	0.0	0.0	0.0
381	6	2	6	4	0.0002	-0.0002	**Tue 18/01/11 02:00**	99.02	1178.82	-3.76	-44.34		0.0	0.0	8	0	**0**	0.0	0.0	0.0
382	6	2	6	4	0.0002	-0.0002	**Tue 18/01/11 03:00**	99.02	1178.84	-3.67	-43.23		0.0	0.0	8	0	**0**	0.0	0.0	0.0
383	6	2	6	4	0.0001	-0.0002	**Tue 18/01/11 04:00**	99.02	1178.86	-3.58	-42.15		0.0	0.0	8	0	**0**	0.0	0.0	0.0
384	6	2	5	4	0.0001	-0.0002	**Tue 18/01/11 05:00**	99.02	1178.87	-3.49	-41.09		0.0	0.0	8	0	**0**	0.0	0.0	0.0
385	6	2	5	4	0.0001	-0.0002	**Tue 18/01/11 06:00**	99.02	1178.89	-3.40	-40.07		0.0	0.0	8	0	**0**	0.0	0.0	0.0
386	5	2	5	4	0.0001	-0.0003	**Tue 18/01/11 07:00**	99.02	1178.90	-3.31	-39.06		0.0	0.0	8	0	**0**	0.0	0.0	0.0
387	5	2	5	4	0.0001	-0.0003	**Tue 18/01/11 08:00**	99.02	1178.92	-3.23	-38.09		0.0	0.0	8	0	**0**	0.0	0.0	0.0
388	5	2	5	3	0.0001	-0.0003	**Tue 18/01/11 09:00**	99.02	1178.93	-3.15	-37.14		0.0	0.0	8	0	**0**	0.0	0.0	0.0
389	5	1	5	3	0.0001	-0.0003	**Tue 18/01/11 10:00**	99.02	1178.95	-3.07	-36.21		0.0	0.0	8	0	**0**	0.0	0.0	0.0
390	5	1	5	3	0.0001	-0.0003	**Tue 18/01/11 11:00**	99.02	1178.96	-2.99	-35.30		0.0	0.0	8	0	**0**	0.0	0.0	0.0
391	5	1	5	3	0.0001	-0.0003	**Tue 18/01/11 12:00**	99.02	1178.97	-2.92	-34.42		0.0	0.0	8	0	**0**	0.0	0.0	0.0

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	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
356	0.0	0.0	0	13	0	0	0	0	0	13	67.058	2.5	2962	75		23	36		266,590	518,917
357	0.0	0.0	0	13	0	0	0	0	0	13	67.058	2.2	2962	66		23	26		266,608	518,973
358	0.0	0.0	0	13	0	0	0	0	0	13	67.058	1.9	2962	56		23	26		266,625	519,027
359	0.0	0.0	0	13	0	0	0	0	0	13	67.058	1.6	2962	47		22	25		266,642	519,080
360	0.0	0.0	0	13	0	0	0	0	0	13	67.058	1.3	2962	38		22	25		266,659	519,132
361	0.0	0.0	0	13	0	0	0	0	0	13	67.058	1.0	2962	29		22	25		266,675	519,183
362	0.0	0.0	0	13	0	0	0	0	0	13	67.058	0.7	2962	21		22	24		266,691	519,232
363	0.0	0.0	0	13	0	0	0	0	0	13	67.058	0.4	2962	12		21	24		266,707	519,280
364	0.0	0.0	0	13	0	0	0	0	0	13	67.058	0.2	2962	6		21	24		266,722	519,327
365	0.0	0.0	0	13	0	0	0	0	0	13	67.058	-1.5	2962	-43		21	24		266,732	519,361
366	0.0	0.0	0	13	0	0	0	0	0	13	67.058	-3.1	2962	-92		21	23		266,741	519,393
367	0.0	0.0	0	13	0	0	0	0	0	13	67.058	-3.3	2962	-98		15	18		266,751	519,425
368	0.0	0.0	0	13	0	0	0	0	0	13	67.058	-3.5	2962	-103		15	17		266,760	519,456
369	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-3.7	2962	-108		15	17		266,769	519,486
370	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-3.8	2962	-114		15	17		266,777	519,515
371	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-4.0	2962	-119		15	17		266,786	519,544
372	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-4.2	2962	-123		15	17		266,794	519,572
373	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-4.3	2962	-128		15	17		266,802	519,599
374	0.0	0.0	0	13	0	0	0	0	0	13	67.057	-4.5	2962	-133		15	17		266,810	519,626
375	0.0	0.0	0	13	0	0	0	0	0	13	67.056	-4.6	2962	-137		15	17		266,817	519,652
376	0.0	0.0	0	13	0	0	0	0	0	13	67.056	-4.8	2962	-142		15	17		266,825	519,677
377	0.0	0.0	0	13	0	0	0	0	0	13	67.056	-4.9	2962	-146		15	17		266,832	519,701
378	0.0	0.0	0	13	0	0	0	0	0	13	67.056	-5.1	2962	-150		15	16		266,839	519,725
379	0.0	0.0	0	13	0	0	0	0	0	13	67.056	-5.2	2962	-154		15	16		266,846	519,749
380	0.0	0.0	0	13	0	0	0	0	0	13	67.055	-5.3	2962	-158		15	16		266,853	519,772
381	0.0	0.0	0	13	0	0	0	0	0	13	67.055	-5.5	2962	-162		14	16		266,859	519,794
382	0.0	0.0	0	13	0	0	0	0	0	13	67.055	-5.6	2962	-166		14	16		266,866	519,816
383	0.0	0.0	0	13	0	0	0	0	0	13	67.055	-5.7	2962	-169		14	16		266,872	519,837
384	0.0	0.0	0	13	0	0	0	0	0	13	67.054	-5.8	2962	-173		14	16		266,878	519,857
385	0.0	0.0	0	13	0	0	0	0	0	13	67.054	-6.0	2962	-176		14	16		266,884	519,877
386	0.0	0.0	0	13	0	0	0	0	0	13	67.054	-6.1	2962	-180		14	16		266,890	519,897
387	0.0	0.0	0	13	0	0	0	0	0	13	67.054	-6.2	2962	-183		14	16		266,896	519,916
388	0.0	0.0	0	13	0	0	0	0	0	13	67.053	-6.3	2961	-186		14	16		266,901	519,935
389	0.0	0.0	0	13	0	0	0	0	0	13	67.053	-6.4	2961	-189		14	16		266,906	519,953
390	0.0	0.0	0	13	0	0	0	0	0	13	67.053	-6.5	2961	-192		14	16		266,912	519,971
391	0.0	0.0	0	13	0	0	0	0	0	13	67.053	-6.6	2961	-195		14	15		266,917	519,988

RD5-1292

	AO	AP	AQ	AR	AS	AT
356	788,469	785,507		269,552	794,971	
357	788,525	785,580		269,552	795,018	
358	788,579	785,653		269,552	795,065	
359	788,633	785,723		269,552	795,111	
360	788,684	785,791		269,552	795,158	
361	788,735	785,858		269,552	795,205	
362	788,784	785,923		269,552	795,252	
363	788,832	785,987		269,552	795,299	
364	788,879	786,049		269,552	795,345	
365	788,913	786,092		269,552	795,392	
366	788,945	786,134		269,552	795,439	
367	788,977	786,175		269,552	795,486	
368	789,008	786,215		269,552	795,533	
369	789,038	786,254		269,552	795,579	
370	789,067	786,292		269,552	795,626	
371	789,096	786,330		269,552	795,673	
372	789,124	786,366		269,552	795,720	
373	789,151	786,401		269,552	795,767	
374	789,178	786,435		269,552	795,813	
375	789,204	786,469		269,552	795,860	
376	789,229	786,502		269,552	795,907	
377	789,254	786,534		269,552	795,954	
378	789,278	786,565		269,552	796,001	
379	789,301	786,595		269,552	796,047	
380	789,324	786,625		269,552	796,094	
381	789,346	786,653		269,552	796,141	
382	789,368	786,681		269,552	796,188	
383	789,389	786,709		269,552	796,235	
384	789,410	786,736		269,552	796,281	
385	789,430	786,762		269,552	796,328	
386	789,449	786,787		269,552	796,375	
387	789,468	786,812		269,552	796,422	
388	789,487	786,836		269,552	796,469	
389	789,505	786,859		269,552	796,515	
390	789,523	786,882		269,552	796,562	
391	789,540	786,905		269,552	796,609	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
392	5	1	4	3	0.0001	-0.0003	**Tue 18/01/11 13:00**	99.02	1178.98	-2.85	-33.56		0.0	0.0	8	0	**0**	0.0	0.0	0.0
393	5	1	4	3	0.0001	-0.0003	**Tue 18/01/11 14:00**	99.02	1179.00	-2.78	-32.72		0.0	0.0	8	0	**0**	0.0	0.0	0.0
394	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 15:00**	99.02	1179.01	-2.71	-31.90		0.0	0.0	8	0	**0**	0.0	0.0	0.0
395	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 16:00**	99.02	1179.02	-2.64	-31.10		0.0	0.0	8	0	**0**	0.0	0.0	0.0
396	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 17:00**	99.02	1179.03	-2.57	-30.33		0.0	0.0	8	0	**0**	0.0	0.0	0.0
397	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 18:00**	99.02	1179.04	-2.51	-29.57		0.0	0.0	8	0	**0**	0.0	0.0	0.0
398	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 19:00**	99.02	1179.06	-2.45	-28.83		0.0	0.0	8	0	**0**	0.0	0.0	0.0
399	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 20:00**	99.02	1179.07	-2.38	-28.11		0.0	0.0	8	0	**0**	0.0	0.0	0.0
400	4	1	4	3	0.0001	-0.0003	**Tue 18/01/11 21:00**	99.02	1179.08	-2.32	-27.41		0.0	0.0	8	0	**0**	0.0	0.0	0.0
401	4	1	4	2	0.0001	-0.0003	**Tue 18/01/11 22:00**	99.02	1179.09	-2.27	-26.72		0.0	0.0	8	0	**0**	0.0	0.0	0.0
402	4	1	3	2	0.0001	-0.0003	**Tue 18/01/11 23:00**	99.02	1179.10	-2.21	-26.05		0.0	0.0	8	0	**0**	0.0	0.0	0.0
403	4	1	3	2	0.0001	-0.0003	**Wed 19/01/11 00:00**	99.02	1179.11	-2.15	-25.40		0.0	0.0	8	0	**0**	0.0	0.0	0.0
404	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 01:00**	99.02	1179.12	-2.10	-24.77		0.0	0.0	8	0	**0**	0.0	0.0	0.0
405	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 02:00**	99.02	1179.13	-2.05	-24.15		0.0	0.0	8	0	**0**	0.0	0.0	0.0
406	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 03:00**	99.02	1179.13	-2.00	-23.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0
407	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 04:00**	99.02	1179.14	-1.95	-22.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0
408	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 05:00**	99.02	1179.15	-1.90	-22.38		0.0	0.0	8	0	**0**	0.0	0.0	0.0
409	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 06:00**	99.02	1179.16	-1.85	-21.82		0.0	0.0	8	0	**0**	0.0	0.0	0.0
410	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 07:00**	99.02	1179.17	-1.80	-21.28		0.0	0.0	8	0	**0**	0.0	0.0	0.0
411	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 08:00**	99.02	1179.18	-1.76	-20.74		0.0	0.0	8	0	**0**	0.0	0.0	0.0
412	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 09:00**	99.02	1179.18	-1.72	-20.23		0.0	0.0	8	0	**0**	0.0	0.0	0.0
413	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 10:00**	99.02	1179.19	-1.67	-19.72		0.0	0.0	8	0	**0**	0.0	0.0	0.0
414	3	1	3	2	0.0001	-0.0003	**Wed 19/01/11 11:00**	99.02	1179.20	-1.63	-19.23		0.0	0.0	8	0	**0**	0.0	0.0	0.0
415	3	1	2	2	0.0001	-0.0003	**Wed 19/01/11 12:00**	99.02	1179.21	-1.59	-18.75		0.0	0.0	8	0	**0**	0.0	0.0	0.0
416	3	1	2	2	0.0001	-0.0004	**Wed 19/01/11 13:00**	99.02	1179.21	-1.55	-18.28		0.0	0.0	8	0	**0**	0.0	0.0	0.0
417	2	1	2	2	0.0001	-0.0004	**Wed 19/01/11 14:00**	99.02	1179.22	-1.51	-17.82		0.0	0.0	8	0	**0**	0.0	0.0	0.0
418	2	1	2	2	0.0001	-0.0004	**Wed 19/01/11 15:00**	99.02	1179.23	-1.47	-17.37		0.0	0.0	8	0	**0**	0.0	0.0	0.0
419	2	1	2	2	0.0001	-0.0004	**Wed 19/01/11 16:00**	99.02	1179.23	-1.44	-16.94		0.0	0.0	8	0	**0**	0.0	0.0	0.0
420	2	1	2	2	0.0001	-0.0004	**Wed 19/01/11 17:00**	99.02	1179.24	-1.40	-16.52		0.0	0.0	8	0	**0**	0.0	0.0	0.0
421	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 18:00**	99.02	1179.24	-1.37	-16.10		0.0	0.0	8	0	**0**	0.0	0.0	0.0
422	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 19:00**	99.02	1179.25	-1.33	-15.70		0.0	0.0	8	0	**0**	0.0	0.0	0.0
423	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 20:00**	99.02	1179.26	-1.30	-15.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0
424	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 21:00**	99.02	1179.26	-1.27	-14.93		0.0	0.0	8	0	**0**	0.0	0.0	0.0
425	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 22:00**	99.02	1179.27	-1.23	-14.55		0.0	0.0	8	0	**0**	0.0	0.0	0.0
426	2	1	2	1	0.0001	-0.0004	**Wed 19/01/11 23:00**	99.02	1179.27	-1.20	-14.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0
427	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 00:00**	99.02	1179.28	-1.17	-13.83		0.0	0.0	8	0	**0**	0.0	0.0	0.0

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
392	0.0	0.0	**0**	13	0	0	0	0	0	13	67.052	-6.7	2961	-198		14	15		266,922	520,005
393	0.0	0.0	**0**	13	0	0	0	0	0	13	67.052	-6.8	2961	-201		14	15		266,927	520,021
394	0.0	0.0	**0**	13	0	0	0	0	0	13	67.052	-6.9	2961	-204		14	15		266,931	520,037
395	0.0	0.0	**0**	13	0	0	0	0	0	13	67.051	-7.0	2961	-207		14	15		266,936	520,053
396	0.0	0.0	**0**	13	0	0	0	0	0	13	67.051	-7.1	2961	-209		14	15		266,940	520,068
397	0.0	0.0	**0**	13	0	0	0	0	0	13	67.051	-7.2	2961	-212		14	15		266,945	520,083
398	0.0	0.0	**0**	13	0	0	0	0	0	13	67.050	-7.2	2961	-214		14	15		266,949	520,097
399	0.0	0.0	**0**	13	0	0	0	0	0	13	67.050	-7.3	2961	-217		14	15		266,953	520,111
400	0.0	0.0	**0**	13	0	0	0	0	0	13	67.050	-7.4	2961	-219		14	15		266,957	520,125
401	0.0	0.0	**0**	13	0	0	0	0	0	13	67.050	-7.5	2961	-221		14	15		266,961	520,139
402	0.0	0.0	**0**	13	0	0	0	0	0	13	67.049	-7.6	2961	-224		14	15		266,965	520,152
403	0.0	0.0	**0**	13	0	0	0	0	0	13	67.049	-7.6	2961	-226		14	15		266,969	520,164
404	0.0	0.0	**0**	13	0	0	0	0	0	13	67.049	-7.7	2961	-228		14	15		266,972	520,177
405	0.0	0.0	**0**	13	0	0	0	0	0	13	67.048	-7.8	2961	-230		14	15		266,976	520,189
406	0.0	0.0	**0**	13	0	0	0	0	0	13	67.048	-7.8	2961	-232		14	15		266,980	520,201
407	0.0	0.0	**0**	13	0	0	0	0	0	13	67.048	-7.9	2960	-234		14	15		266,983	520,212
408	0.0	0.0	**0**	13	0	0	0	0	0	13	67.047	-8.0	2960	-236		14	15		266,986	520,224
409	0.0	0.0	**0**	13	0	0	0	0	0	13	67.047	-8.0	2960	-238		14	15		266,989	520,234
410	0.0	0.0	**0**	13	0	0	0	0	0	13	67.047	-8.1	2960	-240		14	15		266,993	520,245
411	0.0	0.0	**0**	13	0	0	0	0	0	13	67.046	-8.2	2960	-242		14	15		266,996	520,256
412	0.0	0.0	**0**	13	0	0	0	0	0	13	67.046	-8.2	2960	-243		14	14		266,999	520,266
413	0.0	0.0	**0**	13	0	0	0	0	0	13	67.046	-8.3	2960	-245		14	14		267,002	520,276
414	0.0	0.0	**0**	13	0	0	0	0	0	13	67.045	-8.3	2960	-247		14	14		267,004	520,285
415	0.0	0.0	**0**	13	0	0	0	0	0	13	67.045	-8.4	2960	-248		14	14		267,007	520,295
416	0.0	0.0	**0**	13	0	0	0	0	0	13	67.045	-8.4	2960	-250		14	14		267,010	520,304
417	0.0	0.0	**0**	13	0	0	0	0	0	13	67.044	-8.5	2960	-252		14	14		267,013	520,313
418	0.0	0.0	**0**	13	0	0	0	0	0	13	67.044	-8.6	2960	-253		14	14		267,015	520,321
419	0.0	0.0	**0**	13	0	0	0	0	0	13	67.043	-8.6	2960	-255		14	14		267,018	520,330
420	0.0	0.0	**0**	13	0	0	0	0	0	13	67.043	-8.7	2960	-256		14	14		267,020	520,338
421	0.0	0.0	**0**	13	0	0	0	0	0	13	67.043	-8.7	2960	-257		14	14		267,023	520,346
422	0.0	0.0	**0**	13	0	0	0	0	0	13	67.042	-8.7	2960	-259		14	14		267,025	520,354
423	0.0	0.0	**0**	13	0	0	0	0	0	13	67.042	-8.8	2959	-260		14	14		267,027	520,362
424	0.0	0.0	**0**	13	0	0	0	0	0	13	67.042	-8.8	2959	-261		13	14		267,029	520,369
425	0.0	0.0	**0**	13	0	0	0	0	0	13	67.041	-8.9	2959	-263		13	14		267,031	520,377
426	0.0	0.0	**0**	13	0	0	0	0	0	13	67.041	-8.9	2959	-264		13	14		267,034	520,384
427	0.0	0.0	**0**	13	0	0	0	0	0	13	67.041	-9.0	2959	-265		13	14		267,036	520,391

RD5-1295

	AO	AP	AQ	AR	AS	AT
392	789,557	786,926		269,552	796,656	
393	789,573	786,948		269,552	796,703	
394	789,589	786,968		269,552	796,749	
395	789,605	786,989		269,552	796,796	
396	789,620	787,008		269,552	796,843	
397	789,635	787,028		269,552	796,890	
398	789,650	787,046		269,552	796,937	
399	789,664	787,065		269,552	796,983	
400	789,677	787,082		269,552	797,030	
401	789,691	787,100		269,552	797,077	
402	789,704	787,117		269,552	797,124	
403	789,717	787,133		269,552	797,171	
404	789,729	787,149		269,552	797,217	
405	789,741	787,165		269,552	797,264	
406	789,753	787,180		269,552	797,311	
407	789,765	787,195		269,552	797,358	
408	789,776	787,210		269,552	797,405	
409	789,787	787,224		269,552	797,451	
410	789,797	787,238		269,552	797,498	
411	789,808	787,251		269,552	797,545	
412	789,818	787,264		269,552	797,592	
413	789,828	787,277		269,552	797,639	
414	789,837	787,290		269,552	797,685	
415	789,847	787,302		269,552	797,732	
416	789,856	787,314		269,552	797,779	
417	789,865	787,325		269,552	797,826	
418	789,874	787,337		269,552	797,873	
419	789,882	787,348		269,552	797,919	
420	789,890	787,358		269,552	797,966	
421	789,899	787,369		269,552	798,013	
422	789,906	787,379		269,552	798,060	
423	789,914	787,389		269,552	798,107	
424	789,922	787,399		269,552	798,153	
425	789,929	787,408		269,552	798,200	
426	789,936	787,417		269,552	798,247	
427	789,943	787,426		269,552	798,294	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
428	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 01:00**	99.02	1179.28	-1.14	-13.49		0.0	0.0	8	0	**0**	0.0	0.0	0.0
429	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 02:00**	99.02	1179.29	-1.12	-13.15		0.0	0.0	8	0	**0**	0.0	0.0	0.0
430	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 03:00**	99.02	1179.29	-1.09	-12.82		0.0	0.0	8	0	**0**	0.0	0.0	0.0
431	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 04:00**	99.02	1179.30	-1.06	-12.50		0.0	0.0	8	0	0	0.0	0.0	0.0
432	2	1	2	1	0.0000	-0.0004	**Thu 20/01/11 05:00**	99.02	1179.30	-1.03	-12.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0
433	2	0	2	1	0.0000	-0.0004	**Thu 20/01/11 06:00**	99.02	1179.31	-1.01	-11.88		0.0	0.0	8	0	**0**	0.0	0.0	0.0
434	2	0	2	1	0.0000	-0.0004	**Thu 20/01/11 07:00**	99.02	1179.31	-0.98	-11.59		0.0	0.0	8	0	0	0.0	0.0	0.0
435	2	0	1	1	0.0000	-0.0004	**Thu 20/01/11 08:00**	99.02	1179.32	-0.96	-11.30		0.0	0.0	8	0	**0**	0.0	0.0	0.0
436	2	0	1	1	0.0000	-0.0004	**Thu 20/01/11 09:00**	99.02	1179.32	-0.93	-11.02		0.0	0.0	8	0	**0**	0.0	0.0	0.0
437	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 10:00**	99.02	1179.32	-0.91	-10.74		0.0	0.0	8	0	**0**	0.0	0.0	0.0
438	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 11:00**	99.02	1179.33	-0.89	-10.47		0.0	0.0	8	0	**0**	0.0	0.0	0.0
439	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 12:00**	99.02	1179.33	-0.87	-10.21		0.0	0.0	8	0	**0**	0.0	0.0	0.0
440	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 13:00**	99.02	1179.34	-0.84	-9.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0
441	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 14:00**	99.02	1179.34	-0.82	-9.71		0.0	0.0	8	0	**0**	0.0	0.0	0.0
442	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 15:00**	99.02	1179.34	-0.80	-9.46		0.0	0.0	8	0	**0**	0.0	0.0	0.0
443	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 16:00**	99.02	1179.35	-0.78	-9.23		0.0	0.0	8	0	**0**	0.0	0.0	0.0
444	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 17:00**	99.02	1179.35	-0.76	-9.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0
445	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 18:00**	99.02	1179.35	-0.74	-8.77		0.0	0.0	8	0	**0**	0.0	0.0	0.0
446	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 19:00**	99.02	1179.36	-0.73	-8.55		0.0	0.0	8	0	**0**	0.0	0.0	0.0
447	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 20:00**	99.02	1179.36	-0.71	-8.34		0.0	0.0	8	0	**0**	0.0	0.0	0.0
448	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 21:00**	99.02	1179.36	-0.69	-8.13		0.0	0.0	8	0	**0**	0.0	0.0	0.0
449	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 22:00**	99.02	1179.37	-0.67	-7.93		0.0	0.0	8	0	0	0.0	0.0	0.0
450	1	0	1	1	0.0000	-0.0004	**Thu 20/01/11 23:00**	99.02	1179.37	-0.66	-7.73		0.0	0.0	8	0	0	0.0	0.0	0.0
451	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 00:00**	99.02	1179.37	-0.64	-7.53		0.0	0.0	8	0	0	0.0	0.0	0.0
452	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 01:00**	99.02	1179.38	-0.62	-7.35		0.0	0.0	8	0	0	0.0	0.0	0.0
453	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 02:00**	99.02	1179.38	-0.61	-7.16		0.0	0.0	8	0	**0**	0.0	0.0	0.0
454	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 03:00**	99.02	1179.38	-0.59	-6.98		0.0	0.0	8	0	**0**	0.0	0.0	0.0
455	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 04:00**	99.02	1179.38	-0.58	-6.81		0.0	0.0	8	0	**0**	0.0	0.0	0.0
456	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 05:00**	99.02	1179.39	-0.56	-6.64		0.0	0.0	8	0	**0**	0.0	0.0	0.0
457	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 06:00**	99.02	1179.39	-0.55	-6.47		0.0	0.0	8	0	0	0.0	0.0	0.0
458	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 07:00**	99.02	1179.39	-0.54	-6.31		0.0	0.0	8	0	0	0.0	0.0	0.0
459	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 08:00**	99.02	1179.39	-0.52	-6.15		0.0	0.0	8	0	0	0.0	0.0	0.0
460	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 09:00**	99.02	1179.40	-0.51	-6.00		0.0	0.0	8	0	0	0.0	0.0	0.0
461	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 10:00**	99.02	1179.40	-0.50	-5.85		0.0	0.0	8	0	**0**	0.0	0.0	0.0
462	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 11:00**	99.02	1179.40	-0.48	-5.70		0.0	0.0	8	0	**0**	0.0	0.0	0.0
463	1	0	1	1	0.0000	-0.0004	**Fri 21/01/11 12:00**	99.02	1179.40	-0.47	-5.56		0.0	0.0	8	0	**0**	0.0	0.0	0.0

RD5-1297

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
428	0.0	0.0	0	13	0	0	0	0	0	13	67.040	-9.0	2959	-266		13	14		267,038	520,398
429	0.0	0.0	0	13	0	0	0	0	0	13	67.040	-9.0	2959	-267		13	14		267,040	520,404
430	0.0	0.0	0	13	0	0	0	0	0	13	67.039	-9.1	2959	-269		13	14		267,041	520,411
431	0.0	0.0	0	13	0	0	0	0	0	13	67.039	-9.1	2959	-270		13	14		267,043	520,417
432	0.0	0.0	0	13	0	0	0	0	0	13	67.039	-9.1	2959	-271		13	14		267,045	520,423
433	0.0	0.0	0	13	0	0	0	0	0	13	67.038	-9.2	2959	-272		13	14		267,047	520,429
434	0.0	0.0	0	13	0	0	0	0	0	13	67.038	-9.2	2959	-273		13	14		267,049	520,435
435	0.0	0.0	0	13	0	0	0	0	0	13	67.038	-9.3	2959	-274		13	14		267,050	520,440
436	0.0	0.0	0	13	0	0	0	0	0	13	67.037	-9.3	2959	-275		13	14		267,052	520,446
437	0.0	0.0	0	13	0	0	0	0	0	13	67.037	-9.3	2959	-276		13	14		267,053	520,451
438	0.0	0.0	0	13	0	0	0	0	0	13	67.036	-9.3	2958	-277		13	14		267,055	520,457
439	0.0	0.0	0	13	0	0	0	0	0	13	67.036	-9.4	2958	-277		13	14		267,057	520,462
440	0.0	0.0	0	13	0	0	0	0	0	13	67.036	-9.4	2958	-278		13	14		267,058	520,467
441	0.0	0.0	0	13	0	0	0	0	0	13	67.035	-9.4	2958	-279		13	14		267,059	520,472
442	0.0	0.0	0	13	0	0	0	0	0	13	67.035	-9.5	2958	-280		13	14		267,061	520,476
443	0.0	0.0	0	13	0	0	0	0	0	13	67.034	-9.5	2958	-281		13	14		267,062	520,481
444	0.0	0.0	0	13	0	0	0	0	0	13	67.034	-9.5	2958	-282		13	14		267,064	520,485
445	0.0	0.0	0	13	0	0	0	0	0	13	67.034	-9.5	2958	-282		13	14		267,065	520,490
446	0.0	0.0	0	13	0	0	0	0	0	13	67.033	-9.6	2958	-283		13	14		267,066	520,494
447	0.0	0.0	0	13	0	0	0	0	0	13	67.033	-9.6	2958	-284		13	14		267,067	520,498
448	0.0	0.0	0	13	0	0	0	0	0	13	67.032	-9.6	2958	-284		13	14		267,069	520,502
449	0.0	0.0	0	13	0	0	0	0	0	13	67.032	-9.6	2958	-285		13	14		267,070	520,506
450	0.0	0.0	0	13	0	0	0	0	0	13	67.032	-9.7	2958	-286		13	14		267,071	520,510
451	0.0	0.0	0	13	0	0	0	0	0	13	67.031	-9.7	2958	-286		13	14		267,072	520,514
452	0.0	0.0	0	13	0	0	0	0	0	13	67.031	-9.7	2957	-287		13	14		267,073	520,518
453	0.0	0.0	0	13	0	0	0	0	0	13	67.030	-9.7	2957	-288		13	14		267,074	520,521
454	0.0	0.0	0	13	0	0	0	0	0	13	67.030	-9.8	2957	-288		13	14		267,075	520,525
455	0.0	0.0	0	13	0	0	0	0	0	13	67.030	-9.8	2957	-289		13	13		267,076	520,528
456	0.0	0.0	0	13	0	0	0	0	0	13	67.029	-9.8	2957	-290		13	13		267,077	520,532
457	0.0	0.0	0	13	0	0	0	0	0	13	67.029	-9.8	2957	-290		13	13		267,078	520,535
458	0.0	0.0	0	13	0	0	0	0	0	13	67.028	-9.8	2957	-291		13	13		267,079	520,538
459	0.0	0.0	0	13	0	0	0	0	0	13	67.028	-9.8	2957	-291		13	13		267,080	520,541
460	0.0	0.0	0	13	0	0	0	0	0	13	67.028	-9.9	2957	-292		13	13		267,081	520,544
461	0.0	0.0	0	13	0	0	0	0	0	13	67.027	-9.9	2957	-292		13	13		267,082	520,547
462	0.0	0.0	0	13	0	0	0	0	0	13	67.027	-9.9	2957	-293		13	13		267,083	520,550
463	0.0	0.0	0	13	0	0	0	0	0	13	67.026	-9.9	2957	-293		13	13		267,083	520,553

RD5-1298

	AO	AP	AQ	AR	AS	AT
428	789,950	787,435		269,552	798,341	
429	789,956	787,444		269,552	798,387	
430	789,963	787,452		269,552	798,434	
431	789,969	787,460		269,552	798,481	
432	789,975	787,468		269,552	798,528	
433	789,981	787,476		269,552	798,575	
434	789,987	787,483		269,552	798,621	
435	789,993	787,491		269,552	798,668	
436	789,998	787,498		269,552	798,715	
437	790,004	787,505		269,552	798,762	
438	790,009	787,512		269,552	798,809	
439	790,014	787,518		269,552	798,855	
440	790,019	787,525		269,552	798,902	
441	790,024	787,531		269,552	798,949	
442	790,029	787,537		269,552	798,996	
443	790,033	787,543		269,552	799,043	
444	790,038	787,549		269,552	799,089	
445	790,042	787,555		269,552	799,136	
446	790,046	787,560		269,552	799,183	
447	790,051	787,566		269,552	799,230	
448	790,055	787,571		269,552	799,277	
449	790,059	787,576		269,552	799,323	
450	790,062	787,581		269,552	799,370	
451	790,066	787,586		269,552	799,417	
452	790,070	787,591		269,552	799,464	
453	790,074	787,595		269,552	799,511	
454	790,077	787,600		269,552	799,557	
455	790,080	787,604		269,552	799,604	
456	790,084	787,609		269,552	799,651	
457	790,087	787,613		269,552	799,698	
458	790,090	787,617		269,552	799,745	
459	790,093	787,621		269,552	799,791	
460	790,096	787,625		269,552	799,838	
461	790,099	787,629		269,552	799,885	
462	790,102	787,632		269,552	799,932	
463	790,105	787,636		269,552	799,979	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
464	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 13:00	99.02	1179.40	-0.46	-5.42		0.0	0.0	8	0	0	0.0	0.0	0.0
465	1	0	1	0	0.0000	-0.0004	Fri 21/01/11 14:00	99.02	1179.41	-0.45	-5.29		0.0	0.0	8	0	0	0.0	0.0	0.0
466	1	0	1	0	0.0000	-0.0004	Fri 21/01/11 15:00	99.02	1179.41	-0.44	-5.15		0.0	0.0	8	0	0	0.0	0.0	0.0
467	1	0	1	0	0.0000	-0.0004	Fri 21/01/11 16:00	99.02	1179.41	-0.43	-5.03		0.0	0.0	8	0	0	0.0	0.0	0.0
468	1	0	1	0	0.0000	-0.0004	Fri 21/01/11 17:00	99.02	1179.41	-0.42	-4.90		0.0	0.0	8	0	0	0.0	0.0	0.0
469	1	0	1	0	0.0000	-0.0004	Fri 21/01/11 18:00	99.02	1179.41	-0.41	-4.78		0.0	0.0	8	0	0	0.0	0.0	0.0
470	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 19:00	99.02	1179.42	-0.39	-4.66		0.0	0.0	8	0	0	0.0	0.0	0.0
471	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 20:00	99.02	1179.42	-0.39	-4.54		0.0	0.0	8	0	0	0.0	0.0	0.0
472	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 21:00	99.02	1179.42	-0.38	-4.43		0.0	0.0	8	0	0	0.0	0.0	0.0
473	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 22:00	99.02	1179.42	-0.37	-4.32		0.0	0.0	8	0	0	0.0	0.0	0.0
474	1	0	1	1	0.0000	-0.0004	Fri 21/01/11 23:00	99.02	1179.42	-0.36	-4.21		0.0	0.0	8	0	0	0.0	0.0	0.0
475	1	0	1	1	0.0000	-0.0004	Sat 22/01/11 00:00	99.02	1179.42	-0.35	-4.10		0.0	0.0	8	0	0	0.0	0.0	0.0
476	1	0	1	1	0.0000	-0.0004	Sat 22/01/11 01:00	99.02	1179.43	-0.34	-4.00		0.0	0.0	8	0	0	0.0	0.0	0.0
477	1	0	1	1	0.0000	-0.0004	Sat 22/01/11 02:00	99.02	1179.43	-0.33	-3.90		0.0	0.0	8	0	0	0.0	0.0	0.0
478	1	0	1	1	0.0000	-0.0004	Sat 22/01/11 03:00	99.02	1179.43	-0.32	-3.80		0.0	0.0	8	0	0	0.0	0.0	0.0
479	1	0	0	1	0.0000	-0.0004	Sat 22/01/11 04:00	99.02	1179.43	-0.31	-3.71		0.0	0.0	8	0	0	0.0	0.0	0.0
480	1	0	0	1	0.0000	-0.0004	Sat 22/01/11 05:00	99.02	1179.43	-0.31	-3.62		0.0	0.0	8	0	0	0.0	0.0	0.0
481	0	0	0	1	0.0000	-0.0004	Sat 22/01/11 06:00	99.02	1179.43	-0.30	-3.53		0.0	0.0	8	0	0	0.0	0.0	0.0
482	0	0	0	1	0.0000	-0.0004	Sat 22/01/11 07:00	99.02	1179.43	-0.29	-3.44		0.0	0.0	8	0	0	0.0	0.0	0.0
483	0	0	0	1	0.0000	-0.0004	Sat 22/01/11 08:00	99.02	1179.43	-0.28	-3.35		0.0	0.0	8	0	0	0.0	0.0	0.0
484	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 09:00	99.02	1179.44	-0.28	-3.27		0.0	0.0	8	0	0	0.0	0.0	0.0
485	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 10:00	99.02	1179.44	-0.14	-1.61		0.0	0.0	8	0	0	0.0	0.0	0.0
486	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 11:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
487	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 12:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
488	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 13:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
489	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 14:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
490	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 15:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
491	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 16:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
492	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 17:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
493	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 18:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
494	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 19:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
495	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 20:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
496	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 21:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
497	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 22:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
498	0	0	1	1	0.0000	-0.0004	Sat 22/01/11 23:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0
499	0	0	1	1	0.0000	-0.0004	Sun 23/01/11 00:00	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0

RD5-1300

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
464	0.0	0.0	0	13	0	0	0	0	0	13	67.026	-9.9	2957	-294		13	13		267,084	520,555
465	0.0	0.0	0	13	0	0	0	0	0	13	67.025	-9.9	2956	-294		13	13		267,085	520,558
466	0.0	0.0	0	13	0	0	0	0	0	13	67.025	-10.0	2956	-295		13	13		267,086	520,561
467	0.0	0.0	0	13	0	0	0	0	0	13	67.025	-10.0	2956	-295		13	13		267,087	520,563
468	0.0	0.0	0	13	0	0	0	0	0	13	67.024	-10.0	2956	-295		13	13		267,087	520,566
469	0.0	0.0	0	13	0	0	0	0	0	13	67.024	-10.0	2956	-296		13	13		267,088	520,568
470	0.0	0.0	0	13	0	0	0	0	0	13	67.023	-10.0	2956	-296		13	13		267,089	520,570
471	0.0	0.0	0	13	0	0	0	0	0	13	67.023	-10.0	2956	-297		13	13		267,089	520,573
472	0.0	0.0	0	13	0	0	0	0	0	13	67.023	-10.0	2956	-297		13	13		267,090	520,575
473	0.0	0.0	0	13	0	0	0	0	0	13	67.022	-10.1	2956	-297		13	13		267,091	520,577
474	0.0	0.0	0	13	0	0	0	0	0	13	67.022	-10.1	2956	-298		13	13		267,091	520,579
475	0.0	0.0	0	13	0	0	0	0	0	13	67.021	-10.1	2956	-298		13	13		267,092	520,581
476	0.0	0.0	0	13	0	0	0	0	0	13	67.021	-10.1	2956	-298		13	13		267,092	520,583
477	0.0	0.0	0	13	0	0	0	0	0	13	67.020	-10.1	2956	-299		13	13		267,093	520,585
478	0.0	0.0	0	13	0	0	0	0	0	13	67.020	-10.1	2955	-299		13	13		267,094	520,587
479	0.0	0.0	0	13	0	0	0	0	0	13	67.020	-10.1	2955	-299		13	13		267,094	520,589
480	0.0	0.0	0	13	0	0	0	0	0	13	67.019	-10.1	2955	-300		13	13		267,095	520,591
481	0.0	0.0	0	13	0	0	0	0	0	13	67.019	-10.2	2955	-300		13	13		267,095	520,593
482	0.0	0.0	0	13	0	0	0	0	0	13	67.018	-10.2	2955	-300		13	13		267,096	520,594
483	0.0	0.0	0	13	0	0	0	0	0	13	67.018	-10.2	2955	-301		13	13		267,096	520,596
484	0.0	0.0	0	13	0	0	0	0	0	13	67.017	-10.2	2955	-301		13	13		267,097	520,598
485	0.0	0.0	0	13	0	0	0	0	0	13	67.017	-10.4	2955	-307		13	13		267,097	520,598
486	0.0	0.0	0	13	0	0	0	0	0	13	67.017	-10.6	2955	-312		13	13		267,097	520,598
487	0.0	0.0	0	13	0	0	0	0	0	13	67.016	-10.6	2955	-312		13	13		267,097	520,598
488	0.0	0.0	0	13	0	0	0	0	0	13	67.016	-10.6	2955	-312		13	13		267,097	520,598
489	0.0	0.0	0	13	0	0	0	0	0	13	67.015	-10.6	2955	-312		13	13		267,097	520,598
490	0.0	0.0	0	13	0	0	0	0	0	13	67.015	-10.6	2955	-312		13	13		267,097	520,598
491	0.0	0.0	0	13	0	0	0	0	0	13	67.014	-10.6	2954	-312		13	13		267,097	520,598
492	0.0	0.0	0	13	0	0	0	0	0	13	67.014	-10.6	2954	-312		13	13		267,097	520,598
493	0.0	0.0	0	13	0	0	0	0	0	13	67.014	-10.6	2954	-312		13	13		267,097	520,598
494	0.0	0.0	0	13	0	0	0	0	0	13	67.013	-10.6	2954	-312		13	13		267,097	520,598
495	0.0	0.0	0	13	0	0	0	0	0	13	67.013	-10.6	2954	-312		13	13		267,097	520,598
496	0.0	0.0	0	13	0	0	0	0	0	13	67.012	-10.6	2954	-312		13	13		267,097	520,598
497	0.0	0.0	0	13	0	0	0	0	0	13	67.012	-10.6	2954	-312		13	13		267,097	520,598
498	0.0	0.0	0	13	0	0	0	0	0	13	67.011	-10.6	2954	-312		13	13		267,097	520,598
499	0.0	0.0	0	13	0	0	0	0	0	13	67.011	-10.6	2954	-312		13	13		267,097	520,598

RD5-1301

	AO	AP	AQ	AR	AS	AT
464	790,108	787,640		269,552	800,025	
465	790,110	787,643		269,552	800,072	
466	790,113	787,646		269,552	800,119	
467	790,115	787,650		269,552	800,166	
468	790,118	787,653		269,552	800,213	
469	790,120	787,656		269,552	800,259	
470	790,123	787,659		269,552	800,306	
471	790,125	787,662		269,552	800,353	
472	790,127	787,665		269,552	800,400	
473	790,129	787,668		269,552	800,447	
474	790,131	787,670		269,552	800,493	
475	790,133	787,673		269,552	800,540	
476	790,135	787,676		269,552	800,587	
477	790,137	787,678		269,552	800,634	
478	790,139	787,681		269,552	800,681	
479	790,141	787,683		269,552	800,727	
480	790,143	787,685		269,552	800,774	
481	790,145	787,688		269,552	800,821	
482	790,146	787,690		269,552	800,868	
483	790,148	787,692		269,552	800,915	
484	790,150	787,694		269,552	800,961	
485	790,150	787,694		269,552	801,008	
486	790,150	787,694		269,552	801,055	
487	790,150	787,694		269,552	801,102	
488	790,150	787,694		269,552	801,149	
489	790,150	787,694		269,552	801,195	
490	790,150	787,694		269,552	801,242	
491	790,150	787,694		269,552	801,289	
492	790,150	787,694		269,552	801,336	
493	790,150	787,694		269,552	801,383	
494	790,150	787,694		269,552	801,429	
495	790,150	787,694		269,552	801,476	
496	790,150	787,694		269,552	801,523	
497	790,150	787,694		269,552	801,570	
498	790,150	787,694		269,552	801,617	
499	790,150	787,694		269,552	801,663	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
500	0	0	1	1	0.0000	-0.0004	**Sun 23/01/11 01:00**	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0
501	0	0	1	1	0.0000	-0.0004	**Sun 23/01/11 02:00**	99.02	1179.44	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0
502																				
503																				

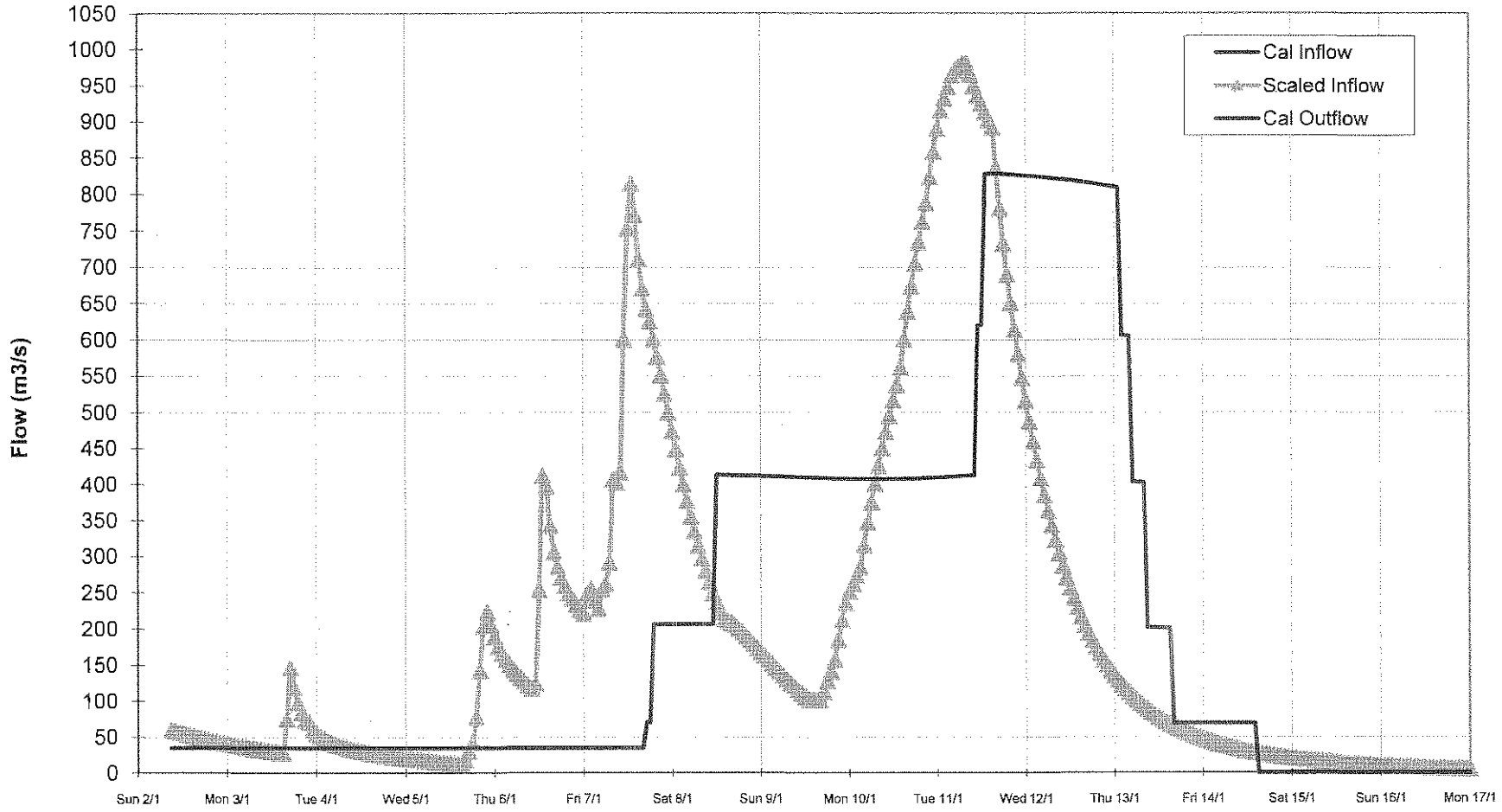
RD5-1303

	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
500	0.0	0.0	**0**	13	0	0	0	0	0	13	67.010	-10.6	2954	-312		13	13		267,097	520,598
501	0.0	0.0	**0**	13	0	0	0	0	0	13	67.010	-10.6	2954	-312		13	13		267,097	520,598
502																				
503																				

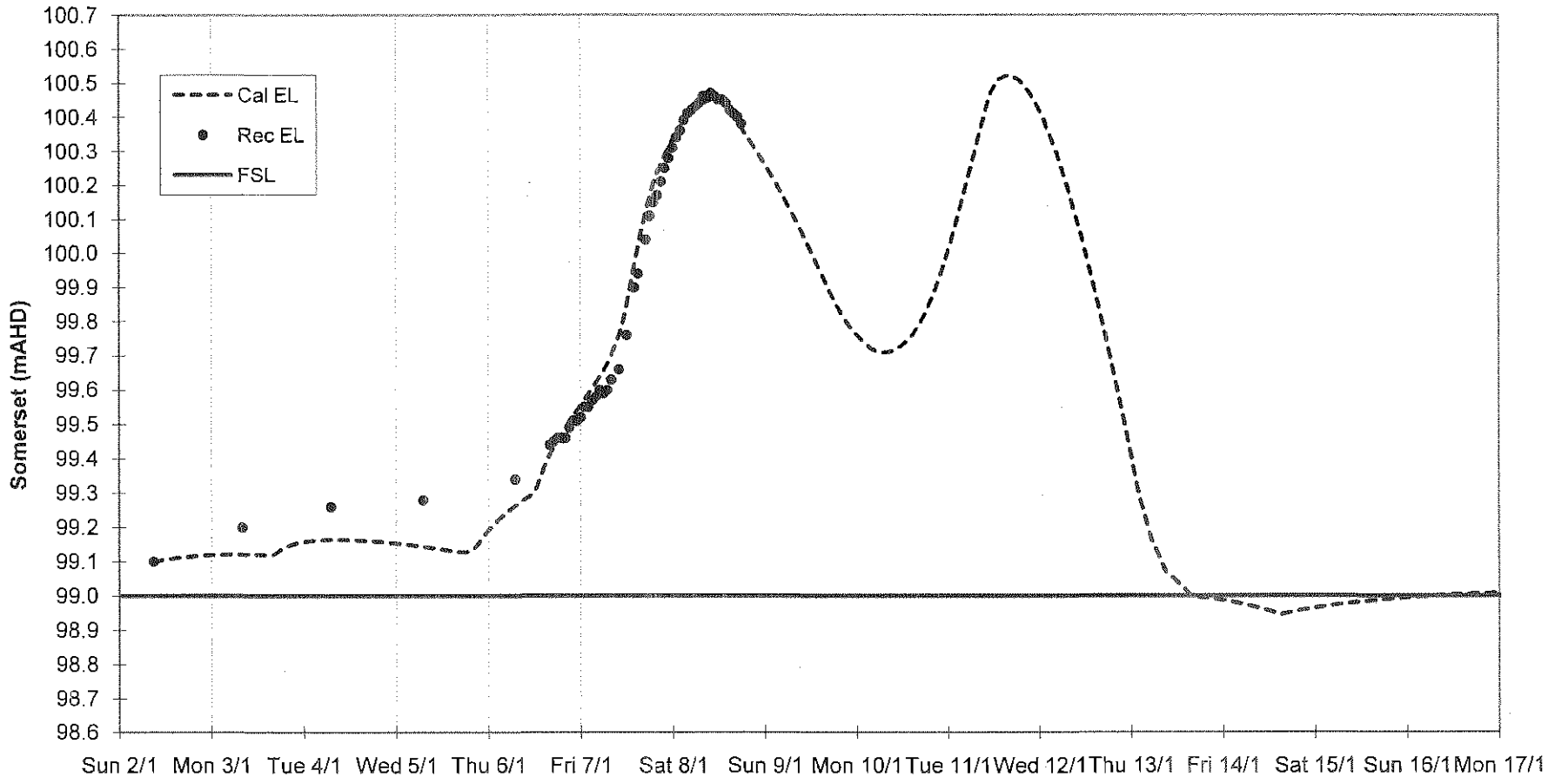
RD5-1304

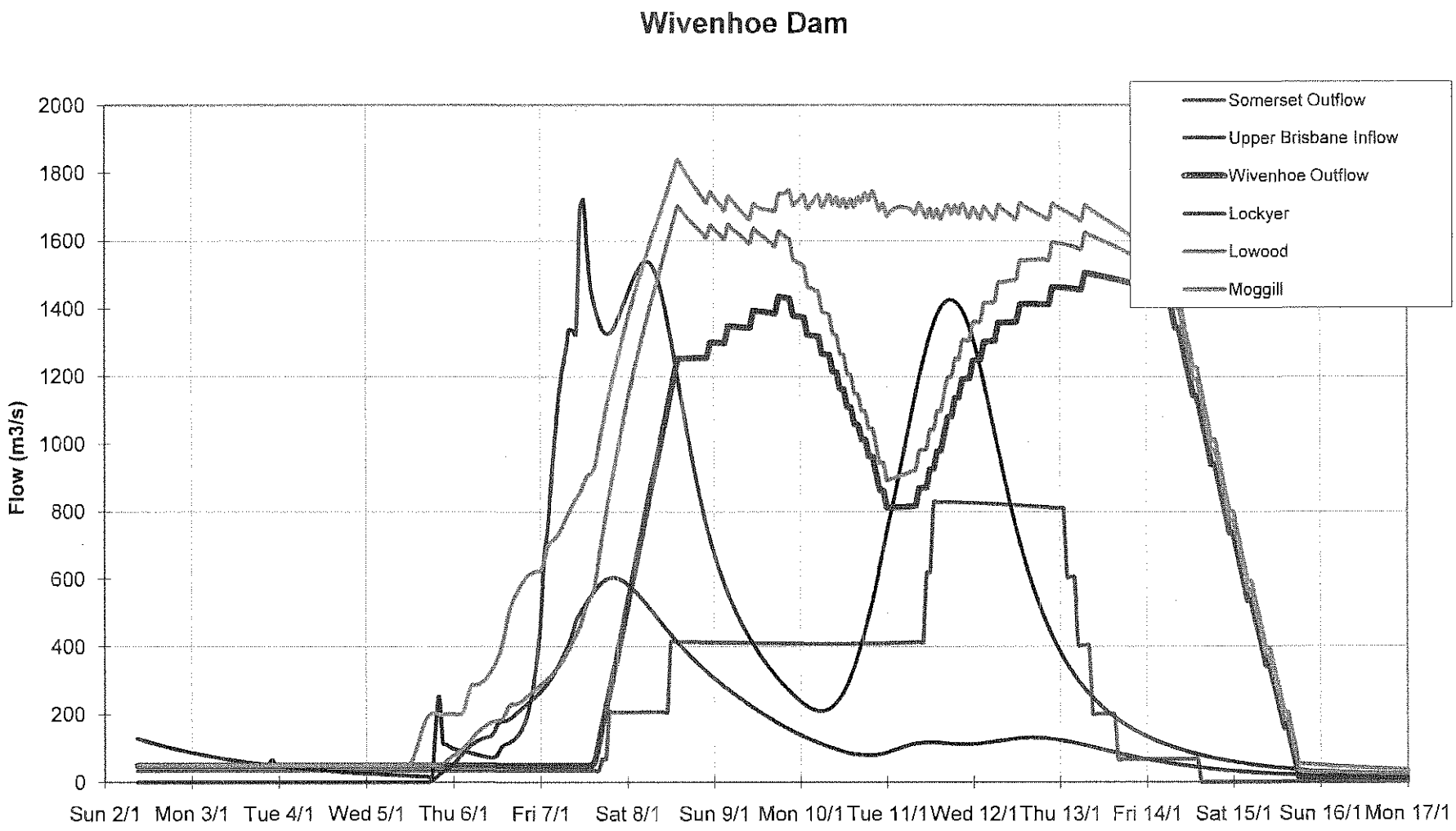
	AO	AP	AQ	AR	AS	AT
500	790,150	787,694		269,552	801,710	
501	790,150	787,694		269,552	801,757	
502						
503						

Somerset Dam

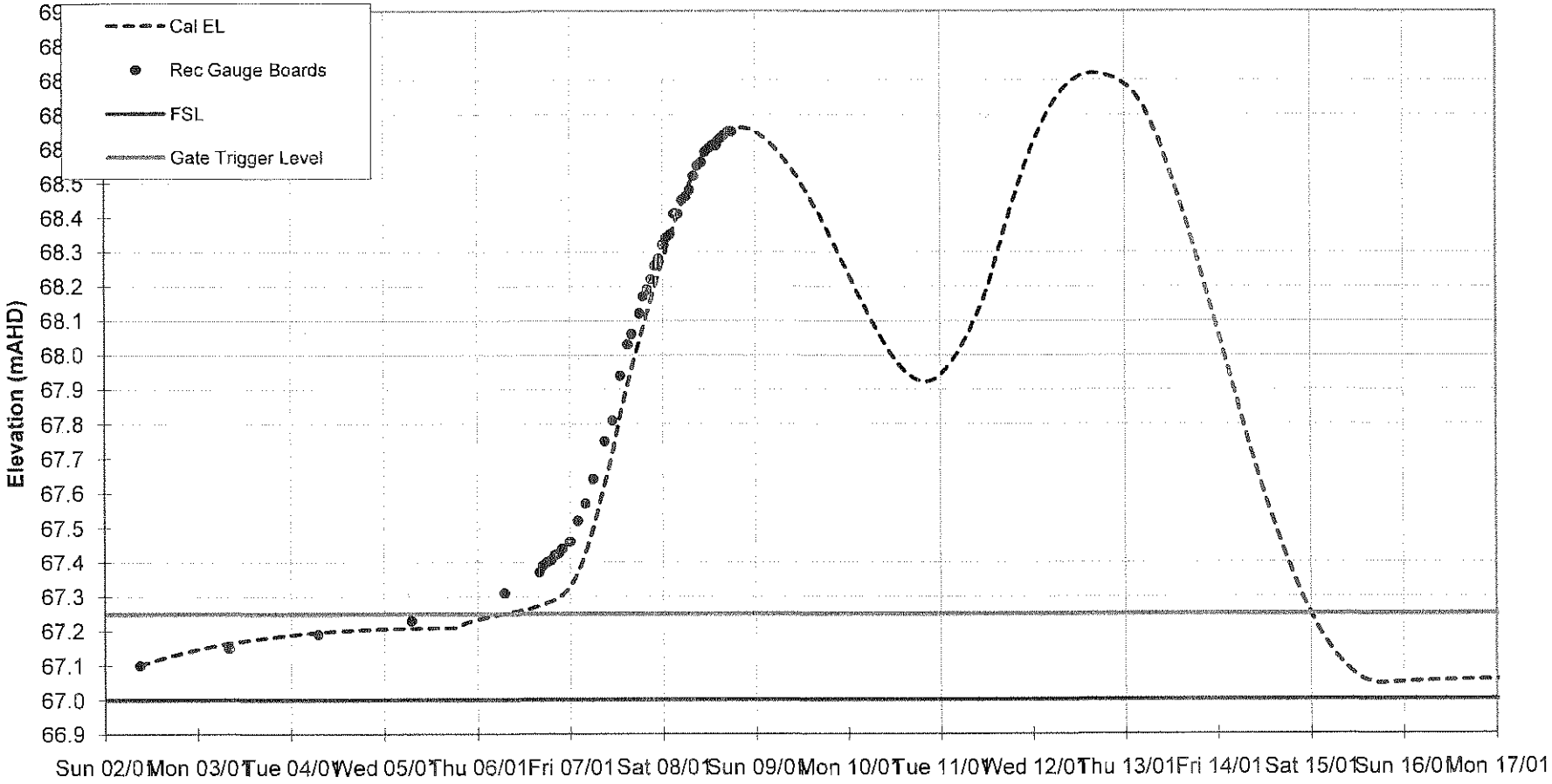


Somerset Dam



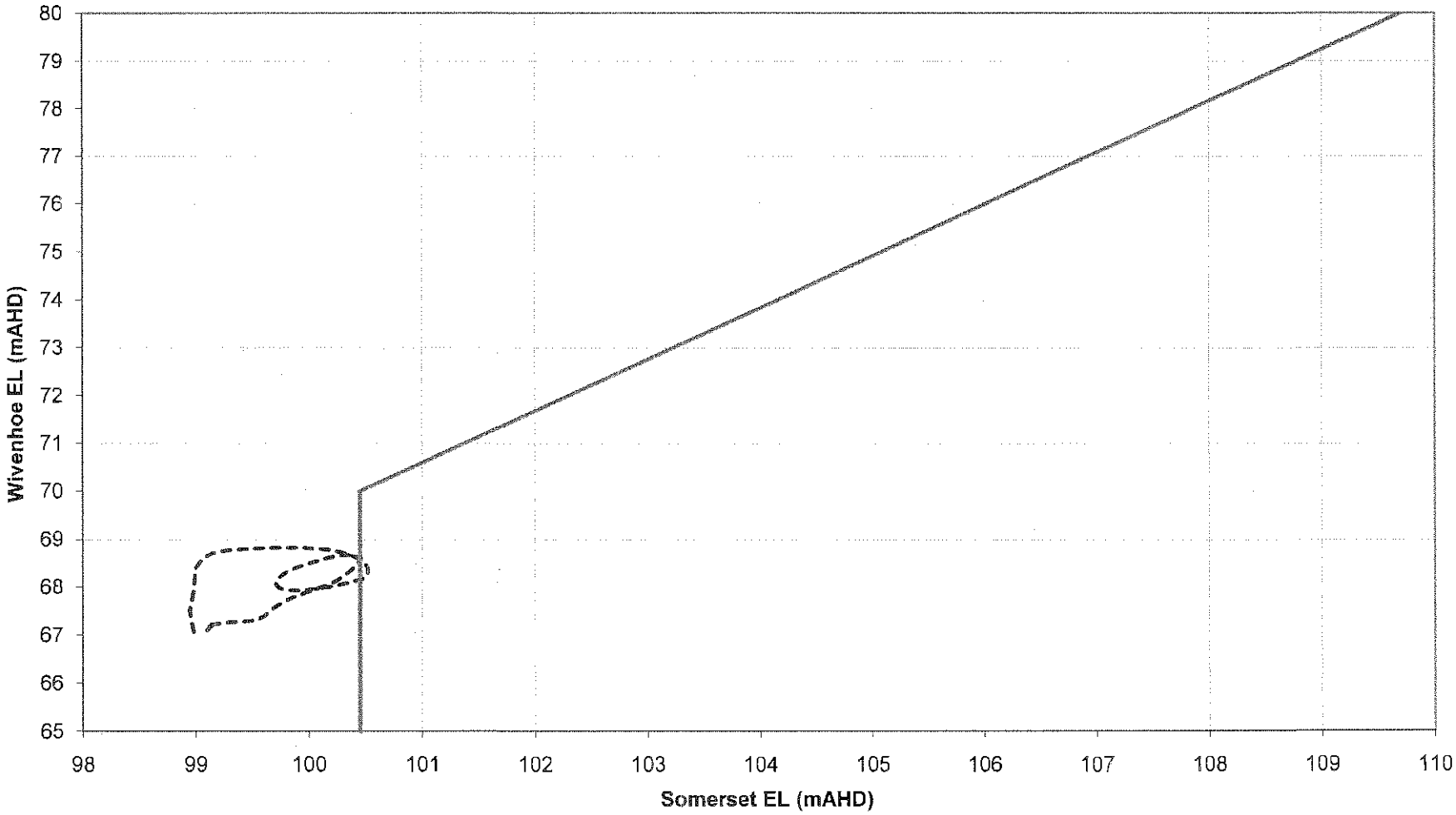

Wivenhoe Dam
Flow (m3/s)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Sun 2/1
Mon 3/1
Tue 4/1
Wed 5/1
Thu 6/1
Fri 7/1
Sat 8/1
Sun 9/1
Mon 10/1
Tue 11/1
Wed 12/1
Thu 13/1
Fri 14/1
Sat 15/1
Sun 16/1
Mon 17/1
Somerset Outflow
Upper Brisbane Inflow
Wivenhoe Outflow
Lockyer
Lowood
Moggill

Wivenhoe Dam



RD5-1309

Interaction Diagram



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	WIVENHOE RATING				Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0	38	76	113	149	183	215	246	275	302	327	333	333	333	333	333	333	333
5	63.2	0	39	78	115	151	186	219	250	280	308	335	351	351	351	351	351	351	351
6	63.4	0	40	79	117	154	189	223	255	286	315	342	368	370	370	370	370	370	370
7	63.6	0	40	80	119	156	192	227	260	291	321	349	376	389	389	389	389	389	389
8	63.8	0	41	81	121	159	195	231	264	297	327	356	384	408	408	408	408	408	408
9	64.0	0	41	82	122	161	199	235	269	302	333	363	391	418	428	428	428	428	428
10	64.2	0	42	83	124	164	202	238	273	307	339	370	399	426	448	448	448	448	448
11	64.4	0	42	85	126	166	205	242	278	312	345	376	406	435	462	469	469	469	469
12	64.6	0	43	86	127	168	208	246	282	317	350	383	413	443	471	489	489	489	489
13	64.8	0	44	87	129	170	210	249	286	322	356	389	420	451	480	508	511	511	511
14	65.0	0	44	88	131	173	213	253	290	327	362	395	427	458	488	517	532	532	532
15	65.2	0	45	89	132	175	216	256	294	331	367	401	434	466	497	526	554	554	554
16	65.4	0	45	90	134	177	219	259	298	336	372	407	441	474	505	535	565	576	576
17	65.6	0	46	91	136	179	222	263	302	341	378	413	448	481	513	544	575	599	599
18	65.8	0	46	92	137	181	224	266	306	345	383	419	454	488	521	553	584	615	622
19	66.0	0	47	93	139	184	227	269	310	350	388	425	461	495	529	562	594	625	645
20	66.2	0	47	94	140	186	230	273	314	354	393	431	467	503	537	570	603	635	667
21	66.4	0	48	95	142	188	232	276	318	359	398	436	473	510	545	579	612	645	678
22	66.6	0	48	96	143	190	235	279	322	363	403	442	480	516	552	587	621	655	689
23	66.8	0	49	97	145	192	238	282	325	367	408	447	486	523	560	595	630	665	699
24	67.0	0	49	98	146	194	240	285	329	372	413	453	492	530	567	603	639	675	709
25	67.2	0	49	99	148	196	243	288	333	376	418	458	498	537	574	611	648	684	720
26	67.4	0	50	100	149	198	245	291	336	380	422	464	504	543	582	619	657	693	730
27	67.6	0	50	101	151	200	248	294	340	384	427	469	510	550	589	627	665	702	740
28	67.8	0	51	102	152	202	250	297	343	388	432	474	515	556	596	635	673	712	750
29	68.0	0	51	103	154	204	253	300	347	392	436	479	521	562	603	642	682	721	759
30	68.2	0	52	104	155	206	255	303	350	396	441	484	527	569	610	650	690	729	769
31	68.4	0	52	105	156	207	257	306	354	400	445	489	532	575	616	657	698	738	778
32	68.6	0	53	105	158	209	260	309	357	404	450	494	538	581	623	665	706	747	788
33	68.8	0	53	106	159	211	262	312	360	408	454	499	543	587	630	672	714	755	797
34	69.0	0	54	107	160	213	264	315	364	412	458	504	549	593	636	679	722	764	806
35	69.2	0	54	108	162	215	267	317	367	415	463	509	554	599	643	686	729	772	815
36	69.4	0	54	109	163	217	269	320	370	419	467	514	560	605	649	693	737	780	824

RD5-1311

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																		
2	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
5	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351
6	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
7	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
8	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408
9	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428
10	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448
11	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469
12	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
13	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511
14	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532
15	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
16	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576
17	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599
18	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622
19	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645
20	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668
21	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692
22	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716
23	733	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740
24	744	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765
25	755	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
26	766	802	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815
27	777	814	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
28	787	825	863	867	867	867	867	867	867	867	867	867	867	867	867	867	867	867
29	798	837	876	893	893	893	893	893	893	893	893	893	893	893	893	893	893	893
30	808	848	888	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919
31	818	859	899	940	946	946	946	946	946	946	946	946	946	946	946	946	946	946
32	829	870	911	953	973	973	973	973	973	973	973	973	973	973	973	973	973	973
33	838	880	923	965	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34	848	891	934	977	1022	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028
35	858	901	945	989	1035	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056
36	868	912	956	1001	1047	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
37	69.6	0	55	110	164	218	271	323	373	423	471	518	565	611	656	700	744	789	833
38	69.8	0	55	111	166	220	273	326	377	427	475	523	570	616	662	707	752	797	842
39	70.0	0	56	112	167	222	276	328	380	430	479	528	575	622	668	714	759	805	850
40	70.2	0	56	112	168	224	278	331	383	434	484	532	580	628	674	721	767	813	859
41	70.4	0	56	113	170	225	280	334	386	437	488	537	586	633	680	727	774	821	867
42	70.6	0	57	114	171	227	282	336	389	441	492	542	591	639	687	734	781	828	876
43	70.8	0	57	115	172	229	284	339	392	445	496	546	596	644	693	741	788	836	884
44	71.0	0	58	116	173	230	286	341	395	448	500	551	601	650	699	747	795	844	892
45	71.2	0	58	117	175	232	289	344	398	452	504	555	605	655	705	754	802	851	900
46	71.4	0	58	117	176	234	291	347	401	455	508	559	610	661	710	760	809	859	908
47	71.6	0	59	118	177	235	293	349	404	458	512	564	615	666	716	766	816	866	916
48	71.8	0	59	119	178	237	295	352	407	462	515	568	620	671	722	773	823	874	924
49	72.0	0	60	120	180	239	297	354	410	465	519	572	625	676	728	779	830	881	932
50	72.2	0	60	121	181	240	299	357	413	469	523	577	629	682	733	785	837	888	940
51	72.4	0	60	121	182	242	301	359	416	472	527	581	634	687	739	791	843	895	948
52	72.6	0	61	122	183	243	303	361	419	475	531	585	639	692	745	797	850	903	956
53	72.8	0	61	123	184	245	305	364	422	478	534	589	643	697	750	803	856	910	963
54	73.0	0	62	124	185	247	307	366	425	482	538	593	648	702	756	809	863	917	971
55	73.2	2	62	124	187	248	309	369	427	485	542	597	653	707	761	815	869	924	978
56	73.4	6	62	125	188	250	311	371	430	488	545	602	657	712	767	821	876	931	986
57	73.6	11	64	126	189	251	313	373	433	491	549	606	662	717	772	827	882	937	993
58	73.8	17	69	127	190	253	315	376	436	495	553	610	666	722	778	833	888	944	1001
59	74.0	23	74	129	191	254	317	378	438	498	556	614	671	727	783	839	895	951	1008
60	74.2	31	80	133	192	256	319	380	441	501	560	618	675	732	788	845	901	958	1015
61	74.4	39	87	139	195	257	321	383	444	504	563	622	679	737	793	850	907	964	1022
62	74.6	47	94	145	200	259	322	385	447	507	567	626	684	741	799	856	913	971	1029
63	74.8	56	103	153	206	262	324	387	449	510	570	629	688	746	804	862	919	978	1036
64	75.0	66	112	161	213	267	326	390	452	513	574	633	692	751	809	867	926	984	1044
65	75.2	76	121	169	220	274	330	392	455	516	577	637	697	756	814	873	932	991	1051
66	75.4	87	131	178	229	281	336	394	457	519	581	641	701	760	819	878	938	997	1057
67	75.6	98	141	188	237	289	343	399	460	522	584	645	705	765	824	884	944	1004	1064
68	75.8	109	152	198	247	298	350	405	463	525	587	649	709	769	829	889	949	1010	1071
69	76.0	121	164	209	257	307	359	412	468	528	591	652	713	774	834	895	955	1016	1078
70	76.2	133	175	220	268	317	368	421	475	532	594	656	718	779	839	900	961	1023	1085
71	76.4	146	187	232	279	327	378	429	483	539	597	660	722	783	844	906	967	1029	1092
72	76.6	159	200	244	290	338	388	439	492	546	603	664	726	788	849	911	973	1035	1098

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	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	877	922	967	1013	1060	1107	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112
38	887	932	978	1025	1072	1121	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141
39	896	942	989	1036	1085	1134	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170
40	905	952	1000	1048	1097	1147	1198	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199
41	914	962	1010	1059	1109	1160	1212	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229
42	923	972	1020	1070	1121	1173	1226	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258
43	932	981	1031	1081	1133	1185	1239	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289
44	941	991	1041	1092	1144	1198	1252	1309	1319	1319	1319	1319	1319	1319	1319	1319	1319	1319
45	950	1000	1051	1103	1156	1210	1266	1323	1349	1349	1349	1349	1349	1349	1349	1349	1349	1349
46	959	1009	1061	1114	1167	1222	1279	1337	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380
47	967	1019	1071	1124	1179	1234	1292	1350	1410	1411	1411	1411	1411	1411	1411	1411	1411	1411
48	976	1028	1081	1135	1190	1246	1304	1364	1425	1443	1443	1443	1443	1443	1443	1443	1443	1443
49	984	1037	1091	1145	1201	1258	1317	1377	1439	1474	1474	1474	1474	1474	1474	1474	1474	1474
50	993	1046	1100	1156	1212	1270	1330	1391	1454	1506	1506	1506	1506	1506	1506	1506	1506	1506
51	1001	1055	1110	1166	1223	1282	1342	1404	1468	1533	1538	1538	1538	1538	1538	1538	1538	1538
52	1009	1064	1119	1176	1234	1293	1354	1417	1482	1548	1570	1570	1570	1570	1570	1570	1570	1570
53	1018	1073	1129	1186	1245	1305	1367	1430	1496	1563	1603	1603	1603	1603	1603	1603	1603	1603
54	1026	1081	1138	1196	1255	1316	1379	1443	1509	1577	1636	1636	1636	1636	1636	1636	1636	1636
55	1034	1090	1147	1206	1266	1327	1391	1456	1523	1592	1663	1669	1669	1669	1669	1669	1669	1669
56	1042	1099	1156	1216	1276	1339	1403	1469	1536	1606	1678	1702	1702	1702	1702	1702	1702	1702
57	1050	1107	1166	1225	1287	1350	1414	1481	1550	1620	1693	1736	1736	1736	1736	1736	1736	1736
58	1058	1116	1175	1235	1297	1361	1426	1494	1563	1635	1708	1770	1770	1770	1770	1770	1770	1770
59	1065	1124	1184	1245	1307	1372	1438	1506	1576	1648	1723	1800	1804	1804	1804	1804	1804	1804
60	1073	1132	1192	1254	1317	1382	1449	1518	1589	1662	1738	1815	1838	1838	1838	1838	1838	1838
61	1081	1140	1201	1264	1327	1393	1461	1530	1602	1676	1752	1831	1873	1873	1873	1873	1873	1873
62	1089	1149	1210	1273	1337	1404	1472	1542	1615	1690	1767	1846	1908	1908	1908	1908	1908	1908
63	1096	1157	1219	1282	1347	1414	1483	1554	1628	1703	1781	1861	1943	1943	1943	1943	1943	1943
64	1104	1165	1227	1291	1357	1425	1494	1566	1640	1717	1795	1876	1960	1978	1978	1978	1978	1978
65	1111	1173	1236	1301	1367	1435	1506	1578	1653	1730	1809	1891	1976	2013	2013	2013	2013	2013
66	1119	1181	1245	1310	1377	1446	1517	1590	1665	1743	1823	1906	1992	2049	2049	2049	2049	2049
67	1126	1189	1253	1319	1386	1456	1527	1601	1678	1756	1837	1921	2007	2085	2085	2085	2085	2085
68	1133	1197	1261	1328	1396	1466	1538	1613	1690	1769	1851	1936	2023	2112	2121	2121	2121	2121
69	1141	1205	1270	1337	1405	1476	1549	1624	1702	1782	1865	1950	2038	2129	2158	2158	2158	2158
70	1148	1212	1278	1346	1415	1486	1560	1636	1714	1795	1878	1965	2053	2145	2194	2194	2194	2194
71	1155	1220	1286	1354	1424	1496	1570	1647	1726	1808	1892	1979	2069	2161	2231	2231	2231	2231
72	1162	1228	1295	1363	1434	1506	1581	1658	1738	1820	1905	1993	2084	2177	2268	2268	2268	2268

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
73	76.8	173	213	257	302	350	399	449	501	554	610	668	730	792	854	916	978	1041	1105
74	77.0	186	226	270	315	362	410	460	511	564	618	674	734	797	859	921	984	1047	1112
75	77.2	200	240	283	328	374	422	471	522	574	627	682	739	801	864	927	990	1054	1118
76	77.4	215	254	297	341	387	435	483	533	584	637	691	747	806	869	932	996	1060	1125
77	77.6	230	269	311	355	400	447	496	545	595	647	700	756	813	873	937	1001	1066	1131
78	77.8	245	283	325	369	414	461	508	557	607	658	711	765	821	880	942	1007	1072	1138
79	78.0	260	299	340	383	428	474	522	570	619	670	722	775	831	888	948	1012	1078	1144

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	1170	1235	1303	1372	1443	1516	1591	1669	1750	1833	1919	2007	2099	2193	2289	2306	2306	2306
74	1177	1243	1311	1380	1452	1526	1602	1680	1762	1845	1932	2021	2113	2208	2306	2343	2343	2343
75	1184	1250	1319	1389	1461	1536	1612	1691	1773	1858	1945	2035	2128	2224	2322	2381	2381	2381
76	1191	1258	1327	1398	1470	1545	1622	1702	1785	1870	1958	2049	2143	2239	2339	2419	2419	2419
77	1198	1265	1335	1406	1479	1555	1633	1713	1796	1882	1971	2063	2157	2255	2355	2457	2457	2457
78	1205	1273	1343	1414	1488	1564	1643	1724	1808	1894	1984	2076	2172	2270	2371	2475	2496	2496
79	1211	1280	1351	1423	1497	1574	1653	1735	1819	1907	1997	2090	2186	2285	2387	2492	2535	2535

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	INCREMENTAL			Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0.0	3.0	6.1	9.5	12.9	16.5	20.3	24.2	28.2	32.5	36.9	91.8	91.8	91.8	91.8	91.8	91.8
5	63.2	0.0	2.9	6.0	9.3	12.7	16.2	19.9	23.7	27.7	31.8	36.2	84.3	93.7	93.7	93.7	93.7	93.7
6	63.4	0.0	2.9	6.0	9.2	12.5	16.0	19.5	23.3	27.1	31.2	35.4	39.9	95.5	95.5	95.5	95.5	95.5
7	63.6	0.0	2.9	5.9	9.0	12.3	15.7	19.2	22.9	26.6	30.6	34.7	39.0	97.3	97.3	97.3	97.3	97.3
8	63.8	0.0	2.8	5.8	8.9	12.1	15.4	18.9	22.5	26.2	30.0	34.0	38.3	49.5	99.0	99.0	99.0	99.0
9	64.0	0.0	2.8	5.7	8.8	11.9	15.2	18.6	22.1	25.7	29.5	33.4	37.5	41.8	100.8	100.8	100.8	100.8
10	64.2	0.0	2.7	5.6	8.6	11.8	15.0	18.3	21.8	25.3	29.0	32.8	36.8	41.0	69.1	102.5	102.5	102.5
11	64.4	0.0	2.7	5.6	8.5	11.6	14.8	18.0	21.4	24.9	28.5	32.3	36.2	40.3	44.6	104.2	104.2	104.2
12	64.6	0.0	2.7	5.5	8.4	11.4	14.6	17.8	21.1	24.5	28.1	31.7	35.6	39.6	43.7	90.2	105.9	105.9
13	64.8	0.0	2.6	5.4	8.3	11.3	14.4	17.5	20.8	24.2	27.6	31.2	35.0	38.9	43.0	47.3	107.6	107.6
14	65.0	0.0	2.6	5.3	8.2	11.1	14.2	17.3	20.5	23.8	27.2	30.7	34.4	38.2	42.2	46.4	109.2	109.2
15	65.2	0.0	2.6	5.3	8.1	11.0	14.0	17.1	20.2	23.5	26.8	30.3	33.9	37.6	41.5	45.6	54.4	110.9
16	65.4	0.0	2.5	5.2	8.0	10.9	13.8	16.8	19.9	23.1	26.4	29.8	33.4	37.0	40.9	44.9	49.1	112.5
17	65.6	0.0	2.5	5.2	7.9	10.7	13.6	16.6	19.7	22.8	26.1	29.4	32.9	36.5	40.2	44.1	48.2	80.7
18	65.8	0.0	2.5	5.1	7.8	10.6	13.5	16.4	19.4	22.5	25.7	29.0	32.4	35.9	39.6	43.4	47.5	51.7
19	66.0	0.0	2.5	5.1	7.7	10.5	13.3	16.2	19.2	22.2	25.4	28.6	32.0	35.4	39.0	42.8	46.7	50.9
20	66.2	0.0	2.4	5.0	7.6	10.4	13.2	16.0	19.0	22.0	25.1	28.2	31.5	34.9	38.5	42.2	46.0	50.1
21	66.4	0.0	2.4	4.9	7.6	10.3	13.0	15.8	18.7	21.7	24.8	27.9	31.1	34.5	37.9	41.6	45.3	49.3
22	66.6	0.0	2.4	4.9	7.5	10.1	12.9	15.7	18.5	21.5	24.5	27.5	30.7	34.0	37.4	41.0	44.7	48.6
23	66.8	0.0	2.4	4.8	7.4	10.0	12.7	15.5	18.3	21.2	24.2	27.2	30.3	33.6	36.9	40.4	44.1	47.9
24	67.0	0.0	2.3	4.8	7.3	9.9	12.6	15.3	18.1	21.0	23.9	26.9	30.0	33.2	36.5	39.9	43.5	47.2
25	67.2	0.0	2.3	4.8	7.3	9.8	12.5	15.2	17.9	20.7	23.6	26.6	29.6	32.7	36.0	39.4	42.9	46.6
26	67.4	0.0	2.3	4.7	7.2	9.7	12.4	15.0	17.7	20.5	23.4	26.3	29.3	32.4	35.6	38.9	42.4	46.0
27	67.6	0.0	2.3	4.7	7.1	9.6	12.2	14.9	17.5	20.3	23.1	26.0	28.9	32.0	35.1	38.4	41.8	45.4
28	67.8	0.0	2.3	4.6	7.1	9.6	12.1	14.7	17.4	20.1	22.9	25.7	28.6	31.6	34.7	38.0	41.3	44.8
29	68.0	0.0	2.2	4.6	7.0	9.5	12.0	14.6	17.2	19.9	22.6	25.4	28.3	31.3	34.3	37.5	40.8	44.3
30	68.2	0.0	2.2	4.5	6.9	9.4	11.9	14.4	17.0	19.7	22.4	25.2	28.0	30.9	34.0	37.1	40.3	43.7
31	68.4	0.0	2.2	4.5	6.9	9.3	11.8	14.3	16.9	19.5	22.2	24.9	27.7	30.6	33.6	36.7	39.9	43.2
32	68.6	0.0	2.2	4.5	6.8	9.2	11.7	14.2	16.7	19.3	21.9	24.7	27.4	30.3	33.2	36.3	39.4	42.7
33	68.8	0.0	2.2	4.4	6.8	9.1	11.6	14.0	16.6	19.1	21.7	24.4	27.2	30.0	32.9	35.9	39.0	42.3
34	69.0	0.0	2.2	4.4	6.7	9.1	11.5	13.9	16.4	18.9	21.5	24.2	26.9	29.7	32.5	35.5	38.6	41.8
35	69.2	0.0	2.1	4.4	6.6	9.0	11.4	13.8	16.3	18.8	21.3	24.0	26.6	29.4	32.2	35.2	38.2	41.4
36	69.4	0.0	2.1	4.3	6.6	8.9	11.3	13.7	16.1	18.6	21.1	23.7	26.4	29.1	31.9	34.8	37.8	40.9

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	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																			
2	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8
5	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7
6	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5
7	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
8	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
9	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8
10	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5
11	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2
12	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9
13	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6
14	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2
15	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9
16	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5
17	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1
18	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7
19	111.5	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2
20	54.4	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8
21	53.5	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
22	52.7	84.7	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9
23	51.9	56.2	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4
24	51.2	55.3	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9
25	50.5	54.5	61.8	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4
26	49.8	53.8	58.0	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9
27	49.1	53.0	57.2	113.1	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3
28	48.5	52.3	56.4	60.7	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8
29	47.9	51.7	55.7	59.9	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2
30	47.3	51.0	55.0	59.1	105.3	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7
31	46.7	50.4	54.3	58.3	62.6	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1
32	46.2	49.8	53.6	57.6	61.8	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5
33	45.7	49.2	53.0	56.9	61.1	106.3	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9
34	45.2	48.7	52.3	56.2	60.3	64.6	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3
35	44.7	48.1	51.7	55.6	59.6	63.8	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7
36	44.2	47.6	51.2	54.9	58.9	63.1	117.7	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
37	69.6	0.0	2.1	4.3	6.5	8.8	11.2	13.6	16.0	18.4	21.0	23.5	26.1	28.8	31.6	34.5	37.4	40.5
38	69.8	0.0	2.1	4.3	6.5	8.8	11.1	13.5	15.8	18.3	20.8	23.3	25.9	28.6	31.3	34.1	37.1	40.1
39	70.0	0.0	2.1	4.2	6.4	8.7	11.0	13.3	15.7	18.1	20.6	23.1	25.7	28.3	31.0	33.8	36.7	39.7
40	70.2	0.0	2.1	4.2	6.4	8.6	10.9	13.2	15.6	18.0	20.4	22.9	25.4	28.0	30.7	33.5	36.3	39.3
41	70.4	0.0	2.0	4.2	6.3	8.6	10.8	13.1	15.5	17.8	20.3	22.7	25.2	27.8	30.5	33.2	36.0	38.9
42	70.6	0.0	2.0	4.1	6.3	8.5	10.7	13.0	15.3	17.7	20.1	22.5	25.0	27.6	30.2	32.9	35.7	38.6
43	70.8	0.0	2.0	4.1	6.2	8.4	10.7	12.9	15.2	17.6	19.9	22.3	24.8	27.3	29.9	32.6	35.4	38.2
44	71.0	0.0	2.0	4.1	6.2	8.4	10.6	12.8	15.1	17.4	19.8	22.2	24.6	27.1	29.7	32.3	35.1	37.9
45	71.2	0.0	2.0	4.0	6.2	8.3	10.5	12.7	15.0	17.3	19.6	22.0	24.4	26.9	29.4	32.0	34.8	37.6
46	71.4	0.0	2.0	4.0	6.1	8.3	10.4	12.6	14.9	17.2	19.5	21.8	24.2	26.7	29.2	31.8	34.5	37.2
47	71.6	0.0	2.0	4.0	6.1	8.2	10.4	12.6	14.8	17.0	19.3	21.6	24.0	26.5	28.9	31.5	34.2	36.9
48	71.8	0.0	1.9	4.0	6.0	8.1	10.3	12.5	14.7	16.9	19.2	21.5	23.8	26.2	28.7	31.3	33.9	36.6
49	72.0	0.0	1.9	3.9	6.0	8.1	10.2	12.4	14.6	16.8	19.0	21.3	23.7	26.0	28.5	31.0	33.6	36.3
50	72.2	0.0	1.9	3.9	6.0	8.0	10.1	12.3	14.5	16.7	18.9	21.2	23.5	25.8	28.3	30.8	33.3	36.0
51	72.4	0.0	1.9	3.9	5.9	8.0	10.1	12.2	14.4	16.5	18.8	21.0	23.3	25.7	28.1	30.5	33.1	35.7
52	72.6	0.0	1.9	3.9	5.9	7.9	10.0	12.1	14.3	16.4	18.6	20.9	23.1	25.5	27.8	30.3	32.8	35.4
53	72.8	0.0	1.9	3.8	5.8	7.9	9.9	12.0	14.2	16.3	18.5	20.7	23.0	25.3	27.6	30.1	32.6	35.2
54	73.0	11.3	1.9	3.8	5.8	7.8	9.9	12.0	14.1	16.2	18.4	20.6	22.8	25.1	27.4	29.9	32.3	34.9
55	73.2	19.0	1.9	3.8	5.8	7.8	9.8	11.9	14.0	16.1	18.2	20.4	22.7	24.9	27.2	29.6	32.1	34.6
56	73.4	24.6	10.9	3.8	5.7	7.7	9.8	11.8	13.9	16.0	18.1	20.3	22.5	24.7	27.1	29.4	31.9	34.4
57	73.6	29.2	20.3	3.7	5.7	7.7	9.7	11.7	13.8	15.9	18.0	20.2	22.3	24.6	26.9	29.2	31.6	34.1
58	73.8	33.1	26.0	12.1	5.7	7.6	9.6	11.7	13.7	15.8	17.9	20.0	22.2	24.4	26.7	29.0	31.4	33.9
59	74.0	36.6	30.6	21.8	5.6	7.6	9.6	11.6	13.6	15.7	17.8	19.9	22.1	24.3	26.5	28.8	31.2	33.7
60	74.2	39.8	34.6	27.6	14.0	7.5	9.5	11.5	13.5	15.6	17.7	19.8	21.9	24.1	26.3	28.6	31.0	33.4
61	74.4	42.7	38.1	32.3	23.7	7.5	9.5	11.5	13.5	15.5	17.6	19.6	21.8	23.9	26.2	28.4	30.8	33.2
62	74.6	45.5	41.3	36.2	29.5	16.6	9.4	11.4	13.4	15.4	17.4	19.5	21.6	23.8	26.0	28.2	30.6	33.0
63	74.8	48.1	44.3	39.8	34.1	25.9	9.4	11.3	13.3	15.3	17.3	19.4	21.5	23.6	25.8	28.1	30.4	32.7
64	75.0	50.6	47.0	43.0	38.1	31.6	20.0	11.3	13.2	15.2	17.2	19.3	21.4	23.5	25.7	27.9	30.2	32.5
65	75.2	52.9	49.6	45.9	41.6	36.2	28.4	11.9	13.2	15.1	17.1	19.2	21.2	23.3	25.5	27.7	30.0	32.3
66	75.4	55.2	52.1	48.7	44.8	40.1	33.9	23.6	13.1	15.0	17.0	19.1	21.1	23.2	25.3	27.5	29.8	32.1
67	75.6	57.3	54.5	51.3	47.7	43.6	38.4	31.2	15.4	15.0	16.9	18.9	21.0	23.1	25.2	27.4	29.6	31.9
68	75.8	59.4	56.7	53.8	50.5	46.8	42.3	36.5	27.3	14.9	16.8	18.8	20.9	22.9	25.0	27.2	29.4	31.7
69	76.0	61.5	58.9	56.1	53.1	49.7	45.7	40.8	34.2	20.1	16.7	18.7	20.7	22.8	24.9	27.0	29.2	31.5
70	76.2	63.4	61.0	58.4	55.6	52.4	48.8	44.6	39.2	31.2	16.6	18.6	20.6	22.7	24.7	26.9	29.1	31.3
71	76.4	65.3	63.0	60.5	57.9	55.0	51.7	48.0	43.4	37.4	26.2	18.5	20.5	22.5	24.6	26.7	28.9	31.1
72	76.6	67.1	64.9	62.6	60.1	57.4	54.5	51.1	47.1	42.2	35.2	20.4	20.4	22.4	24.4	26.5	28.7	30.9

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	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	43.7	47.1	50.6	54.3	58.2	62.4	66.7	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5
38	43.3	46.6	50.1	53.7	57.6	61.6	65.9	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8
39	42.8	46.1	49.5	53.2	57.0	61.0	65.2	141.4	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2
40	42.4	45.7	49.0	52.6	56.3	60.3	64.5	68.9	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5
41	42.0	45.2	48.5	52.1	55.8	59.7	63.8	68.1	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8
42	41.6	44.8	48.1	51.5	55.2	59.0	63.1	67.4	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2
43	41.2	44.3	47.6	51.0	54.6	58.4	62.4	66.6	99.9	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5
44	40.8	43.9	47.2	50.5	54.1	57.8	61.8	65.9	70.3	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8
45	40.5	43.5	46.7	50.1	53.6	57.3	61.2	65.3	69.6	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1
46	40.1	43.1	46.3	49.6	53.1	56.7	60.6	64.6	68.9	151.5	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4
47	39.8	42.8	45.9	49.1	52.6	56.2	60.0	64.0	68.2	72.6	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7
48	39.4	42.4	45.5	48.7	52.1	55.7	59.4	63.4	67.5	71.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9
49	39.1	42.0	45.1	48.3	51.6	55.1	58.9	62.8	66.9	71.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2
50	38.8	41.7	44.7	47.9	51.2	54.7	58.3	62.2	66.3	70.5	136.1	160.5	160.5	160.5	160.5	160.5	160.5	160.5	160.5
51	38.5	41.3	44.3	47.4	50.7	54.2	57.8	61.6	65.6	69.9	74.3	161.7	161.7	161.7	161.7	161.7	161.7	161.7	161.7
52	38.2	41.0	44.0	47.0	50.3	53.7	57.3	61.1	65.0	69.2	73.6	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
53	37.9	40.7	43.6	46.7	49.9	53.2	56.8	60.5	64.5	68.6	73.0	164.2	164.2	164.2	164.2	164.2	164.2	164.2	164.2
54	37.6	40.4	43.3	46.3	49.5	52.8	56.3	60.0	63.9	68.0	72.3	134.9	165.5	165.5	165.5	165.5	165.5	165.5	165.5
55	37.3	40.0	42.9	45.9	49.1	52.4	55.8	59.5	63.3	67.4	71.6	76.1	166.7	166.7	166.7	166.7	166.7	166.7	166.7
56	37.0	39.7	42.6	45.6	48.7	51.9	55.4	59.0	62.8	66.8	71.0	75.4	167.9	167.9	167.9	167.9	167.9	167.9	167.9
57	36.7	39.4	42.3	45.2	48.3	51.5	54.9	58.5	62.3	66.2	70.4	74.8	169.2	169.2	169.2	169.2	169.2	169.2	169.2
58	36.5	39.1	41.9	44.9	47.9	51.1	54.5	58.0	61.8	65.7	69.8	74.1	149.8	170.4	170.4	170.4	170.4	170.4	170.4
59	36.2	38.9	41.6	44.5	47.6	50.7	54.1	57.6	61.3	65.1	69.2	73.5	78.0	171.6	171.6	171.6	171.6	171.6	171.6
60	36.0	38.6	41.3	44.2	47.2	50.3	53.7	57.1	60.8	64.6	68.7	72.9	77.4	172.8	172.8	172.8	172.8	172.8	172.8
61	35.7	38.3	41.0	43.9	46.8	50.0	53.2	56.7	60.3	64.1	68.1	72.3	76.7	174.0	174.0	174.0	174.0	174.0	174.0
62	35.5	38.0	40.7	43.6	46.5	49.6	52.8	56.3	59.8	63.6	67.6	71.7	76.1	175.2	175.2	175.2	175.2	175.2	175.2
63	35.2	37.8	40.5	43.2	46.2	49.2	52.5	55.8	59.4	63.1	67.0	71.2	75.5	87.2	176.4	176.4	176.4	176.4	176.4
64	35.0	37.5	40.2	42.9	45.8	48.9	52.1	55.4	58.9	62.6	66.5	70.6	74.9	79.4	177.5	177.5	177.5	177.5	177.5
65	34.7	37.3	39.9	42.6	45.5	48.5	51.7	55.0	58.5	62.2	66.0	70.1	74.3	78.7	178.7	178.7	178.7	178.7	178.7
66	34.5	37.0	39.6	42.4	45.2	48.2	51.3	54.6	58.1	61.7	65.5	69.5	73.7	78.1	179.9	179.9	179.9	179.9	179.9
67	34.3	36.8	39.4	42.1	44.9	47.9	51.0	54.2	57.7	61.3	65.0	69.0	73.2	77.5	136.4	181.0	181.0	181.0	181.0
68	34.1	36.5	39.1	41.8	44.6	47.5	50.6	53.9	57.3	60.8	64.6	68.5	72.6	76.9	81.5	182.2	182.2	182.2	182.2
69	33.9	36.3	38.9	41.5	44.3	47.2	50.3	53.5	56.9	60.4	64.1	68.0	72.1	76.4	80.9	183.3	183.3	183.3	183.3
70	33.7	36.1	38.6	41.3	44.0	46.9	49.9	53.1	56.5	60.0	63.7	67.5	71.6	75.8	80.3	184.5	184.5	184.5	184.5
71	33.5	35.9	38.4	41.0	43.7	46.6	49.6	52.8	56.1	59.6	63.2	67.0	71.1	75.3	79.7	185.6	185.6	185.6	185.6
72	33.2	35.6	38.1	40.7	43.5	46.3	49.3	52.4	55.7	59.2	62.8	66.6	70.6	74.7	79.1	104.2	186.8	186.8	186.8

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
73	76.8	68.9	66.8	64.6	62.3	59.8	57.0	53.9	50.4	46.2	40.8	32.3	20.3	22.3	24.3	26.4	28.5	30.8
74	77.0	70.7	68.7	66.6	64.4	62.0	59.4	56.6	53.4	49.8	45.3	39.2	27.1	22.1	24.2	26.2	28.4	30.6
75	77.2	72.4	70.4	68.4	66.4	64.1	61.7	59.1	56.2	53.0	49.1	44.3	37.5	23.4	24.0	26.1	28.2	30.4
76	77.4	74.0	72.2	70.3	68.3	66.2	64.0	61.5	58.9	55.9	52.6	48.5	43.4	35.2	23.9	26.0	28.1	30.2
77	77.6	75.7	73.9	72.1	70.2	68.2	66.1	63.8	61.4	58.7	55.7	52.2	48.0	42.4	31.5	25.8	27.9	30.1
78	77.8	77.3	75.5	73.8	72.0	70.1	68.1	66.0	63.7	61.3	58.6	55.5	51.9	47.6	41.5	28.8	27.7	29.9
79	78.0																	

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	33.0	35.4	37.9	40.5	43.2	46.0	49.0	52.1	55.3	58.8	62.4	66.1	70.1	74.2	78.5	83.0	187.9	187.9	187.9
74	32.9	35.2	37.7	40.2	42.9	45.7	48.7	51.7	55.0	58.4	61.9	65.7	69.6	73.7	78.0	82.4	189.0	189.0	189.0
75	32.7	35.0	37.4	40.0	42.7	45.4	48.4	51.4	54.6	58.0	61.5	65.2	69.1	73.2	77.4	81.9	190.2	190.2	190.2
76	32.5	34.8	37.2	39.8	42.4	45.2	48.1	51.1	54.3	57.6	61.1	64.8	68.7	72.7	76.9	81.3	191.3	191.3	191.3
77	32.3	34.6	37.0	39.5	42.1	44.9	47.8	50.8	53.9	57.3	60.7	64.4	68.2	72.2	76.4	80.8	87.4	192.4	192.4
78	32.1	34.4	36.8	39.3	41.9	44.6	47.5	50.5	53.6	56.9	60.4	64.0	67.8	71.7	75.9	80.2	84.7	193.5	193.5
79																			

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134	07/01/2011 22:00:00	415
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136	08/01/2011 00:00:00	520
137	08/01/2011 01:00:00	573
138	08/01/2011 02:00:00	626
139	08/01/2011 03:00:00	679
140	08/01/2011 04:00:00	732
141	08/01/2011 05:00:00	785
142	08/01/2011 06:00:00	839
143	08/01/2011 07:00:00	892
144	08/01/2011 08:00:00	940
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152	08/01/2011 16:00:00	1254

	A	B
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212	11/01/2011 04:00:00	815
213	11/01/2011 05:00:00	816
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221	11/01/2011 13:00:00	927
222	11/01/2011 14:00:00	980
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	A	B
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279	13/01/2011 23:00:00	1467
280	14/01/2011 00:00:00	1465
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283	14/01/2011 03:00:00	1456
284	14/01/2011 04:00:00	1453
285	14/01/2011 05:00:00	1450
286	14/01/2011 06:00:00	1447
287	14/01/2011 07:00:00	1396
288	14/01/2011 08:00:00	1345
289	14/01/2011 09:00:00	1342
290	14/01/2011 10:00:00	1291
291	14/01/2011 11:00:00	1239
292	14/01/2011 12:00:00	1194
293	14/01/2011 13:00:00	1144
294	14/01/2011 14:00:00	1142
295	14/01/2011 15:00:00	1093
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	A	B
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358	17/01/2011 06:00:00	13
359	17/01/2011 07:00:00	13
360	17/01/2011 08:00:00	13

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 1:02 PM
To: Rob Drury <rdrury@[redacted]
Subject: Current Ops Spreadsheet
Attach: SDWD-201101151200.xls

Current sheet sent to Peter Allen

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

	A	B
1	**General Description**	
2	This is a general spread sheet to test out the operation of Emergency	
3	Flood Control procedures for Somerset Dam	
4		
5	It relies on the inputs from 2% AEP floods concentrated over Somerset Dam	
6	catchment. The option is given in the 'Inflows' work sheet to factor the time base,	
7	and the discharge factor for both Somerset inflows and Wivenhoe inflows	
8		
9	**List of Sheets & Description**	
10		
11	Ops Sheet	Main work sheet with levels, rates of rise etc
12	Wiv-Som Interaction	Interaction curve plot of levels at Wivenhoe Dam and those at Somerset Dam
13	H_W graphs	Headwater graphs for Somerset & Wivenhoe as a function of Time
14	Som Q Graph	Inflows and Outflows for Somerset Dam
15	Wiv Q Graph	Inflows and Outflows for Wivenhoe dam
16	Inflows	Inflow hydrographs for Somerset & Wivenhoe
17	Wiv Discharges	Discharge rating for Wivenhoe ... set at Emergency Control Procedure
18	PLOT+0 Macro	Macro routine for plotting +1, as is and -1 sluice trends
19	Sheet 4	Work sheet which does not want to be hidden
20		
21	**General Use**	
22		
23	1. Initialise columns P, Q and R by setting each cell equal to the value of the cell above it	
24	2. In Row 3 .. set the inital openings eg. 0 regulators, 0 sluices, 8 crest gates	
25	3. Step though each time cycle and determine the operating procedure for Somerset	
26	4. Don't forget ... You need to close down to FSL at the end of the event.	

RD5-1334

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RD5-1335

	A	B	C	D	E	F	G	H
1	Start Date	2/01/2011 9:00					Interaction	
2							Somerset	Wivenhoe
3	Title1	Somerset Dam					90.00	60.00
4	Starting Level	99.1					100.45	60.00
5	Starting flow	60					100.45	70.00
6							109.70	80.00
7	Title2	Wivenhoe Dam						
8	Starting Level	67.1						
9	Starting flow	150						
10								
11		Lockyer						
12	Starting flow	0						
13								
14		Bremer						
15	Starting flow	0						
16								
17								
18	Event Title	December 2010						
19	Time Step (hrs)	1						
20								
21								
22		5/05/2011 11:40						
23	0	100000						

	A	B	C	D	E	F	G	H	I	J
1	WDI									SDI
2	Curve:	Inflow	For	Wivenhoe	(cumecs					Curve:
3	File:	/usr/local/foo/dat/BrisbaneC								File:
4	Number	of	Records:	481						Number
5	Minimum	Value:	1							Minimum
6	Maximum	Value:	8871							Maximum
7	20110102090000	1								20110102090000
8	20110102100000	1								20110102100000
9	20110102110000	1								20110102110000
10	20110102120000	1								20110102120000
11	20110102130000	1								20110102130000
12	20110102140000	1								20110102140000
13	20110102150000	1								20110102150000
14	20110102160000	1								20110102160000
15	20110102170000	1								20110102170000
16	20110102180000	1								20110102180000
17	20110102190000	1								20110102190000
18	20110102200000	1								20110102200000
19	20110102210000	1								20110102210000
20	20110102220000	1								20110102220000
21	20110102230000	1								20110102230000
22	20110103000000	1								20110103000000
23	20110103010000	1								20110103010000
24	20110103020000	1								20110103020000
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37	20110103150000	1								20110103150000
38	20110103160000	1								20110103160000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1									Lockyer					
2	Inflow	For	Somerset	(cumecs)					Curve:	Discharge	At	Node	17	of
3	/usr/local/foo/dat/BrisbaneCa								File:	/usr/local/foo/dat/BrisbaneCat				
4	of	Records:	481						Number	of	Records:	481		
5	Value:	0							Minimum	Value:	0			
6	Value:	3578.771							Maximum	Value:	2930.249			
7	0								20110102090000	0				
8	0								20110102100000	0				
9	0								20110102110000	0				
10	0								20110102120000	0				
11	0								20110102130000	0				
12	0								20110102140000	0				
13	0								20110102150000	0				
14	0								20110102160000	0				
15	0								20110102170000	0				
16	0								20110102180000	0				
17	0								20110102190000	0				
18	0								20110102200000	0				
19	0								20110102210000	0				
20	0								20110102220000	0				
21	0								20110102230000	0				
22	0								20110103000000	0				
23	0								20110103010000	0				
24	0								20110103020000	0				
25	0								20110103030000	0				
26	0								20110103040000	0				
27	0								20110103050000	0				
28	0								20110103060000	0				
29	0								20110103070000	0				
30	0								20110103080000	0				
31	0								20110103090000	0				
32	0								20110103100000	0				
33	0								20110103110000	0				
34	0								20110103120000	0				
35	0								20110103130000	0				
36	0								20110103140000	0				
37	0								20110103150000	0				
38	43.677								20110103160000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1								Bremer									
2	SAV	-	Lockyer	Creek	at	O'Reilly's	Weir	Curve:	Output	Discharge	For	IPS					Curve:
3								File:	/usr/local/foo/dat/BrisbaneC								File:
4								Number	of	Records:	481						Number
5								Minimum	Value:	0							Minimum
6								Maximum	Value:	2727.384			Wivin	SomOut			Maximum
7								20110102090000	0				1	1	0		2.01101E+13
8								20110102100000	0				1	1	0		2.01101E+13
9								20110102110000	0				1	1	0		2.01101E+13
10								20110102120000	0				1	1	0		2.01101E+13
11								20110102130000	0				1	1	0		2.01101E+13
12								20110102140000	0				1	1	0		2.01101E+13
13								20110102150000	0				1	1	0		2.01101E+13
14								20110102160000	0				1	1	0		2.01101E+13
15								20110102170000	0				1	1	0		2.01101E+13
16								20110102180000	0				1	1	0		2.01101E+13
17								20110102190000	0				1	1	0		2.01101E+13
18								20110102200000	0				1	1	0		2.01101E+13
19								20110102210000	0				1	1	0		2.01101E+13
20								20110102220000	0				1	1	0		2.01101E+13
21								20110102230000	0				1	1	0		2.01101E+13
22								20110103000000	0				1	1	0		2.01101E+13
23								20110103010000	0				1	1	0		2.01101E+13
24								20110103020000	0				1	1	0		2.01101E+13
25								20110103030000	0				1	1	0		2.01101E+13
26								20110103040000	0				1	1	0		2.01101E+13
27								20110103050000	0				1	1	0		2.01101E+13
28								20110103060000	0				1	1	0		2.01101E+13
29								20110103070000	0				1	1	0		2.01101E+13
30								20110103080000	0				1	1	0		2.01101E+13
31								20110103090000	0				1	1	0		2.01101E+13
32								20110103100000	0				1	1	0		2.01101E+13
33								20110103110000	0				1	1	0		2.01101E+13
34								20110103120000	0				1	1	0		2.01101E+13
35								20110103130000	0				1	1	0		2.01101E+13
36								20110103140000	0				1	1	0		2.01101E+13
37								20110103150000	0				1	1	0		2.01101E+13
38								20110103160000	0				1	1	0		2.01101E+13

	AP	AQ	AR	AS
1				
2	Outflow	For	Somerset	(cumecs)
3	/usr/local/foo/dat/BrisbaneCat			
4	of	Records:	481	
5	Value:	0.686		
6	Value:	3094.794		
7	0.686			
8	0.686			
9	0.686			
10	0.686			
11	0.686			
12	0.686			
13	0.686			
14	0.686			
15	0.686			
16	0.686			
17	0.686			
18	0.686			
19	0.686			
20	0.686			
21	0.686			
22	0.686			
23	0.687			
24	0.687			
25	0.687			
26	0.687			
27	0.687			
28	0.687			
29	0.687			
30	0.687			
31	0.687			
32	0.687			
33	0.687			
34	0.687			
35	0.687			
36	0.687			
37	0.687			
38	0.687			

	A	B	C	D	E	F	G	H	I	J
39	20110103170000	1								20110103170000
40	20110103180000	1								20110103180000
41	20110103190000	1								20110103190000
42	20110103200000	1								20110103200000
43	20110103210000	2								20110103210000
44	20110103220000	72								20110103220000
45	20110103230000	27								20110103230000
46	20110104000000	17								20110104000000
47	20110104010000	15								20110104010000
48	20110104020000	13								20110104020000
49	20110104030000	12								20110104030000
50	20110104040000	12								20110104040000
51	20110104050000	11								20110104050000
52	20110104060000	10								20110104060000
53	20110104070000	10								20110104070000
54	20110104080000	9								20110104080000
55	20110104090000	9								20110104090000
56	20110104100000	9								20110104100000
57	20110104110000	8								20110104110000
58	20110104120000	8								20110104120000
59	20110104130000	8								20110104130000
60	20110104140000	7								20110104140000
61	20110104150000	7								20110104150000
62	20110104160000	7								20110104160000
63	20110104170000	6								20110104170000
64	20110104180000	6								20110104180000
65	20110104190000	6								20110104190000
66	20110104200000	6								20110104200000
67	20110104210000	5								20110104210000
68	20110104220000	5								20110104220000
69	20110104230000	5								20110104230000
70	20110105000000	5								20110105000000
71	20110105010000	5								20110105010000
72	20110105020000	4								20110105020000
73	20110105030000	4								20110105030000
74	20110105040000	4								20110105040000
75	20110105050000	4								20110105050000
76	20110105060000	4								20110105060000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
39	110.6								20110103170000	0				
40	85.032								20110103180000	0				
41	66.342								20110103190000	0				
42	54.16								20110103200000	0				
43	45.444								20110103210000	0				
44	42.969								20110103220000	0				
45	33.803								20110103230000	0				
46	29.776								20110104000000	0				
47	26.531								20110104010000	0				
48	23.877								20110104020000	0				
49	21.675								20110104030000	0				
50	19.826								20110104040000	0				
51	18.253								20110104050000	0				
52	16.899								20110104060000	0				
53	15.722								20110104070000	0				
54	14.688								20110104080000	0				
55	13.77								20110104090000	0				
56	12.95								20110104100000	0				
57	12.211								20110104110000	0				
58	11.539								20110104120000	0				
59	10.926								20110104130000	0				
60	10.362								20110104140000	0				
61	9.841								20110104150000	0				
62	9.358								20110104160000	0				
63	8.908								20110104170000	0				
64	8.487								20110104180000	0				
65	8.093								20110104190000	0				
66	7.722								20110104200000	0				
67	7.372								20110104210000	0				
68	7.042								20110104220000	0				
69	6.73								20110104230000	0				
70	6.434								20110105000000	0				
71	6.154								20110105010000	0				
72	5.888								20110105020000	0				
73	5.635								20110105030000	0				
74	5.395								20110105040000	0				
75	5.166								20110105050000	0				
76	4.948								20110105060000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
39								20110103170000	0				1	1	1		2.01101E+13
40								20110103180000	0				1	1	1		2.01101E+13
41								20110103190000	0				1	1	1		2.01101E+13
42								20110103200000	0				1	1	1		2.01101E+13
43								20110103210000	0				2	1	1		2.01101E+13
44								20110103220000	0				72	1	72		2.01101E+13
45								20110103230000	0				27	1	27		2.01101E+13
46								20110104000000	0				17	1	16		2.01101E+13
47								20110104010000	0				15	1	14		2.01101E+13
48								20110104020000	0				13	1	13		2.01101E+13
49								20110104030000	0				12	1	12		2.01101E+13
50								20110104040000	0				12	1	11		2.01101E+13
51								20110104050000	0				11	1	10		2.01101E+13
52								20110104060000	0				10	1	10		2.01101E+13
53								20110104070000	0				10	1	9		2.01101E+13
54								20110104080000	0				9	1	9		2.01101E+13
55								20110104090000	0				9	1	8		2.01101E+13
56								20110104100000	0				9	1	8		2.01101E+13
57								20110104110000	0				8	1	8		2.01101E+13
58								20110104120000	0				8	1	7		2.01101E+13
59								20110104130000	0				8	1	7		2.01101E+13
60								20110104140000	0				7	1	7		2.01101E+13
61								20110104150000	0				7	1	6		2.01101E+13
62								20110104160000	0				7	1	6		2.01101E+13
63								20110104170000	0				6	1	6		2.01101E+13
64								20110104180000	0				6	1	5		2.01101E+13
65								20110104190000	0				6	1	5		2.01101E+13
66								20110104200000	0				6	1	5		2.01101E+13
67								20110104210000	0				5	1	5		2.01101E+13
68								20110104220000	0				5	1	4		2.01101E+13
69								20110104230000	0				5	1	4		2.01101E+13
70								20110105000000	0				5	1	4		2.01101E+13
71								20110105010000	0				5	1	4		2.01101E+13
72								20110105020000	0				4	1	4		2.01101E+13
73								20110105030000	0				4	1	4		2.01101E+13
74								20110105040000	0				4	1	3		2.01101E+13
75								20110105050000	0				4	1	3		2.01101E+13
76								20110105060000	0				4	1	3		2.01101E+13

	AP	AQ	AR	AS
39	0.687			
40	0.687			
41	0.687			
42	0.687			
43	0.687			
44	0.687			
45	0.687			
46	0.687			
47	0.687			
48	0.687			
49	0.688			
50	0.688			
51	0.688			
52	0.688			
53	0.688			
54	0.688			
55	0.688			
56	0.688			
57	0.688			
58	0.688			
59	0.688			
60	0.688			
61	0.688			
62	0.688			
63	0.688			
64	0.688			
65	0.688			
66	0.688			
67	0.688			
68	0.688			
69	0.688			
70	0.688			
71	0.688			
72	0.688			
73	0.688			
74	0.688			
75	0.688			
76	0.688			

	A	B	C	D	E	F	G	H	I	J
77	20110105070000	4								20110105070000
78	20110105080000	4								20110105080000
79	20110105090000	3								20110105090000
80	20110105100000	3								20110105100000
81	20110105110000	3								20110105110000
82	20110105120000	3								20110105120000
83	20110105130000	3								20110105130000
84	20110105140000	3								20110105140000
85	20110105150000	3								20110105150000
86	20110105160000	3								20110105160000
87	20110105170000	4								20110105170000
88	20110105180000	8								20110105180000
89	20110105190000	231								20110105190000
90	20110105200000	389								20110105200000
91	20110105210000	244								20110105210000
92	20110105220000	215								20110105220000
93	20110105230000	193								20110105230000
94	20110106000000	181								20110106000000
95	20110106010000	173								20110106010000
96	20110106020000	166								20110106020000
97	20110106030000	166								20110106030000
98	20110106040000	156								20110106040000
99	20110106050000	149								20110106050000
100	20110106060000	143								20110106060000
101	20110106070000	137								20110106070000
102	20110106080000	132								20110106080000
103	20110106090000	127								20110106090000
104	20110106100000	123								20110106100000
105	20110106110000	205								20110106110000
106	20110106120000	329								20110106120000
107	20110106130000	352								20110106130000
108	20110106140000	357								20110106140000
109	20110106150000	322								20110106150000
110	20110106160000	311								20110106160000
111	20110106170000	309								20110106170000
112	20110106180000	309								20110106180000
113	20110106190000	316								20110106190000
114	20110106200000	335								20110106200000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
77	4.74								20110105070000	0				
78	4.542								20110105080000	0				
79	4.354								20110105090000	0				
80	4.174								20110105100000	0				
81	4.002								20110105110000	0				
82	3.838								20110105120000	0				
83	3.681								20110105130000	0				
84	3.532								20110105140000	0				
85	3.392								20110105150000	0.001				
86	8.577								20110105160000	0.004				
87	20.319								20110105170000	0.012				
88	31.079								20110105180000	5.883				
89	63.969								20110105190000	17.469				
90	124.532								20110105200000	28.075				
91	181.329								20110105210000	38.232				
92	199.005								20110105220000	44.911				
93	182.112								20110105230000	53.465				
94	166.88								20110106000000	63.793				
95	154.732								20110106010000	74.986				
96	145.297								20110106020000	85.924				
97	137.606								20110106030000	95.685				
98	130.982								20110106040000	103.702				
99	125.004								20110106050000	109.763				
100	119.471								20110106060000	113.919				
101	114.239								20110106070000	116.384				
102	109.224								20110106080000	117.445				
103	104.379								20110106090000	117.411				
104	99.684								20110106100000	116.598				
105	106.011								20110106110000	129.044				
106	226.341								20110106120000	155.227				
107	372.455								20110106130000	167.4				
108	358.154								20110106140000	169.593				
109	306.551								20110106150000	177.765				
110	273.255								20110106160000	187.85				
111	253.347								20110106170000	197.811				
112	239.566								20110106180000	207.131				
113	228.674								20110106190000	215.311				
114	219.808								20110106200000	222.205				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
77								20110105070000	0				4	1	3		2.01101E+13
78								20110105080000	0				4	1	3		2.01101E+13
79								20110105090000	0				3	1	3		2.01101E+13
80								20110105100000	0				3	1	3		2.01101E+13
81								20110105110000	0				3	1	2		2.01101E+13
82								20110105120000	0.002				3	1	2		2.01101E+13
83								20110105130000	0.008				3	1	2		2.01101E+13
84								20110105140000	0.035				3	1	2		2.01101E+13
85								20110105150000	0.114				3	1	2		2.01101E+13
86								20110105160000	0.31				3	1	2		2.01101E+13
87								20110105170000	0.717				4	1	4		2.01101E+13
88								20110105180000	1.441				8	1	7		2.01101E+13
89								20110105190000	2.566				231	1	231		2.01101E+13
90								20110105200000	8.935				389	1	389		2.01101E+13
91								20110105210000	28.257				244	1	243		2.01101E+13
92								20110105220000	59.308				215	1	215		2.01101E+13
93								20110105230000	95.907				193	1	192		2.01101E+13
94								20110106000000	126.238				181	1	181		2.01101E+13
95								20110106010000	144.277				173	1	172		2.01101E+13
96								20110106020000	151.667				166	1	165		2.01101E+13
97								20110106030000	152.213				166	1	165		2.01101E+13
98								20110106040000	148.68				156	1	155		2.01101E+13
99								20110106050000	142.649				149	1	149		2.01101E+13
100								20110106060000	135.134				143	1	142		2.01101E+13
101								20110106070000	126.91				137	1	136		2.01101E+13
102								20110106080000	118.594				132	1	131		2.01101E+13
103								20110106090000	110.633				127	1	126		2.01101E+13
104								20110106100000	103.307				123	1	122		2.01101E+13
105								20110106110000	109.129				205	1	204		2.01101E+13
106								20110106120000	138.049				329	1	328		2.01101E+13
107								20110106130000	152.944				352	1	352		2.01101E+13
108								20110106140000	141.74				357	1	356		2.01101E+13
109								20110106150000	134.08				322	1	322		2.01101E+13
110								20110106160000	132.039				311	1	310		2.01101E+13
111								20110106170000	134.655				309	1	308		2.01101E+13
112								20110106180000	142.279				309	1	308		2.01101E+13
113								20110106190000	155.636				316	1	316		2.01101E+13
114								20110106200000	174.956				335	1	334		2.01101E+13

	AP	AQ	AR	AS
77	0.688			
78	0.688			
79	0.688			
80	0.688			
81	0.688			
82	0.688			
83	0.688			
84	0.688			
85	0.688			
86	0.688			
87	0.688			
88	0.688			
89	0.688			
90	0.688			
91	0.688			
92	0.688			
93	0.688			
94	0.688			
95	0.688			
96	0.688			
97	0.688			
98	0.688			
99	0.688			
100	0.688			
101	0.688			
102	0.689			
103	0.689			
104	0.689			
105	0.689			
106	0.689			
107	0.689			
108	0.689			
109	0.689			
110	0.689			
111	0.69			
112	0.69			
113	0.69			
114	0.69			

	A	B	C	D	E	F	G	H	I	J
115	20110106210000	368								20110106210000
116	20110106220000	420								20110106220000
117	20110106230000	494								20110106230000
118	20110107000000	597								20110107000000
119	20110107010000	844								20110107010000
120	20110107020000	925								20110107020000
121	20110107030000	1029								20110107030000
122	20110107040000	1150								20110107040000
123	20110107050000	1259								20110107050000
124	20110107060000	1362								20110107060000
125	20110107070000	1390								20110107070000
126	20110107080000	1535								20110107080000
127	20110107090000	1620								20110107090000
128	20110107100000	1633								20110107100000
129	20110107110000	2050								20110107110000
130	20110107120000	2127								20110107120000
131	20110107130000	1970								20110107130000
132	20110107140000	1773								20110107140000
133	20110107150000	1689								20110107150000
134	20110107160000	1623								20110107160000
135	20110107170000	1572								20110107170000
136	20110107180000	1556								20110107180000
137	20110107190000	1531								20110107190000
138	20110107200000	1522								20110107200000
139	20110107210000	1524								20110107210000
140	20110107220000	1533								20110107220000
141	20110107230000	1544								20110107230000
142	20110108000000	1557								20110108000000
143	20110108010000	1570								20110108010000
144	20110108020000	1581								20110108020000
145	20110108030000	1589								20110108030000
146	20110108040000	1593								20110108040000
147	20110108050000	1590								20110108050000
148	20110108060000	1577								20110108060000
149	20110108070000	1554								20110108070000
150	20110108080000	1520								20110108080000
151	20110108090000	1476								20110108090000
152	20110108100000	1424								20110108100000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
115	212.09								20110106210000	228.032				
116	204.968								20110106220000	233.269				
117	198.108								20110106230000	238.526				
118	192.795								20110107000000	244.442				
119	218.455								20110107010000	251.599				
120	224.936								20110107020000	260.489				
121	208.24								20110107030000	271.501				
122	198.833								20110107040000	284.91				
123	223.134								20110107050000	300.798				
124	230.754								20110107060000	318.963				
125	257.387								20110107070000	338.931				
126	363.893								20110107080000	360.044				
127	359.139								20110107090000	396.731				
128	372.159								20110107100000	435.657				
129	541.405								20110107110000	457.103				
130	681.457								20110107120000	478.293				
131	738.02								20110107130000	500.075				
132	696.626								20110107140000	518.178				
133	639.754								20110107150000	535.214				
134	601.745								20110107160000	550.702				
135	574.701								20110107170000	563.924				
136	558.68								20110107180000	574.113				
137	535.586								20110107190000	580.798				
138	512.173								20110107200000	583.876				
139	488.422								20110107210000	583.541				
140	464.274								20110107220000	580.17				
141	439.929								20110107230000	574.218				
142	415.751								20110108000000	566.145				
143	392.044								20110108010000	556.378				
144	368.964								20110108020000	545.287				
145	346.701								20110108030000	533.186				
146	325.509								20110108040000	520.333				
147	305.409								20110108050000	506.944				
148	286.378								20110108060000	493.199				
149	268.517								20110108070000	479.249				
150	251.818								20110108080000	465.226				
151	236.242								20110108090000	451.24				
152	221.724								20110108100000	437.39				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
115								20110106210000	200.294				368	1	367		2.01101E+13
116								20110106220000	231.27				420	1	419		2.01101E+13
117								20110106230000	262.245				494	1	494		2.01101E+13
118								20110107000000	289.387				597	1	596		2.01101E+13
119								20110107010000	312.636				844	1	843		2.01101E+13
120								20110107020000	329.996				925	1	924		2.01101E+13
121								20110107030000	341.051				1029	1	1028		2.01101E+13
122								20110107040000	346.317				1150	1	1149		2.01101E+13
123								20110107050000	346.703				1259	1	1258		2.01101E+13
124								20110107060000	343.22				1362	1	1361		2.01101E+13
125								20110107070000	336.854				1390	1	1390		2.01101E+13
126								20110107080000	328.488				1535	1	1534		2.01101E+13
127								20110107090000	345.738				1620	1	1619		2.01101E+13
128								20110107100000	379.664				1633	1	1633		2.01101E+13
129								20110107110000	384.782				2050	1	2050		2.01101E+13
130								20110107120000	379.253				2127	1	2127		2.01101E+13
131								20110107130000	380.105				1970	1	1969		2.01101E+13
132								20110107140000	384.839				1773	1	1772		2.01101E+13
133								20110107150000	389.394				1689	1	1688		2.01101E+13
134								20110107160000	391.881				1623	1	1622		2.01101E+13
135								20110107170000	391.038				1572	1	1572		2.01101E+13
136								20110107180000	386.552				1556	1	1555		2.01101E+13
137								20110107190000	380.021				1531	1	1530		2.01101E+13
138								20110107200000	371.015				1522	1	1521		2.01101E+13
139								20110107210000	359.488				1524	1	1523		2.01101E+13
140								20110107220000	347.305				1533	1	1532		2.01101E+13
141								20110107230000	334.602				1544	1	1544		2.01101E+13
142								20110108000000	321.545				1557	1	1556		2.01101E+13
143								20110108010000	308.333				1570	1	1569		2.01101E+13
144								20110108020000	295.168				1581	1	1580		2.01101E+13
145								20110108030000	282.228				1589	1	1589		2.01101E+13
146								20110108040000	269.644				1593	1	1592		2.01101E+13
147								20110108050000	257.504				1590	1	1589		2.01101E+13
148								20110108060000	245.854				1577	1	1576		2.01101E+13
149								20110108070000	234.711				1554	1	1553		2.01101E+13
150								20110108080000	224.075				1520	1	1519		2.01101E+13
151								20110108090000	213.934				1476	1	1476		2.01101E+13
152								20110108100000	204.272				1424	1	1423		2.01101E+13

	AP	AQ	AR	AS
115	0.69			
116	0.69			
117	0.69			
118	0.691			
119	0.691			
120	0.691			
121	0.691			
122	0.691			
123	0.691			
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142	0.7			
143	0.7			
144	0.7			
145	0.7			
146	0.701			
147	0.701			
148	0.701			
149	0.701			
150	0.701			
151	0.701			
152	0.701			

	A	B	C	D	E	F	G	H	I	J
153	20110108110000	1364								20110108110000
154	20110108120000	1300								20110108120000
155	20110108130000	1233								20110108130000
156	20110108140000	1168								20110108140000
157	20110108150000	1141								20110108150000
158	20110108160000	1045								20110108160000
159	20110108170000	979								20110108170000
160	20110108180000	916								20110108180000
161	20110108190000	858								20110108190000
162	20110108200000	804								20110108200000
163	20110108210000	755								20110108210000
164	20110108220000	715								20110108220000
165	20110108230000	677								20110108230000
166	20110109000000	637								20110109000000
167	20110109010000	603								20110109010000
168	20110109020000	573								20110109020000
169	20110109030000	549								20110109030000
170	20110109040000	533								20110109040000
171	20110109050000	519								20110109050000
172	20110109060000	589								20110109060000
173	20110109070000	519								20110109070000
174	20110109080000	508								20110109080000
175	20110109090000	501								20110109090000
176	20110109100000	513								20110109100000
177	20110109110000	955								20110109110000
178	20110109120000	1129								20110109120000
179	20110109130000	937								20110109130000
180	20110109140000	958								20110109140000
181	20110109150000	1729								20110109150000
182	20110109160000	2090								20110109160000
183	20110109170000	2233								20110109170000
184	20110109180000	2938								20110109180000
185	20110109190000	3015								20110109190000
186	20110109200000	3618								20110109200000
187	20110109210000	4249								20110109210000
188	20110109220000	4855								20110109220000
189	20110109230000	5764								20110109230000
190	20110110000000	6616								20110110000000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
153	208.192								20110108110000	423.755				
154	195.765								20110108120000	410.404				
155	184.319								20110108130000	397.389				
156	175.521								20110108140000	384.84				
157	174.701								20110108150000	374.005				
158	173.847								20110108160000	364.172				
159	177.109								20110108170000	353.7				
160	187.315								20110108180000	343.007				
161	196.524								20110108190000	332.431				
162	203.66								20110108200000	322.147				
163	208.618								20110108210000	312.231				
164	246.737								20110108220000	302.693				
165	242.7								20110108230000	293.513				
166	243.954								20110109000000	284.649				
167	237.524								20110109010000	276.058				
168	229.492								20110109020000	267.696				
169	221.662								20110109030000	259.525				
170	215.92								20110109040000	251.515				
171	285.228								20110109050000	243.647				
172	433.734								20110109060000	235.906				
173	473.496								20110109070000	228.286				
174	497.276								20110109080000	220.785				
175	516.868								20110109090000	213.405				
176	646.854								20110109100000	206.151				
177	924.396								20110109110000	218.99				
178	1130.937								20110109120000	237.611				
179	1143.096								20110109130000	237.092				
180	1296.2								20110109140000	233.199				
181	1853.546								20110109150000	231.996				
182	2587.299								20110109160000	260.977				
183	3004.589								20110109170000	318.211				
184	3507.945								20110109180000	351.083				
185	3578.771								20110109190000	364.872				
186	3507.829								20110109200000	407.365				
187	3431.609								20110109210000	491.546				
188	3329.934								20110109220000	573.052				
189	3264.68								20110109230000	623.689				
190	3209.258								20110110000000	664.138				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
153								20110108110000	195.073				1364	1	1363		2.01101E+13
154								20110108120000	186.319				1300	1	1299		2.01101E+13
155								20110108130000	177.995				1233	1	1233		2.01101E+13
156								20110108140000	171.812				1168	1	1167		2.01101E+13
157								20110108150000	165.676				1141	1	1141		2.01101E+13
158								20110108160000	158.094				1045	1	1044		2.01101E+13
159								20110108170000	151.243				979	1	978		2.01101E+13
160								20110108180000	144.799				916	1	916		2.01101E+13
161								20110108190000	138.596				858	1	857		2.01101E+13
162								20110108200000	132.61				804	1	803		2.01101E+13
163								20110108210000	126.883				755	1	754		2.01101E+13
164								20110108220000	121.453				715	1	714		2.01101E+13
165								20110108230000	116.334				677	1	676		2.01101E+13
166								20110109000000	111.522				637	1	637		2.01101E+13
167								20110109010000	107.002				603	1	602		2.01101E+13
168								20110109020000	102.76				573	1	573		2.01101E+13
169								20110109030000	98.79				549	1	548		2.01101E+13
170								20110109040000	95.102				533	1	532		2.01101E+13
171								20110109050000	91.711				519	1	518		2.01101E+13
172								20110109060000	88.632				589	1	589		2.01101E+13
173								20110109070000	85.869				519	1	518		2.01101E+13
174								20110109080000	83.401				508	1	507		2.01101E+13
175								20110109090000	81.187				501	1	500		2.01101E+13
176								20110109100000	81.315				513	1	512		2.01101E+13
177								20110109110000	109.11				955	1	954		2.01101E+13
178								20110109120000	144.663				1129	1	1128		2.01101E+13
179								20110109130000	158.521				937	1	936		2.01101E+13
180								20110109140000	177.931				958	1	957		2.01101E+13
181								20110109150000	202.137				1729	4	1725		2.01101E+13
182								20110109160000	241.083				2090	16	2073		2.01101E+13
183								20110109170000	295.059				2233	35	2198		2.01101E+13
184								20110109180000	322.931				2938	63	2875		2.01101E+13
185								20110109190000	321.8				3015	103	2912		2.01101E+13
186								20110109200000	319.262				3618	150	3468		2.01101E+13
187								20110109210000	332.509				4249	194	4055		2.01101E+13
188								20110109220000	339.803				4855	229	4626		2.01101E+13
189								20110109230000	323.971				5764	265	5498		2.01101E+13
190								20110110000000	310.442				6616	299	6317		2.01101E+13

	AP	AQ	AR	AS
153	0.701			
154	0.701			
155	0.701			
156	0.701			
157	0.701			
158	0.701			
159	0.701			
160	0.7			
161	0.7			
162	0.7			
163	0.7			
164	0.7			
165	0.7			
166	0.7			
167	0.7			
168	0.7			
169	0.7			
170	0.699			
171	0.699			
172	0.699			
173	0.699			
174	0.699			
175	0.699			
176	0.7			
177	0.7			
178	0.7			
179	0.701			
180	0.701			
181	3.581			
182	16.382			
183	34.799			
184	63.072			
185	103.309			
186	150.015			
187	194.146			
188	228.742			
189	265.364			
190	299.027			

	A	B	C	D	E	F	G	H	I	J
191	20110110010000	7315								20110110010000
192	20110110020000	7905								20110110020000
193	20110110030000	8312								20110110030000
194	20110110040000	8558								20110110040000
195	20110110050000	8800								20110110050000
196	20110110060000	8871								20110110060000
197	20110110070000	8550								20110110070000
198	20110110080000	8329								20110110080000
199	20110110090000	7946								20110110090000
200	20110110100000	7451								20110110100000
201	20110110110000	7182								20110110110000
202	20110110120000	8037								20110110120000
203	20110110130000	7091								20110110130000
204	20110110140000	6541								20110110140000
205	20110110150000	6193								20110110150000
206	20110110160000	5768								20110110160000
207	20110110170000	5451								20110110170000
208	20110110180000	5176								20110110180000
209	20110110190000	4980								20110110190000
210	20110110200000	4932								20110110200000
211	20110110210000	4651								20110110210000
212	20110110220000	4452								20110110220000
213	20110110230000	4250								20110110230000
214	20110111000000	4022								20110111000000
215	20110111010000	3809								20110111010000
216	20110111020000	3620								20110111020000
217	20110111030000	3422								20110111030000
218	20110111040000	3255								20110111040000
219	20110111050000	4124								20110111050000
220	20110111060000	4508								20110111060000
221	20110111070000	4737								20110111070000
222	20110111080000	5471								20110111080000
223	20110111090000	5883								20110111090000
224	20110111100000	6326								20110111100000
225	20110111110000	6550								20110111110000
226	20110111120000	6830								20110111120000
227	20110111130000	7343								20110111130000
228	20110111140000	8227								20110111140000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
191	3052.006								20110110010000	695.916				
192	2867.992								20110110020000	714.026				
193	2689.272								20110110030000	721.789				
194	2586.103								20110110040000	720.057				
195	2540.351								20110110050000	715.842				
196	2459.539								20110110060000	726.353				
197	2325.925								20110110070000	726.231				
198	2330.523								20110110080000	709.207				
199	2236.366								20110110090000	700.334				
200	2078.003								20110110100000	690.67				
201	2335.587								20110110110000	680.365				
202	2777.988								20110110120000	676.135				
203	2660.322								20110110130000	673.85				
204	2313.773								20110110140000	672.019				
205	2084.447								20110110150000	678.51				
206	1886.306								20110110160000	697.848				
207	1715.349								20110110170000	731.146				
208	1594.701								20110110180000	773.638				
209	1503.173								20110110190000	816.636				
210	1508.013								20110110200000	851.805				
211	1424.118								20110110210000	874.298				
212	1313.859								20110110220000	883.308				
213	1214.665								20110110230000	880.877				
214	1124.119								20110111000000	870.302				
215	1067.828								20110111010000	854.885				
216	1038.962								20110111020000	837.349				
217	975.496								20110111030000	819.764				
218	1041.237								20110111040000	803.673				
219	1432.116								20110111050000	792.793				
220	1776.897								20110111060000	871.781				
221	1941.922								20110111070000	1105.861				
222	1847.331								20110111080000	1388.216				
223	1722.972								20110111090000	1624.259				
224	1659.195								20110111100000	1794.912				
225	1823.031								20110111110000	1934.388				
226	2128.176								20110111120000	2046.537				
227	2680.635								20110111130000	2151.539				
228	2993.631								20110111140000	2291.232				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
191								20110110010000	301.174				7315	334	6980		2.01101E+13
192								20110110020000	293.299				7905	360	7545		2.01101E+13
193								20110110030000	285.995				8312	381	7931		2.01101E+13
194								20110110040000	278.623				8558	403	8154		2.01101E+13
195								20110110050000	277.642				8800	420	8380		2.01101E+13
196								20110110060000	280.793				8871	448	8422		2.01101E+13
197								20110110070000	277.314				8550	460	8091		2.01101E+13
198								20110110080000	299.547				8329	477	7851		2.01101E+13
199								20110110090000	339.188				7946	489	7457		2.01101E+13
200								20110110100000	369.781				7451	501	6950		2.01101E+13
201								20110110110000	407.355				7182	519	6663		2.01101E+13
202								20110110120000	452.497				8037	544	7493		2.01101E+13
203								20110110130000	506.425				7091	569	6522		2.01101E+13
204								20110110140000	568.736				6541	588	5953		2.01101E+13
205								20110110150000	638.582				6193	594	5599		2.01101E+13
206								20110110160000	709.621				5768	601	5168		2.01101E+13
207								20110110170000	771.822				5451	607	4844		2.01101E+13
208								20110110180000	816.061				5176	601	4576		2.01101E+13
209								20110110190000	838.899				4980	601	4379		2.01101E+13
210								20110110200000	842.003				4932	607	4325		2.01101E+13
211								20110110210000	829.948				4651	601	4051		2.01101E+13
212								20110110220000	808.09				4452	601	3852		2.01101E+13
213								20110110230000	782.54				4250	588	3663		2.01101E+13
214								20110111000000	754.934				4022	575	3447		2.01101E+13
215								20110111010000	726.304				3809	569	3241		2.01101E+13
216								20110111020000	702.321				3620	562	3057		2.01101E+13
217								20110111030000	680.664				3422	550	2873		2.01101E+13
218								20110111040000	658.802				3255	537	2718		2.01101E+13
219								20110111050000	638.964				4124	544	3580		2.01101E+13
220								20110111060000	626.173				4508	569	3940		2.01101E+13
221								20110111070000	617.45				4737	588	4149		2.01101E+13
222								20110111080000	608.267				5471	607	4864		2.01101E+13
223								20110111090000	627.727				5883	613	5270		2.01101E+13
224								20110111100000	687.132				6326	633	5693		2.01101E+13
225								20110111110000	830.884				6550	653	5897		2.01101E+13
226								20110111120000	1046.287				6830	680	6151		2.01101E+13
227								20110111130000	1303.008				7343	728	6615		2.01101E+13
228								20110111140000	1620.668				8227	770	7457		2.01101E+13

	AP	AQ	AR	AS
191	334.169			
192	360.164			
193	381.486			
194	403.276			
195	419.921			
196	448.243			
197	459.77			
198	477.278			
199	489.092			
200	501.02			
201	519.122			
202	543.656			
203	568.639			
204	587.674			
205	594.074			
206	600.504			
207	606.959			
208	600.504			
209	600.504			
210	606.959			
211	600.504			
212	600.504			
213	587.674			
214	574.957			
215	568.639			
216	562.352			
217	549.859			
218	537.479			
219	543.656			
220	568.639			
221	587.674			
222	606.959			
223	613.443			
224	633.067			
225	652.94			
226	679.83			
227	727.961			
228	770.305			

	A	B	C	D	E	F	G	H	I	J
229	20110111150000	8108								20110111150000
230	20110111160000	8232								20110111160000
231	20110111170000	8296								20110111170000
232	20110111180000	8105								20110111180000
233	20110111190000	7872								20110111190000
234	20110111200000	7564								20110111200000
235	20110111210000	7225								20110111210000
236	20110111220000	6858								20110111220000
237	20110111230000	6647								20110111230000
238	20110112000000	6442								20110112000000
239	20110112010000	6323								20110112010000
240	20110112020000	6215								20110112020000
241	20110112030000	6119								20110112030000
242	20110112040000	6033								20110112040000
243	20110112050000	5956								20110112050000
244	20110112060000	5888								20110112060000
245	20110112070000	5829								20110112070000
246	20110112080000	5780								20110112080000
247	20110112090000	5522								20110112090000
248	20110112100000	5280								20110112100000
249	20110112110000	5052								20110112110000
250	20110112120000	4840								20110112120000
251	20110112130000	4641								20110112130000
252	20110112140000	4455								20110112140000
253	20110112150000	4281								20110112150000
254	20110112160000	4118								20110112160000
255	20110112170000	3966								20110112170000
256	20110112180000	3824								20110112180000
257	20110112190000	3691								20110112190000
258	20110112200000	3567								20110112200000
259	20110112210000	3450								20110112210000
260	20110112220000	3340								20110112220000
261	20110112230000	3237								20110112230000
262	20110113000000	3140								20110113000000
263	20110113010000	3049								20110113010000
264	20110113020000	2964								20110113020000
265	20110113030000	2883								20110113030000
266	20110113040000	2808								20110113040000

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229	2961.391								20110111150000	2363.64				
230	2857.218								20110111160000	2386.219				
231	2802.981								20110111170000	2446.011				
232	2834.008								20110111180000	2527.769				
233	2821.411								20110111190000	2610.276				
234	2703.021								20110111200000	2685.086				
235	2554.457								20110111210000	2745.96				
236	2401.192								20110111220000	2792.789				
237	2246.698								20110111230000	2832.749				
238	2093.335								20110112000000	2867.278				
239	1943.387								20110112010000	2896.139				
240	1798.881								20110112020000	2917.742				
241	1661.375								20110112030000	2929.842				
242	1531.882								20110112040000	2930.249				
243	1410.916								20110112050000	2917.328				
244	1298.585								20110112060000	2890.22				
245	1194.707								20110112070000	2848.866				
246	1098.916								20110112080000	2793.907				
247	1010.742								20110112090000	2726.544				
248	929.674								20110112100000	2648.366				
249	855.193								20110112110000	2561.19				
250	786.799								20110112120000	2466.914				
251	724.016								20110112130000	2367.41				
252	666.402								20110112140000	2264.437				
253	613.545								20110112150000	2159.592				
254	565.064								20110112160000	2054.276				
255	520.607								20110112170000	1949.684				
256	479.848								20110112180000	1846.805				
257	442.484								20110112190000	1746.432				
258	408.236								20110112200000	1649.182				
259	376.845								20110112210000	1555.513				
260	348.071								20110112220000	1465.747				
261	321.694								20110112230000	1380.088				
262	297.509								20110113000000	1298.649				
263	275.33								20110113010000	1221.46				
264	254.983								20110113020000	1148.491				
265	236.311								20110113030000	1079.666				
266	219.169								20110113040000	1014.868				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
229								20110111150000	1925.43				8108	836	7272		2.01101E+13
230								20110111160000	2182.354				8232	881	7351		2.01101E+13
231								20110111170000	2401.783				8296	934	7362		2.01101E+13
232								20110111180000	2569.075				8105	973	7131		2.01101E+13
233								20110111190000	2675.125				7872	1005	6867		2.01101E+13
234								20110111200000	2727.384				7564	1045	6519		2.01101E+13
235								20110111210000	2727.002				7225	1087	6138		2.01101E+13
236								20110111220000	2685.748				6858	1112	5747		2.01101E+13
237								20110111230000	2611.851				6647	1287	5360		2.01101E+13
238								20110112000000	2511.229				6442	1454	4989		2.01101E+13
239								20110112010000	2391.502				6323	1686	4637		2.01101E+13
240								20110112020000	2260.62				6215	1911	4305		2.01101E+13
241								20110112030000	2124.604				6119	2127	3992		2.01101E+13
242								20110112040000	1987.671				6033	2335	3698		2.01101E+13
243								20110112050000	1852.858				5956	2536	3420		2.01101E+13
244								20110112060000	1722.394				5888	2729	3158		2.01101E+13
245								20110112070000	1597.868				5829	2915	2914		2.01101E+13
246								20110112080000	1480.341				5780	3095	2685		2.01101E+13
247								20110112090000	1370.426				5522	3049	2473		2.01101E+13
248								20110112100000	1268.375				5280	3003	2277		2.01101E+13
249								20110112110000	1174.159				5052	2956	2096		2.01101E+13
250								20110112120000	1087.545				4840	2910	1930		2.01101E+13
251								20110112130000	1008.164				4641	2863	1778		2.01101E+13
252								20110112140000	935.558				4455	2817	1638		2.01101E+13
253								20110112150000	869.229				4281	2771	1510		2.01101E+13
254								20110112160000	808.663				4118	2725	1393		2.01101E+13
255								20110112170000	753.353				3966	2680	1286		2.01101E+13
256								20110112180000	702.818				3824	2636	1189		2.01101E+13
257								20110112190000	656.603				3691	2592	1099		2.01101E+13
258								20110112200000	614.291				3567	2549	1018		2.01101E+13
259								20110112210000	575.501				3450	2507	943		2.01101E+13
260								20110112220000	539.888				3340	2466	874		2.01101E+13
261								20110112230000	507.141				3237	2426	811		2.01101E+13
262								20110113000000	476.982				3140	2387	754		2.01101E+13
263								20110113010000	449.159				3049	2349	701		2.01101E+13
264								20110113020000	423.449				2964	2312	652		2.01101E+13
265								20110113030000	399.651				2883	2276	608		2.01101E+13
266								20110113040000	377.587				2808	2241	567		2.01101E+13

	AP	AQ	AR	AS
229	835.702			
230	880.554			
231	934.154			
232	973.279			
233	1005.085			
234	1045.474			
235	1086.57			
236	1111.564			
237	1286.9			
238	1453.674			
239	1686.259			
240	1910.632			
241	2126.902			
242	2335.258			
243	2535.936			
244	2729.219			
245	2915.399			
246	3094.794			
247	3049.018			
248	3002.772			
249	2956.254			
250	2909.64			
251	2863.085			
252	2816.737			
253	2770.717			
254	2725.145			
255	2680.117			
256	2635.727			
257	2592.051			
258	2549.168			
259	2507.133			
260	2466.012			
261	2425.85			
262	2386.7			
263	2348.6			
264	2311.595			
265	2275.725			
266	2241.025			

	A	B	C	D	E	F	G	H	I	J
267	20110113050000	2736								20110113050000
268	20110113060000	2669								20110113060000
269	20110113070000	2606								20110113070000
270	20110113080000	2547								20110113080000
271	20110113090000	2492								20110113090000
272	20110113100000	2440								20110113100000
273	20110113110000	2391								20110113110000
274	20110113120000	2346								20110113120000
275	20110113130000	2304								20110113130000
276	20110113140000	2266								20110113140000
277	20110113150000	2232								20110113150000
278	20110113160000	2203								20110113160000
279	20110113170000	2180								20110113170000
280	20110113180000	2161								20110113180000
281	20110113190000	2144								20110113190000
282	20110113200000	2127								20110113200000
283	20110113210000	2111								20110113210000
284	20110113220000	2095								20110113220000
285	20110113230000	2080								20110113230000
286	20110114000000	1932								20110114000000
287	20110114010000	1786								20110114010000
288	20110114020000	1637								20110114020000
289	20110114030000	1494								20110114030000
290	20110114040000	1351								20110114040000
291	20110114050000	1206								20110114050000
292	20110114060000	1066								20110114060000
293	20110114070000	927								20110114070000
294	20110114080000	785								20110114080000
295	20110114090000	648								20110114090000
296	20110114100000	511								20110114100000
297	20110114110000	371								20110114110000
298	20110114120000	299								20110114120000
299	20110114130000	227								20110114130000
300	20110114140000	156								20110114140000
301	20110114150000	152								20110114150000
302	20110114160000	149								20110114160000
303	20110114170000	146								20110114170000
304	20110114180000	143								20110114180000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
267	203.423								20110113050000	953.958				
268	188.953								20110113060000	896.774				
269	175.647								20110113070000	843.146				
270	163.405								20110113080000	792.894				
271	152.135								20110113090000	745.837				
272	141.753								20110113100000	701.793				
273	132.182								20110113110000	660.586				
274	123.353								20110113120000	622.041				
275	115.202								20110113130000	585.992				
276	107.673								20110113140000	552.279				
277	100.712								20110113150000	520.748				
278	94.272								20110113160000	491.256				
279	88.309								20110113170000	463.666				
280	82.784								20110113180000	437.85				
281	77.662								20110113190000	413.686				
282	72.908								20110113200000	391.062				
283	68.494								20110113210000	369.872				
284	64.392								20110113220000	350.018				
285	60.577								20110113230000	331.407				
286	57.026								20110114000000	313.955				
287	53.72								20110114010000	297.582				
288	50.638								20110114020000	282.213				
289	47.763								20110114030000	267.78				
290	45.08								20110114040000	254.22				
291	42.575								20110114050000	241.472				
292	40.233								20110114060000	229.483				
293	38.042								20110114070000	218.201				
294	35.992								20110114080000	207.578				
295	34.073								20110114090000	197.572				
296	32.274								20110114100000	188.141				
297	30.587								20110114110000	179.247				
298	29.004								20110114120000	170.855				
299	27.517								20110114130000	162.934				
300	26.121								20110114140000	155.452				
301	24.809								20110114150000	148.381				
302	23.574								20110114160000	141.696				
303	22.412								20110114170000	135.372				
304	21.318								20110114180000	129.387				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
267								20110113050000	357.095				2736	2208	529		2.01101E+13
268								20110113060000	338.033				2669	2175	494		2.01101E+13
269								20110113070000	320.272				2606	2144	462		2.01101E+13
270								20110113080000	303.697				2547	2115	432		2.01101E+13
271								20110113090000	288.208				2492	2087	405		2.01101E+13
272								20110113100000	273.713				2440	2060	380		2.01101E+13
273								20110113110000	260.132				2391	2035	356		2.01101E+13
274								20110113120000	247.391				2346	2011	335		2.01101E+13
275								20110113130000	235.428				2304	1990	315		2.01101E+13
276								20110113140000	224.185				2266	1971	296		2.01101E+13
277								20110113150000	213.612				2232	1954	279		2.01101E+13
278								20110113160000	203.663				2203	1940	263		2.01101E+13
279								20110113170000	194.297				2180	1932	248		2.01101E+13
280								20110113180000	185.477				2161	1928	234		2.01101E+13
281								20110113190000	177.169				2144	1923	221		2.01101E+13
282								20110113200000	169.34				2127	1918	209		2.01101E+13
283								20110113210000	161.962				2111	1913	198		2.01101E+13
284								20110113220000	155.005				2095	1908	187		2.01101E+13
285								20110113230000	148.443				2080	1903	178		2.01101E+13
286								20110114000000	142.252				1932	1764	169		2.01101E+13
287								20110114010000	136.407				1786	1626	160		2.01101E+13
288								20110114020000	130.886				1637	1485	152		2.01101E+13
289								20110114030000	125.667				1494	1349	145		2.01101E+13
290								20110114040000	120.73				1351	1214	138		2.01101E+13
291								20110114050000	116.057				1206	1075	131		2.01101E+13
292								20110114060000	111.628				1066	941	125		2.01101E+13
293								20110114070000	107.428				927	808	119		2.01101E+13
294								20110114080000	103.442				785	671	114		2.01101E+13
295								20110114090000	99.656				648	539	109		2.01101E+13
296								20110114100000	96.057				511	407	104		2.01101E+13
297								20110114110000	92.633				371	271	100		2.01101E+13
298								20110114120000	89.375				299	204	96		2.01101E+13
299								20110114130000	86.273				227	136	92		2.01101E+13
300								20110114140000	83.319				156	68	88		2.01101E+13
301								20110114150000	80.506				152	68	84		2.01101E+13
302								20110114160000	77.827				149	68	81		2.01101E+13
303								20110114170000	75.276				146	68	78		2.01101E+13
304								20110114180000	72.848				143	68	75		2.01101E+13

	AP	AQ	AR	AS
267	2207.538			
268	2175.304			
269	2144.371			
270	2114.789			
271	2086.621			
272	2059.941			
273	2034.843			
274	2011.45			
275	1989.929			
276	1970.522			
277	1953.621			
278	1939.995			
279	1932.396			
280	1927.608			
281	1922.747			
282	1917.812			
283	1912.803			
284	1907.717			
285	1902.554			
286	1763.708			
287	1625.854			
288	1484.904			
289	1348.874			
290	1213.649			
291	1075.154			
292	941.342			
293	808.116			
294	671.405			
295	539.118			
296	407.17			
297	271.492			
298	203.554			
299	135.673			
300	67.828			
301	67.824			
302	67.819			
303	67.815			
304	67.81			

	A	B	C	D	E	F	G	H	I	J
305	20110114190000	140								20110114190000
306	20110114200000	137								20110114200000
307	20110114210000	135								20110114210000
308	20110114220000	133								20110114220000
309	20110114230000	130								20110114230000
310	20110115000000	128								20110115000000
311	20110115010000	126								20110115010000
312	20110115020000	124								20110115020000
313	20110115030000	122								20110115030000
314	20110115040000	121								20110115040000
315	20110115050000	119								20110115050000
316	20110115060000	117								20110115060000
317	20110115070000	116								20110115070000
318	20110115080000	115								20110115080000
319	20110115090000	113								20110115090000
320	20110115100000	112								20110115100000
321	20110115110000	111								20110115110000
322	20110115120000	109								20110115120000
323	20110115130000	108								20110115130000
324	20110115140000	107								20110115140000
325	20110115150000	106								20110115150000
326	20110115160000	105								20110115160000
327	20110115170000	104								20110115170000
328	20110115180000	103								20110115180000
329	20110115190000	102								20110115190000
330	20110115200000	101								20110115200000
331	20110115210000	101								20110115210000
332	20110115220000	100								20110115220000
333	20110115230000	99								20110115230000
334	20110116000000	98								20110116000000
335	20110116010000	98								20110116010000
336	20110116020000	97								20110116020000
337	20110116030000	96								20110116030000
338	20110116040000	95								20110116040000
339	20110116050000	95								20110116050000
340	20110116060000	94								20110116060000
341	20110116070000	94								20110116070000
342	20110116080000	93								20110116080000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
305	20.287								20110114190000	123.719				
306	19.315								20110114200000	118.349				
307	18.399								20110114210000	113.259				
308	17.534								20110114220000	108.432				
309	16.717								20110114230000	103.852				
310	15.945								20110115000000	99.504				
311	15.215								20110115010000	95.375				
312	14.525								20110115020000	91.452				
313	13.872								20110115030000	87.723				
314	13.254								20110115040000	84.177				
315	12.669								20110115050000	80.802				
316	12.114								20110115060000	77.591				
317	11.588								20110115070000	74.532				
318	11.09								20110115080000	71.619				
319	10.616								20110115090000	68.842				
320	10.167								20110115100000	66.195				
321	9.74								20110115110000	63.67				
322	9.335								20110115120000	61.26				
323	8.95								20110115130000	58.96				
324	8.583								20110115140000	56.764				
325	8.235								20110115150000	54.666				
326	7.903								20110115160000	52.661				
327	7.587								20110115170000	50.744				
328	7.286								20110115180000	48.911				
329	6.999								20110115190000	47.157				
330	6.726								20110115200000	45.479				
331	6.466								20110115210000	43.872				
332	6.217								20110115220000	42.334				
333	5.98								20110115230000	40.86				
334	5.754								20110116000000	39.448				
335	5.537								20110116010000	38.094				
336	5.331								20110116020000	36.796				
337	5.133								20110116030000	35.55				
338	4.945								20110116040000	34.356				
339	4.764								20110116050000	33.209				
340	4.592								20110116060000	32.108				
341	4.427								20110116070000	31.051				
342	4.269								20110116080000	30.036				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
305								20110114190000	70.535				140	68	72		2.01101E+13
306								20110114200000	68.335				137	68	70		2.01101E+13
307								20110114210000	66.241				135	68	67		2.01101E+13
308								20110114220000	64.248				133	68	65		2.01101E+13
309								20110114230000	62.352				130	68	63		2.01101E+13
310								20110115000000	60.547				128	68	60		2.01101E+13
311								20110115010000	58.829				126	68	58		2.01101E+13
312								20110115020000	57.192				124	68	56		2.01101E+13
313								20110115030000	55.633				122	68	55		2.01101E+13
314								20110115040000	54.147				121	68	53		2.01101E+13
315								20110115050000	52.729				119	68	51		2.01101E+13
316								20110115060000	51.375				117	68	50		2.01101E+13
317								20110115070000	50.082				116	68	48		2.01101E+13
318								20110115080000	48.844				115	68	47		2.01101E+13
319								20110115090000	47.659				113	68	45		2.01101E+13
320								20110115100000	46.523				112	68	44		2.01101E+13
321								20110115110000	45.433				111	68	43		2.01101E+13
322								20110115120000	44.385				109	68	42		2.01101E+13
323								20110115130000	43.378				108	68	41		2.01101E+13
324								20110115140000	42.408				107	68	39		2.01101E+13
325								20110115150000	41.473				106	68	38		2.01101E+13
326								20110115160000	40.57				105	68	37		2.01101E+13
327								20110115170000	39.699				104	68	36		2.01101E+13
328								20110115180000	38.856				103	68	36		2.01101E+13
329								20110115190000	38.04				102	68	35		2.01101E+13
330								20110115200000	37.25				101	68	34		2.01101E+13
331								20110115210000	36.484				101	68	33		2.01101E+13
332								20110115220000	35.74				100	68	32		2.01101E+13
333								20110115230000	35.018				99	68	31		2.01101E+13
334								20110116000000	34.316				98	68	31		2.01101E+13
335								20110116010000	33.634				98	68	30		2.01101E+13
336								20110116020000	32.97				97	68	29		2.01101E+13
337								20110116030000	32.323				96	68	29		2.01101E+13
338								20110116040000	31.693				95	68	28		2.01101E+13
339								20110116050000	31.079				95	68	27		2.01101E+13
340								20110116060000	30.48				94	68	27		2.01101E+13
341								20110116070000	29.896				94	68	26		2.01101E+13
342								20110116080000	29.326				93	68	25		2.01101E+13

	AP	AQ	AR	AS
305	67.805			
306	67.8			
307	67.795			
308	67.789			
309	67.784			
310	67.779			
311	67.773			
312	67.768			
313	67.762			
314	67.756			
315	67.75			
316	67.744			
317	67.738			
318	67.733			
319	67.726			
320	67.72			
321	67.714			
322	67.708			
323	67.702			
324	67.696			
325	67.689			
326	67.683			
327	67.676			
328	67.67			
329	67.664			
330	67.657			
331	67.651			
332	67.644			
333	67.637			
334	67.631			
335	67.624			
336	67.617			
337	67.611			
338	67.604			
339	67.597			
340	67.591			
341	67.584			
342	67.577			

	A	B	C	D	E	F	G	H	I	J
343	20110116090000	93								20110116090000
344	20110116100000	92								20110116100000
345	20110116110000	91								20110116110000
346	20110116120000	91								20110116120000
347	20110116130000	90								20110116130000
348	20110116140000	90								20110116140000
349	20110116150000	89								20110116150000
350	20110116160000	89								20110116160000
351	20110116170000	89								20110116170000
352	20110116180000	88								20110116180000
353	20110116190000	88								20110116190000
354	20110116200000	87								20110116200000
355	20110116210000	87								20110116210000
356	20110116220000	87								20110116220000
357	20110116230000	86								20110116230000
358	20110117000000	86								20110117000000
359	20110117010000	85								20110117010000
360	20110117020000	85								20110117020000
361	20110117030000	85								20110117030000
362	20110117040000	84								20110117040000
363	20110117050000	84								20110117050000
364	20110117060000	84								20110117060000
365	20110117070000	83								20110117070000
366	20110117080000	83								20110117080000
367	20110117090000	83								20110117090000
368	20110117100000	83								20110117100000
369	20110117110000	82								20110117110000
370	20110117120000	82								20110117120000
371	20110117130000	82								20110117130000
372	20110117140000	82								20110117140000
373	20110117150000	81								20110117150000
374	20110117160000	81								20110117160000
375	20110117170000	81								20110117170000
376	20110117180000	81								20110117180000
377	20110117190000	80								20110117190000
378	20110117200000	80								20110117200000
379	20110117210000	80								20110117210000
380	20110117220000	80								20110117220000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
343	4.117								20110116090000	29.06				
344	3.972								20110116100000	28.122				
345	3.834								20110116110000	27.221				
346	3.7								20110116120000	26.354				
347	3.573								20110116130000	25.52				
348	3.451								20110116140000	24.718				
349	3.333								20110116150000	23.945				
350	3.221								20110116160000	23.202				
351	3.113								20110116170000	22.486				
352	3.009								20110116180000	21.797				
353	2.909								20110116190000	21.133				
354	2.814								20110116200000	20.493				
355	2.722								20110116210000	19.877				
356	2.633								20110116220000	19.282				
357	2.548								20110116230000	18.709				
358	2.467								20110117000000	18.156				
359	2.388								20110117010000	17.623				
360	2.313								20110117020000	17.108				
361	2.24								20110117030000	16.611				
362	2.17								20110117040000	16.132				
363	2.103								20110117050000	15.669				
364	2.038								20110117060000	15.222				
365	1.975								20110117070000	14.79				
366	1.915								20110117080000	14.373				
367	1.857								20110117090000	13.97				
368	1.801								20110117100000	13.581				
369	1.747								20110117110000	13.204				
370	1.695								20110117120000	12.84				
371	1.645								20110117130000	12.488				
372	1.597								20110117140000	12.147				
373	1.55								20110117150000	11.818				
374	1.505								20110117160000	11.499				
375	1.461								20110117170000	11.191				
376	1.419								20110117180000	10.892				
377	1.379								20110117190000	10.603				
378	1.34								20110117200000	10.323				
379	1.302								20110117210000	10.052				
380	1.265								20110117220000	9.789				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
343								20110116090000	28.77				93	68	25		2.01101E+13
344								20110116100000	28.226				92	68	24		2.01101E+13
345								20110116110000	27.696				91	68	24		2.01101E+13
346								20110116120000	27.178				91	68	23		2.01101E+13
347								20110116130000	26.671				90	68	23		2.01101E+13
348								20110116140000	26.177				90	68	22		2.01101E+13
349								20110116150000	25.695				89	68	22		2.01101E+13
350								20110116160000	25.224				89	68	22		2.01101E+13
351								20110116170000	24.764				89	68	21		2.01101E+13
352								20110116180000	24.316				88	68	21		2.01101E+13
353								20110116190000	23.88				88	68	20		2.01101E+13
354								20110116200000	23.455				87	67	20		2.01101E+13
355								20110116210000	23.041				87	67	19		2.01101E+13
356								20110116220000	22.639				87	67	19		2.01101E+13
357								20110116230000	22.249				86	67	19		2.01101E+13
358								20110117000000	21.869				86	67	18		2.01101E+13
359								20110117010000	21.501				85	67	18		2.01101E+13
360								20110117020000	21.144				85	67	18		2.01101E+13
361								20110117030000	20.798				85	67	17		2.01101E+13
362								20110117040000	20.463				84	67	17		2.01101E+13
363								20110117050000	20.138				84	67	17		2.01101E+13
364								20110117060000	19.824				84	67	16		2.01101E+13
365								20110117070000	19.519				83	67	16		2.01101E+13
366								20110117080000	19.224				83	67	16		2.01101E+13
367								20110117090000	18.939				83	67	15		2.01101E+13
368								20110117100000	18.662				83	67	15		2.01101E+13
369								20110117110000	18.393				82	67	15		2.01101E+13
370								20110117120000	18.133				82	67	15		2.01101E+13
371								20110117130000	17.881				82	67	14		2.01101E+13
372								20110117140000	17.635				82	67	14		2.01101E+13
373								20110117150000	17.397				81	67	14		2.01101E+13
374								20110117160000	17.166				81	67	14		2.01101E+13
375								20110117170000	16.941				81	67	13		2.01101E+13
376								20110117180000	16.722				81	67	13		2.01101E+13
377								20110117190000	16.508				80	67	13		2.01101E+13
378								20110117200000	16.3				80	67	13		2.01101E+13
379								20110117210000	16.097				80	67	13		2.01101E+13
380								20110117220000	15.898				80	67	12		2.01101E+13

	AP	AQ	AR	AS
343	67.57			
344	67.563			
345	67.556			
346	67.55			
347	67.543			
348	67.536			
349	67.529			
350	67.522			
351	67.515			
352	67.508			
353	67.501			
354	67.494			
355	67.487			
356	67.48			
357	67.473			
358	67.466			
359	67.459			
360	67.452			
361	67.444			
362	67.437			
363	67.43			
364	67.423			
365	67.416			
366	67.409			
367	67.402			
368	67.394			
369	67.387			
370	67.38			
371	67.373			
372	67.366			
373	67.358			
374	67.351			
375	67.344			
376	67.337			
377	67.329			
378	67.322			
379	67.315			
380	67.307			

	A	B	C	D	E	F	G	H	I	J
381	20110117230000	79								20110117230000
382	20110118000000	79								20110118000000
383	20110118010000	79								20110118010000
384	20110118020000	79								20110118020000
385	20110118030000	79								20110118030000
386	20110118040000	78								20110118040000
387	20110118050000	78								20110118050000
388	20110118060000	78								20110118060000
389	20110118070000	78								20110118070000
390	20110118080000	78								20110118080000
391	20110118090000	78								20110118090000
392	20110118100000	77								20110118100000
393	20110118110000	77								20110118110000
394	20110118120000	77								20110118120000
395	20110118130000	77								20110118130000
396	20110118140000	77								20110118140000
397	20110118150000	77								20110118150000
398	20110118160000	76								20110118160000
399	20110118170000	76								20110118170000
400	20110118180000	76								20110118180000
401	20110118190000	76								20110118190000
402	20110118200000	76								20110118200000
403	20110118210000	76								20110118210000
404	20110118220000	76								20110118220000
405	20110118230000	75								20110118230000
406	20110119000000	75								20110119000000
407	20110119010000	75								20110119010000
408	20110119020000	75								20110119020000
409	20110119030000	75								20110119030000
410	20110119040000	75								20110119040000
411	20110119050000	75								20110119050000
412	20110119060000	75								20110119060000
413	20110119070000	74								20110119070000
414	20110119080000	74								20110119080000
415	20110119090000	74								20110119090000
416	20110119100000	74								20110119100000
417	20110119110000	74								20110119110000
418	20110119120000	74								20110119120000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
381	1.23								20110117230000	9.535				
382	1.196								20110118000000	9.288				
383	1.163								20110118010000	9.05				
384	1.131								20110118020000	8.818				
385	1.1								20110118030000	8.594				
386	1.07								20110118040000	8.376				
387	1.041								20110118050000	8.165				
388	1.013								20110118060000	7.96				
389	0.986								20110118070000	7.762				
390	0.96								20110118080000	7.569				
391	0.935								20110118090000	7.382				
392	0.91								20110118100000	7.201				
393	0.886								20110118110000	7.025				
394	0.863								20110118120000	6.854				
395	0.841								20110118130000	6.688				
396	0.819								20110118140000	6.527				
397	0.798								20110118150000	6.37				
398	0.778								20110118160000	6.218				
399	0.758								20110118170000	6.07				
400	0.739								20110118180000	5.927				
401	0.72								20110118190000	5.788				
402	0.702								20110118200000	5.652				
403	0.685								20110118210000	5.52				
404	0.668								20110118220000	5.392				
405	0.651								20110118230000	5.268				
406	0.636								20110119000000	5.147				
407	0.62								20110119010000	5.029				
408	0.605								20110119020000	4.914				
409	0.59								20110119030000	4.803				
410	0.576								20110119040000	4.695				
411	0.562								20110119050000	4.589				
412	0.549								20110119060000	4.487				
413	0.536								20110119070000	4.387				
414	0.523								20110119080000	4.289				
415	0.511								20110119090000	4.195				
416	0.499								20110119100000	4.103				
417	0.488								20110119110000	4.013				
418	0.476								20110119120000	3.926				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
381								20110117230000	15.704				79	67	12		2.01101E+13
382								20110118000000	15.514				79	67	12		2.01101E+13
383								20110118010000	15.329				79	67	12		2.01101E+13
384								20110118020000	15.147				79	67	12		2.01101E+13
385								20110118030000	14.969				79	67	11		2.01101E+13
386								20110118040000	14.794				78	67	11		2.01101E+13
387								20110118050000	14.622				78	67	11		2.01101E+13
388								20110118060000	14.453				78	67	11		2.01101E+13
389								20110118070000	14.288				78	67	11		2.01101E+13
390								20110118080000	14.125				78	67	10		2.01101E+13
391								20110118090000	13.965				78	67	10		2.01101E+13
392								20110118100000	13.808				77	67	10		2.01101E+13
393								20110118110000	13.653				77	67	10		2.01101E+13
394								20110118120000	13.5				77	67	10		2.01101E+13
395								20110118130000	13.35				77	67	10		2.01101E+13
396								20110118140000	13.202				77	67	10		2.01101E+13
397								20110118150000	13.056				77	67	9		2.01101E+13
398								20110118160000	12.912				76	67	9		2.01101E+13
399								20110118170000	12.77				76	67	9		2.01101E+13
400								20110118180000	12.63				76	67	9		2.01101E+13
401								20110118190000	12.492				76	67	9		2.01101E+13
402								20110118200000	12.355				76	67	9		2.01101E+13
403								20110118210000	12.221				76	67	9		2.01101E+13
404								20110118220000	12.088				76	67	8		2.01101E+13
405								20110118230000	11.957				75	67	8		2.01101E+13
406								20110119000000	11.828				75	67	8		2.01101E+13
407								20110119010000	11.7				75	67	8		2.01101E+13
408								20110119020000	11.574				75	67	8		2.01101E+13
409								20110119030000	11.45				75	67	8		2.01101E+13
410								20110119040000	11.326				75	67	8		2.01101E+13
411								20110119050000	11.205				75	67	8		2.01101E+13
412								20110119060000	11.085				75	67	8		2.01101E+13
413								20110119070000	10.966				74	67	7		2.01101E+13
414								20110119080000	10.849				74	67	7		2.01101E+13
415								20110119090000	10.733				74	67	7		2.01101E+13
416								20110119100000	10.619				74	67	7		2.01101E+13
417								20110119110000	10.505				74	67	7		2.01101E+13
418								20110119120000	10.394				74	67	7		2.01101E+13

	AP	AQ	AR	AS
381	67.3			
382	67.293			
383	67.286			
384	67.278			
385	67.271			
386	67.264			
387	67.256			
388	67.249			
389	67.242			
390	67.234			
391	67.227			
392	67.219			
393	67.212			
394	67.205			
395	67.197			
396	67.19			
397	67.182			
398	67.175			
399	67.168			
400	67.16			
401	67.153			
402	67.145			
403	67.138			
404	67.13			
405	67.123			
406	67.115			
407	67.108			
408	67.1			
409	67.093			
410	67.085			
411	67.078			
412	67.07			
413	67.063			
414	67.055			
415	67.048			
416	67.04			
417	67.033			
418	67.025			

	A	B	C	D	E	F	G	H	I	J
419	20110119130000	74								20110119130000
420	20110119140000	74								20110119140000
421	20110119150000	74								20110119150000
422	20110119160000	74								20110119160000
423	20110119170000	73								20110119170000
424	20110119180000	73								20110119180000
425	20110119190000	73								20110119190000
426	20110119200000	73								20110119200000
427	20110119210000	73								20110119210000
428	20110119220000	73								20110119220000
429	20110119230000	73								20110119230000
430	20110120000000	73								20110120000000
431	20110120010000	73								20110120010000
432	20110120020000	73								20110120020000
433	20110120030000	73								20110120030000
434	20110120040000	72								20110120040000
435	20110120050000	72								20110120050000
436	20110120060000	72								20110120060000
437	20110120070000	72								20110120070000
438	20110120080000	72								20110120080000
439	20110120090000	72								20110120090000
440	20110120100000	72								20110120100000
441	20110120110000	72								20110120110000
442	20110120120000	72								20110120120000
443	20110120130000	72								20110120130000
444	20110120140000	72								20110120140000
445	20110120150000	72								20110120150000
446	20110120160000	72								20110120160000
447	20110120170000	72								20110120170000
448	20110120180000	71								20110120180000
449	20110120190000	71								20110120190000
450	20110120200000	71								20110120200000
451	20110120210000	71								20110120210000
452	20110120220000	71								20110120220000
453	20110120230000	71								20110120230000
454	20110121000000	71								20110121000000
455	20110121010000	71								20110121010000
456	20110121020000	71								20110121020000

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419	0.465								20110119130000	3.84				
420	0.455								20110119140000	3.758				
421	0.444								20110119150000	3.677				
422	0.434								20110119160000	3.598				
423	0.424								20110119170000	3.521				
424	0.415								20110119180000	3.447				
425	0.406								20110119190000	3.374				
426	0.396								20110119200000	3.303				
427	0.388								20110119210000	3.234				
428	0.379								20110119220000	3.166				
429	0.371								20110119230000	3.101				
430	0.363								20110120000000	3.036				
431	0.355								20110120010000	2.974				
432	0.347								20110120020000	2.913				
433	0.34								20110120030000	2.853				
434	0.332								20110120040000	2.795				
435	0.325								20110120050000	2.739				
436	0.318								20110120060000	2.683				
437	0.311								20110120070000	2.629				
438	0.305								20110120080000	2.577				
439	0.298								20110120090000	2.525				
440	0.292								20110120100000	2.475				
441	0.286								20110120110000	2.426				
442	0.28								20110120120000	2.378				
443	0.274								20110120130000	2.332				
444	0.269								20110120140000	2.286				
445	0.263								20110120150000	2.242				
446	0.258								20110120160000	2.198				
447	0.252								20110120170000	2.156				
448	0.247								20110120180000	2.114				
449	0.242								20110120190000	2.074				
450	0.237								20110120200000	2.034				
451	0.233								20110120210000	1.995				
452	0.228								20110120220000	1.958				
453	0.223								20110120230000	1.921				
454	0.219								20110121000000	1.885				
455	0.215								20110121010000	1.849				
456	0.21								20110121020000	1.815				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
419								20110119130000	10.283				74	67	7		2.01101E+13
420								20110119140000	10.174				74	67	7		2.01101E+13
421								20110119150000	10.066				74	67	7		2.01101E+13
422								20110119160000	9.959				74	67	7		2.01101E+13
423								20110119170000	9.854				73	67	6		2.01101E+13
424								20110119180000	9.75				73	67	6		2.01101E+13
425								20110119190000	9.646				73	67	6		2.01101E+13
426								20110119200000	9.544				73	67	6		2.01101E+13
427								20110119210000	9.444				73	67	6		2.01101E+13
428								20110119220000	9.344				73	67	6		2.01101E+13
429								20110119230000	9.246				73	67	6		2.01101E+13
430								20110120000000	9.148				73	67	6		2.01101E+13
431								20110120010000	9.052				73	67	6		2.01101E+13
432								20110120020000	8.957				73	67	6		2.01101E+13
433								20110120030000	8.863				73	67	6		2.01101E+13
434								20110120040000	8.769				72	67	6		2.01101E+13
435								20110120050000	8.677				72	67	5		2.01101E+13
436								20110120060000	8.586				72	67	5		2.01101E+13
437								20110120070000	8.496				72	67	5		2.01101E+13
438								20110120080000	8.407				72	67	5		2.01101E+13
439								20110120090000	8.319				72	67	5		2.01101E+13
440								20110120100000	8.232				72	67	5		2.01101E+13
441								20110120110000	8.146				72	67	5		2.01101E+13
442								20110120120000	8.061				72	67	5		2.01101E+13
443								20110120130000	7.977				72	67	5		2.01101E+13
444								20110120140000	7.894				72	67	5		2.01101E+13
445								20110120150000	7.811				72	67	5		2.01101E+13
446								20110120160000	7.73				72	67	5		2.01101E+13
447								20110120170000	7.649				72	67	5		2.01101E+13
448								20110120180000	7.569				71	67	5		2.01101E+13
449								20110120190000	7.491				71	67	5		2.01101E+13
450								20110120200000	7.413				71	67	5		2.01101E+13
451								20110120210000	7.336				71	67	4		2.01101E+13
452								20110120220000	7.259				71	67	4		2.01101E+13
453								20110120230000	7.184				71	67	4		2.01101E+13
454								20110121000000	7.109				71	67	4		2.01101E+13
455								20110121010000	7.035				71	67	4		2.01101E+13
456								20110121020000	6.962				71	67	4		2.01101E+13

	AP	AQ	AR	AS
419	67.018			
420	67.01			
421	67.003			
422	66.995			
423	66.988			
424	66.98			
425	66.972			
426	66.965			
427	66.957			
428	66.95			
429	66.942			
430	66.934			
431	66.927			
432	66.919			
433	66.912			
434	66.904			
435	66.896			
436	66.889			
437	66.881			
438	66.873			
439	66.866			
440	66.858			
441	66.85			
442	66.843			
443	66.835			
444	66.827			
445	66.82			
446	66.812			
447	66.804			
448	66.797			
449	66.789			
450	66.781			
451	66.773			
452	66.766			
453	66.758			
454	66.75			
455	66.742			
456	66.735			

	A	B	C	D	E	F	G	H	I	J
457	20110121030000	71								20110121030000
458	20110121040000	71								20110121040000
459	20110121050000	71								20110121050000
460	20110121060000	71								20110121060000
461	20110121070000	71								20110121070000
462	20110121080000	71								20110121080000
463	20110121090000	71								20110121090000
464	20110121100000	70								20110121100000
465	20110121110000	70								20110121110000
466	20110121120000	70								20110121120000
467	20110121130000	70								20110121130000
468	20110121140000	70								20110121140000
469	20110121150000	70								20110121150000
470	20110121160000	70								20110121160000
471	20110121170000	70								20110121170000
472	20110121180000	70								20110121180000
473	20110121190000	70								20110121190000
474	20110121200000	70								20110121200000
475	20110121210000	70								20110121210000
476	20110121220000	70								20110121220000
477	20110121230000	70								20110121230000
478	20110122000000	70								20110122000000
479	20110122010000	70								20110122010000
480	20110122020000	70								20110122020000
481	20110122030000	70								20110122030000
482	20110122040000	70								20110122040000
483	20110122050000	70								20110122050000
484	20110122060000	70								20110122060000
485	20110122070000	69								20110122070000
486	20110122080000	69								20110122080000
487	20110122090000	69								20110122090000
488		0								
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494		0								

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457	0.206								20110121030000	1.781				
458	0.202								20110121040000	1.748				
459	0.198								20110121050000	1.716				
460	0.195								20110121060000	1.684				
461	0.191								20110121070000	1.653				
462	0.187								20110121080000	1.623				
463	0.184								20110121090000	1.594				
464	0.18								20110121100000	1.565				
465	0.177								20110121110000	1.536				
466	0.173								20110121120000	1.509				
467	0.17								20110121130000	1.482				
468	0.167								20110121140000	1.455				
469	0.164								20110121150000	1.429				
470	0.161								20110121160000	1.404				
471	0.158								20110121170000	1.379				
472	0.155								20110121180000	1.355				
473	0.152								20110121190000	1.331				
474	0.149								20110121200000	1.308				
475	0.146								20110121210000	1.285				
476	0.144								20110121220000	1.263				
477	0.141								20110121230000	1.241				
478	0.139								20110122000000	1.22				
479	0.136								20110122010000	1.199				
480	0.134								20110122020000	1.178				
481	0.131								20110122030000	1.158				
482	0.129								20110122040000	1.138				
483	0.127								20110122050000	1.119				
484	0.124								20110122060000	1.1				
485	0.122								20110122070000	1.082				
486	0.12								20110122080000	1.063				
487	0.118								20110122090000	1.046				
488														
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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
457								20110121030000	6.89				71	67	4		2.01101E+13
458								20110121040000	6.819				71	67	4		2.01101E+13
459								20110121050000	6.748				71	67	4		2.01101E+13
460								20110121060000	6.678				71	67	4		2.01101E+13
461								20110121070000	6.609				71	67	4		2.01101E+13
462								20110121080000	6.541				71	67	4		2.01101E+13
463								20110121090000	6.473				71	67	4		2.01101E+13
464								20110121100000	6.406				70	67	4		2.01101E+13
465								20110121110000	6.34				70	67	4		2.01101E+13
466								20110121120000	6.274				70	67	4		2.01101E+13
467								20110121130000	6.21				70	67	4		2.01101E+13
468								20110121140000	6.146				70	67	4		2.01101E+13
469								20110121150000	6.082				70	67	4		2.01101E+13
470								20110121160000	6.019				70	67	4		2.01101E+13
471								20110121170000	5.957				70	67	3		2.01101E+13
472								20110121180000	5.896				70	67	3		2.01101E+13
473								20110121190000	5.835				70	67	3		2.01101E+13
474								20110121200000	5.775				70	67	3		2.01101E+13
475								20110121210000	5.716				70	67	3		2.01101E+13
476								20110121220000	5.657				70	67	3		2.01101E+13
477								20110121230000	5.599				70	67	3		2.01101E+13
478								20110122000000	5.541				70	67	3		2.01101E+13
479								20110122010000	5.484				70	67	3		2.01101E+13
480								20110122020000	5.428				70	67	3		2.01101E+13
481								20110122030000	5.372				70	67	3		2.01101E+13
482								20110122040000	5.317				70	67	3		2.01101E+13
483								20110122050000	5.262				70	67	3		2.01101E+13
484								20110122060000	5.208				70	67	3		2.01101E+13
485								20110122070000	5.155				69	67	3		2.01101E+13
486								20110122080000	5.102				69	67	3		2.01101E+13
487								20110122090000	5.05				69	66	3		2.01101E+13
488																	
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	AP	AQ	AR	AS
457	66.727			
458	66.719			
459	66.711			
460	66.704			
461	66.696			
462	66.688			
463	66.68			
464	66.673			
465	66.665			
466	66.657			
467	66.649			
468	66.641			
469	66.634			
470	66.626			
471	66.618			
472	66.61			
473	66.602			
474	66.594			
475	66.587			
476	66.579			
477	66.571			
478	66.563			
479	66.555			
480	66.547			
481	66.539			
482	66.532			
483	66.524			
484	66.516			
485	66.508			
486	66.5			
487	66.492			
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1	Time Factor =	1.00		Date/Time	Wivenhoe Inflow				Somerset Inflow				Loc
2	Flow Factors =	1.00	1.00				BR= 0.9760				BR= 0.9840		
3	Day	Somerset Inflow	Wivenhoe Inflows				BC= 0.0025				BC= 0.0020		
4							BM= 1.0000				BM= 1.0000		
5					Scale Factor= 0.96		1		Scale Factor= 1.06		1		Scale Factor= 1.00
6	0.000	0.0	0.0	Peak (m3/s)	8,422		438	8,287	3,579		197	3,844	2,930
7	0.042	0.0	0.0	Volume (ML)	1,666,241		188,118	1,781,045	680,786		102,207	820,437	627,001
8	0.083	0.0	0.0	02/01/2011 09:00	0	0	150	150	0	0	60	60	0
9	0.125	0.0	0.0	02/01/2011 10:00	0	0	146	146	0	0	59	59	0
10	0.167	0.0	0.0	02/01/2011 11:00	0	0	143	143	0	0	58	58	0
11	0.208	0.0	0.0	02/01/2011 12:00	0	0	139	139	0	0	57	57	0
12	0.250	0.0	0.0	02/01/2011 13:00	0	0	136	136	0	0	56	56	0
13	0.292	0.0	0.0	02/01/2011 14:00	0	0	133	133	0	0	55	55	0
14	0.333	0.0	0.0	02/01/2011 15:00	0	0	130	130	0	0	54	54	0
15	0.375	0.2	0.0	02/01/2011 16:00	0	0	127	127	0	0	54	54	0
16	0.417	0.6	0.0	02/01/2011 17:00	0	0	124	124	0	0	53	53	0
17	0.458	1.5	0.0	02/01/2011 18:00	0	0	121	121	0	0	52	52	0
18	0.500	3.2	0.0	02/01/2011 19:00	0	0	118	118	0	0	51	51	0
19	0.542	6.0	0.0	02/01/2011 20:00	0	0	115	115	0	0	50	50	0
20	0.583	10.2	0.0	02/01/2011 21:00	0	0	112	112	0	0	49	49	0
21	0.625	15.7	0.0	02/01/2011 22:00	0	0	109	109	0	0	49	49	0
22	0.667	22.8	0.0	02/01/2011 23:00	0	0	107	107	0	0	48	48	0
23	0.708	31.4	0.0	03/01/2011 00:00	0	0	104	104	0	0	47	47	0
24	0.750	41.4	0.0	03/01/2011 01:00	0	0	102	102	0	0	46	46	0
25	0.792	52.4	0.0	03/01/2011 02:00	0	0	99	99	0	0	46	46	0
26	0.833	63.6	0.0	03/01/2011 03:00	0	0	97	97	0	0	45	45	0
27	0.875	74.3	174.7	03/01/2011 04:00	0	0	95	95	0	0	44	44	0
28	0.917	85.9	36.1	03/01/2011 05:00	0	0	92	92	0	0	43	43	0
29	0.958	110.6	30.9	03/01/2011 06:00	0	0	90	90	0	0	43	43	0
30	1.000	111.1	30.3	03/01/2011 07:00	0	0	88	88	0	0	42	42	0
31	1.042	145.6	36.8	03/01/2011 08:00	0	0	86	86	0	0	41	41	0
32	1.083	150.2	53.6	03/01/2011 09:00	0	0	84	84	0	0	41	41	0
33	1.125	205.3	83.1	03/01/2011 10:00	0	0	82	82	0	0	40	40	0
34	1.167	266.9	157.2	03/01/2011 11:00	0	0	80	80	0	0	39	39	0
35	1.208	457.7	238.5	03/01/2011 12:00	0	0	78	78	0	0	39	39	0
36	1.250	531.4	397.1	03/01/2011 13:00	0	0	76	76	0	0	38	38	0
37	1.292	492.5	362.3	03/01/2011 14:00	0	0	74	74	0	0	38	38	0
38	1.333	506.7	497.4	03/01/2011 15:00	0	0	72	72	0	0	37	37	0
39	1.375	518.0	498.0	03/01/2011 16:00	0	0	71	71	44	46	36	83	0
40	1.417	537.4	520.1	03/01/2011 17:00	1	1	69	69	111	117	36	153	0
41	1.458	605.4	636.9	03/01/2011 18:00	1	1	67	68	85	90	36	125	0
42	1.500	602.4	591.9	03/01/2011 19:00	1	1	66	66	66	70	35	105	0
43	1.542	593.3	589.2	03/01/2011 20:00	1	1	64	65	54	57	35	92	0
44	1.583	612.3	586.5	03/01/2011 21:00	1	1	63	64	45	48	34	82	0

RD5-1406

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	kyer Creek			Bremer River				Incremental Wivenhoe	Incremental Somerset	Incremental Lockyer	Incremental Bremer			Incremental Somerset Inflow
2		BR= 0.9750				BR= 0.9750								
3		BC= 0.0020				BC= 0.0020								
4		BM= 1.0000				BM= 1.0000								
5		1		Scale Factor= 1.00		1								
6		135	3,040	2,727		91	2,793	-86.4	-23.0	0.0	0.0	2/1/2011 9:00	0.7	0.922
7		50,030	677,031	400,621		31,906	432,527	-84.3	-22.7	0.0	0.0	2/1/2011 10:00	1.6	0.072
8	0	0	0	0	0	0	0	-82.3	-22.3	0.0	0.0	2/1/2011 11:00	1.7	4.878
9	0	0	0	0	0	0	0	-80.3	-22.0	0.0	0.0	2/1/2011 12:00	6.6	24.354
10	0	0	0	0	0	0	0	-78.4	-21.6	0.0	0.0	2/1/2011 13:00	30.9	19.096
11	0	0	0	0	0	0	0	-76.5	-21.3	0.0	0.0	2/1/2011 14:00	50.0	10.636
12	0	0	0	0	0	0	0	-74.7	-20.9	0.0	0.0	2/1/2011 15:00	60.6	2.517
13	0	0	0	0	0	0	0	-72.9	-20.6	0.0	0.0	2/1/2011 16:00	63.2	3.974
14	0	0	0	0	0	0	0	-71.1	-20.3	0.0	0.0	2/1/2011 17:00	67.1	7.182
15	0	0	0	0	0	0	0	-69.4	-19.9	0.0	0.0	2/1/2011 18:00	74.3	8.667000001
16	0	0	0	0	0	0	0	-67.8	-19.6	0.0	0.0	2/1/2011 19:00	83.0	6.976
17	0	0	0	0	0	0	0	-66.1	-19.3	0.0	0.0	2/1/2011 20:00	90.0	9.467000001
18	0	0	0	0	0	0	0	-64.6	-19.0	0.0	0.0	2/1/2011 21:00	99.4	10.12
19	0	0	0	0	0	0	0	-63.0	-18.7	0.0	0.0	2/1/2011 22:00	109.5	8.365
20	0	0	0	0	0	0	0	-61.5	-18.4	0.0	0.0	2/1/2011 23:00	117.9	8.352
21	0	0	0	0	0	0	0	-60.0	-18.1	0.0	0.0	3/1/2011 0:00	126.3	7.775
22	0	0	0	0	0	0	0	-58.6	-17.8	0.0	0.0	3/1/2011 1:00	134.0	6.739
23	0	0	0	0	0	0	0	-57.2	-17.5	0.0	0.0	3/1/2011 2:00	140.8	5.401
24	0	0	0	0	0	0	0	-55.8	-17.2	0.0	0.0	3/1/2011 3:00	146.2	4.07
25	0	0	0	0	0	0	0	-54.5	-17.0	0.0	0.0	3/1/2011 4:00	150.3	20.874
26	0	0	0	0	0	0	0	-53.2	-16.7	0.0	0.0	3/1/2011 5:00	171.1	75.34
27	0	0	0	0	0	0	0	-51.9	-16.4	0.0	0.0	3/1/2011 6:00	246.5	79.647
28	0	0	0	0	0	0	0	-50.6	-16.2	0.0	0.0	3/1/2011 7:00	326.1	83.464
29	0	0	0	0	0	0	0	-49.4	-15.9	0.0	0.0	3/1/2011 8:00	409.6	99.98500001
30	0	0	0	0	0	0	0	-48.2	-15.6	0.0	0.0	3/1/2011 9:00	509.6	14.172
31	0	0	0	0	0	0	0	-47.1	-15.4	0.0	0.0	3/1/2011 10:00	523.7	-7.729
32	0	0	0	0	0	0	0	-45.9	-15.1	0.0	0.0	3/1/2011 11:00	516.0	-6.797
33	0	0	0	0	0	0	0	-44.8	-14.9	0.0	0.0	3/1/2011 12:00	509.2	-6.996
34	0	0	0	0	0	0	0	-43.8	-14.7	0.0	0.0	3/1/2011 13:00	502.2	-8.268
35	0	0	0	0	0	0	0	-42.7	-14.4	0.0	0.0	3/1/2011 14:00	493.9	-3.543
36	0	0	0	0	0	0	0	-36.1	1093.9	0.0	0.0	3/1/2011 15:00	490.4	26.6
37	0	0	0	0	0	0	0	-33.4	1686.1	0.0	0.0	3/1/2011 16:00	517.0	-1.172
38	0	0	0	0	0	0	0	-39.7	-657.0	0.0	0.0	3/1/2011 17:00	515.8	-20.126
39	0	0	0	0	0	0	0	-37.9	-483.6	0.0	0.0	3/1/2011 18:00	495.7	-26.34
40	0	0	0	0	0	0	0	-36.1	-319.3	0.0	0.0	3/1/2011 19:00	469.4	-23.74
41	0	0	0	0	0	0	0	-27.1	-231.8	0.0	0.0	3/1/2011 20:00	445.6	-22.519
42	0	0	0	0	0	0	0	1587.8	-73.7	0.0	0.0	3/1/2011 21:00	423.1	-20.099
43	0	0	0	0	0	0	0	-1066.7	-243.4	0.0	0.0	3/1/2011 22:00	403.0	-16.978
44	0	0	0	0	0	0	0	-282.3	-113.3	0.0	0.0	3/1/2011 23:00	386.0	-14.456

RD5-1407

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45	1.625	625.9	584.3	03/01/2011 22:00	72	69	61	130	43	45	34	79	0
46	1.667	662.0	599.8	03/01/2011 23:00	27	25	60	85	34	36	33	69	0
47	1.708	799.2	649.1	04/01/2011 00:00	16	15	58	74	30	31	33	64	0
48	1.750	1299.8	1361.7	04/01/2011 01:00	14	13	57	71	27	28	33	61	0
49	1.792	1999.5	3002.6	04/01/2011 02:00	13	12	56	68	24	25	32	57	0
50	1.833	2065.8	2038.6	04/01/2011 03:00	12	11	54	66	22	23	32	54	0
51	1.875	1989.5	2363.9	04/01/2011 04:00	11	10	53	64	20	21	31	52	0
52	1.917	1846.4	2090.6	04/01/2011 05:00	10	10	52	62	18	19	31	50	0
53	1.958	1741.2	2058.8	04/01/2011 06:00	10	9	51	60	17	18	30	48	0
54	2.000	1694.4	2065.7	04/01/2011 07:00	9	9	49	58	16	17	30	46	0
55	2.042	1862.0	2395.6	04/01/2011 08:00	9	8	48	57	15	15	29	45	0
56	2.083	1980.7	2564.8	04/01/2011 09:00	8	8	47	55	14	15	29	43	0
57	2.125	2144.5	2633.0	04/01/2011 10:00	8	8	46	54	13	14	28	42	0
58	2.167	2258.7	2810.7	04/01/2011 11:00	8	7	45	52	12	13	28	41	0
59	2.208	2347.2	2953.2	04/01/2011 12:00	7	7	44	51	12	12	28	40	0
60	2.250	2397.3	3130.3	04/01/2011 13:00	7	7	43	49	11	12	27	39	0
61	2.292	2448.8	3362.6	04/01/2011 14:00	7	6	42	48	10	11	27	38	0
62	2.333	2959.6	3781.5	04/01/2011 15:00	6	6	41	47	10	10	26	37	0
63	2.375	3266.8	4115.5	04/01/2011 16:00	6	6	40	46	9	10	26	36	0
64	2.417	3658.0	4624.6	04/01/2011 17:00	6	5	39	44	9	9	26	35	0
65	2.458	3765.7	5084.5	04/01/2011 18:00	5	5	38	43	8	9	25	34	0
66	2.500	3709.4	5340.8	04/01/2011 19:00	5	5	37	42	8	9	25	33	0
67	2.542	3534.4	5536.4	04/01/2011 20:00	5	5	36	41	8	8	24	33	0
68	2.583	3420.3	5826.4	04/01/2011 21:00	5	5	35	40	7	8	24	32	0
69	2.625	3397.8	6114.5	04/01/2011 22:00	4	4	35	39	7	7	24	31	0
70	2.667	3353.7	6363.2	04/01/2011 23:00	4	4	34	38	7	7	23	30	0
71	2.708	3398.9	6545.6	05/01/2011 00:00	4	4	33	37	6	7	23	30	0
72	2.750	3500.2	6758.8	05/01/2011 01:00	4	4	32	36	6	6	23	29	0
73	2.792	3435.9	6861.9	05/01/2011 02:00	4	4	31	35	6	6	22	28	0
74	2.833	3223.6	6652.6	05/01/2011 03:00	4	3	31	34	6	6	22	28	0
75	2.875	2998.8	6466.4	05/01/2011 04:00	3	3	30	33	5	6	22	27	0
76	2.917	2795.1	6232.6	05/01/2011 05:00	3	3	29	32	5	5	21	27	0
77	2.958	2612.1	5969.6	05/01/2011 06:00	3	3	29	31	5	5	21	26	0
78	3.000	2439.2	5689.9	05/01/2011 07:00	3	3	28	31	5	5	21	26	0
79	3.042	2270.2	5399.6	05/01/2011 08:00	3	3	27	30	5	5	20	25	0
80	3.083	2106.8	5101.1	05/01/2011 09:00	3	3	27	29	4	5	20	25	0
81	3.125	1949.8	4796.5	05/01/2011 10:00	3	2	26	28	4	4	20	24	0
82	3.167	1800.6	4488.4	05/01/2011 11:00	2	2	25	28	4	4	19	24	0
83	3.208	1659.9	4180.6	05/01/2011 12:00	2	2	25	27	4	4	19	23	0
84	3.250	1528.5	3877.0	05/01/2011 13:00	2	2	24	26	4	4	19	23	0
85	3.292	1406.6	3581.1	05/01/2011 14:00	2	2	24	26	4	4	18	22	0
86	3.333	1297.8	3296.3	05/01/2011 15:00	2	2	23	25	3	4	18	22	0
87	3.375	1199.1	3025.2	05/01/2011 16:00	2	2	22	24	9	9	18	27	0
88	3.417	1106.2	2769.7	05/01/2011 17:00	4	4	22	25	20	21	18	39	0
89	3.458	1020.4	2531.2	05/01/2011 18:00	7	7	21	28	31	33	17	50	6

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
45	0	0	0	0	0	0	0	-72.2	-93.5	0.0	0.0	4/1/2011 0:00	371.6	-15.247
46	0	0	0	0	0	0	0	-62.4	-78.5	0.0	0.0	4/1/2011 1:00	356.3	-16.077
47	0	0	0	0	0	0	0	-55.1	-67.0	0.0	0.0	4/1/2011 2:00	340.2	-13.884
48	0	0	0	0	0	0	0	-49.6	-57.9	0.0	0.0	4/1/2011 3:00	326.4	-13.201
49	0	0	0	0	0	0	0	-45.6	-50.9	0.0	0.0	4/1/2011 4:00	313.2	-9.530000001
50	0	0	0	0	0	0	0	-42.5	-45.2	0.0	0.0	4/1/2011 5:00	303.6	-6.989
51	0	0	0	0	0	0	0	-40.1	-40.6	0.0	0.0	4/1/2011 6:00	296.6	-9.070000001
52	0	0	0	0	0	0	0	-38.3	-36.9	0.0	0.0	4/1/2011 7:00	287.6	-1.655
53	0	0	0	0	0	0	0	-36.8	-33.8	0.0	0.0	4/1/2011 8:00	285.9	-5.922
54	0	0	0	0	0	0	0	-35.5	-31.2	0.0	0.0	4/1/2011 9:00	280.0	-11.231
55	0	0	0	0	0	0	0	-34.4	-29.0	0.0	0.0	4/1/2011 10:00	268.8	-11.56
56	0	0	0	0	0	0	0	-33.4	-27.2	0.0	0.0	4/1/2011 11:00	257.2	-11.462
57	0	0	0	0	0	0	0	-32.5	-25.6	0.0	0.0	4/1/2011 12:00	245.7	-10.589
58	0	0	0	0	0	0	0	-31.6	-24.2	0.0	0.0	4/1/2011 13:00	235.2	2.839
59	0	0	0	0	0	0	0	-30.7	-23.0	0.0	0.0	4/1/2011 14:00	238.0	131.819
60	0	0	0	0	0	0	0	-29.9	-21.9	0.0	0.0	4/1/2011 15:00	369.8	-16.031
61	0	0	0	0	0	0	0	-29.1	-20.9	0.0	0.0	4/1/2011 16:00	353.8	-49.191
62	0	0	0	0	0	0	0	-28.2	-20.0	0.0	0.0	4/1/2011 17:00	304.6	-30.652
63	0	0	0	0	0	0	0	-27.5	-19.2	0.0	0.0	4/1/2011 18:00	273.9	-10.754
64	0	0	0	0	0	0	0	-26.7	-18.5	0.0	0.0	4/1/2011 19:00	263.2	-10.624
65	0	0	0	0	0	0	0	-25.9	-17.9	0.0	0.0	4/1/2011 20:00	252.6	-18.132
66	0	0	0	0	0	0	0	-25.2	-17.2	0.0	0.0	4/1/2011 21:00	234.4	-17.682
67	0	0	0	0	0	0	0	-24.5	-16.6	0.0	0.0	4/1/2011 22:00	216.7	-14.792
68	0	0	0	0	0	0	0	-23.8	-16.1	0.0	0.0	4/1/2011 23:00	202.0	-13.069
69	0	0	0	0	0	0	0	-23.1	-15.6	0.0	0.0	5/1/2011 0:00	188.9	-11.927
70	0	0	0	0	0	0	0	-22.4	-15.1	0.0	0.0	5/1/2011 1:00	177.0	-11.076
71	0	0	0	0	0	0	0	-21.8	-14.7	0.0	0.0	5/1/2011 2:00	165.9	-10.368
72	0	0	0	0	0	0	0	-21.1	-14.2	0.0	0.0	5/1/2011 3:00	155.5	-9.734000001
73	0	0	0	0	0	0	0	-20.5	-13.8	0.0	0.0	5/1/2011 4:00	145.8	-9.138000001
74	0	0	0	0	0	0	0	-19.9	-13.4	0.0	0.0	5/1/2011 5:00	136.6	-8.57
75	0	0	0	0	0	0	0	-19.4	-13.0	0.0	0.0	5/1/2011 6:00	128.1	-8.024
76	0	0	0	0	0	0	0	-18.8	-12.7	0.0	0.0	5/1/2011 7:00	120.0	-7.501
77	0	0	0	0	0	0	0	-18.3	-12.3	0.0	0.0	5/1/2011 8:00	112.5	-7.001
78	0	0	0	0	0	0	0	-17.8	-12.0	0.0	0.0	5/1/2011 9:00	105.5	-6.527
79	0	0	0	0	0	0	0	-17.3	-11.7	0.0	0.0	5/1/2011 10:00	99.0	-6.08
80	0	0	0	0	0	0	0	-16.8	-11.4	0.0	0.0	5/1/2011 11:00	92.9	-5.66
81	0	0	0	0	0	0	0	-16.4	-11.1	0.0	0.1	5/1/2011 12:00	87.3	-5.267
82	0	0	0	0	0	0	0	-15.9	-10.8	0.0	0.6	5/1/2011 13:00	82.0	-4.902
83	0	0	0	0	0	0	0	-15.4	-10.4	0.0	1.9	5/1/2011 14:00	77.1	-4.562
84	0	0	0	0	0	0	0	-12.7	124.8	0.1	4.7	5/1/2011 15:00	72.5	-4.246
85	0	0	0	0	0	0	0	23.4	291.5	0.2	9.8	5/1/2011 16:00	68.3	-3.955
86	0	0	0	0	0	0	0	70.6	267.3	141.2	17.4	5/1/2011 17:00	64.3	-3.685
87	0	0	0	0	0	0	0	5123.8	829.3	278.9	27.1	5/1/2011 18:00	60.7	-3.435
88	0	0	0	1	1	0	1	3633.4	1533.1	255.9	153.3	5/1/2011 19:00	57.2	-3.205
89	6	0	6	1	1	0	1	-3334.8	1440.7	245.5	465.1	5/1/2011 20:00	54.0	-2.991

RD5-1409

	A	B	C	D	E	F	G	H	I	J	K	L	M
90	3.500	941.1	2310.4	05/01/2011 19:00	231	220	21	242	64	67	17	85	17
91	3.542	867.8	2107.4	05/01/2011 20:00	389	371	22	393	125	131	17	149	28
92	3.583	800.2	1921.8	05/01/2011 21:00	243	232	22	254	181	191	17	209	38
93	3.625	737.9	1752.9	05/01/2011 22:00	215	205	22	227	199	210	17	227	45
94	3.667	680.5	1599.9	05/01/2011 23:00	192	184	22	206	182	192	18	210	53
95	3.708	627.8	1461.6	06/01/2011 00:00	181	173	22	194	167	176	18	194	64
96	3.750	579.3	1336.9	06/01/2011 01:00	172	165	22	186	155	163	18	181	75
97	3.792	534.7	1224.5	06/01/2011 02:00	165	158	21	180	145	153	18	171	86
98	3.833	493.7	1123.4	06/01/2011 03:00	165	158	21	179	138	145	18	163	96
99	3.875	456.0	1032.4	06/01/2011 04:00	155	148	21	170	131	138	18	156	104
100	3.917	421.4	950.4	06/01/2011 05:00	149	142	21	163	125	132	18	150	110
101	3.958	389.6	876.5	06/01/2011 06:00	142	136	21	157	119	126	18	144	114
102	4.000	361.3	809.8	06/01/2011 07:00	136	130	21	151	114	121	18	138	116
103	4.042	335.8	749.5	06/01/2011 08:00	131	125	21	146	109	115	18	133	117
104	4.083	311.9	694.9	06/01/2011 09:00	126	121	20	141	104	110	18	128	117
105	4.125	289.6	645.4	06/01/2011 10:00	122	117	20	137	100	105	17	123	117
106	4.167	269.5	600.4	06/01/2011 11:00	204	195	20	216	106	112	17	129	129
107	4.208	251.9	559.4	06/01/2011 12:00	328	314	20	334	226	239	18	256	155
108	4.250	236.0	522.1	06/01/2011 13:00	352	336	21	357	372	393	18	411	167
109	4.292	221.1	488.0	06/01/2011 14:00	356	341	21	362	358	378	19	396	170
110	4.333	207.1	456.8	06/01/2011 15:00	322	308	21	329	307	323	19	342	178
111	4.375	194.0	428.2	06/01/2011 16:00	310	297	22	318	273	288	19	307	188
112	4.417	181.8	402.0	06/01/2011 17:00	308	295	22	317	253	267	19	287	198
113	4.458	170.4	377.9	06/01/2011 18:00	308	294	22	316	240	253	20	272	207
114	4.500	159.7	355.9	06/01/2011 19:00	316	302	22	324	229	241	20	261	215
115	4.542	149.7	335.6	06/01/2011 20:00	334	320	23	342	220	232	20	252	222
116	4.583	140.4	316.9	06/01/2011 21:00	367	351	23	374	212	224	20	244	228
117	4.625	131.7	299.6	06/01/2011 22:00	419	401	23	424	205	216	20	236	233
118	4.667	123.5	283.7	06/01/2011 23:00	494	472	24	496	198	209	20	229	239
119	4.708	115.9	268.9	07/01/2011 00:00	596	570	25	595	193	203	20	224	244
120	4.750	108.9	255.1	07/01/2011 01:00	843	806	26	832	218	230	20	251	252
121	4.792	102.3	242.2	07/01/2011 02:00	924	883	28	911	225	237	21	258	260
122	4.833	96.1	230.1	07/01/2011 03:00	1028	983	30	1012	208	220	21	240	272
123	4.875	90.4	218.6	07/01/2011 04:00	1149	1099	32	1130	199	210	21	231	285
124	4.917	85.0	207.8	07/01/2011 05:00	1258	1203	34	1237	223	235	21	256	301
125	4.958	80.0	197.6	07/01/2011 06:00	1361	1301	36	1337	231	243	21	265	319
126	5.000	75.3	187.9	07/01/2011 07:00	1390	1329	39	1367	257	272	21	293	339
127	5.042	71.0	178.6	07/01/2011 08:00	1534	1467	42	1508	364	384	22	406	360
128	5.083	66.9	169.8	07/01/2011 09:00	1619	1548	44	1592	359	379	22	401	397
129	5.125	63.1	161.4	07/01/2011 10:00	1633	1561	47	1608	372	393	23	415	436
130	5.167	59.5	153.4	07/01/2011 11:00	2050	1959	51	2010	541	571	23	595	457
131	5.208	56.2	145.8	07/01/2011 12:00	2127	2033	55	2088	681	719	24	743	478
132	5.250	53.0	138.5	07/01/2011 13:00	1969	1883	58	1941	738	779	26	804	500
133	5.292	50.1	131.6	07/01/2011 14:00	1772	1694	61	1755	697	735	27	762	518
134	5.333	47.4	125.0	07/01/2011 15:00	1688	1614	64	1678	640	675	28	703	535

RD5-1410

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
90	17	0	18	3	3	0	3	-649.9	451.0	162.3	748.0	5/1/2011 21:00	51.0	-2.795
91	28	0	28	9	9	0	9	-516.6	-425.2	207.7	882.9	5/1/2011 22:00	48.2	-2.613
92	38	0	38	28	28	0	28	-273.3	-384.0	250.7	733.8	5/1/2011 23:00	45.6	-2.444
93	45	0	45	59	59	0	60	-192.0	-306.5	271.9	439.5	6/1/2011 0:00	43.2	-2.289
94	53	0	54	96	96	0	96	-158.4	-238.3	266.3	184.1	6/1/2011 1:00	40.9	-2.145
95	64	0	64	126	126	1	127	-8.3	-194.6	238.4	19.7	6/1/2011 2:00	38.7	-2.011
96	75	1	76	144	144	1	145	-232.4	-167.9	196.8	-78.5	6/1/2011 3:00	36.7	-1.887
97	86	1	87	152	152	1	153	-154.7	-151.8	150.1	-138.9	6/1/2011 4:00	34.8	-1.772
98	96	1	97	152	152	1	154	-148.8	-140.8	104.4	-175.1	6/1/2011 5:00	33.1	-1.665
99	104	1	105	149	149	2	150	-141.0	-133.5	63.8	-192.6	6/1/2011 6:00	31.4	-1.566
100	110	1	111	143	143	2	145	-130.4	-128.2	30.1	-195.3	6/1/2011 7:00	29.8	-1.474
101	114	2	115	135	135	2	137	-116.3	-124.1	3.7	-187.3	6/1/2011 8:00	28.4	-1.387
102	116	2	118	127	127	2	129	-95.9	-120.6	-15.2	-172.5	6/1/2011 9:00	27.0	-1.308
103	117	2	119	119	119	3	121	1890.9	158.9	303.5	143.3	6/1/2011 10:00	25.7	-1.232
104	117	2	120	111	111	3	113	2847.5	3051.5	634.4	698.9	6/1/2011 11:00	24.4	-1.163
105	117	2	119	103	103	3	106	541.4	3711.7	298.6	362.9	6/1/2011 12:00	23.3	-1.098
106	129	2	132	109	109	3	112	119.2	-350.9	59.0	-264.2	6/1/2011 13:00	22.2	-1.036
107	155	3	158	138	138	3	141	-786.0	-1298.2	202.7	-179.6	6/1/2011 14:00	21.1	-0.98
108	167	3	170	153	153	3	156	-256.6	-836.5	248.9	-44.9	6/1/2011 15:00	20.2	-0.926
109	170	3	173	142	142	4	145	-42.7	-498.6	246.3	66.9	6/1/2011 16:00	19.2	-0.876
110	178	4	181	134	134	4	138	-3.7	-344.3	231.2	187.3	6/1/2011 17:00	18.4	-0.829
111	188	4	192	132	132	4	136	185.7	-271.7	204.0	325.4	6/1/2011 18:00	17.5	-0.785
112	198	4	202	135	135	4	139	433.4	-221.0	173.3	469.4	6/1/2011 19:00	16.7	-0.744
113	207	4	212	142	142	4	147	766.4	-192.3	147.8	614.9	6/1/2011 20:00	16.0	-0.705
114	215	5	220	156	156	5	160	1199.9	-177.7	133.6	751.5	6/1/2011 21:00	15.3	-0.668
115	222	5	227	175	175	5	180	1719.2	-171.4	134.2	752.8	6/1/2011 22:00	14.6	-0.634
116	228	5	233	200	200	5	205	2369.7	-132.5	150.1	661.8	6/1/2011 23:00	14.0	-0.602
117	233	6	239	231	231	5	237	5702.4	653.0	180.0	569.3	7/1/2011 0:00	13.4	-0.571
118	239	6	245	262	262	6	268	1898.9	167.6	221.8	428.5	7/1/2011 1:00	12.8	-0.543
119	244	6	251	289	289	6	296	2428.6	-420.1	273.1	277.4	7/1/2011 2:00	12.3	-0.516
120	252	7	258	313	313	7	319	2832.6	-236.1	331.0	138.4	7/1/2011 3:00	11.8	-0.49
121	260	7	268	330	330	7	337	2545.6	618.6	391.0	21.0	7/1/2011 4:00	11.3	-0.467
122	272	7	279	341	341	8	349	2418.1	196.6	446.3	-72.3	7/1/2011 5:00	10.8	-0.443
123	285	8	293	346	346	8	354	722.1	679.3	490.3	-142.1	7/1/2011 6:00	10.4	-0.423
124	301	8	309	347	347	9	355	3380.4	2707.0	518.5	-190.8	7/1/2011 7:00	9.9	-0.402
125	319	9	328	343	343	9	352	2014.5	-110.5	893.7	424.6	7/1/2011 8:00	9.5	-0.383
126	339	9	348	337	337	10	346	382.7	340.0	949.0	826.2	7/1/2011 9:00	9.2	-0.365
127	360	10	370	328	328	10	338	9655.7	4304.1	530.2	134.7	7/1/2011 10:00	8.8	-0.347
128	397	10	407	346	346	10	356	1862.6	3571.7	524.6	-121.4	7/1/2011 11:00	8.4	-0.332
129	436	11	446	380	380	11	391	-3528.2	1460.2	539.5	31.6	7/1/2011 12:00	8.1	-0.316
130	457	11	469	385	385	11	396	-4455.1	-1022.6	451.7	124.7	7/1/2011 13:00	7.8	-0.302
131	478	12	490	379	379	12	391	-1867.6	-1417.8	426.4	120.3	7/1/2011 14:00	7.5	-0.288
132	500	13	513	380	380	12	392	-1454.7	-942.5	389.6	70.5	7/1/2011 15:00	7.2	-0.275
133	518	14	532	385	385	13	398	-1110.5	-666.6	335.4	-9.7	7/1/2011 16:00	6.9	-0.263
134	535	14	549	389	389	13	403	-331.8	-388.6	262.6	-97.6	7/1/2011 17:00	6.7	-0.251

RD5-1411

	A	B	C	D	E	F	G	H	I	J	K	L	M
135	5.375	44.8	118.7	07/01/2011 16:	[redacted]		66	1617	602	635	28	663	551
136	5.417	42.4	112.8	07/01/2011 17:	[redacted]		68	1571	575	606	29	635	564
137	5.458	40.2	107.1	07/01/2011 18:	[redacted]		70	1557	559	589	30	619	574
138	5.500	38.1	101.7	07/01/2011 19:	[redacted]		72	1535	536	565	31	596	581
139	5.542	36.1	96.7	07/01/2011 20:	[redacted]		74	1529	512	540	31	571	584
140	5.583	34.2	91.9	07/01/2011 21:	[redacted]		76	1532	488	515	32	547	584
141	5.625	32.5	87.3	07/01/2011 22:	[redacted]		78	1542	464	490	32	522	580
142	5.667	30.8	83.0	07/01/2011 23:	[redacted]		80	1555	440	464	33	497	574
143	5.708	29.3	79.0	08/01/2011 00:	[redacted]		81	1569	416	439	33	472	566
144	5.750	27.8	75.1	08/01/2011 01:	[redacted]		83	1583	392	414	33	447	556
145	5.792	26.4	71.5	08/01/2011 02:	[redacted]		85	1596	369	389	33	423	545
146	5.833	25.1	68.1	08/01/2011 03:	[redacted]		87	1606	347	366	34	399	533
147	5.875	23.9	64.9	08/01/2011 04:	[redacted]		89	1611	326	343	34	377	520
148	5.917	22.8	61.8	08/01/2011 05:	[redacted]		90	1609	305	322	34	356	507
149	5.958	21.7	59.0	08/01/2011 06:	[redacted]		92	1599	286	302	34	336	493
150	6.000	20.6	56.3	08/01/2011 07:	[redacted]		93	1578	269	283	34	317	479
151	6.042	19.7	53.8	08/01/2011 08:	[redacted]		95	1547	252	266	34	300	465
152	6.083	18.8	51.5	08/01/2011 09:	[redacted]		96	1507	236	249	34	283	451
153	6.125	17.9	49.3	08/01/2011 10:	[redacted]		97	1457	222	234	34	268	437
154	6.167	17.2	47.3	08/01/2011 11:	[redacted]		98	1401	208	220	34	253	424
155	6.208	16.4	45.5	08/01/2011 12:	[redacted]		99	1341	196	207	34	240	410
156	6.250	15.7	44.0	08/01/2011 13:	[redacted]		99	1278	184	194	33	228	397
157	6.292	15.1	42.8	08/01/2011 14:	[redacted]		100	1216	176	185	33	218	385
158	6.333	14.5	41.9	08/01/2011 15:	[redacted]		100	1190	175	184	33	217	374
159	6.375	13.9	41.5	08/01/2011 16:00	1044	998	100	1098	174	183	33	216	364
160	6.417	13.4	41.4	08/01/2011 17:00	978	935	100	1035	177	187	33	220	354
161	6.458	12.9	41.8	08/01/2011 18:00	916	875	100	975	187	198	33	230	343
162	6.500	12.4	42.6	08/01/2011 19:00	857	820	100	919	197	207	33	240	332
163	6.542	11.9	43.6	08/01/2011 20:00	803	767	99	867	204	215	32	247	322
164	6.583	11.5	44.9	08/01/2011 21:00	754	721	98	819	209	220	32	253	312
165	6.625	11.0	46.3	08/01/2011 22:00	714	683	98	780	247	260	32	293	303
166	6.667	10.6	47.7	08/01/2011 23:00	676	646	97	743	243	256	32	288	294
167	6.708	10.3	49.0	09/01/2011 00:00	637	609	96	705	244	257	32	290	285
168	6.750	9.9	50.1	09/01/2011 01:00	602	576	95	671	238	251	32	283	276
169	6.792	9.5	51.0	09/01/2011 02:00	573	547	94	642	229	242	32	274	268
170	6.833	9.2	51.6	09/01/2011 03:00	548	524	94	617	222	234	32	266	260
171	6.875	8.9	51.8	09/01/2011 04:00	532	509	93	601	216	228	32	260	252
172	6.917	8.6	51.7	09/01/2011 05:00	518	495	92	587	285	301	32	333	244
173	6.958	8.3	51.3	09/01/2011 06:00	589	563	91	654	434	458	33	490	236
174	7.000	8.0	50.6	09/01/2011 07:00	518	495	90	585	473	500	33	533	228
175	7.042	7.7	49.7	09/01/2011 08:00	507	485	89	574	497	525	34	558	221
176	7.083	7.4	48.6	09/01/2011 09:00	500	478	88	566	517	545	34	580	213
177	7.125	7.2	47.3	09/01/2011 10:00	512	490	87	577	647	682	35	718	206
178	7.167	6.9	45.8	09/01/2011 11:00	954	912	87	1000	924	975	36	1012	219
179	7.208	6.7	44.3	09/01/2011 12:	[redacted]		88	1167	1131	1193	38	1231	238

RD5-1412

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
135	551	15	566	392	392	14	406	-530.5	-569.1	178.4	-147.3	7/1/2011 18:00	6.4	-0.24
136	564	16	580	391	391	14	405	-147.4	-578.6	91.5	-207.3	7/1/2011 19:00	6.2	-0.229
137	574	17	591	387	387	15	401	89.0	-588.6	9.2	-268.6	7/1/2011 20:00	5.9	-0.219
138	581	17	598	380	380	15	395	239.4	-600.1	-64.3	-285.1	7/1/2011 21:00	5.7	-0.21
139	584	18	602	371	371	15	386	312.7	-606.5	-126.9	-298.4	7/1/2011 22:00	5.5	-0.201
140	584	19	602	359	359	16	375	336.7	-603.6	-178.6	-307.7	7/1/2011 23:00	5.3	-0.192
141	580	19	600	347	347	16	363	331.5	-593.0	-220.1	-312.2	8/1/2011 0:00	5.1	-0.184
142	574	20	594	335	335	16	351	301.0	-578.5	-252.8	-311.8	8/1/2011 1:00	4.9	-0.176
143	566	21	587	322	322	17	338	236.3	-559.0	-277.9	-307.1	8/1/2011 2:00	4.8	-0.169
144	556	21	578	308	308	17	325	124.8	-533.0	-296.9	-299.3	8/1/2011 3:00	4.6	-0.161
145	545	22	567	295	295	17	312	-39.3	-506.4	-310.7	-289.3	8/1/2011 4:00	4.4	-0.155
146	533	22	556	282	282	17	299	-250.6	-480.4	-320.2	-278.1	8/1/2011 5:00	4.3	-0.149
147	520	23	543	270	270	17	287	-492.4	-451.7	-326.0	-266.5	8/1/2011 6:00	4.1	-0.143
148	507	23	530	258	258	17	275	-742.2	-423.1	-328.7	-254.9	8/1/2011 7:00	4.0	-0.136
149	493	24	517	246	246	17	263	-978.1	-395.5	-328.6	-243.5	8/1/2011 8:00	3.9	-0.131
150	479	24	503	235	235	17	252	-1182.8	-369.4	-326.2	-232.5	8/1/2011 9:00	3.7	-0.126
151	465	24	490	224	224	17	241	-1345.6	-345.1	-321.9	-221.8	8/1/2011 10:00	3.6	-0.121
152	451	25	476	214	214	17	231	-1447.3	-317.7	-315.8	-211.5	8/1/2011 11:00	3.5	-0.116
153	437	25	462	204	204	17	222	-1515.3	-293.4	-308.5	-201.6	8/1/2011 12:00	3.4	-0.112
154	424	25	449	195	195	17	212	-1491.3	-226.7	-298.0	-150.4	8/1/2011 13:00	3.2	-0.107
155	410	25	436	186	186	17	204	-605.1	-24.7	-257.5	-149.5	8/1/2011 14:00	3.1	-0.103
156	397	26	423	178	178	17	195	-2213.6	-25.5	-234.0	-184.5	8/1/2011 15:00	3.0	-0.099
157	385	26	410	172	172	17	189	-1513.5	78.9	-249.9	-167.3	8/1/2011 16:00	2.9	-0.095
158	374	26	400	166	166	17	183	-1434.5	255.3	-255.7	-157.7	8/1/2011 17:00	2.8	-0.092
159	364	26	390	158	158	17	175	-1348.2	230.6	-253.4	-152.2	8/1/2011 18:00	2.8	-0.088
160	354	26	380	151	151	17	168	-1263.0	178.5	-246.9	-147.2	8/1/2011 19:00	2.7	-0.084
161	343	26	369	145	145	17	161	-1136.5	123.6	-238.6	-141.1	8/1/2011 20:00	2.6	-0.082
162	332	26	358	139	139	16	155	-932.1	965.2	-229.9	-134.2	8/1/2011 21:00	2.5	-0.078
163	322	26	348	133	133	16	149	-887.9	-102.4	-221.8	-126.9	8/1/2011 22:00	2.4	-0.076
164	312	26	338	127	127	16	143	-919.7	31.7	-214.6	-119.6	8/1/2011 23:00	2.3	-0.072
165	303	26	329	121	121	16	137	-813.2	-163.2	-208.4	-112.7	9/1/2011 0:00	2.3	-0.071
166	294	26	319	116	116	16	132	-700.5	-204.2	-203.2	-106.2	9/1/2011 1:00	2.2	-0.067
167	285	26	310	112	112	16	127	-592.7	-199.5	-199.0	-99.7	9/1/2011 2:00	2.1	-0.065
168	276	26	302	107	107	15	122	-378.2	-146.9	-195.4	-93.0	9/1/2011 3:00	2.1	-0.063
169	268	26	293	103	103	15	118	-347.6	1756.9	-192.3	-85.9	9/1/2011 4:00	2.0	-0.06
170	260	25	285	99	99	15	114	1596.8	3769.7	-189.6	-78.5	9/1/2011 5:00	1.9	-0.059
171	252	25	277	95	95	15	110	-1645.1	1018.2	-186.9	-70.9	9/1/2011 6:00	1.9	-0.056
172	244	25	269	92	92	15	106	-268.7	614.5	-184.3	-63.8	9/1/2011 7:00	1.8	-0.054
173	236	25	261	89	89	15	103	-185.3	509.3	-181.7	-57.7	9/1/2011 8:00	1.8	-0.052
174	228	25	253	86	86	14	100	254.4	3310.8	-178.9	-1.4	9/1/2011 9:00	1.7	-0.051
175	221	25	245	83	83	14	98	10153.8	7060.7	304.1	664.0	9/1/2011 10:00	1.7	-0.049
176	213	24	238	81	81	14	95	4004.6	5272.9	443.9	852.0	9/1/2011 11:00	1.6	-0.047
177	206	24	230	81	81	14	95	-4404.2	351.1	-15.5	332.0	9/1/2011 12:00	1.6	-0.045
178	219	24	243	109	109	14	123	486.4	3926.8	-96.5	466.2	9/1/2011 13:00	1.5	-0.044
179	238	24	262	145	145	14	158	17660.4	14189.7	-32.0	582.5	9/1/2011 14:00	1.5	-0.043

	A	B	C	D	E	F	G	H	I	J	K	L	M
180	7.250	6.5	42.7	09/01/2011 13:00	936	895	88	983	1143	1206	40	1246	237
181	7.292	6.3	41.0	09/01/2011 14:00	957	915	88	1003	1296	1367	42	1410	233
182	7.333	6.0	39.3	09/01/2011 15:00	1725	1649	90	1739	1854	1955	45	2001	232
183	7.375	5.8	37.7	09/01/2011 16:00	2073	1982	93	2075	2587	2730	50	2780	261
184	7.417	5.6	36.0	09/01/2011 17:00	2198	2101	96	2197	3005	3170	56	3226	318
185	7.458	5.5	34.4	09/01/2011 18:00	2875	2749	101	2849	3508	3701	62	3763	351
186	7.500	5.3	32.8	09/01/2011 19:00	2912	2783	105	2889	3579	3776	69	3844	365
187	7.542	5.1	31.3	09/01/2011 20:00	3468	3315	111	3426	3508	3701	75	3776	407
188	7.583	4.9	29.8	09/01/2011 21:00	4055	3877	118	3995	3432	3620	81	3701	492
189	7.625	4.8	28.4	09/01/2011 22:00	4626	4423	126	4549	3330	3513	87	3600	573
190	7.667	4.6	27.0	09/01/2011 23:00	5498	5256	136	5393	3265	3444	92	3537	624
191	7.708	4.5	25.7	10/01/2011 00:00	6317	6039	148	6187	3209	3386	98	3483	664
192	7.750	4.3	24.4	10/01/2011 01:00	6980	6673	161	6834	3052	3220	102	3322	696
193	7.792	4.2	23.3	10/01/2011 02:00	7545	7213	175	7388	2868	3026	107	3133	714
194	7.833	4.1	22.1	10/01/2011 03:00	7931	7582	190	7772	2689	2837	111	2948	722
195	7.875	3.9	21.1	10/01/2011 04:00	8154	7796	205	8001	2586	2728	115	2843	720
196	7.917	3.8	20.1	10/01/2011 05:00	8380	8012	220	8232	2540	2680	118	2798	716
197	7.958	3.7	19.1	10/01/2011 06:00	8422	8052	235	8287	2460	2595	121	2716	726
198	8.000	3.6	18.2	10/01/2011 07:00	8091	7735	249	7983	2326	2454	124	2578	726
199	8.042	3.4	17.3	10/01/2011 08:00	7851	7506	261	7767	2331	2459	127	2586	709
200	8.083	3.3	16.5	10/01/2011 09:00	7457	7128	273	7401	2236	2359	130	2489	700
201	8.125	3.2	15.8	10/01/2011 10:00	6950	6644	283	6927	2078	2192	132	2325	691
202	8.167	3.1	15.0	10/01/2011 11:00	6663	6370	292	6662	2336	2464	135	2599	680
203	8.208	3.0	14.4	10/01/2011 12:00	7493	7164	303	7467	2778	2931	139	3070	676
204	8.250	2.9	13.7	10/01/2011 13:00	6522	6235	311	6547	2660	2807	142	2949	674
205	8.292	2.9	13.1	10/01/2011 14:00	5953	5691	318	6009	2314	2441	145	2586	672
206	8.333	2.8	12.5	10/01/2011 15:00	5599	5352	324	5676	2084	2199	147	2346	679
207	8.375	2.7	12.0	10/01/2011 16:00	5168	4940	328	5269	1886	1990	148	2139	698
208	8.417	2.6	11.5	10/01/2011 17:00	4844	4631	332	4963	1715	1810	150	1959	731
209	8.458	2.5	11.0	10/01/2011 18:00	4576	4374	335	4710	1595	1682	151	1833	774
210	8.500	2.4	10.5	10/01/2011 19:00	4379	4186	338	4524	1503	1586	151	1737	817
211	8.542	2.4	10.1	10/01/2011 20:00	4325	4135	340	4475	1508	1591	152	1743	852
212	8.583	2.3	9.7	10/01/2011 21:00	4051	3873	341	4214	1424	1502	153	1655	874
213	8.625	2.2	9.3	10/01/2011 22:00	3852	3682	342	4025	1314	1386	153	1539	883
214	8.667	2.2	8.9	10/01/2011 23:00	3663	3501	343	3844	1215	1281	153	1435	881
215	8.708	2.1	8.6	11/01/2011 00:00	3447	3295	343	3638	1124	1186	153	1339	870
216	8.750	2.0	8.2	11/01/2011 01:00	3241	3098	342	3441	1068	1127	153	1280	855
217	8.792	2.0	7.9	11/01/2011 02:00	3057	2923	342	3264	1039	1096	153	1249	837
218	8.833	1.9	7.6	11/01/2011 03:00	2873	2746	340	3086	975	1029	152	1181	820
219	8.875	1.9	7.3	11/01/2011 04:00	2718	2598	339	2937	1041	1099	152	1251	804
220	8.917	1.8	7.1	11/01/2011 05:00	3580	3422	339	3761	1432	1511	153	1664	793
221	8.958	1.8	6.8	11/01/2011 06:00	3940	3766	340	4107	1777	1875	154	2029	872
222	9.000	1.7	6.6	11/01/2011 07:00	4149	3967	342	4309	1942	2049	156	2204	1106
223	9.042	1.7	6.3	11/01/2011 08:00	4864	4650	345	4996	1847	1949	157	2106	1388
224	9.083	1.6	6.1	11/01/2011 09:00	5270	5038	350	5388	1723	1818	158	1976	1624

RD5-1414

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
180	237	24	261	159	159	14	172	8058.7	18692.2	693.9	938.1	9/1/2011 15:00	1.4	-0.04
181	233	24	257	178	178	14	192	2931.4	10698.7	1374.8	1301.3	9/1/2011 16:00	1.4	-0.04
182	232	24	256	202	202	14	216	15647.6	12901.2	791.6	676.0	9/1/2011 17:00	1.4	-0.038
183	261	24	284	241	241	14	255	946.5	1950.7	334.2	-20.3	9/1/2011 18:00	1.3	-0.037
184	318	24	342	295	295	14	309	12905.8	-1645.0	1025.1	-54.4	9/1/2011 19:00	1.3	-0.036
185	351	24	375	323	323	14	337	13639.1	-1784.9	2029.5	324.9	9/1/2011 20:00	1.3	-0.035
186	365	24	389	322	322	15	336	13298.0	-2436.9	1969.0	182.3	9/1/2011 21:00	1.2	-0.033
187	407	24	431	319	319	15	334	20252.7	-1520.2	1230.3	-373.7	9/1/2011 22:00	1.2	-0.033
188	492	24	516	333	333	15	348	19061.4	-1276.2	987.3	-319.2	9/1/2011 23:00	1.2	-0.031
189	573	25	598	340	340	15	355	15545.0	-3864.5	780.3	-217.6	10/1/2011 0:00	1.1	-0.03
190	624	26	649	324	324	16	340	13295.6	-4553.4	452.7	-184.6	10/1/2011 1:00	1.1	-0.03
191	664	26	690	310	310	16	326	9197.8	-4430.1	204.3	-171.4	10/1/2011 2:00	1.1	-0.028
192	696	27	723	301	301	16	317	5494.6	-2523.9	-24.1	-173.5	10/1/2011 3:00	1.0	-0.027
193	714	28	742	293	293	16	310	5543.9	-1073.8	-84.3	-20.2	10/1/2011 4:00	1.0	-0.027
194	722	29	750	286	286	17	303	1322.7	-1966.9	269.2	79.0	10/1/2011 5:00	1.0	-0.026
195	720	29	749	279	279	17	295	-7281.9	-3311.9	13.5	-80.4	10/1/2011 6:00	1.0	-0.025
196	716	30	746	278	278	17	294	-5180.9	186.7	-393.3	537.7	10/1/2011 7:00	0.9	-0.024
197	726	31	757	281	281	17	298	-8783.3	-2319.7	-198.5	957.3	10/1/2011 8:00	0.9	-0.024
198	726	31	758	277	277	17	294	-11389.3	-3954.4	-218.3	741.5	10/1/2011 9:00	0.9	-0.022
199	709	32	741	300	300	17	317	-6352.5	6589.5	-234.5	910.6	10/1/2011 10:00	0.9	-0.022
200	700	33	733	339	339	18	357	19310.9	11290.4	-89.3	1094.2	10/1/2011 11:00	0.8	-0.022
201	691	33	724	370	370	18	388	-22082.8	-2897.9	-43.0	1307.4	10/1/2011 12:00	0.8	-0.02
202	680	34	714	407	407	18	426	-12903.2	-8712.0	-32.5	1511.3	10/1/2011 13:00	0.8	-0.021
203	676	34	710	452	452	19	471	-7991.5	-5756.6	167.3	1695.1	10/1/2011 14:00	0.8	-0.019
204	674	35	709	506	506	19	526	-9775.4	-4977.8	476.2	1726.6	10/1/2011 15:00	0.8	-0.019
205	672	35	707	569	569	20	589	-7329.8	-4298.8	812.6	1517.0	10/1/2011 16:00	0.7	-0.018
206	679	36	714	639	639	21	659	-6092.1	-3031.5	1034.9	1087.4	10/1/2011 17:00	0.7	-0.018
207	698	36	734	710	710	22	731	-4455.2	-2299.2	1048.8	574.2	10/1/2011 18:00	0.7	-0.017
208	731	37	768	772	772	23	794	-1175.6	140.8	862.1	100.1	10/1/2011 19:00	0.7	-0.017
209	774	37	811	816	816	24	840	-6266.9	-2110.6	558.5	-264.9	10/1/2011 20:00	0.7	-0.016
210	817	38	855	839	839	25	864	-4536.6	-2783.9	234.9	-501.9	10/1/2011 21:00	0.7	-0.016
211	852	39	891	842	842	26	868	-4333.0	-2508.9	-40.3	-592.3	10/1/2011 22:00	0.6	-0.016
212	874	40	914	830	830	27	857	-4953.4	-2294.5	-236.7	-643.5	10/1/2011 23:00	0.6	-0.015
213	883	40	924	808	808	28	836	-4733.5	-1430.0	-354.0	-669.9	11/1/2011 0:00	0.6	-0.014
214	881	41	922	783	783	29	811	-4231.7	-737.0	-406.1	-559.9	11/1/2011 1:00	0.6	-0.014
215	870	42	912	755	755	29	784	-4272.0	-1616.2	-408.5	-505.5	11/1/2011 2:00	0.6	-0.014
216	855	42	897	726	726	30	756	-3595.9	1658.8	-373.8	-511.9	11/1/2011 3:00	0.6	-0.013
217	837	43	880	702	702	31	733	19797.8	9911.2	-249.6	-464.6	11/1/2011 4:00	0.5	-0.013
218	820	44	863	681	681	31	712	8282.3	8761.2	1910.8	-296.3	11/1/2011 5:00	0.5	-0.013
219	804	44	848	659	659	32	691	4848.9	4217.7	5643.8	-199.4	11/1/2011 6:00	0.5	-0.012
220	793	45	837	639	639	32	671	16492.0	-2361.2	6815.4	-211.1	11/1/2011 7:00	0.5	-0.012
221	872	45	917	626	626	33	659	9405.1	-3121.8	5714.2	477.0	11/1/2011 8:00	0.5	-0.011
222	1106	46	1152	617	617	33	651	9836.5	-1591.5	4151.8	1438.3	11/1/2011 9:00	0.5	-0.011
223	1388	48	1436	608	608	34	642	4823.4	4179.6	3408.9	3469.2	11/1/2011 10:00	0.5	-0.011
224	1624	50	1674	628	628	34	662	5955.0	7772.4	2756.9	5198.7	11/1/2011 11:00	0.5	-0.011

	A	B	C	D	E	F	G	H	I	J	K	L	M
225	9.125	1.6	5.9	11/01/2011 10:00	5693	5443	355	5797	1659	1750	159	1910	1795
226	9.167	1.5	5.7	11/01/2011 11:00	5897	5638	360	5998	1823	1923	160	2084	1934
227	9.208	1.5	5.5	11/01/2011 12:00	6151	5880	367	6247	2128	2245	162	2408	2047
228	9.250	1.4	5.3	11/01/2011 13:00	6615	6324	374	6698	2681	2828	165	2993	2152
229	9.292	1.4	5.1	11/01/2011 14:00	7457	7129	382	7511	2994	3158	169	3327	2291
230	9.333	1.4	5.0	11/01/2011 15:00	7272	6952	391	7343	2961	3124	173	3297	2364
231	9.375	1.3	4.8	11/01/2011 16:00	7351	7028	399	7426	2857	3014	176	3190	2386
232	9.417	1.3	4.6	11/01/2011 17:00	7362	7038	407	7444	2803	2957	179	3136	2446
233	9.458	1.3	4.5	11/01/2011 18:00	7131	6818	414	7232	2834	2990	182	3172	2528
234	9.500	1.2	4.4	11/01/2011 19:00	6867	6565	421	6985	2821	2977	185	3162	2610
235	9.542	1.2	4.2	11/01/2011 20:00	6519	6232	426	6658	2703	2852	188	3040	2685
236	9.583	1.2	4.1	11/01/2011 21:00	6138	5868	431	6298	2554	2695	190	2885	2746
237	9.625	1.1	4.0	11/01/2011 22:00	5747	5494	434	5928	2401	2533	192	2726	2793
238	9.667	1.1	3.9	11/01/2011 23:00	5360	5124	436	5560	2247	2370	194	2564	2833
239	9.708	1.1	3.7	12/01/2011 00:00	4989	4769	438	5207	2093	2208	195	2404	2867
240	9.750	1.0	3.6	12/01/2011 01:00	4637	4433	438	4871	1943	2050	196	2246	2896
241	9.792	1.0	3.5	12/01/2011 02:00	4305	4115	438	4554	1799	1898	197	2095	2918
242	9.833	1.0	3.4	12/01/2011 03:00	3992	3817	437	4254	1661	1753	197	1950	2930
243	9.875	1.0	3.3	12/01/2011 04:00	3698	3535	435	3970	1532	1616	197	1813	2930
244	9.917	0.9	3.2	12/01/2011 05:00	3420	3269	433	3702	1411	1489	197	1686	2917
245	9.958	0.9	3.1	12/01/2011 06:00	3158	3019	430	3450	1299	1370	197	1567	2890
246	10.000	0.9	3.1	12/01/2011 07:00	2914	2785	427	3212	1195	1260	196	1457	2849
247	10.042	0.9	3.0	12/01/2011 08:00	2685	2567	423	2990	1099	1159	195	1355	2794
248	10.083	0.8	2.9	12/01/2011 09:00	2473	2364	419	2783	1011	1066	194	1261	2727
249	10.125	0.8	2.8	12/01/2011 10:00	2277	2177	414	2591	930	981	193	1174	2648
250	10.167	0.8	2.7	12/01/2011 11:00	2096	2004	409	2413	855	902	192	1094	2561
251	10.208	0.8	2.7	12/01/2011 12:00	1930	1845	404	2249	787	830	190	1021	2467
252	10.250	0.8	2.6	12/01/2011 13:00	1778	1699	399	2098	724	764	189	953	2367
253	10.292	0.7	2.5	12/01/2011 14:00	1638	1566	393	1959	666	703	187	890	2264
254	10.333	0.7	2.5	12/01/2011 15:00	1510	1444	387	1831	614	647	186	833	2160
255	10.375	0.7	2.4	12/01/2011 16:00	1393	1332	381	1713	565	596	184	780	2054
256	10.417	0.7	2.3	12/01/2011 17:00	1286	1230	375	1605	521	549	182	731	1950
257	10.458	0.7	2.3	12/01/2011 18:00	1189	1136	369	1505	480	506	180	686	1847
258	10.500	0.7	2.2	12/01/2011 19:00	1099	1051	363	1414	442	467	178	645	1746
259	10.542	0.6	2.2	12/01/2011 20:00	1018	973	357	1329	408	431	176	607	1649
260	10.583	0.6	2.1	12/01/2011 21:00	943	901	350	1251	377	398	174	572	1556
261	10.625	0.6	2.1	12/01/2011 22:00	874	836	344	1180	348	367	172	539	1466
262	10.667	0.6	2.0	12/01/2011 23:00	811	776	338	1113	322	339	170	509	1380
263	10.708	0.6	2.0	13/01/2011 00:00	754	721	331	1052	298	314	168	482	1299
264	10.750	0.6	1.9	13/01/2011 01:00	701	670	325	995	275	290	166	456	1221
265	10.792	0.6	1.9	13/01/2011 02:00	652	624	319	942	255	269	164	433	1148
266	10.833	0.5	1.8	13/01/2011 03:00	608	581	313	894	236	249	162	411	1080
267	10.875	0.5	1.8	13/01/2011 04:00	567	542	306	848	219	231	159	391	1015
268	10.917	0.5	1.8	13/01/2011 05:00	529	506	300	806	203	215	157	372	954
269	10.958	0.5	1.7	13/01/2011 06:00	494	472	294	767	189	199	155	355	897

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
225	1795	52	1847	687	687	35	722	10823.2	14061.7	2588.7	6201.9	11/1/2011 12:00	0.5	-0.01
226	1934	55	1989	831	831	35	866	19533.5	8013.1	3426.3	7678.7	11/1/2011 13:00	0.4	-0.01
227	2047	58	2104	1046	1046	37	1083	-4052.4	-731.3	1813.1	7382.4	11/1/2011 14:00	0.4	-0.01
228	2152	60	2212	1303	1303	38	1341	2013.9	-2559.2	616.4	6244.9	11/1/2011 15:00	0.4	-0.01
229	2291	64	2355	1621	1621	41	1661	431.2	-1298.9	1510.5	5353.6	11/1/2011 16:00	0.4	-0.009
230	2364	67	2430	1925	1925	43	1969	-5104.1	860.4	2039.8	4108.2	11/1/2011 17:00	0.4	-0.009
231	2386	70	2456	2182	2182	47	2229	-5914.7	-246.0	2059.8	2641.1	11/1/2011 18:00	0.4	-0.009
232	2446	73	2519	2402	2402	50	2452	-7858.3	-2931.8	1876.6	1350.2	11/1/2011 19:00	0.4	-0.008
233	2528	76	2604	2569	2569	54	2623	-8625.5	-3704.4	1543.1	84.4	11/1/2011 20:00	0.4	-0.008
234	2610	79	2690	2675	2675	58	2733	-8899.8	-3832.1	1206.2	-900.8	11/1/2011 21:00	0.4	-0.009
235	2685	83	2768	2727	2727	62	2790	-8813.2	-3871.8	1041.2	-1690.0	11/1/2011 22:00	0.4	-0.007
236	2746	86	2832	2727	2727	66	2793	-8487.1	-3851.6	910.4	-2338.3	11/1/2011 23:00	0.4	-0.008
237	2793	90	2883	2686	2686	70	2756	-8061.1	-3773.2	773.7	-2804.5	12/1/2011 0:00	0.3	-0.008
238	2833	93	2926	2612	2612	73	2685	-7617.5	-3643.1	598.6	-3080.3	12/1/2011 1:00	0.3	-0.007
239	2867	97	2964	2511	2511	76	2588	-7195.3	-3473.1	369.1	-3211.5	12/1/2011 2:00	0.3	-0.007
240	2896	100	2996	2392	2392	79	2471	-6802.0	-3276.9	86.5	-3241.4	12/1/2011 3:00	0.3	-0.007
241	2918	103	3021	2261	2261	82	2342	-6428.6	-3067.2	-235.9	-3198.1	12/1/2011 4:00	0.3	-0.007
242	2930	107	3036	2125	2125	84	2209	-6063.2	-2854.2	-579.6	-3101.0	12/1/2011 5:00	0.3	-0.006
243	2930	110	3040	1988	1988	86	2074	-5698.2	-2645.2	-925.2	-2965.2	12/1/2011 6:00	0.3	-0.007
244	2917	113	3030	1853	1853	87	1940	-5332.2	-2445.1	-1256.1	-2803.4	12/1/2011 7:00	0.3	-0.006
245	2890	116	3006	1722	1722	89	1811	-4968.2	-2256.4	-1558.6	-2626.4	12/1/2011 8:00	0.3	-0.006
246	2849	119	2967	1598	1598	90	1688	-4611.3	-2080.2	-1823.3	-2442.9	12/1/2011 9:00	0.3	-0.006
247	2794	121	2915	1480	1480	90	1571	-4266.5	-1916.7	-2044.8	-2259.5	12/1/2011 10:00	0.3	-0.006
248	2727	124	2850	1370	1370	91	1461	-3938.0	-1765.6	-2220.9	-2081.3	12/1/2011 11:00	0.3	-0.005
249	2648	126	2774	1268	1268	91	1360	-3628.5	-1626.1	-2352.2	-1911.4	12/1/2011 12:00	0.3	-0.006
250	2561	128	2689	1174	1174	91	1265	-3339.6	-1497.6	-2441.3	-1752.2	12/1/2011 13:00	0.3	-0.005
251	2467	130	2596	1088	1088	91	1179	-3071.8	-1379.2	-2492.0	-1604.5	12/1/2011 14:00	0.3	-0.006
252	2367	131	2498	1008	1008	91	1099	-2824.8	-1270.2	-2509.0	-1468.7	12/1/2011 15:00	0.3	-0.005
253	2264	132	2397	936	936	90	1026	-2598.0	-1169.9	-2497.1	-1344.9	12/1/2011 16:00	0.2	-0.005
254	2160	133	2293	869	869	90	959	-2390.1	-1077.6	-2461.2	-1232.3	12/1/2011 17:00	0.2	-0.005
255	2054	134	2188	809	809	89	898	-2200.2	-992.8	-2406.1	-1130.3	12/1/2011 18:00	0.2	-0.004
256	1950	135	2084	753	753	89	842	-2026.7	-914.9	-2335.9	-1038.1	12/1/2011 19:00	0.2	-0.005
257	1847	135	1982	703	703	88	791	-1868.5	-843.4	-2254.4	-954.9	12/1/2011 20:00	0.2	-0.005
258	1746	135	1882	657	657	87	744	-1724.2	-777.8	-2164.9	-879.8	12/1/2011 21:00	0.2	-0.004
259	1649	135	1784	614	614	86	700	-1592.7	-717.7	-2070.2	-811.9	12/1/2011 22:00	0.2	-0.004
260	1556	135	1690	576	576	85	660	-1472.8	-662.6	-1972.4	-750.6	12/1/2011 23:00	0.2	-0.005
261	1466	134	1600	540	540	84	624	-1363.4	-612.1	-1873.7	-695.2	13/1/2011 0:00	0.2	-0.004
262	1380	134	1514	507	507	83	590	-1263.6	-565.9	-1775.4	-645.1	13/1/2011 1:00	0.2	-0.004
263	1299	133	1432	477	477	82	559	-1172.5	-523.7	-1678.6	-599.6	13/1/2011 2:00	0.2	-0.004
264	1221	132	1354	449	449	81	530	-1089.2	-485.0	-1584.4	-558.3	13/1/2011 3:00	0.2	-0.004
265	1148	131	1280	423	423	79	503	-1013.1	-449.6	-1493.3	-520.9	13/1/2011 4:00	0.2	-0.003
266	1080	130	1210	400	400	78	478	-943.4	-417.2	-1405.8	-486.8	13/1/2011 5:00	0.2	-0.004
267	1015	129	1144	378	378	77	455	-879.5	-387.6	-1322.2	-455.6	13/1/2011 6:00	0.2	-0.004
268	954	127	1081	357	357	76	433	-821.0	-360.5	-1242.7	-427.2	13/1/2011 7:00	0.2	-0.003
269	897	126	1023	338	338	75	413	-767.3	-335.6	-1167.4	-401.2	13/1/2011 8:00	0.2	-0.003

RD5-1417

	A	B	C	D	E	F	G	H	I	J	K	L	M
270	11.000	0.5	1.7	13/01/2011 07:00	462	442	288	730	176	185	153	338	843
271	11.042	0.5	1.6	13/01/2011 08:00	432	413	282	696	163	172	151	323	793
272	11.083	0.5	1.6	13/01/2011 09:00	405	387	277	664	152	161	149	309	746
273	11.125	0.5	1.6	13/01/2011 10:00	380	363	271	634	142	150	147	296	702
274	11.167	0.5	1.5	13/01/2011 11:00	356	341	265	606	132	139	145	284	661
275	11.208	0.4	1.5	13/01/2011 12:00	335	320	260	580	123	130	143	273	622
276	11.250	0.4	1.5	13/01/2011 13:00	315	301	254	555	115	122	141	262	586
277	11.292	0.4	1.4	13/01/2011 14:00	296	283	249	532	108	114	139	252	552
278	11.333	0.4	1.4	13/01/2011 15:00	279	266	244	510	101	106	137	243	521
279	11.375	0.4	1.4	13/01/2011 16:00	263	251	238	489	94	99	135	234	491
280	11.417	0.4	1.3	13/01/2011 17:00	248	237	233	470	88	93	133	226	464
281	11.458	0.4	1.3	13/01/2011 18:00	234	224	228	452	83	87	131	218	438
282	11.500	0.4	1.3	13/01/2011 19:00	221	211	223	434	78	82	129	211	414
283	11.542	0.4	1.3	13/01/2011 20:00	209	200	218	418	73	77	127	204	391
284	11.583	0.4	1.2	13/01/2011 21:00	198	189	214	403	68	72	125	197	370
285	11.625	0.4	1.2	13/01/2011 22:00	187	179	209	388	64	68	123	191	350
286	11.667	0.3	1.2	13/01/2011 23:00	178	170	204	374	61	64	121	185	331
287	11.708	0.3	1.2	14/01/2011 00:00	169	161	200	361	57	60	119	180	314
288	11.750	0.3	1.1	14/01/2011 01:00	160	153	195	348	54	57	118	174	298
289	11.792	0.3	1.1	14/01/2011 02:00	152	145	191	336	51	53	116	169	282
290	11.833	0.3	1.1	14/01/2011 03:00	145	138	187	325	48	50	114	165	268
291	11.875	0.3	1.1	14/01/2011 04:00	138	132	183	314	45	48	112	160	254
292	11.917	0.3	1.0	14/01/2011 05:00	131	125	179	304	43	45	111	156	241
293	11.958	0.3	1.0	14/01/2011 06:00	125	120	175	294	40	42	109	151	229
294	12.000	0.3	1.0	14/01/2011 07:00	119	114	171	285	38	40	107	147	218
295	12.042	0.3	1.0	14/01/2011 08:00	114	109	167	276	36	38	106	144	208
296	12.083	0.3	1.0	14/01/2011 09:00	109	104	163	267	34	36	104	140	198
297	12.125	0.3	0.9	14/01/2011 10:00	104	100	159	259	32	34	102	137	188
298	12.167	0.3	0.9	14/01/2011 11:00	100	95	156	251	31	32	101	133	179
299	12.208	0.3	0.9	14/01/2011 12:00	96	91	152	244	29	31	99	130	171
300	12.250	0.3	0.9	14/01/2011 13:00	92	88	149	236	28	29	98	127	163
301	12.292	0.3	0.9	14/01/2011 14:00	88	84	146	230	26	28	96	124	155
302	12.333	0.2	0.9	14/01/2011 15:00	84	81	142	223	25	26	95	121	148
303	12.375	0.2	0.8	14/01/2011 16:00	81	78	139	217	24	25	93	118	142
304	12.417	0.2	0.8	14/01/2011 17:00	78	75	136	210	22	24	92	116	135
305	12.458	0.2	0.8	14/01/2011 18:00	75	72	133	205	21	22	90	113	129
306	12.500	0.2	0.8	14/01/2011 19:00	72	69	130	199	20	21	89	110	124
307	12.542	0.2	0.8	14/01/2011 20:00	70	67	127	193	19	20	88	108	118
308	12.583	0.2	0.8	14/01/2011 21:00	67	64	124	188	18	19	86	106	113
309	12.625	0.2	0.8	14/01/2011 22:00	65	62	121	183	18	18	85	103	108
310	12.667	0.2	0.7	14/01/2011 23:00	63	60	118	178	17	18	84	101	104
311	12.708	0.2	0.7	15/01/2011 00:00	60	58	116	173	16	17	82	99	100
312	12.750	0.2	0.7	15/01/2011 01:00	58	56	113	169	15	16	81	97	95
313	12.792	0.2	0.7	15/01/2011 02:00	56	54	110	164	15	15	80	95	91
314	12.833	0.2	0.7	15/01/2011 03:00	55	52	108	160	14	15	79	93	88

RD5-1418

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
270	843	125	968	320	320	73	394	-717.9	-312.9	-1096.2	-377.3	13/1/2011 9:00	0.2	-0.004
271	793	123	916	304	304	72	376	-672.4	-292.0	-1029.2	-355.3	13/1/2011 10:00	0.2	-0.003
272	746	121	867	288	288	71	359	-630.6	-272.9	-966.1	-335.0	13/1/2011 11:00	0.2	-0.003
273	702	120	822	274	274	70	343	-592.0	-255.3	-906.9	-316.2	13/1/2011 12:00	0.2	-0.003
274	661	118	779	260	260	68	329	-556.4	-239.2	-851.4	-298.7	13/1/2011 13:00	0.2	-0.004
275	622	116	738	247	247	67	315	-523.5	-224.4	-799.5	-282.4	13/1/2011 14:00	0.2	-0.003
276	586	115	701	235	235	66	301	-493.1	-210.7	-750.9	-267.2	13/1/2011 15:00	0.2	-0.002
277	552	113	665	224	224	65	289	-465.0	-198.2	-705.5	-252.9	13/1/2011 16:00	0.2	-0.003
278	521	111	632	214	214	64	277	-438.8	-186.6	-663.1	-239.6	13/1/2011 17:00	0.2	-0.003
279	491	109	601	204	204	62	266	-414.6	-175.9	-623.5	-227.0	13/1/2011 18:00	0.2	-0.003
280	464	108	571	194	194	61	256	-392.1	-166.1	-586.6	-215.2	13/1/2011 19:00	0.1	-0.003
281	438	106	544	185	185	60	246	-371.2	-157.0	-552.1	-204.0	13/1/2011 20:00	0.1	-0.002
282	414	104	518	177	177	59	236	-351.7	-148.6	-519.9	-193.6	13/1/2011 21:00	0.1	-0.003
283	391	102	493	169	169	58	227	-333.6	-140.8	-489.9	-183.7	13/1/2011 22:00	0.1	-0.002
284	370	100	470	162	162	57	219	-316.6	-133.6	-461.8	-174.5	13/1/2011 23:00	0.1	-0.003
285	350	98	449	155	155	56	211	-300.8	-126.9	-435.6	-165.8	14/1/2011 0:00	0.1	-0.002
286	331	97	428	148	148	55	203	-286.0	-120.7	-411.2	-157.6	14/1/2011 1:00	0.1	-0.002
287	314	95	409	142	142	53	196	-272.2	-114.9	-388.4	-150.0	14/1/2011 2:00	0.1	-0.003
288	298	93	391	136	136	52	189	-259.3	-109.5	-367.0	-142.9	14/1/2011 3:00	0.1	-0.002
289	282	91	374	131	131	51	182	-247.1	-104.4	-347.1	-136.2	14/1/2011 4:00	0.1	-0.002
290	268	90	357	126	126	50	176	-235.8	-99.8	-328.4	-129.9	14/1/2011 5:00	0.1	-0.002
291	254	88	342	121	121	49	170	-225.1	-95.4	-311.0	-124.0	14/1/2011 6:00	0.1	-0.002
292	241	86	328	116	116	48	164	-215.1	-91.3	-294.7	-118.5	14/1/2011 7:00	0.1	-0.002
293	229	84	314	112	112	47	159	-205.6	-87.5	-279.3	-113.3	14/1/2011 8:00	0.1	-0.003
294	218	83	301	107	107	46	154	-196.8	-83.9	-265.0	-108.4	14/1/2011 9:00	0.1	-0.001
295	208	81	289	103	103	45	149	-188.4	-80.5	-251.6	-103.8	14/1/2011 10:00	0.1	-0.002
296	198	80	277	100	100	44	144	-180.5	-77.4	-239.0	-99.5	14/1/2011 11:00	0.1	-0.002
297	188	78	266	96	96	44	140	-173.1	-74.4	-227.1	-95.3	14/1/2011 12:00	0.1	-0.002
298	179	76	256	93	93	43	135	-166.0	-71.6	-216.0	-91.4	14/1/2011 13:00	0.1	-0.002
299	171	75	246	89	89	42	131	-159.4	-68.9	-205.6	-87.7	14/1/2011 14:00	0.1	-0.002
300	163	73	236	86	86	41	127	-153.1	-66.5	-195.8	-84.1	14/1/2011 15:00	0.1	-0.002
301	155	72	227	83	83	40	123	-147.2	-64.1	-186.5	-80.6	14/1/2011 16:00	0.1	-0.001
302	148	70	219	81	81	39	120	-141.6	-61.9	-177.8	-77.3	14/1/2011 17:00	0.1	-0.002
303	142	69	210	78	78	38	116	-136.2	-59.8	-169.6	-74.2	14/1/2011 18:00	0.1	-0.002
304	135	67	203	75	75	38	113	-131.2	-57.8	-161.9	-71.1	14/1/2011 19:00	0.1	-0.001
305	129	66	195	73	73	37	110	-126.4	-55.9	-154.6	-68.2	14/1/2011 20:00	0.1	-0.002
306	124	64	188	71	71	36	107	-121.8	-54.2	-147.7	-65.4	14/1/2011 21:00	0.1	-0.001
307	118	63	181	68	68	35	104	-117.5	-52.5	-141.2	-62.7	14/1/2011 22:00	0.1	-0.002
308	113	62	175	66	66	34	101	-113.4	-50.9	-135.0	-60.2	14/1/2011 23:00	0.1	-0.001
309	108	60	169	64	64	34	98	-109.5	-49.3	-129.2	-57.8	15/1/2011 0:00	0.1	-0.002
310	104	59	163	62	62	33	95	-105.7	-47.9	-123.7	-55.5	15/1/2011 1:00	0.1	-0.001
311	100	58	157	61	61	32	93	-102.2	-46.5	-118.5	-53.3	15/1/2011 2:00	0.1	-0.002
312	95	57	152	59	59	32	90	-98.8	-45.1	-113.5	-51.2	15/1/2011 3:00	0.1	-0.001
313	91	55	147	57	57	31	88	-95.5	-43.9	-108.9	-49.3	15/1/2011 4:00	0.1	-0.001
314	88	54	142	56	56	30	86	-92.5	-42.7	-104.4	-47.4	15/1/2011 5:00	0.1	-0.002

	A	B	C	D	E	F	G	H	I	J	K	L	M
315	12.875	0.2	0.7	15/01/2011 04:00	53	51	105	156	13	14	77	91	84
316	12.917	0.2	0.7	15/01/2011 05:00	51	49	103	152	13	13	76	89	81
317	12.958	0.2	0.7	15/01/2011 06:00	50	48	101	148	12	13	75	88	78
318	13.000	0.2	0.6	15/01/2011 07:00	48	46	98	145	12	12	74	86	75
319	13.042	0.2	0.6	15/01/2011 08:00	47	45	96	141	11	12	73	84	72
320	13.083	0.2	0.6	15/01/2011 09:00	45	43	94	137	11	11	71	83	69
321	13.125	0.2	0.6	15/01/2011 10:00	44	42	92	134	10	11	70	81	66
322	13.167	0.2	0.6	15/01/2011 11:00	43	41	90	131	10	10	69	80	64
323	13.208	0.2	0.6	15/01/2011 12:00	42	40	88	128	9	10	68	78	61
324	13.250	0.2	0.6	15/01/2011 13:00	41	39	86	124	9	9	67	77	59
325	13.292	0.2	0.6	15/01/2011 14:00	39	38	84	121	9	9	66	75	57
326	13.333	0.2	0.6	15/01/2011 15:00	38	37	82	119	8	9	65	74	55
327	13.375	0.2	0.6	15/01/2011 16:00	37	36	80	116	8	8	64	72	53
328	13.417	0.2	0.6	15/01/2011 17:00	36	35	78	113	8	8	63	71	51
329	13.458	0.2	0.6	15/01/2011 18:00	36	34	76	110	7	8	62	70	49
330	13.500	0.2	0.6	15/01/2011 19:00	35	33	75	108	7	7	61	68	47
331	13.542	0.2	0.6	15/01/2011 20:00	34	32	73	105	7	7	60	67	45
332	13.583	0.2	0.6	15/01/2011 21:00	33	31	71	103	6	7	59	66	44
333	13.625	0.2	0.6	15/01/2011 22:00	32	31	70	100	6	7	58	65	42
334	13.667	0.2	0.6	15/01/2011 23:00	31	30	68	98	6	6	57	64	41
335	13.708	0.2	0.6	16/01/2011 00:00	31	29	66	96	6	6	56	62	39
336	13.750	0.2	0.6	16/01/2011 01:00	30	29	65	93	6	6	55	61	38
337	13.792	0.2	0.6	16/01/2011 02:00	29	28	63	91	5	6	55	60	37
338	13.833	0.2	0.6	16/01/2011 03:00	29	27	62	89	5	5	54	59	36
339	13.875	0.2	0.6	16/01/2011 04:00	28	27	61	87	5	5	53	58	34
340	13.917	0.2	0.6	16/01/2011 05:00	27	26	59	85	5	5	52	57	33
341	13.958	0.2	0.6	16/01/2011 06:00	27	25	58	83	5	5	51	56	32
342	14.000	0.2	0.6	16/01/2011 07:00	26	25	56	81	4	5	50	55	31
343	14.042	0.2	0.6	16/01/2011 08:00	25	24	55	80	4	5	50	54	30
344	14.083	0.2	0.6	16/01/2011 09:00	25	24	54	78	4	4	49	53	29
345	14.125	0.2	0.6	16/01/2011 10:00	24	23	53	76	4	4	48	52	28
346	14.167	0.2	0.6	16/01/2011 11:00	24	23	51	74	4	4	47	51	27
347	14.208	0.2	0.6	16/01/2011 12:00	23	22	50	73	4	4	47	50	26
348	14.250	0.2	0.6	16/01/2011 13:00	23	22	49	71	4	4	46	50	26
349	14.292	0.2	0.6	16/01/2011 14:00	22	21	48	69	3	4	45	49	25
350	14.333	0.2	0.6	16/01/2011 15:00	22	21	47	68	3	4	44	48	24
351	14.375	0.2	0.6	16/01/2011 16:00	22	21	46	66	3	3	44	47	23
352	14.417	0.2	0.6	16/01/2011 17:00	21	20	45	65	3	3	43	46	22
353	14.458	0.2	0.6	16/01/2011 18:00	21	20	44	63	3	3	42	45	22
354	14.500	0.2	0.6	16/01/2011 19:00	20	19	43	62	3	3	42	45	21
355	14.542	0.2	0.6	16/01/2011 20:00	20	19	42	61	3	3	41	44	20
356	14.583	0.2	0.6	16/01/2011 21:00	19	19	41	59	3	3	40	43	20
357	14.625	0.2	0.6	16/01/2011 22:00	19	18	40	58	3	3	40	42	19
358	14.667	0.2	0.6	16/01/2011 23:00	19	18	39	57	3	3	39	42	19
359	14.708	0.2	0.6	17/01/2011 00:00	18	18	38	56	2	3	38	41	18

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
315	84	53	137	54	54	30	84	-89.5	-41.5	-100.2	-45.6	15/1/2011 6:00	0.1	-0.001
316	81	52	133	53	53	29	82	-86.7	-40.4	-96.2	-44.0	15/1/2011 7:00	0.1	-0.001
317	78	51	128	51	51	28	80	-84.0	-39.3	-92.4	-42.5	15/1/2011 8:00	0.1	-0.002
318	75	50	124	50	50	28	78	-81.4	-38.3	-88.8	-41.0	15/1/2011 9:00	0.1	-0.001
319	72	48	120	49	49	27	76	-79.0	-37.3	-85.3	-39.6	15/1/2011 10:00	0.1	-0.001
320	69	47	116	48	48	27	74	-76.6	-36.4	-82.1	-38.3	15/1/2011 11:00	0.1	-0.001
321	66	46	112	47	47	26	73	-74.3	-35.5	-78.9	-37.0	15/1/2011 12:00	0.1	-0.001
322	64	45	109	45	45	25	71	-72.2	-34.6	-75.9	-35.9	15/1/2011 13:00	0.1	-0.001
323	61	44	106	44	44	25	69	-70.0	-33.7	-73.1	-34.8	15/1/2011 14:00	0.1	-0.002
324	59	43	102	43	43	24	68	-68.0	-33.0	-70.4	-33.7	15/1/2011 15:00	0.1	-0.001
325	57	42	99	42	42	24	66	-66.1	-32.2	-67.8	-32.7	15/1/2011 16:00	0.1	-0.001
326	55	41	96	41	41	23	65	-64.3	-31.4	-65.4	-31.8	15/1/2011 17:00	0.1	-0.067
327	53	40	93	41	41	23	63	-62.4	-30.7	-63.0	-30.9	15/1/2011 18:00		
328	51	40	90	40	40	22	62	-60.7	-30.0	-60.7	-30.0	15/1/2011 19:00		
329	49	39	88	39	39	22	61	-59.1	-29.3	-58.6	-29.2	15/1/2011 20:00		
330	47	38	85	38	38	21	59	-57.5	-28.7	-56.5	-28.4	15/1/2011 21:00		
331	45	37	82	37	37	21	58	-55.9	-28.0	-54.6	-27.7	15/1/2011 22:00		
332	44	36	80	36	36	20	57	-54.4	-27.4	-52.7	-27.0	15/1/2011 23:00		
333	42	35	78	36	36	20	56	-53.0	-26.8	-50.9	-26.3	16/1/2011 0:00		
334	41	34	75	35	35	20	55	-51.6	-26.2	-49.1	-25.6	16/1/2011 1:00		
335	39	34	73	34	34	19	53	-50.3	-25.7	-47.5	-25.0	16/1/2011 2:00		
336	38	33	71	34	34	19	52	-48.9	-25.1	-45.9	-24.4	16/1/2011 3:00		
337	37	32	69	33	33	18	51	-47.6	-24.6	-44.4	-23.8	16/1/2011 4:00		
338	36	31	67	32	32	18	50	-46.5	-24.1	-42.9	-23.2	16/1/2011 5:00		
339	34	31	65	32	32	18	49	-45.2	-23.6	-41.5	-22.7	16/1/2011 6:00		
340	33	30	63	31	31	17	48	-44.1	-23.1	-40.1	-22.2	16/1/2011 7:00		
341	32	29	61	30	30	17	47	-43.0	-22.7	-38.8	-21.6	16/1/2011 8:00		
342	31	29	60	30	30	16	46	-41.9	-22.2	-37.6	-21.2	16/1/2011 9:00		
343	30	28	58	29	29	16	45	-40.9	-21.7	-36.4	-20.7	16/1/2011 10:00		
344	29	27	56	29	29	16	45	-39.9	-21.4	-35.2	-20.2	16/1/2011 11:00		
345	28	27	55	28	28	15	44	-38.8	-20.9	-34.1	-19.8	16/1/2011 12:00		
346	27	26	53	28	28	15	43	-37.9	-20.5	-33.0	-19.3	16/1/2011 13:00		
347	26	26	52	27	27	15	42	-37.0	-20.1	-32.0	-18.8	16/1/2011 14:00		
348	26	25	50	27	27	14	41	-36.0	-19.7	-31.0	-18.4	16/1/2011 15:00		
349	25	24	49	26	26	14	40	-35.2	-19.3	-30.0	-18.0	16/1/2011 16:00		
350	24	24	48	26	26	14	40	-34.3	-19.0	-29.1	-17.5	16/1/2011 17:00		
351	23	23	46	25	25	14	39	-33.5	-18.6	-28.2	-17.1	16/1/2011 18:00		
352	22	23	45	25	25	13	38	-32.7	-18.2	-27.4	-16.7	16/1/2011 19:00		
353	22	22	44	24	24	13	37	-31.9	-17.9	-26.5	-16.3	16/1/2011 20:00		
354	21	22	43	24	24	13	37	-31.1	-17.6	-25.8	-15.9	16/1/2011 21:00		
355	20	21	42	23	23	12	36	-30.4	-17.2	-25.0	-15.4	16/1/2011 22:00		
356	20	21	41	23	23	12	35	-29.6	-16.9	-24.2	-15.1	16/1/2011 23:00		
357	19	20	39	23	23	12	35	-28.9	-16.6	-23.5	-14.6	17/1/2011 0:00		
358	19	20	38	22	22	12	34	-28.3	-16.3	-22.8	-14.3	17/1/2011 1:00		
359	18	19	37	22	22	11	33	-27.5	-16.0	-22.2	-13.9	17/1/2011 2:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
360	14.750	0.2	0.6	17/01/2011 01:00	18	17	37	54	2	3	38	40	18
361	14.792	0.2	0.6	17/01/2011 02:00	18	17	36	53	2	2	37	40	17
362	14.833	0.2	0.6	17/01/2011 03:00	17	17	36	52	2	2	37	39	17
363	14.875	0.2	0.6	17/01/2011 04:00	17	16	35	51	2	2	36	38	16
364	14.917	0.2	0.6	17/01/2011 05:00	17	16	34	50	2	2	35	38	16
365	14.958	0.2	0.6	17/01/2011 06:00	16	16	33	49	2	2	35	37	15
366	15.000	0.2	0.6	17/01/2011 07:00	16	15	32	48	2	2	34	36	15
367	15.042	0.2	0.6	17/01/2011 08:00	16	15	32	47	2	2	34	36	14
368	15.083	0.2	0.6	17/01/2011 09:00	15	15	31	46	2	2	33	35	14
369	15.125	0.2	0.6	17/01/2011 10:00	15	15	30	45	2	2	33	35	14
370	15.167	0.2	0.6	17/01/2011 11:00	15	14	30	44	2	2	32	34	13
371	15.208	0.2	0.6	17/01/2011 12:00	15	14	29	43	2	2	32	33	13
372	15.250	0.2	0.6	17/01/2011 13:00	14	14	28	42	2	2	31	33	12
373	15.292	0.2	0.6	17/01/2011 14:00	14	14	28	41	2	2	31	32	12
374	15.333	0.2	0.6	17/01/2011 15:00	14	13	27	40	2	2	30	32	12
375	15.375	0.2	0.6	17/01/2011 16:00	14	13	26	39	2	2	30	31	11
376	15.417	0.2	0.6	17/01/2011 17:00	13	13	26	39	1	2	29	31	11
377	15.458	0.2	0.6	17/01/2011 18:00	13	13	25	38	1	1	29	30	11
378	15.500	0.2	0.6	17/01/2011 19:00	13	12	25	37	1	1	28	30	11
379	15.542	0.2	0.6	17/01/2011 20:00	13	12	24	36	1	1	28	29	10
380	15.583	0.2	0.6	17/01/2011 21:00	13	12	23	35	1	1	27	29	10
381	15.625	0.2	0.6	17/01/2011 22:00	12	12	23	35	1	1	27	28	10
382	15.667	0.2	0.6	17/01/2011 23:00	12	12	22	34	1	1	27	28	10
383	15.708	0.2	0.6	18/01/2011 00:00	12	11	22	33	1	1	26	27	9
384	15.750	0.2	0.6	18/01/2011 01:00	12	11	21	33	1	1	26	27	9
385	15.792	0.2	0.6	18/01/2011 02:00	12	11	21	32	1	1	25	27	9
386	15.833	0.2	0.6	18/01/2011 03:00	11	11	20	31	1	1	25	26	9
387	15.875	0.2	0.6	18/01/2011 04:00	11	11	20	31	1	1	25	26	8
388	15.917	0.2	0.6	18/01/2011 05:00	11	11	20	30	1	1	24	25	8
389	15.958	0.2	0.6	18/01/2011 06:00	11	10	19	29	1	1	24	25	8
390	16.000	0.2	0.6	18/01/2011 07:00	11	10	19	29	1	1	23	24	8
391	16.042	0.2	0.6	18/01/2011 08:00	10	10	18	28	1	1	23	24	8
392	16.083	0.2	0.6	18/01/2011 09:00	10	10	18	28	1	1	23	24	7
393	16.125	0.2	0.6	18/01/2011 10:00	10	10	17	27	1	1	22	23	7
394	16.167	0.2	0.6	18/01/2011 11:00	10	10	17	27	1	1	22	23	7
395	16.208	0.2	0.6	18/01/2011 12:00	10	9	17	26	1	1	22	22	7
396	16.250	0.2	0.6	18/01/2011 13:00	10	9	16	26	1	1	21	22	7
397	16.292	0.2	0.6	18/01/2011 14:00	10	9	16	25	1	1	21	22	7
398	16.333	0.2	0.6	18/01/2011 15:00	9	9	16	25	1	1	21	21	6
399	16.375	0.2	0.6	18/01/2011 16:00	9	9	15	24	1	1	20	21	6
400	16.417	0.2	0.6	18/01/2011 17:00	9	9	15	24	1	1	20	21	6
401	16.458	0.2	0.6	18/01/2011 18:00	9	9	14	23	1	1	20	20	6
402	16.500	0.2	0.6	18/01/2011 19:00	9	8	14	23	1	1	19	20	6
403	16.542	0.2	0.6	18/01/2011 20:00	9	8	14	22	1	1	19	20	6
404	16.583	0.2	0.6	18/01/2011 21:00	9	8	14	22	1	1	19	19	6

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
360	18	19	36	22	22	11	33	-26.9	-15.7	-21.5	-13.5	17/1/2011 3:00		
361	17	18	35	21	21	11	32	-26.3	-15.4	-20.9	-13.1	17/1/2011 4:00		
362	17	18	35	21	21	11	32	-25.7	-15.2	-20.3	-12.7	17/1/2011 5:00		
363	16	18	34	20	20	10	31	-25.0	-14.9	-19.7	-12.4	17/1/2011 6:00		
364	16	17	33	20	20	10	30	-24.5	-14.6	-19.1	-12.1	17/1/2011 7:00		
365	15	17	32	20	20	10	30	-23.9	-14.3	-18.6	-11.7	17/1/2011 8:00		
366	15	16	31	20	20	10	29	-23.3	-14.1	-18.0	-11.4	17/1/2011 9:00		
367	14	16	30	19	19	10	29	-22.8	-13.8	-17.6	-11.1	17/1/2011 10:00		
368	14	16	30	19	19	9	28	-22.3	-13.6	-17.1	-10.8	17/1/2011 11:00		
369	14	15	29	19	19	9	28	-21.7	-13.4	-16.6	-10.5	17/1/2011 12:00		
370	13	15	28	18	18	9	27	-21.2	-13.1	-16.1	-10.2	17/1/2011 13:00		
371	13	15	27	18	18	9	27	-20.7	-12.9	-15.6	-10.0	17/1/2011 14:00		
372	12	14	27	18	18	9	27	-20.2	-12.7	-15.2	-9.7	17/1/2011 15:00		
373	12	14	26	18	18	8	26	-19.8	-12.5	-14.8	-9.5	17/1/2011 16:00		
374	12	14	25	17	17	8	26	-19.3	-12.2	-14.4	-9.2	17/1/2011 17:00		
375	11	13	25	17	17	8	25	-18.9	-12.0	-14.0	-9.0	17/1/2011 18:00		
376	11	13	24	17	17	8	25	-18.4	-11.8	-13.6	-8.8	17/1/2011 19:00		
377	11	13	24	17	17	8	25	-18.0	-11.6	-13.2	-8.6	17/1/2011 20:00		
378	11	12	23	17	17	8	24	-17.6	-11.4	-12.9	-8.4	17/1/2011 21:00		
379	10	12	22	16	16	7	24	-17.2	-11.2	-12.5	-8.2	17/1/2011 22:00		
380	10	12	22	16	16	7	23	-16.8	-11.0	-12.2	-8.0	17/1/2011 23:00		
381	10	11	21	16	16	7	23	-16.4	-10.8	-11.8	-7.8	18/1/2011 0:00		
382	10	11	21	16	16	7	23	-16.0	-10.6	-11.6	-7.7	18/1/2011 1:00		
383	9	11	20	16	16	7	22	-15.7	-10.5	-11.2	-7.5	18/1/2011 2:00		
384	9	11	20	15	15	7	22	-15.3	-10.3	-11.0	-7.4	18/1/2011 3:00		
385	9	10	19	15	15	7	22	-15.0	-10.1	-10.7	-7.2	18/1/2011 4:00		
386	9	10	19	15	15	6	21	-14.7	-9.9	-10.4	-7.1	18/1/2011 5:00		
387	8	10	18	15	15	6	21	-14.3	-9.8	-10.1	-6.9	18/1/2011 6:00		
388	8	10	18	15	15	6	21	-14.0	-9.6	-9.8	-6.8	18/1/2011 7:00		
389	8	10	17	14	14	6	21	-13.7	-9.4	-9.6	-6.7	18/1/2011 8:00		
390	8	9	17	14	14	6	20	-13.3	-9.3	-9.3	-6.5	18/1/2011 9:00		
391	8	9	17	14	14	6	20	-13.1	-9.1	-9.1	-6.4	18/1/2011 10:00		
392	7	9	16	14	14	6	20	-12.8	-9.0	-8.8	-6.3	18/1/2011 11:00		
393	7	9	16	14	14	6	19	-12.5	-8.8	-8.6	-6.2	18/1/2011 12:00		
394	7	8	15	14	14	5	19	-12.2	-8.7	-8.4	-6.1	18/1/2011 13:00		
395	7	8	15	14	14	5	19	-11.9	-8.5	-8.2	-6.0	18/1/2011 14:00		
396	7	8	15	13	13	5	19	-11.7	-8.4	-8.0	-5.9	18/1/2011 15:00		
397	7	8	14	13	13	5	18	-11.4	-8.2	-7.8	-5.8	18/1/2011 16:00		
398	6	8	14	13	13	5	18	-11.2	-8.1	-7.5	-5.7	18/1/2011 17:00		
399	6	8	14	13	13	5	18	-10.9	-8.0	-7.4	-5.6	18/1/2011 18:00		
400	6	7	13	13	13	5	18	-10.7	-7.8	-7.2	-5.5	18/1/2011 19:00		
401	6	7	13	13	13	5	17	-10.5	-7.7	-7.0	-5.4	18/1/2011 20:00		
402	6	7	13	12	12	5	17	-10.2	-7.6	-6.8	-5.3	18/1/2011 21:00		
403	6	7	12	12	12	5	17	-10.0	-7.5	-6.6	-5.2	18/1/2011 22:00		
404	6	7	12	12	12	4	17	-9.8	-7.3	-6.5	-5.1	18/1/2011 23:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
405	16.625	0.2	0.6	18/01/2011 22:00	8	8	13	21	1	1	18	19	5
406	16.667	0.2	0.6	18/01/2011 23:00	8	8	13	21	1	1	18	19	5
407	16.708	0.2	0.6	19/01/2011 00:00	8	8	13	20	1	1	18	18	5
408	16.750	0.2	0.6	19/01/2011 01:00	8	8	12	20	1	1	18	18	5
409	16.792	0.2	0.6	19/01/2011 02:00	8	8	12	20	1	1	17	18	5
410	16.833	0.2	0.6	19/01/2011 03:00	8	8	12	19	1	1	17	18	5
411	16.875	0.2	0.6	19/01/2011 04:00	8	7	12	19	1	1	17	17	5
412	16.917	0.2	0.6	19/01/2011 05:00	8	7	11	19	1	1	16	17	5
413	16.958	0.2	0.6	19/01/2011 06:00	8	7	11	18	1	1	16	17	4
414	17.000	0.2	0.6	19/01/2011 07:00	7	7	11	18	1	1	16	16	4
415	17.042	0.2	0.6	19/01/2011 08:00	7	7	11	18	1	1	16	16	4
416	17.083	0.2	0.6	19/01/2011 09:00	7	7	10	17	1	1	15	16	4
417	17.125	0.2	0.6	19/01/2011 10:00	7	7	10	17	0	1	15	16	4
418	17.167	0.2	0.6	19/01/2011 11:00	7	7	10	17	0	1	15	15	4
419	17.208	0.2	0.6	19/01/2011 12:00	7	7	10	16	0	1	15	15	4
420	17.250	0.2	0.6	19/01/2011 13:00	7	7	9	16	0	0	14	15	4
421	17.292	0.2	0.6	19/01/2011 14:00	7	6	9	16	0	0	14	15	4
422	17.333	0.2	0.6	19/01/2011 15:00	7	6	9	15	0	0	14	14	4
423	17.375	0.2	0.6	19/01/2011 16:00	7	6	9	15	0	0	14	14	4
424	17.417	0.2	0.6	19/01/2011 17:00	6	6	9	15	0	0	14	14	4
425	17.458	0.2	0.6	19/01/2011 18:00	6	6	8	15	0	0	13	14	3
426	17.500	0.2	0.6	19/01/2011 19:00	6	6	8	14	0	0	13	14	3
427	17.542	0.2	0.6	19/01/2011 20:00	6	6	8	14	0	0	13	13	3
428	17.583	0.2	0.6	19/01/2011 21:00	6	6	8	14	0	0	13	13	3
429	17.625	0.2	0.6	19/01/2011 22:00	6	6	8	13	0	0	12	13	3
430	17.667	0.2	0.6	19/01/2011 23:00	6	6	8	13	0	0	12	13	3
431	17.708	0.2	0.6	20/01/2011 00:00	6	6	7	13	0	0	12	12	3
432	17.750	0.2	0.6	20/01/2011 01:00	6	6	7	13	0	0	12	12	3
433	17.792	0.2	0.6	20/01/2011 02:00	6	5	7	13	0	0	12	12	3
434	17.833	0.2	0.6	20/01/2011 03:00	6	5	7	12	0	0	12	12	3
435	17.875	0.2	0.6	20/01/2011 04:00	6	5	7	12	0	0	11	12	3
436	17.917	0.2	0.6	20/01/2011 05:00	5	5	7	12	0	0	11	12	3
437	17.958	0.2	0.6	20/01/2011 06:00	5	5	6	12	0	0	11	11	3
438	18.000	0.2	0.6	20/01/2011 07:00	5	5	6	11	0	0	11	11	3
439	18.042	0.2	0.6	20/01/2011 08:00	5	5	6	11	0	0	11	11	3
440	18.083	0.2	0.6	20/01/2011 09:00	5	5	6	11	0	0	10	11	3
441	18.125	0.2	0.6	20/01/2011 10:00	5	5	6	11	0	0	10	11	2
442	18.167	0.2	0.6	20/01/2011 11:00	5	5	6	11	0	0	10	10	2
443	18.208	0.2	0.6	20/01/2011 12:00	5	5	6	10	0	0	10	10	2
444	18.250	0.2	0.6	20/01/2011 13:00	5	5	6	10	0	0	10	10	2
445	18.292	0.2	0.6	20/01/2011 14:00	5	5	5	10	0	0	10	10	2
446	18.333	0.2	0.6	20/01/2011 15:00	5	5	5	10	0	0	10	10	2
447	18.375	0.2	0.6	20/01/2011 16:00	5	5	5	10	0	0	9	10	2
448	18.417	0.2	0.6	20/01/2011 17:00	5	4	5	10	0	0	9	9	2
449	18.458	0.2	0.6	20/01/2011 18:00	5	4	5	9	0	0	9	9	2

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
405	5	7	12	12	12	4	16	-9.6	-7.2	-6.3	-5.0	19/1/2011 0:00		
406	5	6	12	12	12	4	16	-9.3	-7.1	-6.2	-5.0	19/1/2011 1:00		
407	5	6	11	12	12	4	16	-9.1	-7.0	-6.0	-4.9	19/1/2011 2:00		
408	5	6	11	12	12	4	16	-8.9	-6.8	-5.8	-4.8	19/1/2011 3:00		
409	5	6	11	12	12	4	16	-8.8	-6.7	-5.7	-4.7	19/1/2011 4:00		
410	5	6	11	11	11	4	15	-8.5	-6.6	-5.5	-4.6	19/1/2011 5:00		
411	5	6	10	11	11	4	15	-8.4	-6.5	-5.4	-4.6	19/1/2011 6:00		
412	5	6	10	11	11	4	15	-8.2	-6.4	-5.3	-4.5	19/1/2011 7:00		
413	4	5	10	11	11	4	15	-8.0	-6.3	-5.1	-4.4	19/1/2011 8:00		
414	4	5	10	11	11	4	15	-7.8	-6.2	-5.0	-4.4	19/1/2011 9:00		
415	4	5	9	11	11	4	14	-7.7	-6.1	-4.9	-4.3	19/1/2011 10:00		
416	4	5	9	11	11	4	14	-7.5	-6.0	-4.8	-4.2	19/1/2011 11:00		
417	4	5	9	11	11	3	14	-7.4	-5.9	-4.7	-4.2	19/1/2011 12:00		
418	4	5	9	11	11	3	14	-7.2	-5.8	-4.5	-4.1	19/1/2011 13:00		
419	4	5	9	10	10	3	14	-7.0	-5.7	-4.4	-4.0	19/1/2011 14:00		
420	4	5	8	10	10	3	14	-6.9	-5.6	-4.3	-4.0	19/1/2011 15:00		
421	4	4	8	10	10	3	13	-6.8	-5.5	-4.2	-3.9	19/1/2011 16:00		
422	4	4	8	10	10	3	13	-6.6	-5.4	-4.1	-3.9	19/1/2011 17:00		
423	4	4	8	10	10	3	13	-6.5	-5.3	-4.0	-3.8	19/1/2011 18:00		
424	4	4	8	10	10	3	13	-6.3	-5.3	-3.9	-3.8	19/1/2011 19:00		
425	3	4	8	10	10	3	13	-6.2	-5.1	-3.8	-3.7	19/1/2011 20:00		
426	3	4	7	10	10	3	13	-6.1	-5.1	-3.7	-3.6	19/1/2011 21:00		
427	3	4	7	10	10	3	12	-5.9	-5.0	-3.6	-3.6	19/1/2011 22:00		
428	3	4	7	9	9	3	12	-5.8	-4.9	-3.6	-3.5	19/1/2011 23:00		
429	3	4	7	9	9	3	12	-5.7	-4.8	-3.5	-3.5	20/1/2011 0:00		
430	3	4	7	9	9	3	12	-5.6	-4.8	-3.4	-3.4	20/1/2011 1:00		
431	3	4	7	9	9	3	12	-5.5	-4.7	-3.3	-3.4	20/1/2011 2:00		
432	3	3	6	9	9	3	12	-5.3	-4.6	-3.2	-3.4	20/1/2011 3:00		
433	3	3	6	9	9	3	12	-5.2	-4.5	-3.1	-3.3	20/1/2011 4:00		
434	3	3	6	9	9	3	11	-5.1	-4.4	-3.1	-3.2	20/1/2011 5:00		
435	3	3	6	9	9	2	11	-5.0	-4.4	-3.0	-3.2	20/1/2011 6:00		
436	3	3	6	9	9	2	11	-4.9	-4.3	-2.9	-3.1	20/1/2011 7:00		
437	3	3	6	9	9	2	11	-4.8	-4.2	-2.9	-3.1	20/1/2011 8:00		
438	3	3	6	8	8	2	11	-4.7	-4.2	-2.8	-3.1	20/1/2011 9:00		
439	3	3	5	8	8	2	11	-4.6	-4.1	-2.7	-3.0	20/1/2011 10:00		
440	3	3	5	8	8	2	11	-4.5	-4.0	-2.7	-3.0	20/1/2011 11:00		
441	2	3	5	8	8	2	10	-4.4	-4.0	-2.6	-2.9	20/1/2011 12:00		
442	2	3	5	8	8	2	10	-4.3	-3.9	-2.5	-2.9	20/1/2011 13:00		
443	2	3	5	8	8	2	10	-4.3	-3.8	-2.5	-2.9	20/1/2011 14:00		
444	2	3	5	8	8	2	10	-4.2	-3.8	-2.4	-2.8	20/1/2011 15:00		
445	2	3	5	8	8	2	10	-4.1	-3.7	-2.4	-2.8	20/1/2011 16:00		
446	2	2	5	8	8	2	10	-4.0	-3.6	-2.3	-2.7	20/1/2011 17:00		
447	2	2	5	8	8	2	10	-3.9	-3.6	-2.2	-2.7	20/1/2011 18:00		
448	2	2	5	8	8	2	10	-3.8	-3.5	-2.2	-2.7	20/1/2011 19:00		
449	2	2	4	8	8	2	10	-3.8	-3.5	-2.2	-2.6	20/1/2011 20:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
450	18.500	0.2	0.6	20/01/2011 19:00	5	4	5	9	0	0	9	9	2
451	18.542	0.2	0.6	20/01/2011 20:00	5	4	5	9	0	0	9	9	2
452	18.583	0.2	0.6	20/01/2011 21:00	4	4	5	9	0	0	9	9	2
453	18.625	0.2	0.6	20/01/2011 22:00	4	4	5	9	0	0	8	9	2
454	18.667	0.2	0.6	20/01/2011 23:00	4	4	4	9	0	0	8	9	2
455	18.708	0.2	0.6	21/01/2011 00:00	4	4	4	8	0	0	8	8	2
456	18.750	0.2	0.6	21/01/2011 01:00	4	4	4	8	0	0	8	8	2
457	18.792	0.2	0.6	21/01/2011 02:00	4	4	4	8	0	0	8	8	2
458	18.833	0.2	0.6	21/01/2011 03:00	4	4	4	8	0	0	8	8	2
459	18.875	0.2	0.6	21/01/2011 04:00	4	4	4	8	0	0	8	8	2
460	18.917	0.2	0.6	21/01/2011 05:00	4	4	4	8	0	0	8	8	2
461	18.958	0.2	0.6	21/01/2011 06:00	4	4	4	8	0	0	7	8	2
462	19.000	0.2	0.6	21/01/2011 07:00	4	4	4	7	0	0	7	8	2
463	19.042	0.2	0.6	21/01/2011 08:00	4	4	4	7	0	0	7	7	2
464	19.083	0.2	0.6	21/01/2011 09:00	4	4	4	7	0	0	7	7	2
465	19.125	0.2	0.6	21/01/2011 10:00	4	4	3	7	0	0	7	7	2
466	19.167	0.2	0.6	21/01/2011 11:00	4	4	3	7	0	0	7	7	2
467	19.208	0.2	0.6	21/01/2011 12:00	4	4	3	7	0	0	7	7	2
468	19.250	0.2	0.6	21/01/2011 13:00	4	4	3	7	0	0	7	7	1
469	19.292	0.2	0.6	21/01/2011 14:00	4	3	3	7	0	0	7	7	1
470	19.333	0.2	0.6	21/01/2011 15:00	4	3	3	7	0	0	6	7	1
471	19.375	0.2	0.6	21/01/2011 16:00	4	3	3	6	0	0	6	7	1
472	19.417	0.2	0.6	21/01/2011 17:00	3	3	3	6	0	0	6	6	1
473	19.458	0.2	0.6	21/01/2011 18:00	3	3	3	6	0	0	6	6	1
474	19.500	0.2	0.6	21/01/2011 19:00	3	3	3	6	0	0	6	6	1
475	19.542	0.2	0.6	21/01/2011 20:00	3	3	3	6	0	0	6	6	1
476	19.583	0.2	0.6	21/01/2011 21:00	3	3	3	6	0	0	6	6	1
477	19.625	0.2	0.6	21/01/2011 22:00	3	3	3	6	0	0	6	6	1
478	19.667	0.2	0.6	21/01/2011 23:00	3	3	3	6	0	0	6	6	1
479	19.708	0.2	0.6	22/01/2011 00:00	3	3	3	6	0	0	6	6	1
480	19.750	0.2	0.6	22/01/2011 01:00	3	3	3	6	0	0	6	6	1
481	19.792	0.2	0.6	22/01/2011 02:00	3	3	2	5	0	0	5	6	1
482	19.833	0.2	0.6	22/01/2011 03:00	3	3	2	5	0	0	5	5	1
483	19.875	0.2	0.6	22/01/2011 04:00	3	3	2	5	0	0	5	5	1
484	19.917	0.2	0.6	22/01/2011 05:00	3	3	2	5	0	0	5	5	1
485	19.958	0.2	0.6	22/01/2011 06:00	3	3	2	5	0	0	5	5	1
486	20.000	0.2	0.6	22/01/2011 07:00	3	3	2	5	0	0	5	5	1
487				22/01/2011 08:00	3	3	2	5	0	0	5	5	1
488				22/01/2011 09:00	3	3	2	5	0	0	5	5	1
489													
490													
491													
492													
493													
494													

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
450	2	2	4	7	7	2	9	-3.7	-3.4	-2.1	-2.6	20/1/2011 21:00		
451	2	2	4	7	7	2	9	-3.6	-3.4	-2.1	-2.5	20/1/2011 22:00		
452	2	2	4	7	7	2	9	-3.6	-3.3	-2.0	-2.5	20/1/2011 23:00		
453	2	2	4	7	7	2	9	-3.5	-3.2	-2.0	-2.5	21/1/2011 0:00		
454	2	2	4	7	7	2	9	-3.4	-3.2	-1.9	-2.4	21/1/2011 1:00		
455	2	2	4	7	7	2	9	-3.3	-3.1	-1.9	-2.4	21/1/2011 2:00		
456	2	2	4	7	7	2	9	-3.3	-3.1	-1.8	-2.4	21/1/2011 3:00		
457	2	2	4	7	7	2	9	-3.2	-3.1	-1.8	-2.4	21/1/2011 4:00		
458	2	2	4	7	7	2	9	-3.2	-3.0	-1.8	-2.3	21/1/2011 5:00		
459	2	2	4	7	7	2	8	-3.1	-3.0	-1.7	-2.3	21/1/2011 6:00		
460	2	2	3	7	7	2	8	-3.0	-2.9	-1.7	-2.2	21/1/2011 7:00		
461	2	2	3	7	7	2	8	-3.0	-2.8	-1.6	-2.2	21/1/2011 8:00		
462	2	2	3	7	7	2	8	-2.9	-2.8	-1.6	-2.2	21/1/2011 9:00		
463	2	2	3	7	7	2	8	-2.8	-2.8	-1.6	-2.2	21/1/2011 10:00		
464	2	2	3	6	6	1	8	-2.8	-2.7	-1.5	-2.2	21/1/2011 11:00		
465	2	2	3	6	6	1	8	-2.7	-2.7	-1.5	-2.1	21/1/2011 12:00		
466	2	2	3	6	6	1	8	-2.7	-2.6	-1.5	-2.1	21/1/2011 13:00		
467	2	2	3	6	6	1	8	-2.6	-2.6	-1.4	-2.1	21/1/2011 14:00		
468	1	1	3	6	6	1	8	-2.6	-2.5	-1.4	-2.0	21/1/2011 15:00		
469	1	1	3	6	6	1	8	-2.5	-2.5	-1.4	-2.0	21/1/2011 16:00		
470	1	1	3	6	6	1	7	-2.5	-2.5	-1.3	-2.0	21/1/2011 17:00		
471	1	1	3	6	6	1	7	-2.4	-2.4	-1.3	-2.0	21/1/2011 18:00		
472	1	1	3	6	6	1	7	-2.4	-2.4	-1.3	-1.9	21/1/2011 19:00		
473	1	1	3	6	6	1	7	-2.4	-2.4	-1.2	-1.9	21/1/2011 20:00		
474	1	1	3	6	6	1	7	-2.3	-2.3	-1.2	-1.9	21/1/2011 21:00		
475	1	1	3	6	6	1	7	-2.3	-2.3	-1.2	-1.9	21/1/2011 22:00		
476	1	1	3	6	6	1	7	-2.2	-2.2	-1.1	-1.8	21/1/2011 23:00		
477	1	1	2	6	6	1	7	-2.2	-2.2	-1.1	-1.8	22/1/2011 0:00		
478	1	1	2	6	6	1	7	-2.1	-2.2	-1.1	-1.8	22/1/2011 1:00		
479	1	1	2	6	6	1	7	-2.1	-2.1	-1.1	-1.8	22/1/2011 2:00		
480	1	1	2	5	5	1	7	-2.1	-2.1	-1.1	-1.7	22/1/2011 3:00		
481	1	1	2	5	5	1	7	-2.0	-2.1	-1.0	-1.7	22/1/2011 4:00		
482	1	1	2	5	5	1	6	-2.0	-2.1	-1.0	-1.7	22/1/2011 5:00		
483	1	1	2	5	5	1	6	-1.9	-2.0	-1.0	-1.7	22/1/2011 6:00		
484	1	1	2	5	5	1	6	-1.9	-2.0	-1.0	-1.7	22/1/2011 7:00		
485	1	1	2	5	5	1	6	-1.9	-1.9	-0.9	-1.6	22/1/2011 8:00		
486	1	1	2	5	5	1	6	0.0	0.0	0.0	0.0	22/1/2011 9:00		
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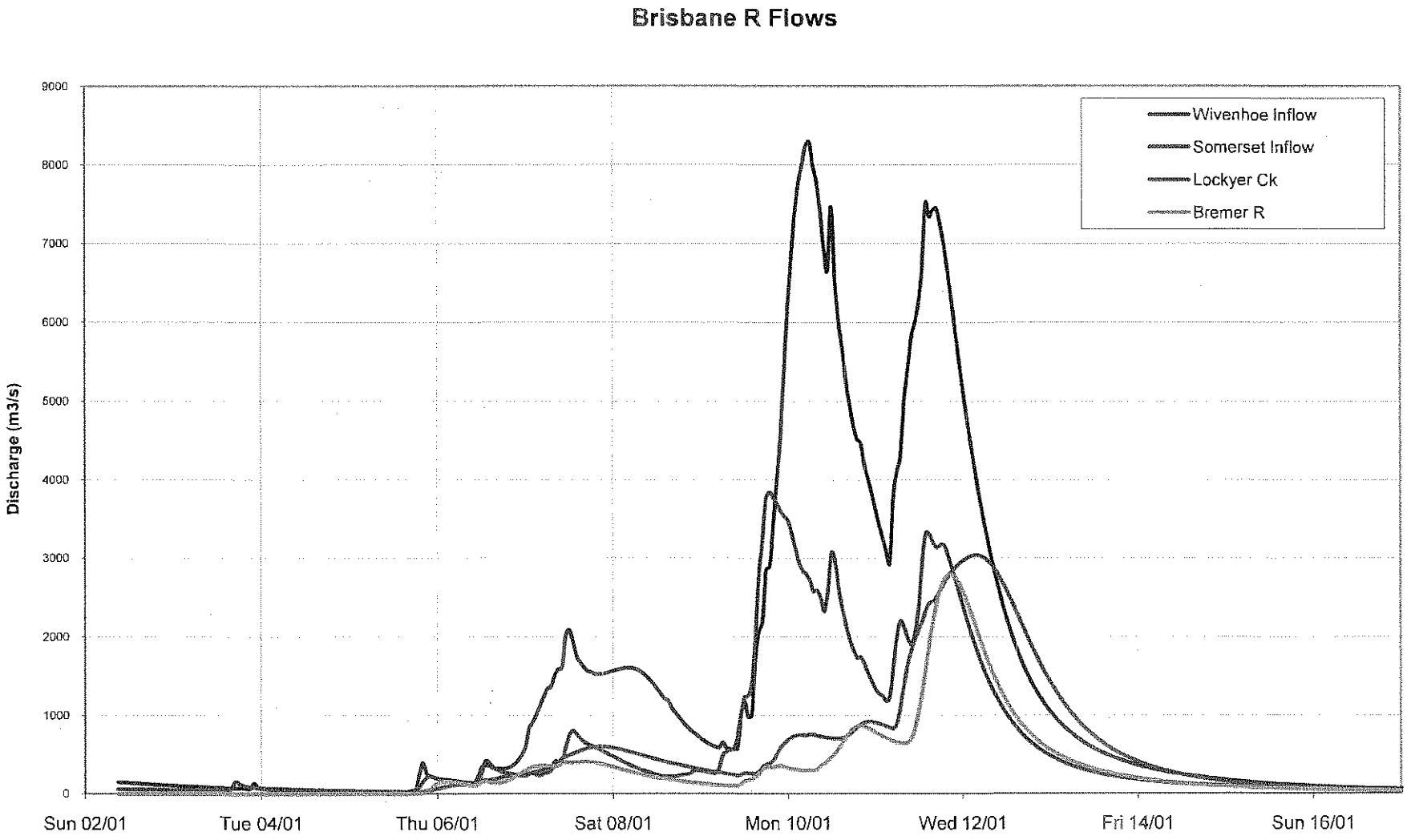
Brisbane R Flows
Discharge (m3/s)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Sun 02/01
Tue 04/01
Thu 06/01
Sat 08/01
Mon 10/01
Wed 12/01
Fri 14/01
Sun 16/01
Wivenhoe Inflow
Somerset Inflow
Lockyer Ck
Bremer R

RD5-1438

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1			2	16	hrs		60 minutes	Somerset																
2	Wivenhoe Inflow	Somerset Inflow	Lockyer Creek	Bremer River	Somerset Change in Storage	Wivenhoe Change in Storage	Date/Time	Cal Lake Level	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)	Rec Gauge Boards	No of Regulators Open	No of Sluices Open	No of Gates Open	Hydro	Total Somerset Discharge	1	2	3	4	5	Increments	Regulator + Hydro
3	m3/s	m3/s	m3/s	m3/s	ML	ML		m AHD	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)					m3/s	m3/s							m3/s
4	150	60	143	102			Sun 02/01/11 09:00	99.10				99.10	0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
5	146	59	139	99	0.0021	0.0045	Sun 02/01/11 10:00	99.10	1187.66	-50.83	-603.69		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
6	143	58	136	97	0.0020	0.0043	Sun 02/01/11 11:00	99.10	1187.89	-48.89	-580.80		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
7	139	57	133	95	0.0020	0.0042	Sun 02/01/11 12:00	99.11	1188.10	-46.99	-558.28		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
8	136	56	130	92	0.0019	0.0041	Sun 02/01/11 13:00	99.11	1188.31	-45.12	-536.12		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
9	133	55	127	90	0.0018	0.0040	Sun 02/01/11 14:00	99.11	1188.51	-43.27	-514.32		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
10	130	54	124	88	0.0017	0.0039	Sun 02/01/11 15:00	99.11	1188.70	-41.46	-492.87		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
11	127	54	121	86	0.0017	0.0038	Sun 02/01/11 16:00	99.11	1188.88	-39.68	-471.76		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
12	124	53	118	84	0.0016	0.0037	Sun 02/01/11 17:00	99.11	1189.06	-37.93	-450.99		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
13	121	52	115	82	0.0015	0.0036	Sun 02/01/11 18:00	99.12	1189.23	-36.20	-430.55		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
14	118	51	112	80	0.0014	0.0035	Sun 02/01/11 19:00	99.12	1189.39	-34.51	-410.44		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
15	115	50	109	78	0.0014	0.0034	Sun 02/01/11 20:00	99.12	1189.54	-32.84	-390.65		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
16	112	49	107	76	0.0013	0.0033	Sun 02/01/11 21:00	99.12	1189.68	-31.20	-371.18		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
17	109	49	104	74	0.0012	0.0032	Sun 02/01/11 22:00	99.12	1189.82	-29.59	-352.02		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
18	107	48	102	72	0.0012	0.0031	Sun 02/01/11 23:00	99.12	1189.95	-28.00	-333.17		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
19	104	47	99	71	0.0011	0.0030	Mon 03/01/11 00:00	99.12	1190.08	-26.44	-314.62		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
20	102	46	97	69	0.0010	0.0029	Mon 03/01/11 01:00	99.12	1190.19	-24.90	-296.37		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
21	99	46	95	68	0.0010	0.0028	Mon 03/01/11 02:00	99.13	1190.30	-23.39	-278.41		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
22	97	45	92	66	0.0009	0.0028	Mon 03/01/11 03:00	99.13	1190.41	-21.90	-260.74		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
23	95	44	90	65	0.0009	0.0027	Mon 03/01/11 04:00	99.13	1190.50	-20.44	-243.35		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
24	92	43	88	64	0.0008	0.0026	Mon 03/01/11 05:00	99.13	1190.60	-19.00	-226.24		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
25	90	43	86	130	0.0007	0.0025	Mon 03/01/11 06:00	99.13	1190.68	-17.59	-209.41		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
26	88	42	84	85	0.0007	0.0025	Mon 03/01/11 07:00	99.13	1190.76	-16.20	-192.84		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
27	86	41	82	74	0.0006	0.0024	Mon 03/01/11 08:00	99.13	1190.83	-14.83	-176.55	99.20	0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
28	84	41	80	71	0.0006	0.0023	Mon 03/01/11 09:00	99.13	1190.89	-13.48	-160.51		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
29	82	40	78	68	0.0005	0.0022	Mon 03/01/11 10:00	99.13	1190.95	-12.15	-144.73		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
30	80	39	76	66	0.0005	0.0022	Mon 03/01/11 11:00	99.13	1191.01	-10.85	-129.20		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
31	78	39	74	64	0.0004	0.0021	Mon 03/01/11 12:00	99.13	1191.06	-9.56	-113.92		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
32	76	38	72	62	0.0003	0.0021	Mon 03/01/11 13:00	99.13	1191.10	-8.30	-98.89		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
33	74	38	71	60	0.0003	0.0020	Mon 03/01/11 14:00	99.13	1191.13	-7.06	-84.10		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
34	72	37	69	58	0.0002	0.0019	Mon 03/01/11 15:00	99.13	1191.17	-5.84	-69.55		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
35	71	83	67	57	0.0021	0.0019	Mon 03/01/11 16:00	99.14	1191.19	-51.15	-609.28		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
36	69	153	66	55	0.0070	0.0018	Mon 03/01/11 17:00	99.14	1191.42	-167.80	-1999.25		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
37	68	125	64	54	0.0088	0.0018	Mon 03/01/11 18:00	99.15	1192.16	-210.85	-2513.71		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
38	66	105	63	52	0.0068	0.0017	Mon 03/01/11 19:00	99.16	1193.10	-162.88	-1943.32		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
39	65	92	61	51	0.0054	0.0017	Mon 03/01/11 20:00	99.16	1193.82	-129.15	-1541.79		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
1	Wivenhoe											10195	11736	12257		Inflows				
2	1	2	3	4	5	Total Wivenhoe Discharge	Cal Lake Level	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	Rec Gauge Boards	Lowood Flow	Moggill Flow (JT Upda	Moggill Flow		Stanley R	Upper Brisbane R	Upper Brisbane + Somerset Outflow	Total	
3	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m AHD	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	m AHD	m3/s	m3/s	m3/s		ML	ML		ML	
4	0	0	0	0	0	50	**67.10**				**67.10**	50		50		0	0	123	0	
5	0	0	0	0	0	50	67.10	107.1	2970	3182		50		50		213	527	773	740	
6	0	0	0	0	0	50	67.11	104.2	2971	3096		50		50		422	1,041	1,411	1,463	
7	0	0	0	0	0	50	67.11	101.4	2971	3013		50		50		627	1,543	2,036	2,171	
8	0	0	0	0	0	50	67.12	98.6	2972	2932		50		50		830	2,033	2,649	2,863	
9	0	0	0	0	0	50	67.12	95.9	2973	2852		50		50		1,029	2,512	3,251	3,541	
10	0	0	0	0	0	50	67.13	93.3	2974	2775		50		50		1,225	2,978	3,841	4,204	
11	0	0	0	0	0	50	67.13	90.8	2974	2699		50		50		1,418	3,434	4,419	4,852	
12	0	0	0	0	0	50	67.13	88.3	2975	2626		50		50		1,608	3,879	4,987	5,487	
13	0	0	0	0	0	50	67.14	85.8	2976	2554		50		50		1,795	4,313	5,544	6,108	
14	0	0	0	0	0	50	67.14	83.4	2976	2483		50		50		1,979	4,736	6,091	6,715	
15	0	0	0	0	0	50	67.14	81.1	2977	2415		50		50		2,160	5,150	6,628	7,309	
16	0	0	0	0	0	50	67.15	78.8	2978	2348		50	50	50		2,338	5,553	7,154	7,891	
17	0	0	0	0	0	50	67.15	76.6	2978	2282		50	50	50		2,513	5,947	7,671	8,460	
18	0	0	0	0	0	50	67.15	74.5	2979	2219		50	50	50		2,685	6,331	8,179	9,016	
19	0	0	0	0	0	50	67.16	72.4	2979	2156		50	50	50		2,855	6,706	8,677	9,561	
20	0	0	0	0	0	50	67.16	70.3	2980	2096		50	50	50		3,022	7,072	9,166	10,094	
21	0	0	0	0	0	50	67.16	68.3	2980	2036		50	50	50		3,186	7,430	9,647	10,615	
22	0	0	0	0	0	50	67.16	66.4	2981	1979		50	50	50		3,347	7,778	10,119	11,126	
23	0	0	0	0	0	50	67.17	64.5	2981	1922		50	50	50		3,506	8,119	10,582	11,625	
24	0	0	0	0	0	50	67.17	62.6	2982	1867		50	50	50		3,663	8,451	11,038	12,114	
25	0	0	0	0	0	50	67.17	60.8	2982	1813		50	50	50		3,817	8,775	11,485	12,592	
26	0	0	0	0	0	50	67.17	59.0	2983	1761		50	50	50		3,968	9,091	11,925	13,060	
27	0	0	0	0	0	50	67.18	57.3	2983	1709	**67.15**	50	50	50		4,117	9,400	12,357	13,518	
28	0	0	0	0	0	50	67.18	55.6	2984	1659		50	50	50		4,264	9,702	12,781	13,966	
29	0	0	0	0	0	50	67.18	54.0	2984	1611		50	50	50		4,408	9,996	13,199	14,404	
30	0	0	0	0	0	50	67.18	52.4	2985	1563		50	50	50		4,550	10,283	13,609	14,833	
31	0	0	0	0	0	50	67.19	50.8	2985	1517		50	50	50		4,690	10,563	14,013	15,253	
32	0	0	0	0	0	50	67.19	49.3	2985	1471		50	50	50		4,827	10,837	14,409	15,664	
33	0	0	0	0	0	50	67.19	47.8	2986	1427		50	50	50		4,963	11,104	14,800	16,067	
34	0	0	0	0	0	50	67.19	46.3	2986	1384		50	50	50		5,096	11,364	15,183	16,460	
35	0	0	0	0	0	50	67.19	45.0	2986	1344		50	50	50		5,393	11,620	15,562	17,013	
36	0	0	0	0	0	50	67.20	43.8	2987	1310		50	50	50		5,943	11,870	15,935	17,813	
37	0	0	0	0	0	50	67.20	42.6	2987	1273		50	50	50		6,395	12,114	16,302	18,509	
38	0	0	0	0	0	50	67.20	41.3	2987	1234		50	50	50		6,774	12,352	16,664	19,126	
39	0	0	0	0	0	50	67.20	40.1	2988	1197		50	50	50		7,105	12,585	17,021	19,690	

RD5-1440

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
1		Outflows										
2	Somerset	Wivenhoe										
3	ML	ML										
4	123	180		-180								
5	246	360		380								
6	369	540		923								
7	493	720		1,451								
8	616	900		1,963								
9	739	1,080		2,461								
10	862	1,260		2,944								
11	985	1,440		3,412								
12	1,108	1,620		3,867								
13	1,232	1,800		4,308								
14	1,355	1,980		4,735								
15	1,478	2,160		5,149								
16	1,601	2,340		5,551								
17	1,724	2,520		5,940								
18	1,848	2,700		6,316								
19	1,971	2,880		6,681								
20	2,094	3,060		7,034								
21	2,217	3,240		7,375								
22	2,340	3,420		7,706								
23	2,464	3,600		8,025								
24	2,587	3,780		8,334								
25	2,710	3,960		8,632								
26	2,833	4,140		8,920								
27	2,956	4,320		9,198								
28	3,080	4,500		9,466								
29	3,203	4,680		9,724								
30	3,326	4,860		9,973								
31	3,449	5,040		10,213								
32	3,573	5,220		10,444								
33	3,696	5,400		10,667								
34	3,819	5,580		10,880								
35	3,942	5,760		11,253								
36	4,065	5,940		11,873								
37	4,189	6,120		12,389								
38	4,312	6,300		12,826								
39	4,435	6,480		13,210								

RD5-1441

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
40	64	82	60	49	0.0044	0.0016	**Mon 03/01/11 21:00**	99.17	1194.39	-106.01	-1266.20		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
41	130	79	58	48	0.0039	0.0027	**Mon 03/01/11 22:00**	99.17	1194.86	-93.18	-1113.40		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
42	85	69	57	47	0.0033	0.0031	**Mon 03/01/11 23:00**	99.17	1195.27	-79.88	-954.80		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
43	74	64	56	46	0.0027	0.0021	**Tue 04/01/11 00:00**	99.18	1195.63	-64.94	-776.40		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
44	71	61	54	44	0.0023	0.0019	**Tue 04/01/11 01:00**	99.18	1195.92	-56.27	-672.96		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
45	68	57	53	43	0.0020	0.0018	**Tue 04/01/11 02:00**	99.18	1196.17	-49.07	-586.95		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
46	66	54	52	42	0.0018	0.0017	**Tue 04/01/11 03:00**	99.18	1196.39	-42.98	-514.20		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
47	64	52	51	41	0.0016	0.0016	**Tue 04/01/11 04:00**	99.19	1196.58	-37.75	-451.73		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
48	62	50	49	40	0.0014	0.0016	**Tue 04/01/11 05:00**	99.19	1196.74	-33.20	-397.31		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
49	60	48	48	39	0.0012	0.0015	**Tue 04/01/11 06:00**	99.19	1196.89	-29.18	-349.26		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
50	58	46	47	38	0.0011	0.0015	**Tue 04/01/11 07:00**	99.19	1197.02	-25.59	-306.34	**99.26**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
51	57	45	46	37	0.0009	0.0014	**Tue 04/01/11 08:00**	99.19	1197.13	-22.35	-267.60		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
52	55	43	45	36	0.0008	0.0013	**Tue 04/01/11 09:00**	99.19	1197.23	-19.40	-232.25		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
53	54	42	44	35	0.0007	0.0013	**Tue 04/01/11 10:00**	99.19	1197.32	-16.68	-199.75		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
54	52	41	43	34	0.0006	0.0012	**Tue 04/01/11 11:00**	99.19	1197.39	-14.17	-169.64		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
55	51	40	42	33	0.0005	0.0012	**Tue 04/01/11 12:00**	99.19	1197.46	-11.82	-141.53		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
56	49	39	41	32	0.0004	0.0012	**Tue 04/01/11 13:00**	99.19	1197.51	-9.62	-115.15		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
57	48	38	40	31	0.0003	0.0011	**Tue 04/01/11 14:00**	99.19	1197.55	-7.54	-90.28		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
58	47	37	39	31	0.0002	0.0011	**Tue 04/01/11 15:00**	99.19	1197.59	-5.57	-66.70		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
59	46	36	38	30	0.0002	0.0010	**Tue 04/01/11 16:00**	99.19	1197.61	-3.70	-44.28		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
60	44	35	37	29	0.0001	0.0010	**Tue 04/01/11 17:00**	99.19	1197.63	-1.91	-22.89		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
61	43	34	36	28	0.0000	0.0009	**Tue 04/01/11 18:00**	99.19	1197.64	-0.20	-2.41		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
62	42	33	35	28	-0.0001	0.0009	**Tue 04/01/11 19:00**	99.19	1197.64	1.44	17.22		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
63	41	33	35	27	-0.0001	0.0009	**Tue 04/01/11 20:00**	99.19	1197.63	3.01	36.08		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
64	40	32	34	26	-0.0002	0.0008	**Tue 04/01/11 21:00**	99.19	1197.62	4.53	54.27		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
65	39	31	33	26	-0.0002	0.0008	**Tue 04/01/11 22:00**	99.19	1197.60	6.00	71.80		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
66	38	30	32	25	-0.0003	0.0008	**Tue 04/01/11 23:00**	99.19	1197.57	7.41	88.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
67	37	30	31	24	-0.0004	0.0007	**Wed 05/01/11 00:00**	99.19	1197.54	8.78	105.09		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
68	36	29	31	25	-0.0004	0.0007	**Wed 05/01/11 01:00**	99.19	1197.50	10.10	120.93		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
69	35	28	30	28	-0.0005	0.0007	**Wed 05/01/11 02:00**	99.19	1197.45	11.38	136.27		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
70	34	28	29	242	-0.0005	0.0006	**Wed 05/01/11 03:00**	99.19	1197.40	12.62	151.14		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
71	33	27	29	393	-0.0006	0.0006	**Wed 05/01/11 04:00**	99.19	1197.35	13.83	165.56		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
72	32	27	28	254	-0.0006	0.0006	**Wed 05/01/11 05:00**	99.19	1197.29	15.00	179.55		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
73	31	26	27	227	-0.0007	0.0005	**Wed 05/01/11 06:00**	99.19	1197.22	16.13	193.15		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
74	31	26	27	206	-0.0007	0.0005	**Wed 05/01/11 07:00**	99.19	1197.15	17.24	206.37	**99.28**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
75	30	25	26	194	-0.0008	0.0005	**Wed 05/01/11 08:00**	99.19	1197.07	18.31	219.22		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
76	29	25	25	186	-0.0008	0.0005	**Wed 05/01/11 09:00**	99.19	1196.99	19.36	231.69		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
77	28	24	25	180	-0.0008	0.0004	**Wed 05/01/11 10:00**	99.19	1196.90	20.37	243.83		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
78	28	24	24	179	-0.0009	0.0004	**Wed 05/01/11 11:00**	99.19	1196.81	21.36	255.66		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
79	27	23	24	170	-0.0009	0.0004	**Wed 05/01/11 12:00**	99.18	1196.72	22.33	267.17		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
80	26	23	23	163	-0.0010	0.0004	**Wed 05/01/11 13:00**	99.18	1196.62	23.26	278.38		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
81	26	22	22	157	-0.0010	0.0003	**Wed 05/01/11 14:00**	99.18	1196.51	24.18	289.30		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
82	25	22	22	151	-0.0010	0.0003	**Wed 05/01/11 15:00**	99.18	1196.41	25.07	299.90		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
83	24	27	21	146	-0.0008	0.0003	**Wed 05/01/11 16:00**	99.18	1196.30	20.29	242.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
84	25	39	21	141	-0.0001	0.0003	**Wed 05/01/11 17:00**	99.18	1196.21	2.89	34.59		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
85	28	50	22	137	0.0009	0.0004	**Wed 05/01/11 18:00**	99.18	1196.19	-20.46	-244.78		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
86	242	85	22	216	0.0028	0.0040	**Wed 05/01/11 19:00**	99.18	1196.28	-66.29	-793.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
87	393	149	22	334	0.0069	0.0101	**Wed 05/01/11 20:00**	99.19	1196.58	-164.99	-1974.26		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
40	0	0	0	0	0	50	67.20	39.0	2988	1166		50	50	50		7,402	12,814	17,373	20,216	
41	0	0	0	0	0	50	67.20	65.1	2988	1946		50	50	50		7,687	13,281	17,963	20,968	
42	0	0	0	0	0	50	67.21	73.8	2989	2207		50	50	50		7,936	13,589	18,394	21,524	
43	0	0	0	0	0	50	67.21	51.3	2989	1532		50	50	50		8,168	13,853	18,782	22,021	
44	0	0	0	0	0	50	67.21	45.3	2990	1355		50	50	50		8,385	14,107	19,159	22,493	
45	0	0	0	0	0	50	67.21	43.1	2990	1288		50	50	50		8,591	14,352	19,527	22,944	
46	0	0	0	0	0	50	67.22	41.1	2990	1229		50	50	50		8,787	14,588	19,887	23,376	
47	0	0	0	0	0	50	67.22	39.4	2991	1177		50	50	50		8,975	14,817	20,239	23,792	
48	0	0	0	0	0	50	67.22	37.8	2991	1129		50	50	50		9,154	15,039	20,584	24,194	
49	0	0	0	0	0	50	67.22	36.3	2991	1085		50	50	50		9,327	15,255	20,924	24,582	
50	0	0	0	0	0	50	67.22	34.9	2992	1044	**67.19**	50	50	50		9,494	15,465	21,257	24,959	
51	0	0	0	0	0	50	67.22	33.6	2992	1005		50	50	50		9,655	15,669	21,584	25,324	
52	0	0	0	0	0	50	67.22	32.3	2992	967		50	50	50		9,812	15,867	21,906	25,679	
53	0	0	0	0	0	50	67.23	31.1	2992	931		50	50	50		9,963	16,060	22,222	26,023	
54	0	0	0	0	0	50	67.23	30.0	2993	896		50	50	50		10,110	16,248	22,533	26,359	
55	0	0	0	0	0	50	67.23	28.8	2993	862		50	50	50		10,253	16,431	22,840	26,685	
56	0	0	0	0	0	50	67.23	27.7	2993	829		50	50	50		10,393	16,609	23,141	27,002	
57	0	0	0	0	0	50	67.23	26.6	2993	797		50	50	50		10,528	16,783	23,438	27,311	
58	0	0	0	0	0	50	67.23	25.6	2993	766		50	50	50		10,661	16,951	23,730	27,612	
59	0	0	0	0	0	50	67.23	24.6	2994	736		50	50	50		10,789	17,116	24,017	27,905	
60	0	0	0	0	0	50	67.23	23.6	2994	707		50	50	50		10,915	17,275	24,301	28,191	
61	0	0	0	0	0	50	67.23	22.6	2994	678		50	50	50		11,038	17,431	24,580	28,469	
62	0	0	0	0	0	50	67.24	21.7	2994	650		50	50	50		11,158	17,583	24,854	28,741	
63	0	0	0	0	0	50	67.24	20.8	2994	623		50	50	50		11,275	17,730	25,125	29,005	
64	0	0	0	0	0	50	67.24	19.9	2995	597		50	50	50		11,390	17,874	25,392	29,263	
65	0	0	0	0	0	50	67.24	19.1	2995	571		50	50	50		11,501	18,014	25,655	29,515	
66	0	0	0	0	0	50	67.24	18.2	2995	546		50	50	50		11,611	18,150	25,915	29,761	
67	0	0	0	0	0	50	67.24	17.4	2995	522		50	50	50		11,718	18,282	26,171	30,000	
68	0	0	0	0	0	50	67.24	16.7	2995	499		50	50	50		11,822	18,412	26,423	30,234	
69	0	0	0	0	0	50	67.24	15.9	2995	476		50	50	50		11,925	18,537	26,673	30,462	
70	0	0	0	0	0	50	67.24	15.2	2995	454		50	50	50		12,025	18,660	26,918	30,685	
71	0	0	0	0	0	50	67.24	14.4	2995	432		50	50	50		12,123	18,779	27,161	30,902	
72	0	0	0	0	0	50	67.24	13.7	2996	412		50	50	50		12,219	18,896	27,401	31,114	
73	0	0	0	0	0	50	67.24	13.1	2996	391		50	50	50		12,313	19,009	27,637	31,321	
74	0	0	0	0	0	50	67.24	12.4	2996	372	**67.23**	50	50	50		12,405	19,119	27,871	31,524	
75	0	0	0	0	0	50	67.24	11.8	2996	353		50	50	50		12,495	19,227	28,102	31,721	
76	0	0	0	0	0	50	67.24	11.1	2996	334		50	50	51		12,583	19,332	28,330	31,915	
77	0	0	0	0	0	50	67.24	10.5	2996	316		50	50	51		12,669	19,434	28,556	32,103	
78	0	0	0	0	0	50	67.25	10.0	2996	298		50	50	53		12,754	19,533	28,779	32,287	
79	0	0	0	0	0	50	67.25	9.4	2996	281		50	50	59		12,837	19,630	28,999	32,467	
80	0	0	0	0	0	50	67.25	8.8	2996	265		50	50	78		12,918	19,725	29,217	32,643	
81	0	0	0	0	0	50	67.25	8.3	2996	249		50	50	110		12,998	19,817	29,432	32,815	
82	0	0	0	0	0	50	67.25	7.8	2996	233		50	50	146		13,076	19,907	29,646	32,983	
83	0	0	0	0	0	50	67.25	7.3	2996	219		50	50	177		13,173	19,995	29,857	33,168	
84	0	0	0	0	0	50	67.25	7.5	2997	224		50	51	195		13,314	20,087	30,072	33,400	
85	0	0	0	0	0	50	67.25	9.0	2997	271		56	51	209		13,494	20,189	30,297	33,683	
86	0	0	0	0	0	50	67.25	95.7	2997	2868		68	53	221		13,799	21,059	31,291	34,859	
87	0	0	0	0	0	50	67.26	241.8	2997	7247		78	59	229		14,334	22,475	32,830	36,809	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
40	4,559	6,660		13,556								
41	4,682	6,840		14,128								
42	4,805	7,020		14,504								
43	4,928	7,200		14,821								
44	5,052	7,380		15,113								
45	5,175	7,560		15,384								
46	5,298	7,740		15,636								
47	5,422	7,920		15,872								
48	5,545	8,100		16,094								
49	5,668	8,280		16,302								
50	5,792	8,460		16,499								
51	5,915	8,640		16,684								
52	6,038	8,820		16,859								
53	6,162	9,000		17,023								
54	6,285	9,180		17,179								
55	6,408	9,360		17,325								
56	6,532	9,540		17,462								
57	6,655	9,720		17,591								
58	6,778	9,900		17,712								
59	6,902	10,080		17,825								
60	7,025	10,260		17,931								
61	7,148	10,440		18,029								
62	7,272	10,620		18,121								
63	7,395	10,800		18,205								
64	7,519	10,980		18,283								
65	7,642	11,160		18,355								
66	7,765	11,340		18,421								
67	7,889	11,520		18,480								
68	8,012	11,700		18,534								
69	8,135	11,880		18,582								
70	8,259	12,060		18,625								
71	8,382	12,240		18,662								
72	8,505	12,420		18,694								
73	8,629	12,600		18,721								
74	8,752	12,780		18,744								
75	8,875	12,960		18,761								
76	8,999	13,140		18,775								
77	9,122	13,320		18,783								
78	9,245	13,500		18,787								
79	9,369	13,680		18,787								
80	9,492	13,860		18,783								
81	9,615	14,040		18,775								
82	9,739	14,220		18,763								
83	9,862	14,400		18,768								
84	9,985	14,580		18,820								
85	10,108	14,760		18,923								
86	10,232	14,940		19,919								
87	10,355	15,120		21,689								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
88	254	209	22	357	0.0120	0.0103	**Wed 05/01/11 21:00**	99.20	1197.31	-289.07	-3461.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
89	227	227	22	362	0.0153	0.0075	**Wed 05/01/11 22:00**	99.22	1198.60	-367.66	-4406.71		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
90	206	210	22	329	0.0153	0.0067	**Wed 05/01/11 23:00**	99.23	1200.23	-368.21	-4419.37		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
91	194	194	21	318	0.0139	0.0061	**Thu 06/01/11 00:00**	99.25	1201.87	-334.02	-4014.55		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
92	186	181	21	317	0.0127	0.0058	**Thu 06/01/11 01:00**	99.26	1203.36	-304.90	-3669.09		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
93	180	171	21	316	0.0117	0.0056	**Thu 06/01/11 02:00**	99.27	1204.72	-281.93	-3396.48		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
94	179	163	21	324	0.0110	0.0055	**Thu 06/01/11 03:00**	99.28	1205.98	-263.67	-3179.86		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
95	170	156	21	342	0.0103	0.0053	**Thu 06/01/11 04:00**	99.29	1207.16	-248.39	-2998.47		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
96	163	150	21	374	0.0098	0.0050	**Thu 06/01/11 05:00**	99.30	1208.27	-234.92	-2838.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
97	157	144	21	424	0.0093	0.0048	**Thu 06/01/11 06:00**	99.31	1209.33	-222.60	-2691.97		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
98	151	138	20	496	0.0088	0.0046	**Thu 06/01/11 07:00**	99.32	1210.32	-211.07	-2554.67	**99.34**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
99	146	133	20	595	0.0083	0.0044	**Thu 06/01/11 08:00**	99.33	1211.27	-200.10	-2423.70		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
100	141	128	20	832	0.0079	0.0042	**Thu 06/01/11 09:00**	99.34	1212.17	-189.53	-2297.40		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
101	137	123	20	911	0.0075	0.0041	**Thu 06/01/11 10:00**	99.34	1213.02	-179.30	-2174.94		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
102	216	129	21	1012	0.0075	0.0053	**Thu 06/01/11 11:00**	99.35	1213.82	-180.75	-2193.99		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
103	334	256	21	1130	0.0130	0.0086	**Thu 06/01/11 12:00**	99.37	1214.63	-312.78	-3799.08		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
104	357	411	21	1237	0.0246	0.0109	**Thu 06/01/11 13:00**	99.39	1216.04	-590.48	-7180.52		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
105	362	396	22	1337	0.0303	0.0114	**Thu 06/01/11 14:00**	99.42	1218.70	-727.05	-8860.57		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
106	329	342	22	1367	0.0274	0.0109	**Thu 06/01/11 15:00**	99.45	1221.98	-657.59	-8035.59		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
107	318	307	22	1508	0.0237	0.0102	**Thu 06/01/11 16:00**	99.47	1224.95	-568.83	-6967.86	**99.44**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
108	317	287	22	1592	0.0214	0.0100	**Thu 06/01/11 17:00**	99.49	1227.53	-513.23	-6299.98	**99.45**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
109	316	272	23	1608	0.0199	0.0100	**Thu 06/01/11 18:00**	99.51	1229.85	-477.96	-5878.24	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
110	324	261	23	2010	0.0188	0.0101	**Thu 06/01/11 19:00**	99.53	1232.02	-452.10	-5569.96	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
111	342	252	23	2088	0.0180	0.0105	**Thu 06/01/11 20:00**	99.55	1234.08	-431.36	-5323.35	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
112	374	244	24	1941	0.0172	0.0113	**Thu 06/01/11 21:00**	99.57	1236.04	-413.94	-5116.46	**99.49**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
113	424	236	25	1755	0.0166	0.0127	**Thu 06/01/11 22:00**	99.58	1237.93	-398.34	-4931.22	**99.51**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
114	496	229	26	1678	0.0160	0.0146	**Thu 06/01/11 23:00**	99.60	1239.75	-383.66	-4756.46	**99.51**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
115	595	224	28	1617	0.0155	0.0174	**Fri 07/01/11 00:00**	99.61	1241.50	-370.86	-4604.25	**99.52**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
116	832	251	30	1571	0.0163	0.0229	**Fri 07/01/11 01:00**	99.63	1243.19	-391.27	-4864.24	**99.55**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
117	911	258	32	1557	0.0177	0.0281	**Fri 07/01/11 02:00**	99.65	1244.98	-423.64	-5274.31	**99.55**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
118	1012	240	34	1535	0.0172	0.0310	**Fri 07/01/11 03:00**	99.67	1246.93	-412.84	-5147.81	**99.57**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
119	1130	231	36	1529	0.0161	0.0346	**Fri 07/01/11 04:00**	99.68	1248.82	-385.92	-4819.47	**99.58**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
120	1237	256	39	1532	0.0167	0.0381	**Fri 07/01/11 05:00**	99.70	1250.59	-400.65	-5010.50	**99.60**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
121	1337	265	42	1542	0.0180	0.0414	**Fri 07/01/11 06:00**	99.72	1252.44	-432.59	-5417.86	**99.59**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
122	1367	293	44	1555	0.0194	0.0434	**Fri 07/01/11 07:00**	99.74	1254.43	-466.79	-5855.53	**99.60**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
123	1508	406	47	1569	0.0250	0.0461	**Fri 07/01/11 08:00**	99.76	1256.58	-600.71	-7548.37	**99.63**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
124	1592	401	51	1583	0.0293	0.0496	**Fri 07/01/11 09:00**	99.79	1259.35	-702.44	-8846.24		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
125	1608	415	55	1596	0.0296	0.0511	**Fri 07/01/11 10:00**	99.82	1262.60	-709.69	-8960.56	**99.66**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
126	2010	595	58	1606	0.0371	0.0576	**Fri 07/01/11 11:00**	99.86	1265.89	-891.25	-11282.17		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
127	2088	743	61	1611	0.0499	0.0651	**Fri 07/01/11 12:00**	99.91	1270.03	-1198.36	-15219.50	**99.76**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
128	1941	804	64	1609	0.0579	0.0638	**Fri 07/01/11 13:00**	99.96	1275.61	-1390.29	-17734.71		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
129	1755	762	66	1599	0.0583	0.0583	**Fri 07/01/11 14:00**	100.02	1282.11	-1400.25	-17952.65	**99.90**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
130	1678	703	68	1578	0.0541	0.0539	**Fri 07/01/11 15:00**	100.08	1288.68	-1298.36	-16731.59	**99.94**	0.5	0.0	8	0	**35**	0.0	0.0	0.5	0.0	0.0	**1**	13
131	1617	663	70	1547	0.0500	0.0511	**Fri 07/01/11 16:00**	100.13	1294.79	-1201.02	-15550.66		0.5	0.0	8	0	**35**	0.0	0.0	1.0	0.0	0.0	**2**	13
132	1571	635	72	1507	0.0472	0.0476	**Fri 07/01/11 17:00**	100.17	1300.47	-1133.86	-14745.42	**100.04**	1.0	0.0	8	0	**70**	0.0	0.0	1.5	0.0	0.0	**3**	13
133	1557	619	74	1457	0.0427	0.0460	**Fri 07/01/11 18:00**	100.22	1305.84	-1024.41	-13377.21	**100.11**	1.0	0.0	8	0	**70**	0.0	0.0	2.0	0.0	0.0	**4**	13
134	1535	596	76	1401	0.0410	0.0437	**Fri 07/01/11 19:00**	100.26	1310.71	-983.98	-12897.19	**100.15**	0.0	1.0	8	0	**206**	0.0	0.0	2.5	0.0	0.0	**5**	13
135	1529	571	78	1341	0.0287	0.0458	**Fri 07/01/11 20:00**	100.29	1315.40	-689.01	-9063.24	**100.17**	0.0	1.0	8	0	**206**	0.0	0.0	3.0	0.0	0.0	**6**	13

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
88	0	0	0	0	0	50	67.27	246.6	2999	7396		88	78	233		15,085	23,390	33,869	38,476	
89	0	0	0	0	0	50	67.28	180.1	3001	5404		95	110	232		15,904	24,208	34,810	40,113	
90	0	0	0	0	0	50	67.29	160.6	3002	4821		104	146	233		16,659	24,949	35,674	41,608	
91	0	0	0	0	0	50	67.29	147.4	3004	4427		114	177	235		17,357	25,648	36,497	43,005	
92	0	0	0	0	0	50	67.30	139.6	3005	4194		126	195	239		18,008	26,319	37,291	44,327	
93	0	0	0	0	0	50	67.30	133.7	3006	4019		137	203	243		18,624	26,966	38,062	45,589	
94	0	0	0	0	0	50	67.31	130.9	3007	3936		147	204	259		19,210	27,612	38,831	46,822	
95	0	0	0	0	0	50	67.31	126.9	3008	3816		155	200	296		19,771	28,222	39,565	47,994	
96	0	0	0	0	0	50	67.32	120.4	3009	3622		161	195	317		20,310	28,810	40,276	49,120	
97	0	0	0	0	0	50	67.32	115.3	3010	3471		165	193	311		20,827	29,375	40,965	50,203	
98	0	0	0	0	0	50	67.33	110.5	3011	3326	**67.31**	168	197	306		21,325	29,919	41,633	51,244	
99	0	0	0	0	0	50	67.33	105.9	3011	3190		169	199	305		21,803	30,444	42,281	52,247	
100	0	0	0	0	0	50	67.34	101.8	3012	3067		170	202	308		22,262	30,951	42,912	53,213	
101	0	0	0	0	0	50	67.34	98.3	3013	2961		169	201	315		22,704	31,444	43,528	54,148	
102	0	0	0	0	0	50	67.35	128.0	3014	3859		182	216	342		23,169	32,220	44,428	55,389	
103	0	0	0	0	0	50	67.36	206.6	3015	6228		208	256	388		24,092	33,424	45,756	57,516	
104	0	0	0	0	0	50	67.37	262.7	3016	7923		220	282	426		25,572	34,708	47,164	60,280	
105	0	0	0	0	0	50	67.38	273.4	3018	8253		223	282	459		26,999	36,011	48,591	63,010	
106	0	0	0	0	0	50	67.39	262.2	3020	7920		231	285	499		28,231	37,196	49,899	65,427	
107	0	0	0	0	0	50	67.40	244.8	3022	7399	**67.37**	242	291	537		29,338	38,342	51,169	67,680	
108	0	0	0	0	0	50	67.41	239.7	3024	7250	**67.39**	252	300	571		30,370	39,482	52,433	69,852	
109	0	0	0	0	0	50	67.42	238.8	3026	7227	**67.40**	262	312	599		31,351	40,621	53,696	71,971	
110	0	0	0	0	0	50	67.43	241.7	3028	7318	**67.41**	270	328	619		32,290	41,788	54,987	74,078	
111	0	0	0	0	0	50	67.44	251.8	3030	7628	**67.42**	277	349	632		33,197	43,020	56,343	76,217	
112	0	0	0	0	0	50	67.45	271.4	3031	8228	**67.43**	283	375	639		34,075	44,367	57,815	78,442	
113	0	0	0	0	0	50	67.46	303.7	3034	9212	**67.44**	289	406	641		34,926	45,894	59,466	80,820	
114	0	0	0	0	0	50	67.48	351.5	3036	10671		295	450	641		35,751	47,679	61,375	83,430	
115	0	0	0	0	0	50	67.50	418.5	3038	12716	**67.46**	301	504	639		36,557	49,819	63,640	86,376	
116	0	0	0	0	0	50	67.52	550.8	3042	16752		308	540	665		37,460	52,815	66,760	90,275	
117	0	0	0	0	0	50	67.55	674.8	3046	20553	**67.52**	318	560	708		38,389	56,095	70,164	94,484	
118	0	0	0	0	0	50	67.58	744.6	3051	22717		329	580	725		39,254	59,740	73,934	98,994	
119	0	0	0	0	0	50	67.61	829.3	3057	25348	**67.57**	343	596	734		40,084	63,810	78,128	103,894	
120	0	0	0	0	0	50	67.65	915.4	3063	28037		359	607	752		41,007	68,262	82,704	109,269	
121	0	0	0	0	0	50	67.69	994.2	3070	30520	**67.64**	378	614	775		41,960	73,076	87,642	115,035	
122	0	0	0	0	0	50	67.74	1042.8	3077	32090		398	616	801		43,014	77,998	92,690	121,012	
123	0	0	0	0	0	50	67.78	1106.6	3085	34141		420	616	825		44,474	83,428	98,244	127,902	
124	0	0	0	0	0	50	67.83	1190.8	3094	36839	**67.75**	457	640	862		45,918	89,160	104,100	135,078	
125	0	0	0	0	0	50	67.88	1225.9	3103	38038		496	680	898		47,413	94,949	110,014	142,362	
126	0	0	0	0	0	50	67.94	1383.5	3112	43058	**67.81**	519	691	914		49,553	102,187	117,377	151,740	
127	0	0	0	0	0	50	68.00	1563.3	3123	48818		540	692	927		52,229	109,704	125,018	161,933	
128	0	0	0	0	0	50	68.07	1530.8	3135	47986	**67.94**	563	701	938		55,124	116,692	132,131	171,816	
129	0	0	0	0	0	50	68.13	1398.3	3146	43995		582	715	945		57,866	123,011	138,576	180,877	
130	0	0	52	0	0	65	68.18	1293.4	3157	40834	**68.03**	614	732	965		60,395	129,051	144,740	189,446	
131	0	0	104	0	0	117	68.23	1225.8	3167	38820	**68.06**	682	748	1021		62,783	134,872	150,687	197,655	
132	0	0	156	0	0	169	68.28	1142.5	3176	36289		748	764	1073		65,071	140,526	156,592	205,597	
133	0	0	207	0	0	220	68.33	1104.1	3185	35166	**68.12**	810	779	1122		67,300	146,131	162,448	213,431	
134	0	0	257	0	0	270	68.37	1049.3	3194	33509	**68.17**	868	793	1167		69,444	151,657	168,711	221,101	
135	0	0	306	0	0	319	68.42	1100.2	3202	35224	**68.19**	921	806	1208		71,502	157,160	174,953	228,661	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
88	10,479	15,300		23,176								
89	10,602	15,480		24,633								
90	10,725	15,660		25,948								
91	10,849	15,840	1	27,165								
92	10,972	16,020		28,307								
93	11,096	16,200		29,389								
94	11,219	16,380		30,442								
95	11,343	16,560		31,434								
96	11,466	16,740		32,380								
97	11,590	16,920		33,283								
98	11,714	17,100		34,144								
99	11,837	17,280		34,967								
100	11,961	17,460		35,753								
101	12,085	17,640		36,508								
102	12,208	17,820		37,569								
103	12,332	18,000		39,516								
104	12,456	18,180		42,100								
105	12,580	18,360		44,650								
106	12,704	18,540		46,887								
107	12,827	18,720		48,960								
108	12,951	18,900		50,952								
109	13,075	19,080		52,891								
110	13,200	19,260		54,818								
111	13,324	19,440		56,777								
112	13,448	19,620		58,822								
113	13,572	19,800		61,020								
114	13,696	19,980		63,450								
115	13,820	20,160	1	66,216	4,320							
116	13,945	20,340		69,935								
117	14,069	20,520		73,964								
118	14,193	20,700		78,294								
119	14,318	20,880		83,014								
120	14,442	21,060		88,209								
121	14,567	21,240		93,795								
122	14,691	21,420		99,592								
123	14,816	21,600		106,302								
124	14,940	21,780		113,298								
125	15,065	21,960		120,402								
126	15,190	22,140		129,600								
127	15,314	22,320		139,613								
128	15,439	22,500		149,316								
129	15,565	22,680		158,197								
130	15,690	22,913		166,533								
131	15,815	23,333		174,321								
132	16,066	23,940		181,657								
133	16,317	24,731		188,700								
134	17,055	25,703		195,398								
135	17,793	26,853		201,809								

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
136	1532	547	80	1278	0.0268	0.0441	**Fri 07/01/11 21:00**	100.31	1318.69	-642.84	-8477.05	**100.21**	0.0	1.0	8	0	**206**	0.0	0.0	3.5	0.0	0.0	**7**	13
137	1542	522	81	1216	0.0248	0.0428	**Fri 07/01/11 22:00**	100.34	1321.77	-596.19	-7880.29	**100.25**	0.0	1.0	8	0	**206**	0.0	0.5	3.5	0.0	0.0	**8**	13
138	1555	497	83	1190	0.0229	0.0414	**Fri 07/01/11 23:00**	100.36	1324.63	-549.19	-7274.78	**100.28**	0.0	1.0	8	0	**206**	0.0	0.5	3.5	0.5	0.0	**9**	13
139	1569	472	85	1098	0.0209	0.0400	**Sat 08/01/11 00:00**	100.38	1327.26	-502.36	-6667.66	**100.31**	0.0	1.0	8	0	**206**	0.0	1.0	3.5	0.5	0.0	**10**	13
140	1583	447	87	1035	0.0190	0.0387	**Sat 08/01/11 01:00**	100.40	1329.68	-456.31	-6067.43	**100.34**	0.0	1.0	8	0	**206**	0.0	1.0	3.5	1.0	0.0	**11**	13
141	1596	423	89	975	0.0171	0.0374	**Sat 08/01/11 02:00**	100.42	1331.88	-411.45	-5479.97	**100.36**	0.0	1.0	8	0	**206**	0.5	1.0	3.5	1.0	0.0	**12**	13
142	1606	399	90	919	0.0153	0.0360	**Sat 08/01/11 03:00**	100.43	1333.86	-368.08	-4909.71	**100.39**	0.0	1.0	8	0	**207**	0.5	1.0	3.5	1.0	0.5	**13**	13
143	1611	377	92	867	0.0136	0.0345	**Sat 08/01/11 04:00**	100.45	1335.64	-326.61	-4362.32	**100.41**	0.0	1.0	8	0	**207**	0.5	1.5	3.5	1.0	0.5	**14**	13
144	1609	356	93	819	0.0120	0.0329	**Sat 08/01/11 05:00**	100.46	1337.21	-287.27	-3841.36	**100.42**	0.0	1.0	8	0	**207**	0.5	1.5	3.5	1.5	0.5	**15**	13
145	1599	336	95	780	0.0104	0.0310	**Sat 08/01/11 06:00**	100.47	1338.60	-249.95	-3345.86	**100.43**	0.0	1.0	8	0	**207**	1.0	1.5	3.5	1.5	0.5	**16**	13
146	1578	317	96	743	0.0089	0.0288	**Sat 08/01/11 07:00**	100.48	1339.81	-214.69	-2876.45	**100.44**	0.0	1.0	8	0	**207**	1.0	1.5	3.5	1.5	1.0	**17**	13
147	1547	300	97	705	0.0076	0.0263	**Sat 08/01/11 08:00**	100.49	1340.85	-181.62	-2435.31	**100.46**	0.0	1.0	8	0	**207**	1.0	1.5	4.0	1.5	1.0	**18**	13
148	1507	283	98	671	0.0063	0.0237	**Sat 08/01/11 09:00**	100.49	1341.73	-150.72	-2022.32	**100.46**	0.0	1.0	8	0	**207**	1.0	2.0	4.0	1.5	1.0	**19**	13
149	1457	268	99	642	0.0051	0.0207	**Sat 08/01/11 10:00**	100.50	1342.46	-121.90	-1636.48	**100.47**	0.0	1.0	8	0	**207**	1.0	2.0	4.0	2.0	1.0	**20**	13
150	1401	253	99	617	0.0040	0.0175	**Sat 08/01/11 11:00**	100.50	1343.05	-95.03	-1276.26	**100.46**	0.0	1.0	8	0	**208**	1.5	2.0	4.0	2.0	1.0	**21**	13
151	1341	240	100	601	0.0029	0.0141	**Sat 08/01/11 12:00**	100.50	1343.51	-70.15	-942.42	**100.45**	0.0	2.0	8	0	**414**	1.5	2.0	4.0	2.0	1.5	**22**	13
152	1278	228	100	587	-0.0134	0.0168	**Sat 08/01/11 13:00**	100.49	1343.85	322.10	4328.50	**100.45**	0.0	2.0	8	0	**414**	1.5	2.5	4.0	2.0	1.5	**23**	13
153	1216	218	100	654	-0.0142	0.0133	**Sat 08/01/11 14:00**	100.48	1342.29	341.15	4579.23	**100.44**	0.0	2.0	8	0	**414**	1.5	2.5	4.0	2.5	1.5	**24**	13
154	1190	217	100	585	-0.0146	0.0104	**Sat 08/01/11 15:00**	100.46	1340.64	350.32	4696.56	**100.42**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
155	1098	216	100	574	-0.0147	0.0086	**Sat 08/01/11 16:00**	100.45	1338.94	352.14	4714.90	**100.41**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
156	1035	220	100	566	-0.0146	0.0062	**Sat 08/01/11 17:00**	100.43	1337.24	350.27	4684.00	**100.40**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
157	975	230	99	577	-0.0141	0.0044	**Sat 08/01/11 18:00**	100.42	1335.55	338.01	4514.27	**100.38**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
158	919	240	98	1000	-0.0133	0.0026	**Sat 08/01/11 19:00**	100.41	1333.92	320.02	4268.80	**100.37**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
159	867	247	98	1167	-0.0127	0.0010	**Sat 08/01/11 20:00**	100.39	1332.38	304.86	4061.87	**100.36**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
160	819	253	97	983	-0.0122	-0.0005	**Sat 08/01/11 21:00**	100.38	1330.91	293.67	3908.52	**100.35**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
161	780	293	96	1003	-0.0105	-0.0018	**Sat 08/01/11 22:00**	100.37	1329.49	252.87	3361.89	**100.34**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
162	743	288	95	1739	-0.0092	-0.0030	**Sat 08/01/11 23:00**	100.36	1328.28	220.48	2928.57	**100.33**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
163	705	290	94	2075	-0.0093	-0.0041	**Sun 09/01/11 00:00**	100.35	1327.22	223.19	2962.27	**100.32**	0.0	2.0	8	0	**412**	1.5	2.5	4.0	2.5	1.5	**24**	13
164	671	283	94	2197	-0.0095	-0.0052	**Sun 09/01/11 01:00**	100.34	1326.15	228.21	3026.37	**100.32**	0.0	2.0	8	0	**412**	1.5	2.5	4.0	2.5	1.5	**24**	13
165	642	274	93	2849	-0.0101	-0.0061	**Sun 09/01/11 02:00**	100.33	1325.05	242.13	3208.36		0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
166	617	266	92	2889	-0.0107	-0.0084	**Sun 09/01/11 03:00**	100.32	1323.89	257.45	3408.36	**100.30**	0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
167	601	260	91	3426	-0.0113	-0.0090	**Sun 09/01/11 04:00**	100.31	1322.65	270.64	3579.58	**100.28**	0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
168	587	333	90	3995	-0.0087	-0.0094	**Sun 09/01/11 05:00**	100.30	1321.36	209.82	2772.50	**100.28**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
169	654	490	89	4549	0.0000	-0.0102	**Sun 09/01/11 06:00**	100.30	1320.35	0.57	7.59	**100.27**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
170	585	533	88	5393	0.0075	-0.0102	**Sun 09/01/11 07:00**	100.31	1320.35	-180.74	-2386.37	**100.27**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
171	574	558	87	6187	0.0101	-0.0114	**Sun 09/01/11 08:00**	100.32	1321.22	-242.30	-3201.37	**100.28**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
172	566	580	87	6834	0.0119	-0.0117	**Sun 09/01/11 09:00**	100.33	1322.38	-284.45	-3761.46	**100.28**	0.0	3.0	8	0	**618**	2.0	2.5	4.5	2.5	1.5	**26**	13
173	577	718	88	7388	0.0023	-0.0054	**Sun 09/01/11 10:00**	100.33	1323.74	-54.51	-721.56		0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	1.5	**26**	13
174	1000	1012	88	7772	0.0186	0.0012	**Sun 09/01/11 11:00**	100.35	1324.00	-446.13	-5906.71	**100.34**	0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	1.5	**26**	13
175	1167	1231	88	8001	0.0379	0.0102	**Sun 09/01/11 12:00**	100.39	1326.14	-910.04	-12068.47	**100.39**	0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	2.0	**27**	13
176	983	1246	90	8232	0.0466	0.0083	**Sun 09/01/11 13:00**	100.44	1330.52	-1117.62	-14870.17		0.0	4.0	8	0	**826**	2.0	2.5	4.5	2.5	2.0	**27**	13
177	1003	1410	93	8287	0.0375	0.0121	**Sun 09/01/11 14:00**	100.47	1335.91	-901.20	-12039.18	**100.47**	0.0	5.0	8	0	**1034**	2.0	2.5	4.5	2.5	2.0	**27**	13
178	1739	2001	96	7983	0.0501	0.0298	**Sun 09/01/11 15:00**	100.52	1340.26	-1202.64	-16118.54	**100.57**	0.0	5.0	8	0	**1036**	2.0	2.5	4.5	2.5	2.0	**27**	13
179	2075	2780	101	7767	0.1006	0.0459	**Sun 09/01/11 16:00**	100.62	1346.09	-2415.22	-32511.06	**100.75**	0.0	5.0	8	0	**1042**	2.0	2.5	4.5	2.5	2.0	**27**	13
180	2197	3226	105	7401	0.1444	0.0528	**Sun 09/01/11 17:00**	100.77	1357.86	-3466.08	-47064.33	**100.91**	0.0	5.0	8	0	**1053**	2.0	2.5	4.5	2.5	2.0	**27**	13
181	2849	3763	111	6927	0.1775	0.0645	**Sun 09/01/11 18:00**	100.95	1374.87	-4260.72	-58579.27	**101.41**	0.0	5.0	8	0	**1073**	2.0	2.5	4.5	2.5	2.0	**27**	13
182	2889	3844	118	6662	0.1956	0.0751	**Sun 09/01/11 19:00**	101.14	1395.99	-4695.38	-65547.16	**101.43**	0.0	5.0	8	0	**1099**	2.0	2.5	4.5	2.5	2.0	**27**	13
183	3426	3776	126	7467	0.1910	0.0840	**Sun 09/01/11 20:00**	101.33	1419.54	-4584.31	-65076.23	**101.68**	0.0	5.0	8	0	**1128**	2.0	2.5	4.5	2.5	2.0	**27**	13

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
136	0	0	355	0	0	368	68.46	1059.6	3210	34013	**68.22**	970	832	1245		73,471	162,676	181,208	236,147	
137	0	52	355	0	0	421	68.50	1026.0	3218	33020	**68.26**	1020	860	1284		75,350	168,229	187,499	243,578	
138	0	53	356	53	0	474	68.54	992.6	3226	32022	**68.28**	1068	869	1320		77,138	173,828	193,837	250,966	
139	0	105	357	53	0	528	68.58	960.7	3234	31069	**68.32**	1115	878	1356		78,835	179,478	200,227	258,313	
140	0	106	357	106	0	581	68.62	929.2	3241	30118	**68.34**	1159	888	1390		80,443	185,177	206,666	265,621	
141	53	106	358	106	0	635	68.66	897.3	3248	29146	**68.35**	1202	894	1424		81,965	190,922	213,150	272,887	
142	53	106	359	106	53	689	68.70	864.0	3255	28126	**68.41**	1245	913	1457		83,403	196,702	219,671	280,105	
143	53	159	359	106	53	743	68.73	828.2	3262	27015	**68.41**	1286	969	1489		84,761	202,501	226,210	287,262	
144	53	159	360	159	53	797	68.76	788.5	3268	25771	**68.45**	1327	1023	1522		86,043	208,294	232,744	294,337	
145	106	159	360	159	53	851	68.79	743.3	3274	24338	**68.46**	1368	1073	1557		87,253	214,050	239,240	301,302	
146	106	159	361	159	106	905	68.82	691.0	3280	22667	**68.48**	1409	1120	1591		88,395	219,731	245,663	308,126	
147	107	159	409	159	107	954	68.85	631.5	3286	20749	**68.52**	1443	1163	1618		89,474	225,301	251,976	314,775	
148	107	212	409	160	107	1007	68.87	569.2	3290	18728	**68.55**	1483	1201	1651		90,493	230,725	258,142	321,218	
149	107	212	410	212	107	1060	68.89	497.0	3295	16376	**68.56**	1522	1242	1684		91,457	235,971	264,131	327,428	
150	160	212	410	212	107	1114	68.91	419.6	3299	13840	**68.59**	1563	1281	1718		92,369	241,015	269,919	333,384	
151	160	212	410	212	160	1168	68.92	337.8	3302	11154	**68.60**	1603	1318	1752		93,234	245,842	276,231	339,076	
152	160	264	410	212	160	1220	68.94	403.9	3304	13348	**68.61**	1643	1354	1786		94,054	250,442	282,314	344,497	
153	160	264	411	264	160	1272	68.96	320.0	3308	10584	**68.61**	1682	1391	1820		94,841	254,818	288,173	349,659	
154	160	264	411	264	160	1272	68.97	250.1	3310	8279	**68.63**	1672	1427	1804		95,624	259,104	293,940	354,727	
155	160	264	411	264	160	1273	68.97	206.8	3312	6849	**68.64**	1663	1461	1790		96,403	263,057	299,374	359,460	
156	160	264	411	264	160	1273	68.98	150.0	3314	4970	**68.65**	1653	1495	1775		97,194	266,783	304,580	363,977	
157	160	264	411	264	160	1273	68.98	105.1	3315	3485	**68.65**	1642	1529	1760		98,023	270,294	309,571	368,317	
158	160	264	411	264	160	1273	68.99	62.9	3316	2085		1632	1564	1746		98,886	273,603	314,359	372,490	
159	160	264	411	264	160	1274	68.99	23.3	3316	774		1622	1592	1732		99,777	276,723	318,958	376,500	
160	160	264	411	264	160	1273	68.99	-13.0	3316	-430	**68.65**	1612	1626	1718		100,686	279,672	323,386	380,358	
161	160	264	411	264	160	1273	68.99	-44.2	3316	-1465	**68.65**	1602	1660	1705		101,740	282,481	327,674	384,221	
162	160	264	411	264	160	1273	68.98	-71.6	3316	-2375	**68.65**	1593	1695	1693		102,778	285,157	331,828	387,935	
163	160	264	411	264	160	1273	68.98	-98.8	3315	-3276	**68.64**	1583	1730	1681		103,821	287,695	335,844	391,516	
164	160	264	411	264	160	1273	68.97	-124.9	3315	-4139	**68.63**	1574	1765	1670		104,840	290,111	339,738	394,951	
165	160	264	458	264	160	1319	68.97	-147.6	3314	-4890	**68.62**	1612	1800	1707		105,828	292,422	343,526	398,250	
166	160	264	457	264	160	1319	68.96	-200.8	3312	-6651		1604	1786	1726		106,786	294,644	347,226	401,431	
167	160	264	457	264	160	1318	68.95	-215.3	3311	-7127	**68.60**	1595	1773	1753		107,723	296,809	350,868	404,532	
168	212	264	457	264	160	1370	68.94	-226.0	3309	-7479	**68.60**	1639	1759	1811		108,922	298,923	354,458	407,845	
169	212	264	457	264	160	1369	68.93	-244.9	3307	-8098	**68.58**	1630	1745	1822		110,687	301,275	358,287	411,963	
170	212	263	457	263	160	1369	68.92	-245.3	3306	-8108		1622	1732	1837		112,605	303,381	361,870	415,987	
171	212	263	456	263	160	1368	68.91	-273.9	3304	-9048		1613	1719	1868		114,615	305,447	365,413	420,062	
172	212	263	456	263	160	1367	68.90	-280.4	3302	-9257	**68.55**	1605	1707	1914		116,702	307,485	369,667	424,187	
173	212	263	456	263	160	1367	68.89	-129.0	3299	-4255	**68.53**	1597	1697	1935		119,285	309,561	373,959	428,846	
174	212	263	456	263	160	1367	68.89	29.0	3298	957	**68.54**	1610	1715	1946		122,927	313,160	379,775	436,087	
175	212	263	456	263	212	1420	68.90	243.7	3299	8040	**68.54**	1681	1742	2015		127,360	317,360	386,194	444,720	
176	212	263	456	263	212	1420	68.91	199.4	3300	6583		1681	1747	2029		131,846	320,899	392,694	452,745	
177	212	263	457	263	212	1421	68.92	290.2	3302	9581	**68.58**	1678	1804	2033		136,921	324,511	400,010	461,432	
178	212	264	457	264	212	1423	68.95	714.7	3304	23615	**68.61**	1678	1819	2018		144,124	330,772	409,982	474,896	
179	213	264	458	264	213	1426	69.00	1102.1	3310	36478	**68.70**	1710	1850	2037		154,131	338,242	421,185	492,373	
180	213	265	459	265	213	1429	69.05	1267.1	3318	42045	**68.77**	1771	1948	2088		165,743	346,152	432,869	511,895	
181	214	266	461	266	214	1433	69.12	1548.6	3328	51541	**68.86**	1808	1967	2118		179,290	356,409	446,970	535,699	
182	215	267	462	267	215	1438	69.19	1802.3	3340	60199	**68.97**	1827	1958	2129		193,130	366,808	461,305	559,937	
183	215	267	464	267	215	1443	69.28	2016.5	3354	67636	**69.10**	1874	1947	2170		206,723	379,142	477,683	585,865	

RD5-1449

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
136	18,531	28,176		207,971								
137	19,270	29,691		213,887								
138	20,009	31,398		219,568								
139	20,749	33,298	1	225,015	13,138							
140	21,488	35,391		230,230								
141	22,228	37,678		235,210								
142	22,968	40,159		239,947								
143	23,709	42,833		244,430								
144	24,449	45,700		248,637								
145	25,191	48,763		252,539								
146	25,932	52,022		256,104								
147	26,674	55,455		259,320								
148	27,417	59,080		262,138								
149	28,160	62,895		264,533								
150	28,904	66,905		266,479								
151	30,389	71,108		267,968								
152	31,872	75,499		268,997								
153	33,355	80,077		269,582								
154	34,836	84,657		270,070								
155	36,317	89,239		270,221								
156	37,797	93,822		270,155								
157	39,277	98,406		269,911								
158	40,756	102,991		269,499								
159	42,235	107,575		268,924								
160	43,714	112,160		268,198								
161	45,193	116,744		267,477								
162	46,671	121,328		266,607								
163	48,149	125,911	1	265,606	92,613							
164	49,627	130,492		264,459								
165	51,104	135,241		263,009								
166	52,582	139,988		261,443								
167	54,058	144,733		259,799								
168	55,535	149,664		258,181								
169	57,012	154,593		257,370								
170	58,489	159,520		256,467								
171	59,966	164,444		255,618								
172	62,182	169,366		254,821								
173	64,398	174,287		254,559								
174	66,615	179,207		256,880								
175	68,834	184,318		260,401								
176	71,795	189,431		263,314								
177	75,499	194,547		266,885								
178	79,210	199,669		275,227								
179	82,942	204,802		287,571								
180	86,717	209,947		301,948								
181	90,561	215,106		320,592								
182	94,497	220,282		339,655								
183	98,541	225,477		360,387								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
184	3995	3701	136	6547	0.1809	0.1008	**Sun 09/01/11 21:00**	101.51	1442.81	-4341.84	-62644.31	**101.89**	0.0	5.0	8	0	**1161**	2.0	2.5	4.5	2.5	2.0	**27**	13
185	4549	3600	148	6009	0.1700	0.1175	**Sun 09/01/11 22:00**	101.68	1465.09	-4079.19	-59763.82	**102.06**	0.0	5.0	8	0	**1194**	2.0	2.5	4.5	2.5	2.0	**27**	13
186	5393	3537	161	5676	0.1598	0.1380	**Sun 09/01/11 23:00**	101.84	1486.25	-3834.28	-56986.89	**102.22**	0.0	5.0	8	0	**1228**	2.0	2.5	4.5	2.5	2.0	**27**	13
187	6187	3483	175	5269	0.1515	0.1616	**Mon 10/01/11 00:00**	102.00	1506.33	-3636.32	-54774.97	**102.38**	0.0	5.0	8	0	**1262**	2.0	2.5	4.5	2.5	2.0	**27**	13
188	6834	3322	190	4963	0.1403	0.1817	**Mon 10/01/11 01:00**	102.14	1525.55	-3367.88	-51378.55	**102.51**	0.0	5.0	8	0	**1296**	2.0	2.5	4.5	2.5	2.0	**27**	13
189	7388	3133	205	4710	0.1251	0.1977	**Mon 10/01/11 02:00**	102.26	1543.50	-3003.50	-46358.94	**102.62**	0.0	5.0	8	0	**1327**	2.5	2.5	4.5	2.5	2.0	**28**	13
190	7772	2948	220	4524	0.1098	0.2079	**Mon 10/01/11 03:00**	102.37	1559.63	-2635.78	-41108.36	**102.70**	0.0	5.0	8	0	**1356**	2.5	2.5	4.5	2.5	2.5	**29**	13
191	8001	2843	235	4475	0.0978	0.2131	**Mon 10/01/11 04:00**	102.47	1573.88	-2346.95	-36938.20	**102.78**	0.0	5.0	8	0	**1383**	2.5	3.0	4.5	2.5	2.5	**30**	13
192	8232	2798	249	4214	0.0906	0.2159	**Mon 10/01/11 05:00**	102.56	1586.65	-2174.47	-34501.14	**102.84**	0.0	5.0	8	0	**1408**	2.5	3.0	4.5	3.0	2.5	**31**	13
193	8287	2716	261	4025	0.0844	0.2162	**Mon 10/01/11 06:00**	102.64	1598.54	-2025.11	-32372.06	**102.93**	0.0	5.0	8	0	**1433**	2.5	3.5	4.5	3.0	2.5	**32**	13
194	7983	2578	273	3844	0.0755	0.2092	**Mon 10/01/11 07:00**	102.72	1609.67	-1810.99	-29150.93		0.0	5.0	8	0	**1455**	2.5	3.5	4.5	3.5	2.5	**33**	13
195	7767	2586	283	3638	0.0696	0.1988	**Mon 10/01/11 08:00**	102.79	1619.66	-1670.48	-27056.19	**103.02**	0.0	5.0	8	0	**1476**	3.0	3.5	4.5	3.5	2.5	**34**	13
196	7401	2489	292	3441	0.0652	0.1878	**Mon 10/01/11 09:00**	102.85	1628.92	-1564.78	-25488.98	**103.08**	0.0	5.0	8	0	**1496**	3.0	3.5	4.5	3.5	3.0	**35**	13
197	6927	2325	303	3264	0.0557	0.1737	**Mon 10/01/11 10:00**	102.91	1637.62	-1335.74	-21874.40	**103.11**	0.0	5.0	8	0	**1513**	3.0	3.5	4.5	3.5	3.0	**35**	13
198	6662	2599	311	3086	0.0577	0.1627	**Mon 10/01/11 11:00**	102.97	1645.08	-1384.60	-22777.86	**103.16**	0.0	5.0	8	0	**1531**	3.0	3.5	4.5	3.5	3.0	**35**	13
199	7467	3070	318	2937	0.0789	0.1685	**Mon 10/01/11 12:00**	103.05	1652.83	-1892.65	-31282.35	**103.28**	0.0	5.0	8	0	**1556**	3.0	3.5	4.5	3.5	3.0	**35**	13
200	6547	2949	324	3761	0.0874	0.1659	**Mon 10/01/11 13:00**	103.13	1663.47	-2096.42	-34873.22	**103.36**	0.0	5.0	8	0	**1585**	3.0	3.5	4.5	3.5	3.0	**35**	13
201	6009	2586	328	4107	0.0706	0.1465	**Mon 10/01/11 14:00**	103.20	1675.30	-1694.27	-28384.12	**103.41**	0.0	5.0	8	0	**1608**	3.0	3.5	4.5	3.5	3.0	**35**	13
202	5676	2346	332	4309	0.0509	0.1348	**Mon 10/01/11 15:00**	103.25	1684.91	-1221.82	-20586.60	**103.43**	0.0	5.0	8	0	**1625**	3.0	3.5	4.5	3.5	3.0	**35**	13
203	5269	2139	335	4996	0.0365	0.1249	**Mon 10/01/11 16:00**	103.29	1691.86	-875.22	-14807.59	**103.45**	0.0	5.0	8	0	**1638**	3.0	4.0	4.5	3.5	3.0	**36**	13
204	4963	1959	338	5388	0.0242	0.1139	**Mon 10/01/11 17:00**	103.32	1696.85	-581.75	-9871.38		0.0	5.0	8	0	**1646**	3.0	4.0	5.0	4.0	3.0	**38**	13
205	4710	1833	340	5797	0.0147	0.1036	**Mon 10/01/11 18:00**	103.33	1700.17	-353.31	-6006.87	**103.46**	0.0	5.0	8	0	**1651**	3.5	4.0	5.0	4.0	3.5	**40**	13
206	4524	1737	341	5998	0.0079	0.0948	**Mon 10/01/11 19:00**	103.34	1702.19	-189.16	-3219.89	**103.52**	0.0	5.0	8	0	**1654**	3.5	4.5	5.0	4.5	3.5	**42**	13
207	4475	1743	342	6247	0.0051	0.0886	**Mon 10/01/11 20:00**	103.34	1703.28	-121.85	-2075.39	**103.46**	0.0	5.0	8	0	**1656**	4.5	4.5	5.0	4.5	4.0	**45**	13
208	4214	1655	343	6698	0.0026	0.0801	**Mon 10/01/11 21:00**	103.35	1703.97	-61.53	-1048.39	**103.44**	0.0	5.0	8	0	**1656**	4.5	4.5	5.0	4.5	4.0	**45**	13
209	4025	1539	343	7511	-0.0035	0.0742	**Mon 10/01/11 22:00**	103.34	1704.33	83.32	1420.10		0.0	5.0	8	0	**1655**	4.5	4.5	5.0	4.5	4.0	**45**	13
210	3844	1435	342	7343	-0.0099	0.0693	**Mon 10/01/11 23:00**	103.33	1703.85	236.97	4037.68	**103.40**	0.0	5.0	8	0	**1652**	4.5	4.5	5.0	4.5	4.0	**45**	13
211	3638	1339	342	7426	-0.0156	0.0642	**Tue 11/01/11 00:00**	103.32	1702.49	373.43	6357.58	**103.37**	0.0	5.0	8	0	**1646**	4.5	4.5	5.0	4.5	4.0	**45**	13
212	3441	1280	340	7444	-0.0198	0.0586	**Tue 11/01/11 01:00**	103.30	1700.36	475.86	8091.29	**103.36**	0.0	5.0	8	0	**1640**	4.5	4.5	5.0	4.5	4.0	**45**	13
213	3264	1249	339	7232	-0.0221	0.0539	**Tue 11/01/11 02:00**	103.27	1697.64	530.83	9011.61	**103.31**	0.0	5.0	8	0	**1632**	4.5	4.5	5.0	4.5	4.0	**45**	13
214	3086	1181	339	6985	-0.0246	0.0492	**Tue 11/01/11 03:00**	103.25	1694.61	590.52	10007.01	**103.27**	0.0	5.0	8	0	**1624**	4.5	4.5	5.0	4.5	4.0	**45**	13
215	2937	1251	340	6658	-0.0241	0.0449	**Tue 11/01/11 04:00**	103.23	1691.25	578.58	9785.17	**103.23**	0.0	5.0	8	0	**1616**	4.5	4.5	5.0	4.5	4.0	**45**	13
216	3761	1664	342	6298	-0.0094	0.0526	**Tue 11/01/11 05:00**	103.22	1687.95	225.41	3804.76	**103.28**	0.0	4.0	8	0	**1396**	4.5	4.5	5.0	4.5	4.0	**45**	13
217	4107	2029	345	5928	0.0267	0.0610	**Tue 11/01/11 06:00**	103.24	1686.67	-640.85	-10809.11	**103.34**	0.0	3.0	8	0	**1188**	4.5	4.5	5.0	4.5	4.0	**45**	13
218	4309	2204	350	5560	0.0549	0.0622	**Tue 11/01/11 07:00**	103.30	1690.32	-1318.62	-22288.91	**103.40**	0.0	2.0	8	0	**989**	4.5	4.5	5.0	4.5	4.0	**45**	13
219	4996	2106	355	5207	0.0687	0.0677	**Tue 11/01/11 08:00**	103.37	1697.84	-1648.38	-27986.74	**103.46**	0.0	1.0	8	0	**795**	4.5	4.5	5.0	4.5	4.0	**45**	13
220	5388	1976	360	4871	0.0730	0.0755	**Tue 11/01/11 09:00**	103.44	1707.26	-1751.87	-29909.07		0.0	0.0	8	0	**602**	4.5	5.0	5.5	5.0	4.5	**49**	0
221	5797	1910	367	4554	0.0781	0.0749	**Tue 11/01/11 10:00**	103.52	1717.32	-1874.13	-32184.86	**103.53**	0.0	0.0	8	0	**628**	5.5	5.5	5.5	5.5	5.5	**55**	0
222	5998	2084	374	4254	0.0792	0.0742	**Tue 11/01/11 11:00**	103.60	1728.13	-1900.63	-32845.42	**103.61**	0.0	0.0	8	0	**655**	5.5	6.0	6.0	6.0	5.5	**58**	0
223	6247	2408	382	3970	0.0914	0.0757	**Tue 11/01/11 12:00**	103.69	1739.13	-2194.65	-38167.96	**103.68**	0.0	0.0	8	0	**687**	6.0	6.0	6.0	6.0	6.0	**60**	0
224	6698	2993	391	3702	0.1149	0.0814	**Tue 11/01/11 13:00**	103.80	1751.90	-2757.97	-48316.76	**103.91**	0.0	0.0	8	0	**728**	7.0	7.0	7.0	7.0	7.0	**70**	0
225	7511	3327	399	3450	0.1376	0.0834	**Tue 11/01/11 14:00**	103.94	1768.03	-3301.31	-58368.08	**103.96**	0.0	0.0	8	0	**779**	7.5	7.5	7.5	7.5	7.5	**75**	0
226	7343	3297	407	3212	0.1417	0.0849	**Tue 11/01/11 15:00**	104.08	1787.46	-3401.40	-60798.77	**104.12**	0.0	0.0	8	0	**832**	8.5	8.5	8.5	8.5	8.5	**85**	0
227	7426	3190	414	2990	0.1334	0.0713	**Tue 11/01/11 16:00**	104.22	1807.63	-3201.59	-57872.96	**104.31**	0.0	0.0	8	0	**884**	9.5	9.5	9.5	9.5	9.5	**95**	0
228	7444	3136	421	2783	0.1248	0.0596	**Tue 11/01/11 17:00**	104.34	1826.75	-2994.81	-54707.79	**104.41**	0.0	0.0	8	0	**933**	10.5	10.5	10.5	10.5	10.5	**105**	0
229	7232	3172	426	2591	0.1204	0.0439	**Tue 11/01/11 18:00**	104.46	1844.76	-2889.57	-53305.59		0.0	0.0	8	0	**982**	11.0	11.0	11.0	11.0	11.0	**110**	0
230	6985	3162	431	2413	0.1173	0.0321	**Tue 11/01/11 19:00**	104.58	1862.24	-2816.35	-52447.21	**104.61**	0.0	0.0	8	0	**1030**	12.0	12.0	12.0	12.0	12.0	**120**	0
231	6658	3040	434	2249	0.1102	0.0112	**Tue 11/01/11 20:00**	104.69	1879.38	-2644.47	-49699.62	**104.70**	0.0	0.0	8	0	**1076**	12.0	12.0	12.0	12.0	12.0	**120**	0

RD5-1451

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
184	216	269	466	269	216	1449	69.38	2418.5	3370	81500	**69.24**	1965	1953	2260		220,048	393,523	496,222	613,570	
185	217	270	469	270	217	1457	69.49	2820.8	3389	95588	**69.44**	2055	1953	2352		233,007	409,898	516,875	642,905	
186	219	272	472	272	219	1465	69.63	3312.8	3411	112988	**69.60**	2114	1950	2409		245,739	429,311	540,687	675,050	
187	220	273	475	273	220	1475	69.79	3877.6	3437	133255	**69.80**	2165	2008	2482		258,279	451,583	567,482	709,863	
188	222	275	479	275	222	1486	69.98	4359.7	3467	151148	**69.97**	2209	1999	2565		270,240	476,188	596,730	746,427	
189	278	278	483	278	223	1552	70.17	4744.6	3501	166115	**70.17**	2294	1988	2681		281,517	502,786	628,085	784,303	
190	280	280	487	280	280	1619	70.38	4989.0	3538	176536	**70.36**	2370	1981	2795		292,130	530,764	660,924	822,894	
191	282	336	492	282	282	1687	70.59	5113.6	3578	182955	**70.57**	2436	2006	2907		302,364	559,566	694,682	861,931	
192	284	339	496	339	284	1756	70.81	5181.7	3618	187491	**70.77**	2501	2065	3027		312,438	589,200	729,362	901,638	
193	287	396	500	342	287	1824	71.03	5188.9	3659	189885	**70.96**	2581	2106	3170		322,216	619,033	764,328	941,249	
194	289	399	504	399	289	1893	71.24	5021.8	3701	185845	**71.16**	2650	2121	3310		331,497	647,773	798,280	979,270	
195	347	402	508	402	291	1963	71.43	4771.5	3741	178495	**71.36**	2704	2191	3435		340,807	675,735	831,531	1,016,542	
196	349	405	512	405	349	2033	71.62	4507.3	3779	170335	**71.56**	2766	2322	3560		349,769	702,381	863,535	1,052,149	
197	351	407	515	407	351	2046	71.80	4168.7	3815	159048	**71.78**	2769	2442	3609		358,137	727,318	893,893	1,085,455	
198	354	410	518	410	354	2058	71.96	3904.6	3849	150283	**71.95**	2772	2540	3635		367,494	751,302	923,363	1,118,796	
199	356	412	522	412	356	2070	72.13	4043.7	3880	156910	**72.07**	2780	2636	3648		378,544	778,183	955,820	1,156,727	
200	358	414	525	414	358	2082	72.29	3982.4	3913	155835	**72.26**	2790	2734	3647		389,160	801,751	985,066	1,190,911	
201	359	417	528	417	359	2092	72.44	3516.4	3945	138736	**72.41**	2800	2882	3635		398,469	823,384	1,012,461	1,221,852	
202	361	418	530	418	361	2102	72.57	3236.1	3974	128598	**72.54**	2816	3029	3627		406,914	843,818	1,038,719	1,250,732	
203	363	477	532	420	363	2168	72.70	2997.1	4000	119894	**72.70**	2902	3167	3686		414,613	862,786	1,063,555	1,277,399	
204	364	479	589	479	364	2288	72.81	2734.8	4025	110067	**72.84**	3056	3296	3812		421,667	880,654	1,087,322	1,302,321	
205	423	480	592	480	423	2412	72.92	2487.5	4047	100671	**72.92**	3223	3421	3956		428,266	897,609	1,110,192	1,325,874	
206	425	538	594	538	425	2532	73.01	2275.1	4067	92539	**72.99**	3387	3514	4099		434,520	913,895	1,132,405	1,348,415	
207	540	540	595	540	483	2711	73.10	2126.8	4086	86902	**73.06**	3602	3572	4292		440,796	930,005	1,154,447	1,370,800	
208	541	541	597	541	485	2719	73.18	1923.5	4103	78929		3632	3622	4304		446,754	945,175	1,175,552	1,391,929	
209	543	543	599	543	486	2725	73.25	1781.2	4119	73371	**73.17**	3649	3605	4308		452,296	959,664	1,195,973	1,411,959	
210	544	544	600	544	487	2732	73.32	1663.0	4134	68745	**73.22**	3654	3583	4304		457,461	973,503	1,215,731	1,430,964	
211	545	545	601	545	488	2738	73.39	1539.9	4148	63868	**73.26**	3650	3564	4292		462,281	986,600	1,234,727	1,448,881	
212	546	546	603	546	489	2743	73.45	1412.3	4160	58755		3640	3547	4302		466,887	998,986	1,252,989	1,465,874	
213	547	547	604	547	490	2748	73.50	1293.9	4172	53981	**73.35**	3628	3533	4350		471,383	1,010,738	1,270,589	1,482,121	
214	548	548	605	548	491	2752	73.55	1181.8	4183	49431		3616	3528	4482		475,636	1,021,848	1,287,518	1,497,485	
215	549	549	606	549	491	2756	73.59	1077.9	4192	45189	**73.40**	3604	3592	4687		480,138	1,032,420	1,303,878	1,512,558	
216	550	550	607	550	492	2761	73.65	1261.5	4201	52997		3598	3727	4940		486,127	1,045,961	1,322,421	1,532,088	
217	551	551	608	551	493	2767	73.71	1463.7	4212	61646	**73.51**	3684	3882	5345		493,430	1,060,744	1,341,460	1,554,175	
218	552	552	609	552	494	2772	73.77	1493.7	4224	63089	**73.61**	3924	4038	5893		501,366	1,076,255	1,360,515	1,577,621	
219	553	553	610	553	495	2778	73.84	1625.4	4236	68856	**73.70**	4214	4244	6443		508,947	1,094,240	1,381,347	1,603,187	
220	555	612	669	612	555	3002	73.91	1811.8	4250	76994	**73.81**	4676	4294	7128		516,060	1,113,635	1,402,899	1,629,695	
221	670	670	670	670	670	3351	73.99	1796.7	4265	76621	**73.95**	5199	4371	7822		522,935	1,134,506	1,426,020	1,657,440	
222	672	728	728	728	672	3529	74.06	1780.3	4279	76190	**74.10**	5518	4520	8252		530,436	1,156,100	1,449,962	1,686,536	
223	730	730	730	730	730	3651	74.14	1815.6	4294	77969	**74.27**	5755	4732	8545		539,103	1,178,588	1,474,913	1,717,691	
224	845	845	845	845	845	4226	74.22	1953.7	4309	84194	**74.39**	6438	4981	9231		549,879	1,202,699	1,501,634	1,752,578	
225	904	904	904	904	904	4521	74.30	2001.4	4326	86574	**74.57**	6876	5289	9631		561,858	1,229,740	1,531,466	1,791,598	
226	1022	1022	1022	1022	1022	5109	74.39	2036.6	4342	88436	**74.71**	7539	5584	10225		573,727	1,256,173	1,560,881	1,829,900	
227	1143	1143	1143	1143	1143	5715	74.46	1710.8	4359	74581	**74.81**	8171	5833	10758		585,211	1,282,908	1,590,783	1,868,120	
228	1269	1269	1269	1269	1269	6346	74.52	1429.2	4374	62510	**74.89**	8865	6051	11336		596,501	1,309,708	1,620,926	1,906,210	
229	1336	1336	1336	1336	1336	6678	74.56	1053.6	4386	46207	**74.95**	9282	6307	11624		607,920	1,335,743	1,650,477	1,943,663	
230	1472	1472	1472	1472	1472	7359	74.59	771.2	4394	33891	**74.97**	10048	6658	12257		619,303	1,360,890	1,679,315	1,980,193	
231	1472	1472	1472	1472	1472	7362	74.61	268.7	4401	11826	**74.97**	10130	7004	12203		630,245	1,384,858	1,707,139	2,015,103	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
184	102,699	230,695		382,875								
185	106,977	235,938		406,967								
186	111,376	241,213		433,837								
187	115,899	246,522	1	463,340	120,611							
188	120,542	251,871		494,556								
189	125,299	257,458		526,845								
190	130,160	263,288		559,606								
191	135,115	269,361		592,570								
192	140,162	275,681		625,957								
193	145,295	282,248		659,001								
194	150,508	289,062		690,208								
195	155,795	296,128		720,414								
196	161,154	303,446		748,703								
197	166,575	310,810		774,644								
198	172,061	318,217		800,578								
199	177,637	325,669		831,058								
200	183,315	333,164		857,747								
201	189,077	340,696		881,156								
202	194,901	348,264		902,468								
203	200,770	356,068		921,331								
204	206,668	364,304		938,017								
205	212,584	372,987		952,887								
206	218,510	382,104		966,311								
207	224,442	391,864		978,936								
208	230,378	401,651		990,278								
209	236,309	411,462		1,000,497								
210	242,228	421,297		1,009,667								
211	248,127	431,152	1	1,017,729	184,630							
212	254,003	441,026		1,024,847								
213	259,851	450,918		1,031,202								
214	265,669	460,826		1,036,658								
215	271,459	470,749		1,041,809								
216	276,460	480,689		1,051,399								
217	280,716	490,649		1,063,526								
218	284,260	500,629		1,076,992								
219	287,108	510,630		1,092,557								
220	289,264	521,436		1,108,259								
221	291,514	533,501		1,123,939								
222	293,862	546,206		1,140,330								
223	296,325	559,350		1,158,340								
224	298,935	574,563		1,178,016								
225	301,726	590,838		1,200,760								
226	304,708	609,231		1,220,669								
227	307,874	629,803		1,238,316								
228	311,218	652,648		1,253,562								
229	314,735	676,689		1,266,974								
230	318,425	703,180		1,277,013				Thu	6/01/2011	4,320		
231	322,280	729,682		1,285,421				Fri	7/01/2011	13,138		

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
232	6298	2885	436	2098	0.0995	0.0044	**Tue 11/01/11 21:00**	104.79	1895.57	-2388.38	-45273.39	**104.78**	0.0	0.0	8	0	**1118**	12.0	12.0	12.0	12.0	12.0	**120**	0
233	5928	2726	438	1959	0.0883	-0.0030	**Tue 11/01/11 22:00**	104.88	1910.27	-2119.48	-40487.71	**104.85**	0.0	0.0	8	0	**1157**	11.5	11.5	11.5	11.5	11.5	**115**	0
234	5560	2564	438	1831	0.0774	-0.0027	**Tue 11/01/11 23:00**	104.95	1923.37	-1857.14	-35719.76	**104.90**	0.0	0.0	8	0	**1190**	11.5	11.5	11.5	11.5	11.5	**115**	0
235	5207	2404	438	1713	0.0669	-0.0101	**Wed 12/01/11 00:00**	105.02	1934.90	-1604.49	-31045.37	**104.98**	0.0	0.0	8	0	**1220**	10.0	10.0	10.0	10.0	10.0	**100**	0
236	4871	2246	437	1605	0.0568	0.0048	**Wed 12/01/11 01:00**	105.08	1944.90	-1363.74	-26523.31	**105.00**	0.0	0.0	8	0	**1245**	10.0	10.0	10.0	10.0	10.0	**100**	0
237	4554	2095	435	1505	0.0474	-0.0021	**Wed 12/01/11 02:00**	105.13	1953.42	-1136.80	-22206.52	**105.04**	0.0	0.0	8	0	**1267**	9.0	9.0	9.0	9.0	9.0	**90**	0
238	4254	1950	433	1414	0.0385	0.0052	**Wed 12/01/11 03:00**	105.16	1960.54	-925.11	-18137.24	**105.07**	0.0	0.0	8	0	**1284**	9.0	9.0	9.0	9.0	9.0	**90**	0
239	3970	1813	430	1329	0.0304	-0.0011	**Wed 12/01/11 04:00**	105.19	1966.35	-729.46	-14343.71	**105.09**	0.0	0.0	8	0	**1298**	8.0	8.0	8.0	8.0	8.0	**80**	0
240	3702	1686	427	1251	0.0229	0.0063	**Wed 12/01/11 05:00**	105.22	1970.94	-549.99	-10840.05	**105.10**	0.0	0.0	8	0	**1308**	7.0	7.0	7.0	7.0	7.0	**70**	0
241	3450	1567	423	1180	0.0161	0.0137	**Wed 12/01/11 06:00**	105.23	1974.40	-386.37	-7628.42	**105.11**	0.0	0.0	8	0	**1316**	6.0	6.0	6.0	6.0	6.0	**60**	0
242	3212	1457	419	1113	0.0099	0.0213	**Wed 12/01/11 07:00**	105.24	1976.84	-237.85	-4701.94	**105.11**	0.0	0.0	8	0	**1320**	5.0	5.0	5.0	5.0	5.0	**50**	0
243	2990	1355	414	1052	0.0043	0.0292	**Wed 12/01/11 08:00**	105.25	1978.34	-103.51	-2047.76	**105.11**	0.0	0.0	8	0	**1322**	3.5	4.0	5.0	4.0	3.5	**40**	0
244	2783	1261	409	995	-0.0007	0.0378	**Wed 12/01/11 09:00**	105.25	1978.99	17.71	350.45	**105.10**	0.0	0.0	8	0	**1322**	3.5	4.0	5.0	4.0	3.5	**40**	0
245	2591	1174	404	942	-0.0053	0.0332	**Wed 12/01/11 10:00**	105.24	1978.88	126.87	2510.59	**105.09**	0.0	0.0	8	0	**1319**	3.5	4.0	5.0	4.0	3.5	**40**	0
246	2413	1094	399	894	-0.0094	0.0288	**Wed 12/01/11 11:00**	105.23	1978.08	225.01	4450.83	**105.06**	0.0	1.0	8	0	**1539**	3.5	4.0	5.0	4.0	3.5	**40**	0
247	2249	1021	393	848	-0.0244	0.0299	**Wed 12/01/11 12:00**	105.21	1976.66	584.87	11560.85	**105.05**	0.0	1.0	8	0	**1528**	3.5	4.0	5.0	4.0	3.5	**40**	0
248	2098	953	387	806	-0.0274	0.0260	**Wed 12/01/11 13:00**	105.18	1972.97	658.26	12987.27	**105.01**	0.0	1.0	8	0	**1515**	3.5	4.0	5.0	4.0	3.5	**40**	0
249	1959	890	381	767	-0.0302	0.0223	**Wed 12/01/11 14:00**	105.15	1968.83	723.63	14246.98	**104.98**	0.0	1.0	8	0	**1501**	3.5	4.0	5.0	4.0	3.5	**40**	0
250	1831	833	375	730	-0.0326	0.0190	**Wed 12/01/11 15:00**	105.12	1964.28	781.69	15354.54	**104.94**	0.0	1.0	8	0	**1487**	3.5	4.0	5.0	4.0	3.5	**40**	0
251	1713	780	369	696	-0.0347	0.0158	**Wed 12/01/11 16:00**	105.08	1959.38	833.09	16323.44	**104.90**	0.0	1.0	8	0	**1471**	3.5	4.0	5.0	4.0	3.5	**40**	0
252	1605	731	363	664	-0.0366	0.0129	**Wed 12/01/11 17:00**	105.05	1954.16	878.44	17166.08	**104.87**	0.0	1.0	8	0	**1454**	3.5	4.0	5.0	4.0	3.5	**40**	0
253	1505	686	357	634	-0.0383	0.0102	**Wed 12/01/11 18:00**	105.01	1948.66	918.26	17893.89	**104.83**	0.0	1.0	8	0	**1437**	3.5	4.0	5.0	4.0	3.5	**40**	0
254	1414	645	350	606	-0.0397	0.0076	**Wed 12/01/11 19:00**	104.97	1942.93	953.07	18517.43		0.0	1.0	8	0	**1419**	3.5	4.0	5.0	4.0	3.5	**40**	0
255	1329	607	344	580	-0.0410	0.0052	**Wed 12/01/11 20:00**	104.93	1936.99	983.30	19046.42	**104.73**	0.0	1.0	8	0	**1401**	3.5	4.0	5.0	4.0	3.5	**40**	0
256	1251	572	338	555	-0.0421	0.0030	**Wed 12/01/11 21:00**	104.89	1930.88	1009.37	19489.80	**104.69**	0.0	1.0	8	0	**1383**	3.5	4.0	5.0	4.0	3.5	**40**	0
257	1180	539	331	532	-0.0430	0.0009	**Wed 12/01/11 22:00**	104.84	1924.62	1031.68	19855.80	**104.65**	0.0	1.0	8	0	**1364**	3.5	4.0	5.0	4.0	3.5	**40**	0
258	1113	509	325	510	-0.0438	-0.0011	**Wed 12/01/11 23:00**	104.80	1918.23	1050.55	20151.97		0.0	1.0	8	0	**1345**	3.5	4.0	5.0	4.0	3.5	**40**	0
259	1052	482	319	489	-0.0444	-0.0029	**Thu 13/01/11 00:00**	104.75	1911.74	1066.32	20385.26	**104.56**	0.0	1.0	8	0	**1326**	3.5	4.0	5.0	4.0	3.5	**40**	0
260	995	456	313	470	-0.0450	-0.0047	**Thu 13/01/11 01:00**	104.71	1905.16	1079.28	20562.01	**104.51**	0.0	1.0	8	0	**1306**	3.5	4.0	5.0	4.0	3.5	**40**	0
261	942	433	306	452	-0.0454	-0.0063	**Thu 13/01/11 02:00**	104.66	1898.52	1089.69	20688.03	**104.45**	0.0	1.0	8	0	**1287**	3.5	4.0	5.0	4.0	3.5	**40**	0
262	894	411	300	434	-0.0457	-0.0079	**Thu 13/01/11 03:00**	104.62	1891.83	1097.80	20768.62	**104.42**	0.0	1.0	8	0	**1268**	3.5	4.0	5.0	4.0	3.5	**40**	0
263	848	391	294	418	-0.0460	-0.0094	**Thu 13/01/11 04:00**	104.57	1885.11	1103.84	20808.60	**104.37**	0.0	1.0	8	0	**1248**	3.5	4.0	5.0	4.0	3.5	**40**	0
264	806	372	288	403	-0.0462	-0.0108	**Thu 13/01/11 05:00**	104.53	1878.37	1108.00	20812.37	**104.32**	0.0	1.0	8	0	**1229**	3.5	4.0	5.0	4.0	3.5	**40**	0
265	767	355	282	388	-0.0463	-0.0121	**Thu 13/01/11 06:00**	104.48	1871.61	1110.48	20783.93	**104.28**	0.0	1.0	8	0	**1210**	3.5	4.0	5.0	4.0	3.5	**40**	0
266	730	338	277	374	-0.0463	-0.0134	**Thu 13/01/11 07:00**	104.43	1864.86	1111.44	20726.90	**104.24**	0.0	1.0	8	0	**1191**	3.5	4.0	5.0	4.0	3.5	**40**	0
267	696	323	271	361	-0.0463	-0.0146	**Thu 13/01/11 08:00**	104.39	1858.12	1111.05	20644.58		0.0	1.0	8	0	**1172**	3.5	4.0	5.0	4.0	3.5	**40**	0
268	664	309	265	348	-0.0462	-0.0157	**Thu 13/01/11 09:00**	104.34	1851.39	1109.43	20539.90		0.0	2.0	8	0	**1374**	3.5	4.0	5.0	4.0	3.5	**40**	0
269	634	296	260	336	-0.0581	-0.0119	**Thu 13/01/11 10:00**	104.28	1844.69	1393.89	25712.99	**104.09**	0.0	2.0	8	0	**1351**	3.5	4.0	5.0	4.0	3.5	**40**	0
270	606	284	254	325	-0.0578	-0.0130	**Thu 13/01/11 11:00**	104.22	1836.30	1386.04	25451.90		0.0	2.0	8	0	**1328**	3.5	4.0	5.0	4.0	3.5	**40**	0
271	580	273	249	314	-0.0574	-0.0141	**Thu 13/01/11 12:00**	104.17	1827.98	1377.45	25179.48	**103.96**	0.0	2.0	8	0	**1305**	3.5	4.0	5.0	4.0	3.5	**40**	0
272	555	262	244	304	-0.0570	-0.0152	**Thu 13/01/11 13:00**	104.11	1819.73	1368.20	24897.63	**103.91**	0.0	3.0	8	0	**1502**	3.5	4.5	5.0	4.0	3.5	**41**	0
273	532	252	238	294	-0.0687	-0.0126	**Thu 13/01/11 14:00**	104.04	1811.57	1649.73	29886.00	**103.86**	0.0	3.0	8	0	**1476**	3.5	4.5	5.0	4.5	3.5	**42**	0
274	510	243	233	285	-0.0682	-0.0151	**Thu 13/01/11 15:00**	103.97	1801.75	1635.73	29471.83		0.0	3.0	8	0	**1449**	4.0	4.5	5.0	4.0	3.5	**42**	0
275	489	234	228	276	-0.0676	-0.0162	**Thu 13/01/11 16:00**	103.91	1792.05	1621.42	29056.75	**103.72**	0.0	3.0	8	0	**1423**	4.0	4.5	5.0	4.5	4.0	**44**	0
276	470	226	223	267	-0.0670	-0.0199	**Thu 13/01/11 17:00**	103.84	1782.47	1606.86	28641.87	**103.66**	0.0	3.0	8	0	**1398**	4.5	4.5	5.0	4.5	4.0	**45**	0
277	452	218	218	259	-0.0663	-0.0222	**Thu 13/01/11 18:00**	103.77	1773.01	1592.10	28228.15	**103.60**	0.0	3.0	8	0	**1373**	4.5	4.5	5.0	4.5	4.5	**46**	0
278	434	211	214	251	-0.0657	-0.0245	**Thu 13/01/11 19:00**	103.71	1763.67	1577.19	27816.44	**103.53**	0.0	3.0	8	0	**1349**	4.5	5.0	5.0	5.0	4.5	**48**	0
279	418	204	209	244	-0.0651	-0.0281	**Thu 13/01/11 20:00**	103.64	1754.45	1562.17	27407.51		0.0	3.0	8	0	**1326**	5.0	5.0	5.0	5.0	5.0	**50**	0

RD5-1454

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
232	1473	1473	1473	1473	1473	7363	74.61	104.9	4403	4617	**74.95**	10195	7469	12136		640,632	1,407,533	1,733,821	2,048,165	
233	1404	1404	1404	1404	1404	7021	74.61	-71.7	4404	-3158	**74.95**	9903	7954	11714		650,444	1,428,873	1,759,305	2,079,316	
234	1404	1404	1404	1404	1404	7020	74.60	-65.5	4403	-2884	**74.92**	9946	8203	11634		659,675	1,448,890	1,783,588	2,108,565	
235	1210	1210	1210	1210	1210	6049	74.59	-243.1	4403	-10704	**74.91**	9013	8343	10584		668,328	1,467,635	1,806,704	2,135,963	
236	1210	1210	1210	1210	1210	6050	74.60	114.3	4401	5030	**74.87**	9046	8908	10508		676,416	1,485,170	1,828,702	2,161,586	
237	1088	1088	1088	1088	1088	5442	74.60	-50.6	4402	-2226	**74.86**	8463	9218	9823		683,956	1,501,563	1,849,633	2,185,519	
238	1089	1089	1089	1089	1089	5443	74.60	124.4	4401	5476	**74.81**	8479	9748	9745		690,976	1,516,876	1,869,548	2,207,853	
239	971	971	971	971	971	4856	74.60	-25.6	4402	-1128	**74.80**	7896	10244	9074		697,505	1,531,170	1,888,492	2,228,674	
240	856	856	856	856	856	4281	74.61	151.9	4402	6687	**74.77**	7311	10805	8410		703,573	1,544,498	1,906,509	2,248,072	
241	742	742	742	742	742	3709	74.62	329.0	4403	14486	**74.77**	6715	11093	7741		709,213	1,556,918	1,923,643	2,266,131	
242	626	626	626	626	626	3132	74.64	510.7	4406	22501	**74.76**	6099	11736	7058		714,457	1,568,482	1,939,939	2,282,939	
243	447	508	627	508	447	2538	74.67	701.8	4410	30954	**74.78**	5453	11701	6351		719,333	1,579,247	1,955,441	2,298,581	
244	448	509	628	509	448	2541	74.71	907.9	4416	40096	**74.78**	5391	11657	6233		723,872	1,589,267	1,970,198	2,313,139	
245	448	509	628	509	448	2544	74.74	796.3	4424	35228	**74.78**	5318	11263	6109		728,098	1,598,595	1,984,254	2,326,693	
246	449	510	629	510	449	2546	74.77	692.2	4431	30670	**74.78**	5235	11211	5979		732,037	1,607,283	1,998,456	2,339,319	
247	449	510	629	510	449	2548	74.80	716.4	4436	31783	**74.79**	5145	10192	5845		735,710	1,615,380	2,012,028	2,351,090	
248	450	511	630	511	450	2550	74.83	623.0	4442	27675	**74.79**	5049	10145	5709		739,140	1,622,933	2,025,011	2,362,073	
249	450	511	630	511	450	2552	74.85	536.0	4448	23841	**74.81**	4949	9489	5573		742,346	1,629,985	2,037,443	2,372,331	
250	450	511	631	511	450	2553	74.87	455.1	4452	20263	**74.81**	4846	9439	5436		745,344	1,636,576	2,049,361	2,381,920	
251	450	511	631	511	450	2555	74.88	379.8	4456	16924	**74.80**	4743	8794	5302		748,152	1,642,744	2,060,799	2,390,896	
252	451	512	631	512	451	2556	74.90	309.6	4459	13806	**74.82**	4640	8153	5170		750,784	1,648,522	2,071,788	2,399,306	
253	451	512	632	512	451	2556	74.91	244.1	4462	10893	**74.80**	4538	7506	5041		753,255	1,653,941	2,082,357	2,407,196	
254	451	512	632	512	451	2557	74.92	183.0	4464	8167	**74.82**	4439	6843	4916		755,577	1,659,030	2,092,533	2,414,607	
255	451	512	632	512	451	2557	74.92	125.7	4465	5615	**74.82**	4342	6154	4796		757,761	1,663,815	2,102,340	2,421,577	
256	451	512	632	512	451	2558	74.92	72.1	4466	3222	**74.82**	4248	6052	4681		759,820	1,668,320	2,111,800	2,428,140	
257	451	512	632	512	451	2558	74.92	21.8	4467	975	**74.81**	4158	5942	4570		761,761	1,672,567	2,120,934	2,434,328	
258	451	512	632	512	451	2558	74.92	-25.4	4467	-1136		4071	5825	4465		763,595	1,676,574	2,129,761	2,440,169	
259	451	512	632	512	451	2557	74.92	-69.9	4467	-3124	**74.79**	3989	5703	4365		765,329	1,680,361	2,138,298	2,445,690	
260	451	512	632	512	451	2557	74.92	-111.9	4466	-4997		3911	5578	4270		766,972	1,683,943	2,146,562	2,450,915	
261	451	512	632	512	451	2557	74.91	-151.5	4465	-6765	**74.77**	3836	5452	4180		768,529	1,687,335	2,154,567	2,455,865	
262	451	512	631	512	451	2556	74.90	-189.0	4464	-8436		3766	5324	4094		770,009	1,690,552	2,162,326	2,460,561	
263	450	512	631	512	450	2555	74.89	-224.5	4463	-10016	**74.74**	3699	5198	4014		771,415	1,693,605	2,169,853	2,465,020	
264	450	511	631	511	450	2554	74.88	-258.1	4461	-11514		3636	**5073**	**3937**	**6690**	772,754	1,696,507	2,177,159	2,469,261	
265	450	511	631	511	450	2553	74.87	-290.1	4459	-12934	**74.71**	3576	4951	3865		774,030	1,699,266	2,184,255	2,473,297	
266	450	511	631	511	450	2552	74.86	-320.5	4456	-14283		3520	4832	3797		775,249	1,701,894	2,191,151	2,477,143	
267	450	511	630	511	450	2551	74.84	-349.5	4453	-15565		3467	4717	3733		776,413	1,704,399	2,197,856	2,480,812	
268	450	511	630	511	450	2550	74.83	-377.1	4450	-16785		3417	4607	3673		777,526	1,706,789	2,205,170	2,484,315	
269	449	510	630	510	449	2549	74.81	-284.4	4447	-12650	**74.64**	3371	4501	3616		778,593	1,709,071	2,212,292	2,487,664	
270	449	510	629	510	449	2548	74.80	-312.4	4445	-13887		3327	**4400**	3563	**5500**	779,616	1,711,252	2,219,231	2,490,868	
271	449	510	629	510	449	2547	74.79	-339.2	4442	-15069	**74.61**	3286	4304	3513		780,599	1,713,338	2,225,993	2,493,937	
272	449	570	629	510	449	2606	74.77	-364.9	4439	-16200	**74.59**	3307	4212	3525		781,542	1,715,336	2,233,375	2,496,878	
273	449	569	629	569	449	2665	74.76	-303.1	4436	-13445	**74.57**	3330	4125	3541		782,450	1,717,250	2,240,576	2,499,700	
274	509	569	628	509	448	2665	74.74	-361.9	4434	-16046		3297	4043	3499		783,325	1,719,086	2,247,605	2,502,410	
275	509	569	628	569	509	2784	74.73	-387.7	4431	-17179	**74.55**	3385	3965	3580		784,167	1,720,847	2,254,467	2,505,015	
276	569	569	628	569	509	2842	74.71	-477.5	4428	-21143	**74.51**	3413	3891	3602		784,980	1,722,539	2,261,169	2,507,520	
277	568	568	627	568	568	2900	74.69	-533.4	4424	-23597	**74.50**	3444	3822	3626		785,765	1,724,166	2,267,716	2,509,931	
278	568	627	627	627	568	3016	74.66	-588.5	4419	-26005	**74.46**	3533	3756	3709		786,524	1,725,730	2,274,115	2,512,254	
279	626	626	626	626	626	3131	74.63	-674.3	4414	-29766		3624	3694	3794		787,258	1,727,235	2,280,370	2,514,492	

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
232	326,288	756,189		1,291,975				Sat	8/01/2011	92,613		
233	330,432	781,464		1,297,852				Sun	9/01/2011	120,611		
234	334,698	806,736		1,301,829				Mon	10/01/2011	184,630		
235	339,069	828,514	1	1,307,449	397,362	397,362		Tue	11/01/2011	397,362		
236	343,532	850,295		1,311,291				Wed	12/01/2011	274,673		
237	348,071	869,887		1,315,633				Thu	13/01/2011	239,561	1,326,908	1,326,908
238	352,672	889,482		1,318,371				Fri		304,173		
239	357,323	906,962		1,321,712				Sat		303,264		
240	362,011	922,373		1,325,698				Sun				
241	366,725	935,727		1,330,404				Mon				
242	371,456	947,001		1,335,938								
243	376,194	956,139		1,342,442								
244	380,931	965,287		1,347,851								
245	385,659	974,445		1,352,248								
246	391,174	983,611		1,355,709								
247	396,648	992,784		1,358,306								
248	402,078	1,001,965		1,360,108								
249	407,458	1,011,153		1,361,178								
250	412,785	1,020,345		1,361,575								
251	418,055	1,029,542		1,361,354								
252	423,266	1,038,742		1,360,564								
253	428,416	1,047,945		1,359,251								
254	433,503	1,057,150		1,357,457								
255	438,524	1,066,357		1,355,220								
256	443,480	1,075,565		1,352,575								
257	448,367	1,084,772		1,349,555								
258	453,187	1,093,980		1,346,189								
259	457,937	1,103,187	1	1,342,504	274,673							
260	462,619	1,112,392		1,338,523								
261	467,231	1,121,596		1,334,269								
262	471,774	1,130,797		1,329,764								
263	476,248	1,139,996		1,325,024								
264	480,653	1,149,192		1,320,069								
265	484,989	1,158,384		1,314,912								
266	489,257	1,167,573		1,309,570								
267	493,457	1,176,758		1,304,054								
268	498,382	1,185,939		1,298,376								
269	503,222	1,195,116		1,292,548								
270	507,979	1,204,290		1,286,578								
271	512,655	1,213,459		1,280,477								
272	518,039	1,222,841		1,274,037								
273	523,326	1,232,435		1,267,266								
274	528,519	1,242,027		1,260,383								
275	533,619	1,252,050		1,252,965								
276	538,629	1,262,282		1,245,238								
277	543,551	1,272,722		1,237,209								
278	548,385	1,283,578		1,228,675								
279	553,136	1,294,850		1,219,643								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
280	403	197	204	236	-0.0645	-0.0316	**Thu 13/01/11 21:00**	103.58	1745.35	1547.08	27002.02	**103.40**	0.0	4.0	8	0	**1521**	5.0	5.5	5.5	5.0	5.0	**52**	0
281	388	191	200	230	-0.0764	-0.0302	**Thu 13/01/11 22:00**	103.50	1736.37	1833.32	31833.23	**103.34**	0.0	4.0	8	0	**1493**	5.0	5.5	5.5	5.5	5.0	**53**	0
282	374	185	195	223	-0.0756	-0.0324	**Thu 13/01/11 23:00**	103.43	1725.77	1815.08	31324.03		0.0	4.0	8	0	**1467**	5.5	5.5	5.5	5.5	5.0	**54**	0
283	361	180	191	217	-0.0749	-0.0346	**Fri 14/01/11 00:00**	103.35	1715.31	1796.99	30824.01	**103.20**	0.0	4.0	8	0	**1441**	5.5	5.5	5.5	5.5	5.5	**55**	0
284	348	174	187	210	-0.0741	-0.0368	**Fri 14/01/11 01:00**	103.28	1705.00	1779.09	30333.44	**103.13**	0.0	4.0	8	0	**1416**	5.5	5.5	6.0	5.5	5.5	**56**	0
285	336	169	183	205	-0.0734	-0.0389	**Fri 14/01/11 02:00**	103.20	1694.83	1761.38	29852.53	**103.06**	0.0	4.0	8	0	**1391**	5.5	6.0	6.0	5.5	5.5	**57**	0
286	325	165	179	199	-0.0727	-0.0410	**Fri 14/01/11 03:00**	103.13	1684.81	1743.91	29381.49	**102.99**	0.0	4.0	8	0	**1367**	5.5	6.0	6.0	6.0	5.5	**58**	0
287	314	160	175	193	-0.0719	-0.0431	**Fri 14/01/11 04:00**	103.06	1674.92	1726.67	28920.44	**102.93**	0.0	4.0	8	0	**1344**	5.5	6.0	6.0	6.0	5.5	**58**	0
288	304	156	171	188	-0.0712	-0.0439	**Fri 14/01/11 05:00**	102.99	1665.17	1709.70	28469.45	**102.87**	0.0	4.0	8	0	**1321**	5.5	6.0	6.0	6.0	5.5	**58**	0
289	294	151	167	183	-0.0705	-0.0446	**Fri 14/01/11 06:00**	102.92	1655.55	1693.01	28028.61	**102.79**	0.0	4.0	8	0	**1299**	5.5	6.0	6.0	6.0	5.5	**58**	0
290	285	147	163	178	-0.0699	-0.0453	**Fri 14/01/11 07:00**	102.85	1646.07	1676.60	27597.99	**102.73**	0.0	4.0	8	0	**1278**	5.5	6.0	6.0	6.0	5.5	**58**	0
291	276	144	159	173	-0.0692	-0.0460	**Fri 14/01/11 08:00**	102.78	1636.71	1660.50	27177.59	**102.67**	0.0	4.0	8	0	**1257**	5.5	6.0	6.0	6.0	5.5	**58**	0
292	267	140	156	169	-0.0685	-0.0466	**Fri 14/01/11 09:00**	102.71	1627.48	1644.72	26767.38	**102.61**	0.0	4.0	8	0	**1237**	5.5	6.0	6.0	6.0	5.5	**58**	0
293	259	137	152	164	-0.0679	-0.0473	**Fri 14/01/11 10:00**	102.64	1618.37	1629.26	26367.36	**102.54**	0.0	4.0	8	0	**1217**	5.5	6.0	6.0	6.0	5.5	**58**	0
294	251	133	149	160	-0.0673	-0.0479	**Fri 14/01/11 11:00**	102.57	1609.38	1614.14	25977.52	**102.48**	0.0	4.0	8	0	**1198**	5.5	6.0	6.0	6.0	5.5	**58**	0
295	244	130	146	156	-0.0666	-0.0485	**Fri 14/01/11 12:00**	102.51	1600.50	1599.36	25597.80	**102.42**	0.0	4.0	8	0	**1180**	5.5	6.0	6.0	6.0	5.5	**58**	0
296	236	127	142	152	-0.0660	-0.0491	**Fri 14/01/11 13:00**	102.44	1591.74	1584.94	25228.14	**102.36**	0.0	4.0	8	0	**1162**	5.5	6.0	6.0	6.0	5.5	**58**	0
297	230	124	139	148	-0.0655	-0.0496	**Fri 14/01/11 14:00**	102.38	1583.10	1570.88	24868.47	**102.30**	0.0	4.0	8	0	**1144**	5.5	6.0	6.0	6.0	5.5	**58**	0
298	223	121	136	145	-0.0649	-0.0502	**Fri 14/01/11 15:00**	102.31	1574.56	1557.18	24518.71	**102.23**	0.0	4.0	8	0	**1127**	5.5	6.0	6.0	6.0	5.5	**58**	0
299	217	118	133	141	-0.0643	-0.0507	**Fri 14/01/11 16:00**	102.25	1566.12	1543.86	24178.80	**102.17**	0.0	4.0	8	0	**1111**	5.5	6.0	6.0	6.0	5.5	**58**	0
300	210	116	130	137	-0.0638	-0.0512	**Fri 14/01/11 17:00**	102.18	1557.79	1530.93	23848.66	**102.12**	0.0	4.0	8	0	**1095**	5.5	6.0	6.0	6.0	5.5	**58**	0
301	205	113	127	134	-0.0633	-0.0517	**Fri 14/01/11 18:00**	102.12	1549.56	1518.38	23528.20		0.0	4.0	8	0	**1079**	5.5	6.0	6.0	6.0	5.5	**58**	0
302	199	110	124	131	-0.0628	-0.0522	**Fri 14/01/11 19:00**	102.06	1541.43	1506.22	23217.33	**101.99**	0.0	4.0	8	0	**1064**	6.0	6.0	6.0	6.0	5.5	**59**	0
303	193	108	121	128	-0.0623	-0.0540	**Fri 14/01/11 20:00**	101.99	1533.39	1494.46	22915.97	**101.93**	0.0	4.0	8	0	**1050**	6.0	6.0	6.0	6.0	5.5	**59**	0
304	188	106	118	124	-0.0618	-0.0545	**Fri 14/01/11 21:00**	101.93	1525.44	1483.11	22624.04	**101.87**	0.0	4.0	8	0	**1036**	6.0	6.0	6.0	6.0	5.5	**59**	0
305	183	103	116	121	-0.0613	-0.0549	**Fri 14/01/11 22:00**	101.87	1517.59	1472.17	22341.45	**101.82**	0.0	4.0	8	0	**1022**	6.0	6.0	6.0	6.0	5.5	**59**	0
306	178	101	113	119	-0.0609	-0.0553	**Fri 14/01/11 23:00**	101.81	1509.81	1461.65	22068.14	**101.76**	0.0	4.0	8	0	**1009**	6.0	6.0	6.0	6.0	5.5	**59**	0
307	173	99	110	116	-0.0605	-0.0558	**Sat 15/01/11 00:00**	101.75	1502.12	1451.55	21804.04	**101.70**	0.0	4.0	8	0	**996**	6.0	6.0	6.0	6.0	5.5	**59**	0
308	169	97	108	113	-0.0601	-0.0562	**Sat 15/01/11 01:00**	101.69	1494.51	1441.88	21549.08	**101.64**	0.0	4.0	8	0	**984**	6.0	6.0	6.0	6.0	5.5	**59**	0
309	164	95	105	110	-0.0597	-0.0566	**Sat 15/01/11 02:00**	101.63	1486.98	1432.65	21303.20	**101.58**	0.0	4.0	8	0	**972**	6.0	6.0	6.0	6.0	5.5	**59**	0
310	160	93	103	108	-0.0593	-0.0569	**Sat 15/01/11 03:00**	101.57	1479.52	1423.86	21066.33	**101.53**	0.0	4.0	8	0	**961**	6.0	6.0	6.0	6.0	6.0	**60**	0
311	156	91	101	105	-0.0590	-0.0586	**Sat 15/01/11 04:00**	101.51	1472.14	1415.52	20838.45	**101.46**	0.0	4.0	8	0	**950**	6.0	6.0	6.0	6.0	6.0	**60**	0
312	152	89	98	103	-0.0587	-0.0590	**Sat 15/01/11 05:00**	101.45	1464.82	1407.65	20619.51	**101.42**	0.0	4.0	8	0	**939**	6.0	6.0	6.0	6.0	6.0	**60**	0
313	148	88	96	100	-0.0583	-0.0593	**Sat 15/01/11 06:00**	101.39	1457.57	1400.24	20409.51	**101.35**	0.0	4.0	8	0	**929**	6.0	6.0	6.0	6.0	6.0	**60**	0
314	145	86	94	98	-0.0581	-0.0596	**Sat 15/01/11 07:00**	101.34	1450.39	1393.31	20208.45	**101.29**	0.0	4.0	8	0	**919**	6.0	6.0	6.0	6.0	6.0	**60**	0
315	141	84	92	96	-0.0578	-0.0600	**Sat 15/01/11 08:00**	101.28	1443.26	1386.88	20016.30	**101.24**	0.0	4.0	8	0	**910**	6.0	6.0	6.0	6.0	6.0	**60**	0
316	137	83	90	93	-0.0575	-0.0603	**Sat 15/01/11 09:00**	101.22	1436.19	1380.95	19833.13	**101.12**	0.0	4.0	8	0	**901**	6.0	6.0	6.0	6.0	6.0	**60**	0
317	134	81	88	91	-0.0573	-0.0605	**Sat 15/01/11 10:00**	101.16	1429.18	1375.54	19658.97		0.0	4.0	8	0	**893**	6.0	6.0	6.5	6.0	6.0	**61**	0
318	131	80	86	89	-0.0571	-0.0621	**Sat 15/01/11 11:00**	101.11	1422.22	1370.67	19493.88		0.0	4.0	8	0	**884**	6.0	6.0	6.5	6.0	6.0	**61**	0
319	128	78	84	87	-0.0569	-0.0624	**Sat 15/01/11 12:00**	101.05	1415.30	1366.35	19337.98		0.0	4.0	8	0	**877**	6.0	6.0	6.5	6.0	6.0	**61**	0
320	124	77	82	85	-0.0568	-0.0627	**Sat 15/01/11 13:00**	100.99	1408.44	1362.60	19191.38	**100.97**	0.0	4.0	8	0	**870**	6.0	6.0	6.5	6.0	6.0	**61**	0
321	121	75	80	83	-0.0566	-0.0629	**Sat 15/01/11 14:00**	100.94	1401.61	1359.45	19054.27	**100.90**	0.0	4.0	8	0	**863**	6.0	6.0	6.5	6.0	6.0	**61**	0
322	119	74	78	81	-0.0565	-0.0631	**Sat 15/01/11 15:00**	100.88	1394.83	1356.93	18926.85	**100.86**	0.0	4.0	8	0	**857**	6.0	6.0	6.5	6.0	6.0	**61**	0
323	116	72	76	80	-0.0565	-0.0634	**Sat 15/01/11 16:00**	100.82	1388.08	1355.07	18809.40		0.0	4.0	8	0	**851**	6.0	6.0	6.5	6.0	6.0	**61**	0
324	113	71	75	78	-0.0564	-0.0636	**Sat 15/01/11 17:00**	100.77	1381.36	1353.90	18702.28	**100.75**	0.0	4.0	8	0	**846**	6.0	6.5	6.5	6.0	6.0	**62**	0
325	110	70	73	76	-0.0564	-0.0651	**Sat 15/01/11 18:00**	100.71	1374.67	1353.48	18605.93	**100.68**	0.0	4.0	8	0	**841**	6.0	6.5	6.5	6.0	6.0	**62**	0
326	108	68	71	74	-0.0564	-0.0653	**Sat 15/01/11 19:00**	100.65	1368.01	1353.86	18520.93	**100.64**	0.0	4.0	8	0	**836**	6.0	6.5	6.5	6.0	6.0	**62**	0
327	105	67	70	73	-0.0565	-0.0654	**Sat 15/01/11 20:00**	100.60	1361.37	1355.11	18448.07	**100.58**	0.0	4.0	8	0	**833**	6.0	6.5	6.5	6.0	6.0	**62**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
280	626	684	684	626	626	3244	74.60	-759.4	4409	-33478	**74.41**	3714	3636	3879		787,968	1,728,684	2,287,268	2,516,652	
281	625	683	683	683	625	3299	74.57	-724.2	4402	-31879	**74.36**	3748	3581	3907		788,655	1,730,081	2,294,016	2,518,736	
282	682	682	682	682	624	3354	74.54	-777.9	4396	-34195	**74.34**	3782	3530	3936		789,322	1,731,428	2,300,619	2,520,750	
283	682	682	682	682	682	3408	74.50	-830.8	4390	-36469	**74.30**	3817	3481	3966		789,969	1,732,727	2,307,081	2,522,696	
284	681	681	738	681	681	3461	74.47	-883.0	4383	-38700	**74.26**	3852	3495	3996		790,596	1,733,981	2,313,408	2,524,577	
285	680	737	737	680	680	3514	74.43	-934.3	4375	-40879	**74.22**	3888	3512	4028		791,206	1,735,192	2,319,604	2,526,398	
286	679	736	736	736	679	3567	74.39	-985.0	4367	-43018	**74.18**	3924	3472	4060		791,798	1,736,363	2,325,674	2,528,161	
287	678	735	735	735	678	3562	74.34	-1035.0	4359	-45118		3904	3555	4035		792,374	1,737,494	2,331,621	2,529,868	
288	677	734	734	734	677	3557	74.30	-1052.9	4351	-45809	**74.08**	3884	3578	4012		792,934	1,738,589	2,337,451	2,531,523	
289	676	733	733	733	676	3552	74.26	-1070.3	4342	-46472		3866	3603	3989		793,480	1,739,648	2,343,166	2,533,127	
290	675	732	732	732	675	3546	74.21	-1087.2	4333	-47106		3847	3687	3967		794,011	1,740,673	2,348,771	2,534,683	
291	674	731	731	731	674	3541	74.16	-1103.5	4324	-47714		3830	3773	3946		794,528	1,741,666	2,354,268	2,536,194	
292	673	730	730	730	673	3536	74.12	-1119.3	4315	-48295	**74.08?**	3813	3858	3925		795,032	1,742,628	2,359,663	2,537,660	
293	672	729	729	729	672	3530	74.07	-1134.7	4305	-48851		3796	3887	3906		795,523	1,743,561	2,364,957	2,539,084	
294	671	727	727	727	671	3524	74.02	-1149.5	4296	-49383	**73.81**	3780	3917	3886		796,003	1,744,465	2,370,155	2,540,468	
295	670	726	726	726	670	3519	73.97	-1164.0	4286	-49892		3764	3948	3868		796,471	1,745,342	2,375,259	2,541,813	
296	669	725	725	725	669	3513	73.93	-1178.0	4277	-50377	**73.71**	3749	3979	3850		796,927	1,746,194	2,380,273	2,543,121	
297	668	724	724	724	668	3507	73.88	-1191.5	4267	-50841		3734	4011	3832		797,373	1,747,020	2,385,199	2,544,394	
298	667	723	723	723	667	3501	73.83	-1204.7	4257	-51284	**73.60**	3720	4044	3815		797,809	1,747,823	2,390,040	2,545,632	
299	666	721	721	721	666	3495	73.77	-1217.5	4247	-51706	**73.54**	3706	4020	3798		798,235	1,748,602	2,394,799	2,546,837	
300	664	720	720	720	664	3489	73.72	-1229.8	4237	-52108	**73.50**	3692	3997	3782		798,651	1,749,360	2,399,479	2,548,010	
301	663	719	719	719	663	3483	73.67	-1241.9	4227	-52490	**73.45**	3678	3975	3766		799,057	1,750,096	2,404,082	2,549,153	
302	718	718	718	718	662	3532	73.62	-1253.5	4216	-52854	**73.39**	3721	3954	3806		799,455	1,750,812	2,408,611	2,550,267	
303	716	716	716	716	661	3526	73.57	-1296.5	4206	-54531		3707	3933	3791		799,844	1,751,508	2,413,068	2,551,352	
304	715	715	715	715	660	3519	73.51	-1307.4	4195	-54852	**73.30**	3694	3913	3776		800,225	1,752,185	2,417,456	2,552,410	
305	714	714	714	714	658	3513	73.46	-1318.0	4185	-55154		3681	3894	3761		800,597	1,752,844	2,421,777	2,553,442	
306	712	712	712	712	657	3506	73.40	-1328.3	4174	-55441	**73.20**	3669	3875	3747		800,962	1,753,486	2,426,033	2,554,448	
307	711	711	711	711	656	3499	73.34	-1338.3	4163	-55710		3656	3857	3732		801,319	1,754,110	2,430,226	2,555,429	
308	709	709	709	709	655	3492	73.29	-1347.9	4152	-55963		3644	3840	3718		801,669	1,754,718	2,434,359	2,556,387	
309	708	708	708	708	653	3485	73.23	-1357.3	4141	-56200	**73.04**	3632	3822	3704		802,011	1,755,310	2,438,434	2,557,321	
310	707	707	707	707	707	3533	73.18	-1366.3	4130	-56422		3675	3806	3745		802,347	1,755,886	2,442,453	2,558,233	
311	705	705	705	705	705	3525	73.12	-1406.8	4118	-57937		3662	3789	3732		802,676	1,756,448	2,446,417	2,559,124	
312	704	704	704	704	704	3518	73.06	-1415.3	4107	-58121	**72.86**	3651	3774	3718		802,998	1,756,996	2,450,329	2,559,993	
313	702	702	702	702	702	3510	73.00	-1423.4	4095	-58291		3639	3758	3705		803,313	1,757,529	2,454,191	2,560,843	
314	701	701	701	701	701	3503	72.94	-1431.3	4083	-58446	**72.74**	3627	3798	3692		803,623	1,758,050	2,458,005	2,561,673	
315	699	699	699	699	699	3495	72.88	-1438.8	4072	-58586	**72.68**	3615	3783	3679		803,926	1,758,557	2,461,773	2,562,483	
316	698	698	698	698	698	3488	72.82	-1446.1	4060	-58713	**72.56**	3604	3768	3666		804,224	1,759,052	2,465,496	2,563,276	
317	696	696	749	696	696	3533	72.76	-1453.2	4048	-58826		3646	3754	3706		804,516	1,759,534	2,469,177	2,564,050	
318	694	694	747	694	694	3525	72.70	-1491.5	4036	-60200		3634	3740	3694		804,802	1,760,005	2,472,817	2,564,807	
319	693	693	746	693	693	3517	72.63	-1497.9	4024	-60277	**72.44**	3623	3726	3681		805,083	1,760,464	2,476,418	2,565,547	
320	691	691	744	691	691	3509	72.57	-1504.0	4012	-60340	**72.39**	3611	3712	3668		805,358	1,760,912	2,479,982	2,566,270	
321	690	690	742	690	690	3501	72.51	-1509.9	4000	-60390		3600	3698	3656		805,629	1,761,349	2,483,512	2,566,977	
322	688	688	740	688	688	3492	72.44	-1515.4	3987	-60425	**72.27**	3588	3739	3643		805,894	1,761,775	2,487,008	2,567,669	
323	686	686	739	686	686	3484	72.38	-1520.7	3975	-60447		3577	3726	3631		806,154	1,762,192	2,490,474	2,568,346	
324	685	737	737	685	685	3528	72.32	-1525.6	3963	-60455	**72.14**	3618	3713	3671		806,409	1,762,598	2,493,910	2,569,008	
325	683	735	735	683	683	3519	72.25	-1561.9	3950	-61697		3607	3699	3658		806,660	1,762,995	2,497,320	2,569,655	
326	681	733	733	681	681	3510	72.19	-1566.1	3938	-61667	**72.03**	3595	3686	3646		806,906	1,763,383	2,500,704	2,570,289	
327	680	731	731	680	680	3502	72.12	-1570.0	3925	-61622		3584	3674	3633		807,148	1,763,761	2,504,066	2,570,909	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
280	558,584	1,306,528		1,210,124								
281	563,935	1,318,405		1,200,331								
282	569,191	1,330,479		1,190,271								
283	574,354	1,342,748	1	1,179,948	239,561							
284	579,427	1,355,209		1,169,369								
285	584,412	1,367,860		1,158,538								
286	589,311	1,380,701		1,147,460								
287	594,127	1,393,524		1,136,344								
288	598,862	1,406,328		1,125,194								
289	603,518	1,419,114		1,114,013								
290	608,098	1,431,881		1,102,802								
291	612,603	1,444,629		1,091,565								
292	617,035	1,457,357		1,080,303								
293	621,397	1,470,065		1,069,019								
294	625,690	1,482,753		1,057,715								
295	629,917	1,495,420		1,046,393								
296	634,079	1,508,067		1,035,054								
297	638,179	1,520,692		1,023,701								
298	642,217	1,533,297		1,012,335								
299	646,197	1,545,880		1,000,957								
300	650,119	1,558,441		989,570								
301	653,986	1,570,980		978,174								
302	657,799	1,583,696		966,571								
303	661,560	1,596,389		954,963								
304	665,271	1,609,058		943,352								
305	668,933	1,621,703		931,739								
306	672,547	1,634,324		920,124								
307	676,116	1,646,920	1	908,509	304,173							
308	679,642	1,659,492		896,895								
309	683,124	1,672,038		885,283								
310	686,566	1,684,756		873,477								
311	689,969	1,697,447		861,676								
312	693,334	1,710,112		849,882								
313	696,662	1,722,750		838,093								
314	699,956	1,735,360		826,312								
315	703,216	1,747,944		814,540								
316	706,444	1,760,500		802,776								
317	709,643	1,773,219		790,831								
318	712,812	1,785,910		778,897								
319	715,954	1,798,571		766,975								
320	719,071	1,811,203		755,067								
321	722,163	1,823,806		743,172								
322	725,233	1,836,378		731,291								
323	728,282	1,848,921		719,425								
324	731,312	1,861,621		707,386								
325	734,325	1,874,290		695,365								
326	737,322	1,886,927		683,361								
327	740,305	1,899,533		671,376								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
328	103	66	68	71	-0.0566	-0.0656	**Sat 15/01/11 21:00**	100.54	1354.75	1357.33	18388.42	**100.53**	0.0	4.0	8	0	**830**	6.0	6.5	6.5	6.0	6.0	**62**	0
329	100	65	66	69	-0.0567	-0.0657	**Sat 15/01/11 22:00**	100.48	1348.14	1360.66	18343.67	**100.47**	0.0	4.0	8	0	**827**	6.0	6.5	6.5	6.5	6.0	**63**	0
330	98	64	65	68	-0.0569	-0.0671	**Sat 15/01/11 23:00**	100.43	1341.54	1365.36	18316.82		0.0	4.0	8	0	**826**	6.0	6.5	6.5	6.5	6.0	**63**	0
331	96	62	63	66	-0.0572	-0.0672	**Sun 16/01/11 00:00**	100.37	1334.94	1371.99	18315.30	**100.36**	0.0	4.0	8	0	**825**	6.0	6.5	6.5	6.5	6.0	**63**	0
332	93	61	62	65	-0.0575	-0.0673	**Sun 16/01/11 01:00**	100.31	1328.33	1379.31	18321.80	**100.30**	0.0	4.0	8	0	**824**	6.0	6.5	6.5	6.5	6.0	**63**	0
333	91	60	61	63	-0.0578	-0.0673	**Sun 16/01/11 02:00**	100.26	1321.71	1386.65	18327.58	**100.24**	0.0	4.0	8	0	**824**	6.0	6.5	6.5	6.5	6.0	**63**	0
334	89	59	59	62	-0.0581	-0.0674	**Sun 16/01/11 03:00**	100.20	1315.08	1394.03	18332.66	**100.18**	0.0	4.0	8	0	**823**	6.0	6.5	6.5	6.5	6.0	**63**	0
335	87	58	58	61	-0.0584	-0.0674	**Sun 16/01/11 04:00**	100.14	1308.44	1401.44	18337.05	**100.13**	0.0	4.0	8	0	**822**	6.5	6.5	6.5	6.5	6.0	**64**	0
336	85	57	56	59	-0.0587	-0.0688	**Sun 16/01/11 05:00**	100.08	1301.79	1408.89	18340.77	**100.08**	0.0	4.0	8	0	**821**	6.5	6.5	6.5	6.5	6.0	**64**	0
337	83	56	55	58	-0.0590	-0.0689	**Sun 16/01/11 06:00**	100.02	1295.13	1416.37	18343.84	**100.01**	0.0	4.0	8	0	**820**	6.5	6.5	6.5	6.5	6.0	**64**	0
338	81	55	54	57	-0.0593	-0.0689	**Sun 16/01/11 07:00**	99.96	1288.46	1423.89	18346.26	**99.95**	0.0	4.0	8	0	**819**	6.5	6.5	6.5	6.5	6.0	**64**	0
339	80	54	53	56	-0.0596	-0.0690	**Sun 16/01/11 08:00**	99.90	1281.78	1431.45	18348.06	**99.90**	0.0	4.0	8	0	**818**	6.5	6.5	6.5	6.5	6.0	**64**	0
340	78	53	51	54	-0.0600	-0.0690	**Sun 16/01/11 09:00**	99.84	1275.09	1439.05	18349.26		0.0	4.0	8	0	**817**	6.5	6.5	6.5	6.5	6.5	**65**	0
341	76	52	50	53	-0.0603	-0.0704	**Sun 16/01/11 10:00**	99.78	1268.40	1446.70	18349.86	**99.76**	0.0	3.0	8	0	**612**	6.5	6.5	6.5	6.5	6.5	**65**	0
342	74	51	49	52	-0.0444	-0.0759	**Sun 16/01/11 11:00**	99.74	1261.69	1066.18	13451.83	**99.72**	0.0	3.0	8	0	**612**	6.5	6.5	6.5	6.5	6.5	**65**	0
343	73	50	48	51	-0.0446	-0.0760	**Sun 16/01/11 12:00**	99.69	1256.76	1071.10	13461.21	**99.69**	0.0	3.0	8	0	**611**	6.5	6.5	6.5	6.5	6.5	**65**	0
344	71	50	47	50	-0.0448	-0.0760	**Sun 16/01/11 13:00**	99.65	1251.83	1076.03	13470.10	**99.65**	0.0	3.0	8	0	**611**	6.5	6.5	7.0	6.5	6.5	**66**	0
345	69	49	46	49	-0.0450	-0.0774	**Sun 16/01/11 14:00**	99.60	1246.89	1080.97	13478.50	**99.59**	0.0	3.0	8	0	**610**	6.5	6.5	7.0	6.5	6.5	**66**	0
346	68	48	45	48	-0.0452	-0.0774	**Sun 16/01/11 15:00**	99.56	1241.94	1085.92	13486.44	**99.56**	0.0	3.0	8	0	**610**	6.5	6.5	7.0	6.5	6.5	**66**	0
347	66	47	44	47	-0.0455	-0.0775	**Sun 16/01/11 16:00**	99.51	1236.98	1090.87	13493.91	**99.51**	0.0	3.0	8	0	**609**	6.5	7.0	7.0	6.5	6.5	**67**	0
348	65	46	43	46	-0.0457	-0.0788	**Sun 16/01/11 17:00**	99.47	1232.02	1095.84	13500.93	**99.47**	0.0	3.0	8	0	**609**	6.5	7.0	7.0	6.5	6.5	**67**	0
349	63	45	42	45	-0.0459	-0.0789	**Sun 16/01/11 18:00**	99.42	1227.05	1100.81	13507.51	**99.43**	0.0	3.0	8	0	**608**	6.5	7.0	7.0	6.5	6.5	**67**	0
350	62	45	41	44	-0.0461	-0.0789	**Sun 16/01/11 19:00**	99.37	1222.07	1105.80	13513.67	**99.38**	0.0	3.0	8	0	**608**	6.5	7.0	7.0	6.5	6.5	**67**	0
351	61	44	40	43	-0.0463	-0.0790	**Sun 16/01/11 20:00**	99.33	1217.08	1110.80	13519.39	**99.34**	0.0	3.0	8	0	**607**	6.5	7.0	7.0	7.0	6.5	**68**	0
352	59	43	39	42	-0.0465	-0.0803	**Sun 16/01/11 21:00**	99.28	1212.09	1115.81	13524.69	**99.30**	0.0	3.0	8	0	**607**	6.5	7.0	7.0	7.0	6.5	**68**	0
353	58	42	38	41	-0.0467	-0.0803	**Sun 16/01/11 22:00**	99.24	1207.09	1120.84	13529.59	**99.25**	0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
354	57	42	37	40	-0.0301	-0.0860	**Sun 16/01/11 23:00**	99.21	1202.09	722.59	8686.23		0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
355	56	41	36	39	-0.0302	-0.0861	**Mon 17/01/11 00:00**	99.18	1198.87	725.49	8697.75		0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
356	54	40	36	39	-0.0303	-0.0861	**Mon 17/01/11 01:00**	99.14	1195.65	728.39	8708.94		0.0	2.0	8	0	**403**	6.5	7.0	7.0	7.0	6.5	**68**	0
357	53	40	35	38	-0.0305	-0.0862	**Mon 17/01/11 02:00**	99.11	1192.42	731.27	8719.79		0.0	2.0	8	0	**403**	6.5	7.0	7.0	7.0	6.5	**68**	0
358	52	39	34	37	-0.0306	-0.0862	**Mon 17/01/11 03:00**	99.08	1189.18	734.15	8730.31	**99.11**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
359	51	38	33	36	-0.0137	-0.0920	**Mon 17/01/11 04:00**	99.07	1185.94	329.42	3906.66	**99.08**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
360	50	38	32	35	-0.0138	-0.0921	**Mon 17/01/11 05:00**	99.06	1184.49	331.03	3920.96	**99.08**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
361	49	37	32	35	-0.0139	-0.0921	**Mon 17/01/11 06:00**	99.04	1183.03	332.62	3934.97	**99.06**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
362	48	36	31	34	-0.0139	-0.0922	**Mon 17/01/11 07:00**	99.03	1181.56	334.19	3948.71		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
363	47	36	30	33	-0.0028	-0.0961	**Mon 17/01/11 08:00**	99.03	1180.09	66.18	780.97		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
364	46	35	30	33	-0.0028	-0.0962	**Mon 17/01/11 09:00**	99.02	1179.80	67.41	795.36		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
365	45	35	29	32	-0.0029	-0.0962	**Mon 17/01/11 10:00**	99.02	1179.51	68.63	809.50		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
366	44	34	28	31	-0.0029	-0.0963	**Mon 17/01/11 11:00**	99.02	1179.21	69.83	823.39		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
367	43	33	28	31	-0.0030	-0.0963	**Mon 17/01/11 12:00**	99.01	1178.90	71.00	837.03		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
368	42	33	27	30	-0.0030	-0.0964	**Mon 17/01/11 13:00**	99.01	1178.59	72.16	850.41		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
369	41	32	26	29	-0.0031	-0.0964	**Mon 17/01/11 14:00**	99.01	1178.27	73.29	863.56		1.0	0.0	8	0	**69**	6.5	6.5	6.5	6.5	6.5	**65**	0
370	40	32	26	29	-0.0031	-0.0926	**Mon 17/01/11 15:00**	99.00	1177.95	74.41	876.47		1.0	0.0	8	0	**69**	6.0	6.5	6.5	6.5	6.0	**63**	0
371	39	31	25	28	-0.0031	-0.0901	**Mon 17/01/11 16:00**	99.00	1177.62	75.50	889.16		1.0	0.0	8	0	**69**	6.0	6.0	6.5	6.0	6.0	**61**	0
372	39	31	25	28	-0.0032	-0.0875	**Mon 17/01/11 17:00**	99.00	1177.29	76.58	901.63		1.0	0.0	8	0	**69**	6.0	6.0	6.0	6.0	6.0	**60**	0
373	38	30	24	27	-0.0032	-0.0862	**Mon 17/01/11 18:00**	99.00	1176.96	77.65	913.87		1.0	0.0	8	0	**69**	5.5	5.5	5.5	5.5	5.5	**55**	0
374	37	30	23	27	-0.0033	-0.0797	**Mon 17/01/11 19:00**	98.99	1176.62	78.69	925.89		1.0	0.0	8	0	**69**	5.0	5.0	5.0	5.0	5.0	**50**	0
375	36	29	23	26	-0.0033	-0.0730	**Mon 17/01/11 20:00**	98.99	1176.27	79.72	937.69		1.0	0.0	8	0	**69**	4.5	4.5	5.0	4.5	4.5	**46**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
328	678	729	729	678	678	3493	72.06	-1573.5	3912	-61559		3573	3661	3621		807,385	1,764,130	2,507,409	2,571,516	
329	676	728	728	728	676	3535	71.99	-1576.6	3899	-61478	**71.80**	3613	3701	3660		807,618	1,764,491	2,510,734	2,572,109	
330	674	726	726	726	674	3526	71.92	-1610.8	3887	-62608		3601	3689	3647		807,847	1,764,844	2,514,047	2,572,691	
331	673	724	724	724	673	3516	71.86	-1612.7	3874	-62469	**71.71**	3590	3676	3635		808,071	1,765,188	2,517,348	2,573,260	
332	671	722	722	722	671	3507	71.79	-1614.2	3861	-62319		3578	3664	3623		808,292	1,765,525	2,520,639	2,573,816	
333	669	720	720	720	669	3498	71.72	-1615.8	3848	-62168		3567	3651	3610		808,509	1,765,853	2,523,918	2,574,362	
334	667	718	718	718	667	3488	71.65	-1617.2	3835	-62014	**71.52**	3555	3639	3598		808,721	1,766,174	2,527,187	2,574,896	
335	716	716	716	716	666	3529	71.59	-1618.7	3822	-61859		3594	3626	3636		808,930	1,766,488	2,530,445	2,575,419	
336	714	714	714	714	664	3519	71.52	-1651.8	3809	-62909		3582	3666	3624		809,136	1,766,795	2,533,693	2,575,930	
337	712	712	712	712	662	3509	71.45	-1653.1	3795	-62740		3571	3654	3611		809,337	1,767,094	2,536,931	2,576,432	
338	710	710	710	710	660	3499	71.38	-1654.4	3782	-62570	**71.25**	3559	3642	3599		809,536	1,767,387	2,540,159	2,576,923	
339	708	708	708	708	658	3489	71.31	-1655.7	3769	-62399		3548	3629	3586		809,730	1,767,674	2,543,377	2,577,404	
340	706	706	706	706	706	3529	71.24	-1656.9	3756	-62225	**71.11**	3585	3617	3623		809,922	1,767,953	2,546,586	2,577,875	
341	704	704	704	704	704	3519	71.17	-1689.8	3742	-63235		3573	3656	3611		810,110	1,768,227	2,549,053	2,578,336	
342	701	701	701	701	701	3507	71.10	-1822.3	3729	-67947	**70.95**	3561	3644	3597		810,294	1,768,494	2,551,512	2,578,789	
343	699	699	699	699	699	3496	71.02	-1823.5	3714	-67729	**70.87**	3548	3632	3584		810,476	1,768,756	2,553,964	2,579,232	
344	697	697	745	697	697	3533	70.94	-1824.8	3700	-67510		3583	3619	3619		810,654	1,769,011	2,556,408	2,579,665	
345	695	695	743	695	695	3521	70.87	-1857.4	3685	-68448	**70.75**	3570	3607	3605		810,829	1,769,261	2,558,845	2,580,091	
346	692	692	740	692	692	3509	70.79	-1858.6	3670	-68215		3557	3595	3591		811,002	1,769,506	2,561,274	2,580,507	
347	690	738	738	690	690	3545	70.71	-1859.7	3656	-67980	**70.62**	3592	3633	3625		811,171	1,769,745	2,563,696	2,580,916	
348	688	735	735	688	688	3533	70.63	-1892.1	3641	-68887		3578	3620	3611		811,337	1,769,978	2,566,110	2,581,316	
349	685	732	732	685	685	3520	70.55	-1893.1	3626	-68638	**70.45**	3564	3608	3596		811,501	1,770,207	2,568,518	2,581,708	
350	683	730	730	683	683	3508	70.48	-1894.0	3611	-68387		3551	3596	3582		811,662	1,770,430	2,570,919	2,582,092	
351	680	727	727	727	680	3542	70.40	-1894.9	3596	-68134	**70.29**	3584	3583	3615		811,820	1,770,649	2,573,313	2,582,469	
352	678	724	724	724	678	3529	70.32	-1927.1	3581	-69004		3570	3621	3600		811,975	1,770,863	2,575,700	2,582,838	
353	675	722	722	722	675	3516	70.24	-1927.8	3566	-68736	**70.16**	3556	3608	3586		812,128	1,771,072	2,577,357	2,583,200	
354	673	719	719	719	673	3502	70.15	-2065.1	3550	-73316		3541	3594	3570		812,278	1,771,277	2,579,008	2,583,555	
355	670	716	716	716	670	3488	70.06	-2066.1	3534	-73015		3526	3581	3554		812,426	1,771,477	2,580,654	2,583,902	
356	667	713	713	713	667	3474	69.98	-2067.0	3518	-72712		3511	3616	3539		812,571	1,771,673	2,582,295	2,584,243	
357	665	710	710	710	665	3460	69.89	-2067.9	3502	-72408		3495	3602	3523		812,713	1,771,864	2,583,931	2,584,578	
358	662	707	707	707	662	3446	69.80	-2068.7	3485	-72100	**69.76**	3480	3589	3508		812,854	1,772,052	2,584,840	2,584,905	
359	659	704	704	704	659	3430	69.71	-2208.8	3469	-76626	**69.65**	3464	3622	3491		812,992	1,772,235	2,585,745	2,585,227	
360	656	701	701	701	656	3415	69.62	-2210.1	3452	-76286	**69.58**	3448	3608	3474		813,127	1,772,415	2,586,646	2,585,542	
361	653	698	698	698	653	3400	69.53	-2211.3	3434	-75945	**69.49**	3432	3594	3458		813,260	1,772,590	2,587,543	2,585,851	
362	650	694	694	694	650	3384	69.44	-2212.4	3417	-75601	**69.40**	3415	3580	3441		813,392	1,772,762	2,587,961	2,586,154	
363	647	691	691	691	647	3368	69.34	-2307.0	3400	-78436	**69.33**	3398	3613	3423		813,520	1,772,930	2,588,375	2,586,451	
364	644	688	688	688	644	3351	69.24	-2308.4	3382	-78069	**69.22**	3381	3598	3406		813,647	1,773,095	2,588,785	2,586,742	
365	641	684	684	684	641	3335	69.15	-2309.8	3364	-77701	**69.14**	3364	3584	3388		813,772	1,773,256	2,589,192	2,587,028	
366	638	681	681	681	638	3318	69.05	-2311.1	3346	-77329	**69.06**	3347	3568	3371		813,894	1,773,414	2,589,596	2,587,308	
367	635	677	677	677	635	3302	68.96	-2312.3	3328	-76955		3329	3553	3353		814,015	1,773,568	2,589,996	2,587,583	
368	632	674	674	674	632	3285	68.86	-2313.5	3310	-76579		3312	3537	3335		814,133	1,773,719	2,590,393	2,587,853	
369	628	628	628	628	628	3142	68.76	-2314.5	3292	-76199		3168	3521	3191		814,250	1,773,867	2,590,787	2,588,117	
370	583	625	625	625	583	3042	68.67	-2222.9	3274	-72786		3067	3506	3090		814,364	1,774,012	2,591,178	2,588,376	
371	580	580	622	580	580	2943	68.58	-2161.5	3257	-70403		2968	3489	2990		814,477	1,774,154	2,591,566	2,588,631	
372	578	578	578	578	578	2888	68.49	-2100.1	3241	-68056		2912	3473	2934		814,588	1,774,293	2,591,950	2,588,881	
373	533	533	533	533	533	2663	68.41	-2070.0	3224	-66743		2687	3456	2708		814,697	1,774,428	2,592,332	2,589,126	
374	487	487	487	487	487	2437	68.33	-1912.7	3208	-61369		2460	3439	2482		814,804	1,774,562	2,592,711	2,589,366	
375	442	442	486	442	442	2253	68.25	-1752.4	3194	-55969		2276	3422	2297		814,910	1,774,692	2,593,087	2,589,602	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
328	743,278	1,912,106		659,409								
329	746,243	1,924,833		647,277								
330	749,203	1,937,525		635,165								
331	752,160	1,950,184	1	623,075	303,264							
332	755,114	1,962,810		611,007								
333	758,065	1,975,402		598,960								
334	761,013	1,987,959		586,936								
335	763,957	2,000,664		574,754								
336	766,899	2,013,333		562,597								
337	769,837	2,025,967		550,465								
338	772,772	2,038,565		538,358								
339	775,704	2,051,127		526,277								
340	778,632	2,063,831		514,044								
341	780,826	2,076,498		501,838								
342	783,018	2,089,124		489,664								
343	785,208	2,101,710		477,522								
344	787,397	2,114,428		465,237								
345	789,583	2,127,104		452,986								
346	791,768	2,139,738		440,769								
347	793,951	2,152,500		428,415								
348	796,132	2,165,218		416,097								
349	798,311	2,177,892		403,816								
350	800,488	2,190,520		391,572								
351	802,664	2,203,272		379,196								
352	804,837	2,215,978		366,860								
353	806,285	2,228,637		354,563								
354	807,731	2,241,245		342,310								
355	809,177	2,253,802	1	330,100	303,618							
356	810,622	2,266,309		317,934								
357	812,067	2,278,765		305,813								
358	812,788	2,291,169		293,736								
359	813,510	2,303,518		281,708								
360	814,231	2,315,812		269,730								
361	814,952	2,328,051		257,800								
362	815,198	2,340,233		245,921								
363	815,444	2,352,357		234,094								
364	815,690	2,364,422		222,320								
365	815,936	2,376,428		210,600								
366	816,182	2,388,374		198,934								
367	816,428	2,400,261		187,322								
368	816,674	2,412,087		175,765								
369	816,920	2,423,399		164,718								
370	817,166	2,434,350		154,027								
371	817,412	2,444,945		143,686								
372	817,658	2,455,341		133,539								
373	817,904	2,464,928		124,197								
374	818,149	2,473,702		115,664								
375	818,395	2,481,813		107,788								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
376	35	29	22	26	-0.0034	-0.0676	**Mon 17/01/11 21:00**	98.99	1175.92	80.73	949.30		1.0	0.0	8	0	**69**	4.0	4.5	5.0	4.5	4.0	**44**	0
377	35	28	22	25	-0.0034	-0.0648	**Mon 17/01/11 22:00**	98.98	1175.57	81.72	960.70		1.0	0.0	8	0	**69**	4.0	4.0	5.0	4.0	4.0	**42**	0
378	34	28	21	25	-0.0034	-0.0620	**Mon 17/01/11 23:00**	98.98	1175.21	82.70	971.90		1.0	0.0	8	0	**69**	3.5	4.0	5.0	4.0	3.5	**40**	0
379	33	27	21	24	-0.0035	-0.0592	**Tue 18/01/11 00:00**	98.98	1174.85	83.66	982.90		1.0	0.0	8	0	**69**	3.0	4.0	5.0	4.0	3.0	**38**	0
380	33	27	20	24	-0.0035	-0.0562	**Tue 18/01/11 01:00**	98.97	1174.48	84.61	993.71		1.0	0.0	8	0	**69**	3.0	4.0	4.5	4.0	3.0	**37**	0
381	32	27	20	23	-0.0036	-0.0549	**Tue 18/01/11 02:00**	98.97	1174.11	85.54	1004.33		1.0	0.0	8	0	**69**	3.0	3.5	4.5	3.5	3.0	**35**	0
382	31	26	20	23	-0.0036	-0.0520	**Tue 18/01/11 03:00**	98.96	1173.74	86.46	1014.77		1.0	0.0	8	0	**69**	2.5	3.5	4.5	3.5	2.5	**33**	0
383	31	26	19	22	-0.0036	-0.0490	**Tue 18/01/11 04:00**	98.96	1173.36	87.36	1025.03		1.0	0.0	8	0	**69**	2.5	3.5	4.5	3.0	2.5	**32**	0
384	30	25	19	22	-0.0037	-0.0476	**Tue 18/01/11 05:00**	98.96	1172.98	88.25	1035.11		1.0	0.0	8	0	**69**	2.5	3.0	4.5	3.0	2.5	**31**	0
385	29	25	18	21	-0.0037	-0.0461	**Tue 18/01/11 06:00**	98.95	1172.59	89.12	1045.02		1.0	0.0	8	0	**69**	2.5	3.0	4.5	2.5	2.5	**30**	0
386	29	24	18	21	-0.0037	-0.0446	**Tue 18/01/11 07:00**	98.95	1172.20	89.98	1054.75		0.0	0.0	8	0	**0**	2.5	2.5	4.5	2.5	2.5	**29**	0
387	28	24	17	20	0.0021	-0.0454	**Tue 18/01/11 08:00**	98.95	1171.81	-49.56	-580.98		0.0	0.0	8	0	**0**	2.5	2.5	4.5	2.5	2.0	**28**	0
388	28	24	17	20	0.0020	-0.0438	**Tue 18/01/11 09:00**	98.95	1172.02	-48.76	-571.48		0.0	0.0	8	0	**0**	2.0	2.5	4.5	2.5	2.0	**27**	0
389	27	23	17	20	0.0020	-0.0423	**Tue 18/01/11 10:00**	98.96	1172.24	-47.95	-562.14		0.0	0.0	8	0	**0**	2.0	2.5	4.5	2.5	1.5	**26**	0
390	27	23	16	19	0.0020	-0.0407	**Tue 18/01/11 11:00**	98.96	1172.45	-47.16	-552.94		0.0	0.0	8	0	**0**	1.5	2.5	4.5	2.5	1.5	**25**	0
391	26	22	16	19	0.0019	-0.0392	**Tue 18/01/11 12:00**	98.96	1172.65	-46.38	-543.91		0.0	0.0	8	0	**0**	1.5	2.5	4.0	2.5	1.5	**24**	0
392	26	22	16	19	0.0019	-0.0378	**Tue 18/01/11 13:00**	98.96	1172.86	-45.62	-535.03		0.0	0.0	8	0	**0**	1.5	2.0	4.0	2.0	1.5	**22**	0
393	25	22	15	18	0.0019	-0.0347	**Tue 18/01/11 14:00**	98.96	1173.06	-44.87	-526.30		0.0	0.0	8	0	**0**	1.0	2.0	4.0	2.0	1.0	**20**	0
394	25	21	15	18	0.0018	-0.0314	**Tue 18/01/11 15:00**	98.97	1173.25	-44.13	-517.72		0.0	0.0	8	0	**0**	1.0	1.5	4.0	1.5	1.0	**18**	0
395	24	21	14	18	0.0018	-0.0283	**Tue 18/01/11 16:00**	98.97	1173.44	-43.40	-509.28		0.0	0.0	8	0	**0**	1.0	1.5	4.0	1.5	0.5	**17**	0
396	24	21	14	17	0.0018	-0.0266	**Tue 18/01/11 17:00**	98.97	1173.63	-42.69	-500.98		0.0	0.0	8	0	**0**	0.5	1.5	4.0	1.5	0.5	**16**	0
397	23	20	14	17	0.0017	-0.0250	**Tue 18/01/11 18:00**	98.97	1173.82	-41.98	-492.82		0.0	0.0	8	0	**0**	0.5	1.0	4.0	1.0	0.5	**14**	0
398	23	20	14	17	0.0017	-0.0217	**Tue 18/01/11 19:00**	98.97	1174.01	-41.29	-484.80		0.0	0.0	8	0	**0**	0.5	1.0	4.0	1.0	0.0	**13**	0
399	22	20	13	16	0.0017	-0.0201	**Tue 18/01/11 20:00**	98.97	1174.19	-40.62	-476.90		0.0	0.0	8	0	**0**	0.0	1.0	4.0	1.0	0.0	**12**	0
400	22	19	13	16	0.0017	-0.0185	**Tue 18/01/11 21:00**	98.98	1174.36	-39.95	-469.15		0.0	0.0	8	0	**0**	0.0	1.0	4.0	0.5	0.0	**11**	0
401	21	19	13	16	0.0016	-0.0168	**Tue 18/01/11 22:00**	98.98	1174.54	-39.29	-461.53		0.0	0.0	8	0	**0**	0.0	0.5	4.0	0.5	0.0	**10**	0
402	21	19	12	15	0.0016	-0.0152	**Tue 18/01/11 23:00**	98.98	1174.71	-38.65	-454.02		0.0	0.0	8	0	**0**	0.0	0.5	3.5	0.5	0.0	**9**	0
403	20	18	12	15	0.0016	-0.0138	**Wed 19/01/11 00:00**	98.98	1174.88	-38.02	-446.65		0.0	0.0	8	0	**0**	0.0	0.5	3.5	0.0	0.0	**8**	0
404	20	18	12	15	0.0016	-0.0121	**Wed 19/01/11 01:00**	98.98	1175.05	-37.39	-439.41		0.0	0.0	8	0	**0**	0.0	0.0	3.5	0.0	0.0	**7**	0
405	20	18	12	15	0.0015	-0.0105	**Wed 19/01/11 02:00**	98.98	1175.21	-36.78	-432.27		0.0	0.0	8	0	**0**	0.0	0.0	3.0	0.0	0.0	**6**	0
406	19	18	11	14	0.0015	-0.0090	**Wed 19/01/11 03:00**	98.99	1175.37	-36.18	-425.25		0.0	0.0	8	0	**0**	0.0	0.0	2.5	0.0	0.0	**5**	0
407	19	17	11	14	0.0015	-0.0075	**Wed 19/01/11 04:00**	98.99	1175.53	-35.59	-418.35		0.0	0.0	8	0	**0**	0.0	0.0	2.0	0.0	0.0	**4**	0
408	19	17	11	14	0.0015	-0.0059	**Wed 19/01/11 05:00**	98.99	1175.69	-35.01	-411.57		0.0	0.0	8	0	**0**	0.0	0.0	1.5	0.0	0.0	**3**	0
409	18	17	11	13	0.0014	-0.0043	**Wed 19/01/11 06:00**	98.99	1175.84	-34.44	-404.90		0.0	0.0	8	0	**0**	0.0	0.0	1.0	0.0	0.0	**2**	0
410	18	16	10	13	0.0014	-0.0027	**Wed 19/01/11 07:00**	98.99	1175.99	-33.87	-398.35		0.0	0.0	8	0	**0**	0.0	0.0	0.5	0.0	0.0	**1**	0
411	18	16	10	13	0.0014	-0.0011	**Wed 19/01/11 08:00**	98.99	1176.14	-33.32	-391.89		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
412	17	16	10	13	0.0014	-0.0011	**Wed 19/01/11 09:00**	98.99	1176.28	-32.78	-385.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
413	17	16	10	13	0.0013	-0.0011	**Wed 19/01/11 10:00**	98.99	1176.43	-32.24	-379.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
414	17	15	9	12	0.0013	-0.0011	**Wed 19/01/11 11:00**	99.00	1176.57	-31.72	-373.18		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
415	16	15	9	12	0.0013	-0.0011	**Wed 19/01/11 12:00**	99.00	1176.71	-31.20	-367.14		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
416	16	15	9	12	0.0013	-0.0011	**Wed 19/01/11 13:00**	99.00	1176.85	-30.69	-361.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
417	16	15	9	12	0.0013	-0.0012	**Wed 19/01/11 14:00**	99.00	1176.98	-30.19	-355.36		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
418	15	14	9	11	0.0012	-0.0012	**Wed 19/01/11 15:00**	99.00	1177.11	-29.70	-349.62		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
419	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 16:00**	99.00	1177.24	-29.22	-343.96		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
420	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 17:00**	99.00	1177.37	-28.74	-338.41		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
421	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 18:00**	99.00	1177.50	-28.28	-332.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
422	14	14	8	11	0.0012	-0.0012	**Wed 19/01/11 19:00**	99.01	1177.62	-27.82	-327.58		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
423	14	13	8	10	0.0011	-0.0012	**Wed 19/01/11 20:00**	99.01	1177.74	-27.36	-322.29		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
376	396	440	484	440	396	2156	68.19	-1621.5	3180	-51570		2178	3404	2199		815,013	1,774,819	2,593,460	2,589,833	
377	394	394	482	394	394	2060	68.12	-1555.0	3168	-49260		2081	3387	2102		815,115	1,774,944	2,593,831	2,590,060	
378	348	393	481	393	348	1963	68.06	-1488.4	3156	-46973		1984	3369	2004		815,216	1,775,067	2,594,199	2,590,282	
379	300	392	479	392	300	1864	68.00	-1420.0	3145	-44653		1884	3352	1904		815,314	1,775,187	2,594,565	2,590,501	
380	299	391	435	391	299	1816	67.94	-1349.7	3134	-42296		1835	3334	1855		815,411	1,775,304	2,594,928	2,590,715	
381	299	345	434	345	299	1721	67.89	-1317.6	3123	-41156		1740	3190	1759		815,507	1,775,419	2,595,289	2,590,926	
382	251	344	432	344	251	1621	67.84	-1249.1	3113	-38891		1640	3089	1659		815,601	1,775,532	2,595,647	2,591,132	
383	250	343	431	297	250	1572	67.79	-1176.8	3104	-36526		1590	2989	1609		815,693	1,775,642	2,596,003	2,591,335	
384	249	296	430	296	249	1522	67.74	-1142.0	3095	-35343		1540	2933	1558		815,784	1,775,750	2,596,357	2,591,534	
385	249	296	429	249	249	1471	67.69	-1107.1	3086	-34167		1489	2707	1507		815,873	1,775,856	2,596,709	2,591,729	
386	248	248	428	248	248	1421	67.65	-1071.2	3078	-32969		1438	2480	1456		815,961	1,775,960	2,596,812	2,591,921	
387	248	248	427	248	200	1370	67.60	-1088.9	3070	-33425		1387	2296	1405		816,047	1,776,061	2,596,914	2,592,109	
388	199	247	426	247	199	1319	67.56	-1052.2	3061	-32211		1335	2198	1353		816,132	1,776,161	2,597,013	2,592,293	
389	199	247	425	247	150	1268	67.52	-1015.4	3053	-31003		1283	2101	1301		816,216	1,776,259	2,597,111	2,592,475	
390	150	246	424	246	150	1216	67.48	-977.7	3046	-29777		1232	2003	1249		816,298	1,776,354	2,597,207	2,592,653	
391	150	246	381	246	150	1171	67.44	-939.9	3038	-28558		1186	1903	1203		816,379	1,776,448	2,597,300	2,592,827	
392	149	198	380	198	149	1074	67.40	-907.0	3031	-27491		1089	1854	1106		816,459	1,776,540	2,597,392	2,592,999	
393	100	197	379	197	100	974	67.37	-832.4	3024	-25175		988	1758	1005		816,537	1,776,630	2,597,482	2,593,167	
394	100	149	379	149	100	875	67.33	-754.6	3018	-22774		890	1658	906		816,614	1,776,718	2,597,570	2,593,332	
395	99	149	378	149	50	824	67.31	-678.2	3012	-20429		838	1608	854		816,690	1,776,804	2,597,657	2,593,494	
396	50	148	377	148	50	774	67.28	-639.0	3007	-19216		787	1557	803		816,764	1,776,889	2,597,742	2,593,654	
397	50	99	377	99	50	675	67.25	-599.8	3002	-18008		688	1506	703		816,838	1,776,972	2,597,825	2,593,810	
398	50	99	376	99	0	624	67.23	-521.8	2998	-15642		637	1455	652		816,910	1,777,054	2,597,906	2,593,964	
399	0	99	376	99	0	574	67.21	-482.5	2994	-14444		587	1404	602		816,981	1,777,134	2,597,986	2,594,114	
400	0	99	376	49	0	524	67.19	-443.1	2990	-13251		536	1352	551		817,051	1,777,212	2,598,064	2,594,262	
401	0	49	375	49	0	474	67.18	-403.8	2987	-12060		486	1300	501		817,119	1,777,289	2,598,141	2,594,408	
402	0	49	332	49	0	431	67.16	-364.4	2984	-10873		442	1248	457		817,187	1,777,364	2,598,216	2,594,551	
403	0	49	332	0	0	381	67.15	-330.2	2981	-9842		392	1202	407		817,253	1,777,438	2,598,290	2,594,691	
404	0	0	332	0	0	332	67.14	-290.7	2979	-8660		343	1105	357		817,319	1,777,510	2,598,362	2,594,829	
405	0	0	287	0	0	287	67.13	-251.3	2976	-7479		298	1004	312		817,383	1,777,581	2,598,433	2,594,964	
406	0	0	242	0	0	242	67.12	-216.0	2974	-6424		252	905	266		817,446	1,777,650	2,598,503	2,595,097	
407	0	0	195	0	0	195	67.11	-179.6	2973	-5340		205	853	219		817,509	1,777,719	2,598,571	2,595,227	
408	0	0	147	0	0	147	67.10	-142.3	2971	-4228		157	802	171		817,570	1,777,786	2,598,638	2,595,355	
409	0	0	98	0	0	98	67.10	-104.0	2970	-3090		108	703	122		817,630	1,777,851	2,598,704	2,595,481	
410	0	0	49	0	0	49	67.10	-65.0	2970	-1930		59	652	72		817,689	1,777,916	2,598,768	2,595,605	
411	0	0	0	0	0	50	67.09	-25.5	2969	-757		59	601	72		817,748	1,777,979	2,598,831	2,595,726	
412	0	0	0	0	0	50	67.09	-26.4	2969	-783		59	551	72		817,805	1,778,041	2,598,893	2,595,846	
413	0	0	0	0	0	50	67.09	-26.6	2969	-791		59	500	72		817,861	1,778,101	2,598,954	2,595,963	
414	0	0	0	0	0	50	67.09	-26.9	2969	-799		59	456	71		817,917	1,778,161	2,599,014	2,596,078	
415	0	0	0	0	0	50	67.09	-27.2	2968	-806		59	406	71		817,971	1,778,220	2,599,072	2,596,191	
416	0	0	0	0	0	50	67.09	-27.4	2968	-814		58	356	71		818,025	1,778,277	2,599,129	2,596,302	
417	0	0	0	0	0	50	67.09	-27.7	2968	-821		58	311	70		818,078	1,778,333	2,599,186	2,596,411	
418	0	0	0	0	0	50	67.09	-27.9	2968	-828		58	265	70		818,130	1,778,388	2,599,241	2,596,519	
419	0	0	0	0	0	50	67.09	-28.1	2967	-835		58	218	70		818,181	1,778,443	2,599,295	2,596,624	
420	0	0	0	0	0	50	67.08	-28.4	2967	-842		58	170	69		818,232	1,778,496	2,599,348	2,596,727	
421	0	0	0	0	0	50	67.08	-28.6	2967	-849		58	121	69		818,281	1,778,548	2,599,401	2,596,829	
422	0	0	0	0	0	50	67.08	-28.8	2967	-855		57	71	69		818,330	1,778,599	2,599,452	2,596,929	
423	0	0	0	0	0	50	67.08	-29.0	2967	-862		57	72	68		818,378	1,778,650	2,599,502	2,597,027	

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
376	818,641	2,489,576		100,257								
377	818,887	2,496,992		93,067								
378	819,133	2,504,058		86,224								
379	819,378	2,510,768	1	79,733	256,966							
380	819,624	2,517,305		73,411								
381	819,870	2,523,499		67,427								
382	820,115	2,529,336		61,796								
383	820,361	2,534,994		56,341								
384	820,607	2,540,473		51,061								
385	820,853	2,545,770		45,960								
386	820,853	2,550,886		41,035								
387	820,853	2,555,818		36,291								
388	820,853	2,560,567		31,726								
389	820,853	2,565,130		27,344								
390	820,853	2,569,509		23,144								
391	820,853	2,573,725		19,102								
392	820,853	2,577,592		15,406								
393	820,853	2,581,098		12,069								
394	820,853	2,584,249		9,083								
395	820,853	2,587,217		6,277								
396	820,853	2,590,003		3,651								
397	820,853	2,592,431		1,379								
398	820,853	2,594,678		-715								
399	820,853	2,596,745		-2,631								
400	820,853	2,598,632		-4,369								
401	820,853	2,600,338		-5,931								
402	820,853	2,601,889	1	-7,339		92,493						
403	820,853	2,603,261	92,493	-8,570								
404	820,853	2,604,455		-9,626								
405	820,853	2,605,489		-10,525								
406	820,853	2,606,359		-11,262								
407	820,853	2,607,060		-11,833								
408	820,853	2,607,590		-12,235								
409	820,853	2,607,945		-12,464								
410	820,853	2,608,122		-12,517								
411	820,853	2,608,302		-12,576								
412	820,853	2,608,482		-12,637								
413	820,853	2,608,662		-12,699								
414	820,853	2,608,842		-12,764								
415	820,853	2,609,022		-12,831								
416	820,853	2,609,202		-12,900								
417	820,853	2,609,382		-12,971								
418	820,853	2,609,562		-13,044								
419	820,853	2,609,742		-13,118								
420	820,853	2,609,922		-13,195								
421	820,853	2,610,102		-13,273								
422	820,853	2,610,282		-13,353								
423	820,853	2,610,462		-13,435								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
424	14	13	8	10	0.0011	-0.0012	**Wed 19/01/11 21:00**	99.01	1177.86	-26.92	-317.08		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
425	13	13	7	10	0.0011	-0.0012	**Wed 19/01/11 22:00**	99.01	1177.98	-26.48	-311.97		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
426	13	13	7	10	0.0011	-0.0012	**Wed 19/01/11 23:00**	99.01	1178.10	-26.05	-306.94		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
427	13	12	7	10	0.0011	-0.0012	**Thu 20/01/11 00:00**	99.01	1178.21	-25.63	-302.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
428	13	12	7	10	0.0011	-0.0013	**Thu 20/01/11 01:00**	99.01	1178.32	-25.22	-297.13		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
429	13	12	7	9	0.0010	-0.0013	**Thu 20/01/11 02:00**	99.01	1178.43	-24.81	-292.34		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
430	12	12	7	9	0.0010	-0.0013	**Thu 20/01/11 03:00**	99.01	1178.54	-24.41	-287.63		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
431	12	12	6	9	0.0010	-0.0013	**Thu 20/01/11 04:00**	99.02	1178.65	-24.01	-282.99		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
432	12	12	6	9	0.0010	-0.0013	**Thu 20/01/11 05:00**	99.02	1178.76	-23.62	-278.43		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
433	12	11	6	9	0.0010	-0.0013	**Thu 20/01/11 06:00**	99.02	1178.86	-23.24	-273.95		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
434	11	11	6	9	0.0010	-0.0013	**Thu 20/01/11 07:00**	99.02	1178.96	-22.86	-269.53		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
435	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 08:00**	99.02	1179.06	-22.49	-265.20		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
436	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 09:00**	99.02	1179.16	-22.13	-260.93		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
437	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 10:00**	99.02	1179.26	-21.77	-256.73		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
438	11	10	6	8	0.0009	-0.0013	**Thu 20/01/11 11:00**	99.02	1179.35	-21.42	-252.60		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
439	10	10	5	8	0.0009	-0.0013	**Thu 20/01/11 12:00**	99.02	1179.45	-21.07	-248.54		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
440	10	10	5	8	0.0009	-0.0013	**Thu 20/01/11 13:00**	99.02	1179.54	-20.73	-244.54		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
441	10	10	5	8	0.0008	-0.0013	**Thu 20/01/11 14:00**	99.02	1179.63	-20.40	-240.61		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
442	10	10	5	7	0.0008	-0.0014	**Thu 20/01/11 15:00**	99.03	1179.72	-20.07	-236.75		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
443	10	10	5	7	0.0008	-0.0014	**Thu 20/01/11 16:00**	99.03	1179.81	-19.74	-232.94		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
444	10	9	5	7	0.0008	-0.0014	**Thu 20/01/11 17:00**	99.03	1179.90	-19.42	-229.19		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
445	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 18:00**	99.03	1179.98	-19.11	-225.50		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
446	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 19:00**	99.03	1180.07	-18.80	-221.88		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
447	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 20:00**	99.03	1180.15	-18.50	-218.32		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
448	9	9	4	7	0.0008	-0.0014	**Thu 20/01/11 21:00**	99.03	1180.23	-18.20	-214.82		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
449	9	9	4	7	0.0007	-0.0014	**Thu 20/01/11 22:00**	99.03	1180.31	-17.91	-211.38		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
450	9	9	4	7	0.0007	-0.0014	**Thu 20/01/11 23:00**	99.03	1180.39	-17.62	-207.97		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
451	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 00:00**	99.03	1180.47	-17.33	-204.63		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
452	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 01:00**	99.03	1180.54	-17.06	-201.36		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
453	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 02:00**	99.03	1180.62	-16.78	-198.12		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
454	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 03:00**	99.03	1180.69	-16.51	-194.93		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
455	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 04:00**	99.04	1180.76	-16.24	-191.81		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
456	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 05:00**	99.04	1180.83	-15.98	-188.73		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
457	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 06:00**	99.04	1180.90	-15.73	-185.71		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
458	7	8	4	6	0.0006	-0.0014	**Fri 21/01/11 07:00**	99.04	1180.97	-15.47	-182.74		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
459	7	7	3	6	0.0006	-0.0014	**Fri 21/01/11 08:00**	99.04	1181.04	-15.22	-179.80		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
460	7	7	3	6	0.0006	-0.0014	**Fri 21/01/11 09:00**	99.04	1181.11	-14.98	-176.93		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
461	7	7	3	5	0.0006	-0.0014	**Fri 21/01/11 10:00**	99.04	1181.17	-14.74	-174.09		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
462	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 11:00**	99.04	1181.24	-14.50	-171.30		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
463	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 12:00**	99.04	1181.30	-14.27	-168.55		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
464	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 13:00**	99.04	1181.37	-14.04	-165.84		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
465	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 14:00**	99.04	1181.43	-13.81	-163.19		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
466	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 15:00**	99.04	1181.49	-13.59	-160.58		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
467	6	7	3	5	0.0006	-0.0015	**Fri 21/01/11 16:00**	99.04	1181.55	-13.37	-158.01		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
468	6	6	3	5	0.0005	-0.0015	**Fri 21/01/11 17:00**	99.04	1181.61	-13.16	-155.48		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
469	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 18:00**	99.04	1181.66	-12.95	-152.99		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
470	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 19:00**	99.04	1181.72	-12.74	-150.54		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
471	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 20:00**	99.04	1181.78	-12.53	-148.12		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
424	0	0	0	0	0	50	67.08	-29.3	2966	-868		57	71	68		818,425	1,778,699	2,599,551	2,597,124	
425	0	0	0	0	0	50	67.08	-29.5	2966	-874		57	71	68		818,471	1,778,747	2,599,600	2,597,219	
426	0	0	0	0	0	50	67.08	-29.7	2966	-880		57	71	68		818,517	1,778,795	2,599,648	2,597,312	
427	0	0	0	0	0	50	67.08	-29.9	2966	-886		57	70	67		818,562	1,778,842	2,599,694	2,597,404	
428	0	0	0	0	0	50	67.07	-30.1	2966	-892		56	70	67		818,606	1,778,888	2,599,740	2,597,494	
429	0	0	0	0	0	50	67.07	-30.3	2965	-897		56	70	67		818,650	1,778,933	2,599,785	2,597,582	
430	0	0	0	0	0	50	67.07	-30.4	2965	-903		56	69	66		818,693	1,778,977	2,599,829	2,597,669	
431	0	0	0	0	0	50	67.07	-30.6	2965	-908		56	69	66		818,735	1,779,020	2,599,873	2,597,755	
432	0	0	0	0	0	50	67.07	-30.8	2965	-913		56	69	66		818,776	1,779,063	2,599,915	2,597,839	
433	0	0	0	0	0	50	67.07	-31.0	2964	-919		56	68	66		818,817	1,779,105	2,599,957	2,597,921	
434	0	0	0	0	0	50	67.07	-31.2	2964	-924		56	68	65		818,857	1,779,146	2,599,998	2,598,003	
435	0	0	0	0	0	50	67.07	-31.3	2964	-929		55	68	65		818,896	1,779,186	2,600,038	2,598,082	
436	0	0	0	0	0	50	67.06	-31.5	2964	-933		55	68	65		818,935	1,779,226	2,600,078	2,598,161	
437	0	0	0	0	0	50	67.06	-31.7	2963	-938		55	67	65		818,973	1,779,264	2,600,117	2,598,238	
438	0	0	0	0	0	50	67.06	-31.8	2963	-943		55	67	65		819,011	1,779,303	2,600,155	2,598,314	
439	0	0	0	0	0	50	67.06	-32.0	2963	-947		55	67	64		819,048	1,779,340	2,600,193	2,598,388	
440	0	0	0	0	0	50	67.06	-32.1	2963	-952		55	67	64		819,084	1,779,377	2,600,230	2,598,461	
441	0	0	0	0	0	50	67.06	-32.3	2962	-956		55	66	64		819,120	1,779,413	2,600,266	2,598,533	
442	0	0	0	0	0	50	67.06	-32.4	2962	-961		55	66	64		819,155	1,779,449	2,600,301	2,598,604	
443	0	0	0	0	0	50	67.06	-32.6	2962	-965		55	66	63		819,190	1,779,484	2,600,336	2,598,674	
444	0	0	0	0	0	50	67.05	-32.7	2962	-969		55	65	63		819,224	1,779,518	2,600,371	2,598,742	
445	0	0	0	0	0	50	67.05	-32.9	2961	-973		54	65	63		819,258	1,779,552	2,600,404	2,598,810	
446	0	0	0	0	0	50	67.05	-33.0	2961	-977		54	65	63		819,291	1,779,585	2,600,438	2,598,876	
447	0	0	0	0	0	50	67.05	-33.1	2961	-981		54	65	63		819,323	1,779,618	2,600,470	2,598,941	
448	0	0	0	0	0	50	67.05	-33.3	2961	-985		54	65	62		819,355	1,779,650	2,600,502	2,599,005	
449	0	0	0	0	0	50	67.05	-33.4	2961	-988		54	64	62		819,387	1,779,681	2,600,534	2,599,068	
450	0	0	0	0	0	50	67.05	-33.5	2960	-992		54	64	62		819,418	1,779,712	2,600,565	2,599,130	
451	0	0	0	0	0	50	67.04	-33.6	2960	-996		54	64	62		819,448	1,779,742	2,600,595	2,599,190	
452	0	0	0	0	0	50	67.04	-33.8	2960	-999		54	64	62		819,478	1,779,772	2,600,625	2,599,250	
453	0	0	0	0	0	50	67.04	-33.9	2959	-1003		54	63	62		819,507	1,779,802	2,600,654	2,599,309	
454	0	0	0	0	0	50	67.04	-34.0	2959	-1006		54	63	61		819,536	1,779,831	2,600,683	2,599,367	
455	0	0	0	0	0	50	67.04	-34.1	2959	-1009		54	63	61		819,565	1,779,859	2,600,711	2,599,424	
456	0	0	0	0	0	50	67.04	-34.2	2959	-1013		53	63	61		819,593	1,779,887	2,600,739	2,599,480	
457	0	0	0	0	0	50	67.04	-34.3	2958	-1016		53	63	61		819,621	1,779,914	2,600,767	2,599,535	
458	0	0	0	0	0	50	67.03	-34.4	2958	-1019		53	62	61		819,648	1,779,941	2,600,794	2,599,589	
459	0	0	0	0	0	50	67.03	-34.5	2958	-1022		53	62	61		819,675	1,779,968	2,600,820	2,599,642	
460	0	0	0	0	0	50	67.03	-34.7	2958	-1025		53	62	60		819,701	1,779,994	2,600,846	2,599,695	
461	0	0	0	0	0	50	67.03	-34.8	2957	-1028		53	62	60		819,727	1,780,019	2,600,872	2,599,746	
462	0	0	0	0	0	50	67.03	-34.9	2957	-1031		53	62	60		819,752	1,780,044	2,600,897	2,599,797	
463	0	0	0	0	0	50	67.03	-35.0	2957	-1034		53	62	60		819,777	1,780,069	2,600,922	2,599,847	
464	0	0	0	0	0	50	67.03	-35.0	2957	-1036		53	61	60		819,802	1,780,094	2,600,946	2,599,896	
465	0	0	0	0	0	50	67.02	-35.1	2956	-1039		53	61	60		819,826	1,780,118	2,600,970	2,599,944	
466	0	0	0	0	0	50	67.02	-35.2	2956	-1042		53	61	60		819,850	1,780,141	2,600,994	2,599,991	
467	0	0	0	0	0	50	67.02	-35.3	2956	-1044		53	61	59		819,874	1,780,164	2,601,017	2,600,038	
468	0	0	0	0	0	50	67.02	-35.4	2956	-1047		53	61	59		819,897	1,780,187	2,601,040	2,600,084	
469	0	0	0	0	0	50	67.02	-35.5	2955	-1049		53	61	59		819,920	1,780,209	2,601,062	2,600,129	
470	0	0	0	0	0	50	67.02	-35.6	2955	-1052		53	60	59		819,942	1,780,231	2,601,084	2,600,174	
471	0	0	0	0	0	50	67.02	-35.7	2955	-1054		53	60	59		819,964	1,780,253	2,601,106	2,600,217	

RD5-1467

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
424	820,853	2,610,642		-13,518								
425	820,853	2,610,822		-13,603								
426	820,853	2,611,002		-13,690								
427	820,853	2,611,182		-13,778								
428	820,853	2,611,362		-13,868								
429	820,853	2,611,542		-13,960								
430	820,853	2,611,722		-14,053								
431	820,853	2,611,902		-14,147								
432	820,853	2,612,082		-14,243								
433	820,853	2,612,262		-14,341								
434	820,853	2,612,442										
435	820,853	2,612,622										
436	820,853	2,612,802										
437	820,853	2,612,982										
438	820,853	2,613,162										
439	820,853	2,613,342										
440	820,853	2,613,522										
441	820,853	2,613,702										
442	820,853	2,613,882										
443	820,853	2,614,062										
444	820,853	2,614,242										
445	820,853	2,614,422										
446	820,853	2,614,602										
447	820,853	2,614,782										
448	820,853	2,614,962										
449	820,853	2,615,142										
450	820,853	2,615,322										
451	820,853	2,615,502										
452	820,853	2,615,682										
453	820,853	2,615,862										
454	820,853	2,616,042										
455	820,853	2,616,222										
456	820,853	2,616,402										
457	820,853	2,616,582										
458	820,853	2,616,762										
459	820,853	2,616,942										
460	820,853	2,617,122										
461	820,853	2,617,302										
462	820,853	2,617,482										
463	820,853	2,617,662										
464	820,853	2,617,842										
465	820,853	2,618,022										
466	820,853	2,618,202										
467	820,853	2,618,382										
468	820,853	2,618,562										
469	820,853	2,618,742										
470	820,853	2,618,922										
471	820,853	2,619,102										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
472	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 21:00**	99.05	1181.83	-12.33	-145.75		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
473	6	6	3	7	0.0005	-0.0015	**Fri 21/01/11 22:00**	99.05	1181.89	-12.13	-143.42		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
474	6	6	3	7	0.0005	-0.0015	**Fri 21/01/11 23:00**	99.05	1181.94	-11.94	-141.13		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
475	6	6	2	7	0.0005	-0.0015	**Sat 22/01/11 00:00**	99.05	1181.99	-11.75	-138.87		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
476	6	6	2	7	0.0005	-0.0015	**Sat 22/01/11 01:00**	99.05	1182.04	-11.56	-136.65		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
477	5	6	2	7	0.0005	-0.0015	**Sat 22/01/11 02:00**	99.05	1182.10	-11.37	-134.46		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
478	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 03:00**	99.05	1182.15	-11.19	-132.31		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
479	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 04:00**	99.05	1182.20	-11.01	-130.19		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
480	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 05:00**	99.05	1182.24	-10.84	-128.11		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
481	5	5	2	8	0.0004	-0.0015	**Sat 22/01/11 06:00**	99.05	1182.29	-10.66	-126.06		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
482	5	5	3	8	0.0004	-0.0015	**Sat 22/01/11 07:00**	99.05	1182.34	-10.49	-124.04		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
483	5	5	3	9	0.0004	-0.0015	**Sat 22/01/11 08:00**	99.05	1182.38	-10.32	-122.06		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
484	5	5	3	9	0.0004	-0.0015	**Sat 22/01/11 09:00**	99.05	1182.43	-10.16	-120.11		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
485	0	0	3	9	0.0002	-0.0016	**Sat 22/01/11 10:00**	99.05	1182.47	-5.04	-59.57		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
486	0	0	3	9	0.0000	-0.0017	**Sat 22/01/11 11:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
487	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 12:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
488	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 13:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
489	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 14:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
490	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 15:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
491	0	0	5	10	0.0000	-0.0017	**Sat 22/01/11 16:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
492	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 17:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
493	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 18:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
494	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 19:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
495	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 20:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
496	0	0	6	11	0.0000	-0.0017	**Sat 22/01/11 21:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
497	0	0	6	12	0.0000	-0.0017	**Sat 22/01/11 22:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
498	0	0	6	12	0.0000	-0.0017	**Sat 22/01/11 23:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
499	0	0	6	12	0.0000	-0.0017	**Sun 23/01/11 00:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
500	0	0	6	12	0.0000	-0.0017	**Sun 23/01/11 01:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
501	0	0	7	13	0.0000	-0.0017	**Sun 23/01/11 02:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	0	0.0	0.0	0.0	0.0	0.0	0	50
502																								
503																								

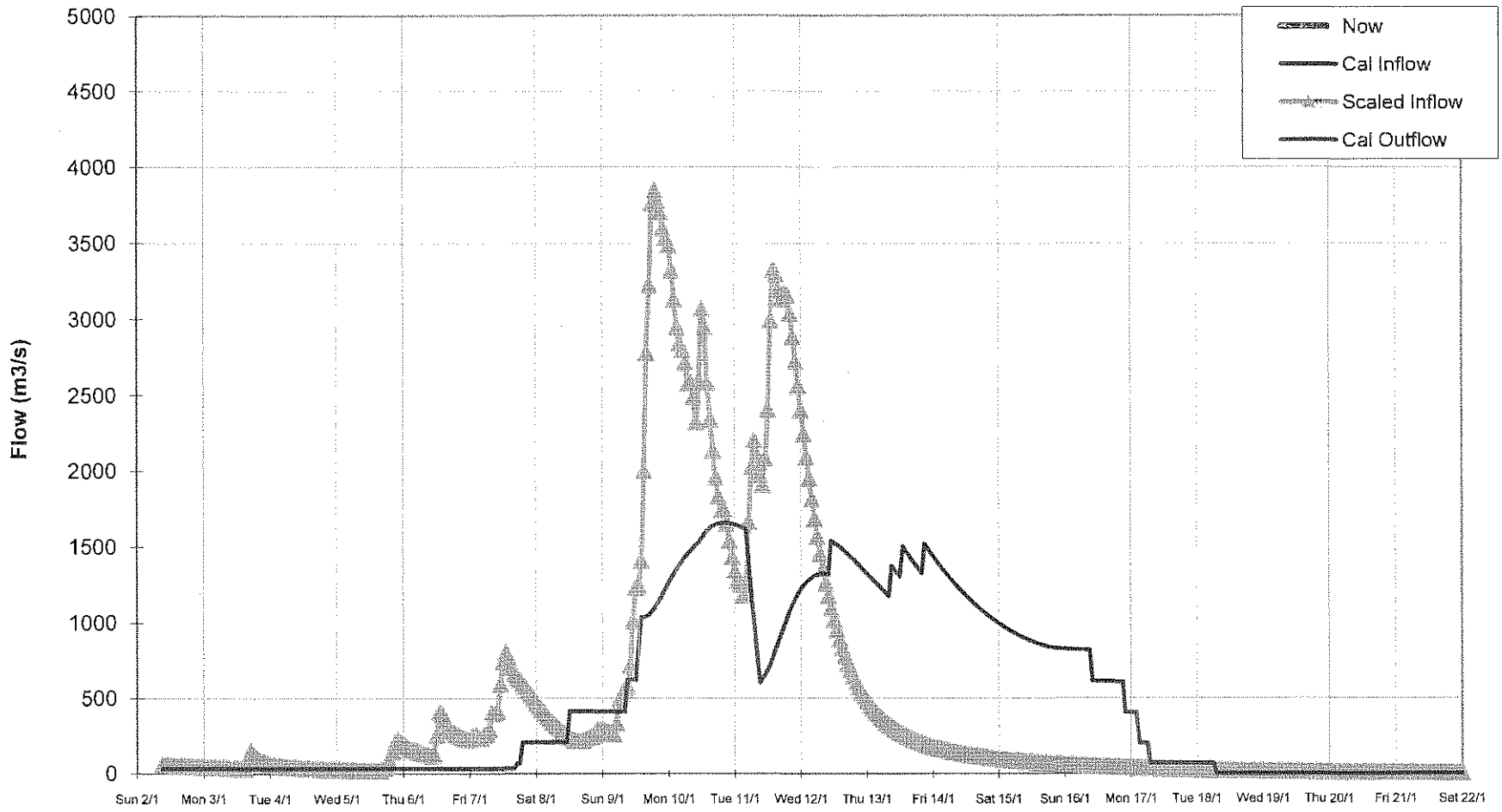
RD5-1469

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
472	0	0	0	0	0	50	67.01	-35.8	2955	-1057		53	60	59		819,986	1,780,274	2,601,127	2,600,260	
473	0	0	0	0	0	50	67.01	-35.8	2954	-1059		52	60	59		820,007	1,780,295	2,601,148	2,600,303	
474	0	0	0	0	0	50	67.01	-35.9	2954	-1061		52	60	59		820,028	1,780,316	2,601,169	2,600,344	
475	0	0	0	0	0	50	67.01	-36.0	2954	-1063		52	60	59		820,049	1,780,336	2,601,189	2,600,385	
476	0	0	0	0	0	50	67.01	-36.1	2953	-1066		52	60	58		820,069	1,780,356	2,601,209	2,600,426	
477	0	0	0	0	0	50	67.01	-36.2	2953	-1068		52	59	52		820,089	1,780,376	2,601,229	2,600,465	
478	0	0	0	0	0	50	67.00	-36.2	2953	-1070		52	59	52		820,109	1,780,395	2,601,248	2,600,504	
479	0	0	0	0	0	50	67.00	-36.3	2953	-1072		52	59	52		820,128	1,780,414	2,601,267	2,600,543	
480	0	0	0	0	0	50	67.00	-36.4	2952	-1074		52	59	52		820,147	1,780,433	2,601,286	2,600,580	
481	0	0	0	0	0	50	67.00	-36.5	2952	-1076		52	59	52		820,166	1,780,452	2,601,304	2,600,618	
482	0	0	0	0	0	50	67.00	-36.5	2952	-1078		52	59	52		820,184	1,780,470	2,601,322	2,600,654	
483	0	0	0	0	0	50	67.00	-36.6	2952	-1080		52	59	52		820,203	1,780,488	2,601,340	2,600,690	
484	0	0	0	0	0	50	67.00	-36.7	2951	-1082		52	59	52		820,221	1,780,505	2,601,358	2,600,726	
485	0	0	0	0	0	50	66.99	-38.7	2951	-1141		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
486	0	0	0	0	0	50	66.99	-40.7	2951	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
487	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
488	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
489	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
490	0	0	0	0	0	50	66.99	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
491	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
492	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
493	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
494	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
495	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
496	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
497	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
498	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
499	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
500	0	0	0	0	0	50	66.97	-40.7	2946	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
501	0	0	0	0	0	50	66.97	-40.7	2946	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
502																				
503																				

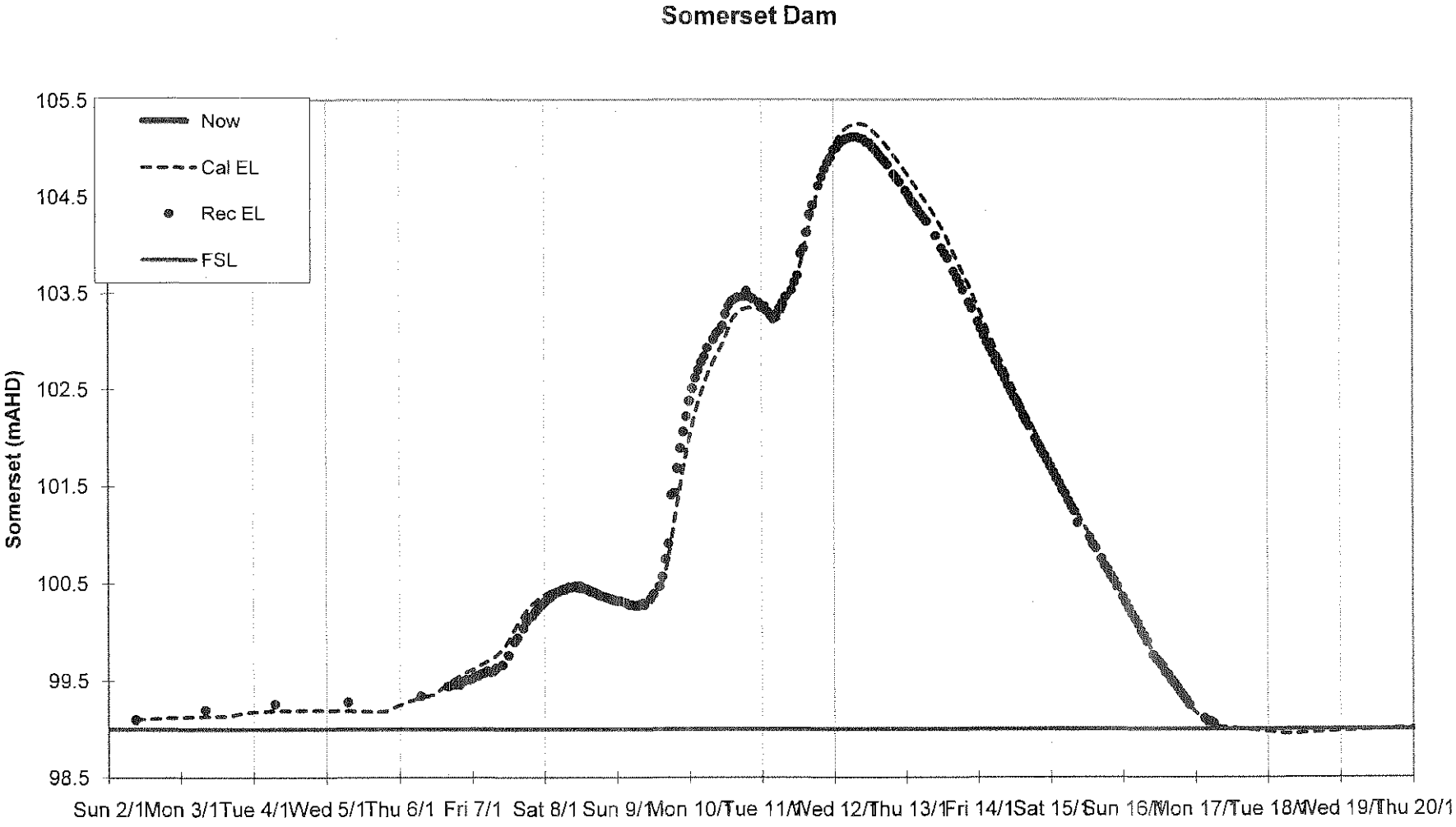
RD5-1470

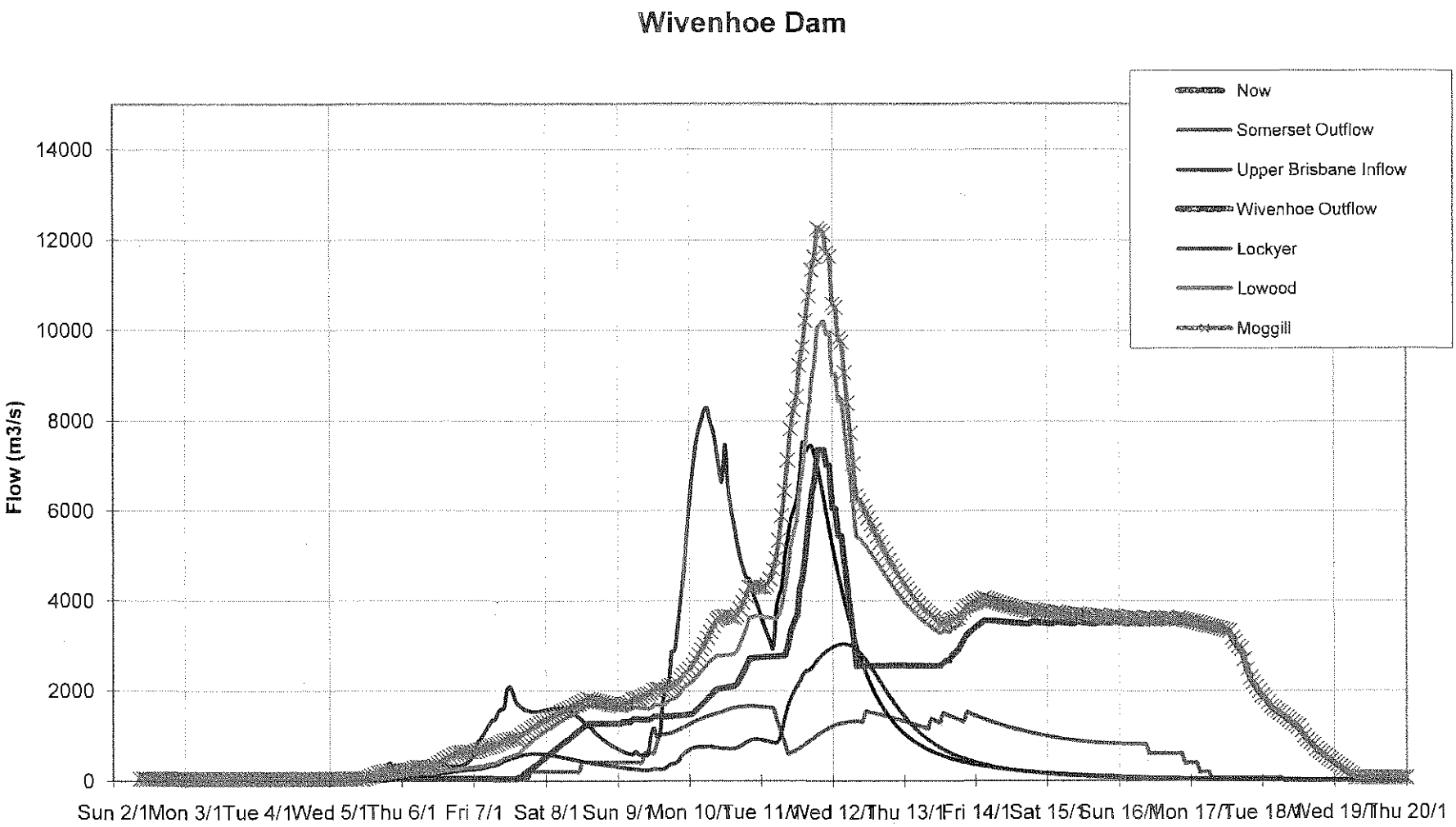
	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
472	820,853	2,619,282										
473	820,853	2,619,462										
474	820,853	2,619,642										
475	820,853	2,619,822										
476	820,853	2,620,002										
477	820,853	2,620,182										
478	820,853	2,620,362										
479	820,853	2,620,542										
480	820,853	2,620,722										
481	820,853	2,620,902										
482	820,853	2,621,082										
483	820,853	2,621,262										
484	820,853	2,621,442										
485	820,853	2,621,622										
486	820,853	2,621,802										
487	820,853	2,621,982										
488	820,853	2,622,162										
489	820,853	2,622,342										
490	820,853	2,622,522										
491	820,853	2,622,702										
492	820,853	2,622,882										
493	820,853	2,623,062										
494	820,853	2,623,242										
495	820,853	2,623,422										
496	820,853	2,623,602										
497	820,853	2,623,782										
498	820,853	2,623,962										
499	820,853	2,624,142										
500	820,853	2,624,322										
501	820,853	2,624,502										
502												
503												

Somerset Dam



RD5-1472


Somerset Dam
Now
Cal EL
Rec EL
FSL
Somerset (mAHD)
105.5
104.5
103.5
102.5
101.5
100.5
99.5
98.5
Sun 2/1
Mon 3/1
Tue 4/1
Wed 5/1
Thu 6/1
Fri 7/1
Sat 8/1
Sun 9/1
Mon 10/
Tue 11/
Wed 12/
Thu 13/1
Fri 14/1
Sat 15/
Sun 16/
Mon 17/
Tue 18/
Wed 19/
Thu 20/1


Wivenhoe Dam
Flow (m3/s)
14000
12000
10000
8000
6000
4000
2000
0
Sun 2/1
Mon 3/1
Tue 4/1
Wed 5/1
Thu 6/1
Fri 7/1
Sat 8/1
Sun 9/1
Mon 10/1
Tue 11/1
Wed 12/1
Thu 13/1
Fri 14/1
Sat 15/1
Sun 16/1
Mon 17/1
Tue 18/1
Wed 19/1
Thu 20/1
Now
Somerset Outflow
Upper Brisbane Inflow
Wivenhoe Outflow
Lockyer
Lowood
Moggill

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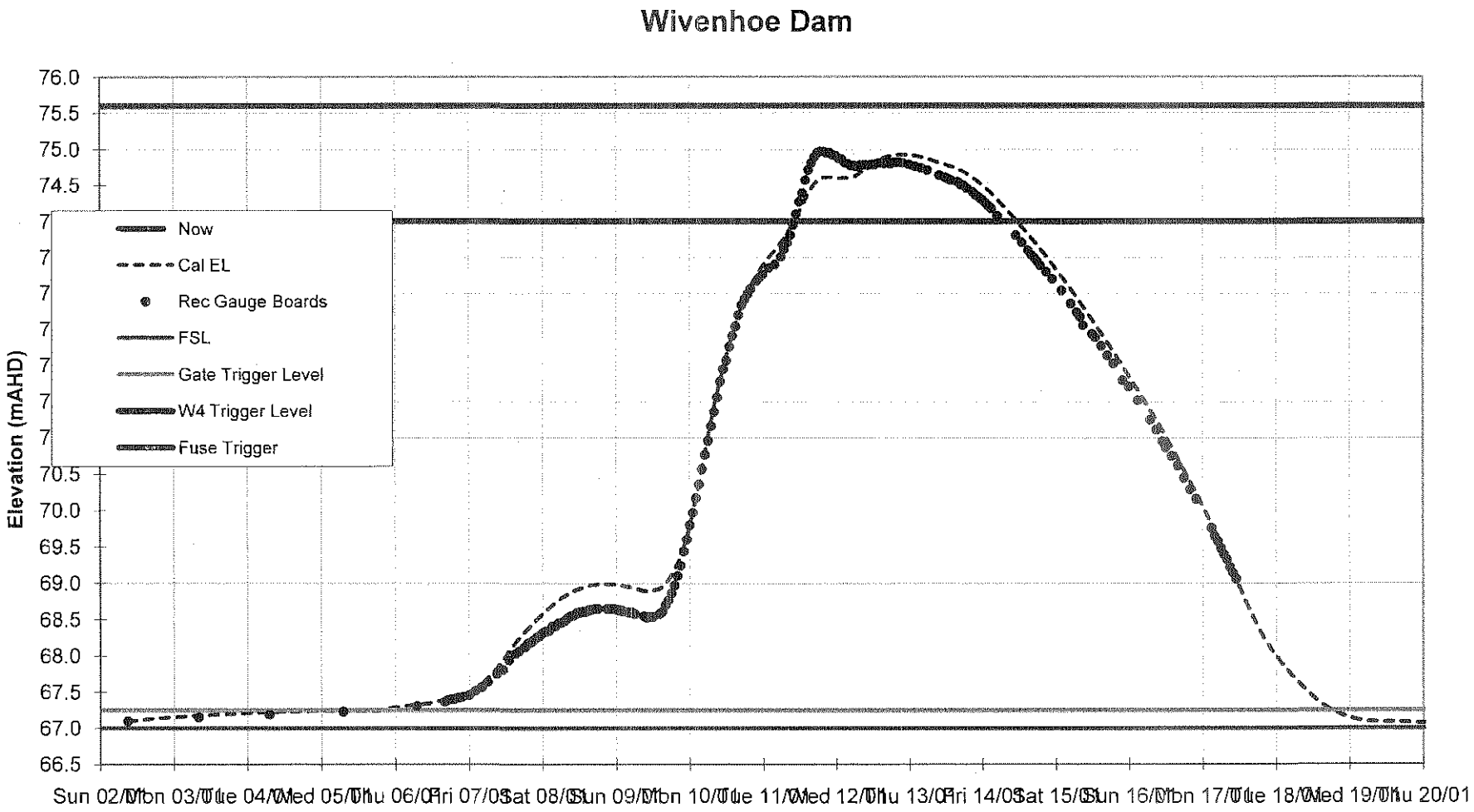
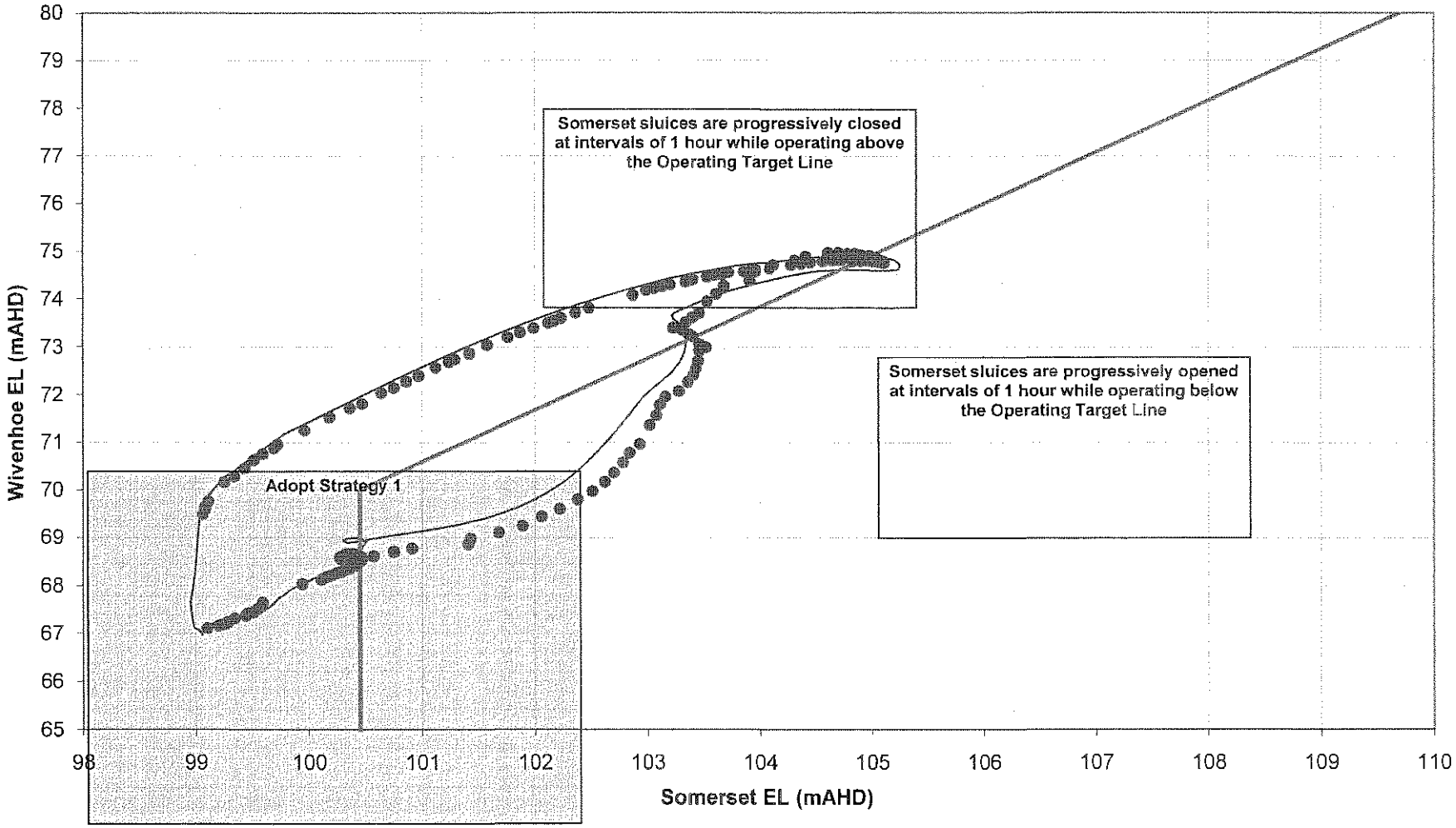

Wivenhoe Dam
Elevation (mAHD)
76.0
75.5
75.0
74.5
70.5
70.0
69.5
69.0
68.5
68.0
67.5
67.0
66.5
Now
Cal EL
Rec Gauge Boards
FSL
Gate Trigger Level
W4 Trigger Level
Fuse Trigger
Sun 02/01
Mon 03/01
Tue 04/01
Wed 05/01
Thu 06/01
Fri 07/01
Sat 08/01
Sun 09/01
Mon 10/01
Tue 11/01
Wed 12/01
Thu 13/01
Fri 14/01
Sat 15/01
Sun 16/01
Mon 17/01
Tue 18/01
Wed 19/01
Thu 20/01

Interaction Diagram



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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	WIVENHOE RATING				Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0	38	76	113	149	183	215	246	275	302	327	333	333	333	333	333	333	333
5	63.2	0	39	78	115	151	186	219	250	280	308	335	351	351	351	351	351	351	351
6	63.4	0	40	79	117	154	189	223	255	286	315	342	368	370	370	370	370	370	370
7	63.6	0	40	80	119	156	192	227	260	291	321	349	376	389	389	389	389	389	389
8	63.8	0	41	81	121	159	195	231	264	297	327	356	384	408	408	408	408	408	408
9	64.0	0	41	82	122	161	199	235	269	302	333	363	391	418	428	428	428	428	428
10	64.2	0	42	83	124	164	202	238	273	307	339	370	399	426	448	448	448	448	448
11	64.4	0	42	85	126	166	205	242	278	312	345	376	406	435	462	469	469	469	469
12	64.6	0	43	86	127	168	208	246	282	317	350	383	413	443	471	489	489	489	489
13	64.8	0	44	87	129	170	210	249	286	322	356	389	420	451	480	508	511	511	511
14	65.0	0	44	88	131	173	213	253	290	327	362	395	427	458	488	517	532	532	532
15	65.2	0	45	89	132	175	216	256	294	331	367	401	434	466	497	526	554	554	554
16	65.4	0	45	90	134	177	219	259	298	336	372	407	441	474	505	535	565	576	576
17	65.6	0	46	91	136	179	222	263	302	341	378	413	448	481	513	544	575	599	599
18	65.8	0	46	92	137	181	224	266	306	345	383	419	454	488	521	553	584	615	622
19	66.0	0	47	93	139	184	227	269	310	350	388	425	461	495	529	562	594	625	645
20	66.2	0	47	94	140	186	230	273	314	354	393	431	467	503	537	570	603	635	667
21	66.4	0	48	95	142	188	232	276	318	359	398	436	473	510	545	579	612	645	678
22	66.6	0	48	96	143	190	235	279	322	363	403	442	480	516	552	587	621	655	689
23	66.8	0	49	97	145	192	238	282	325	367	408	447	486	523	560	595	630	665	699
24	67.0	0	49	98	146	194	240	285	329	372	413	453	492	530	567	603	639	675	709
25	67.2	0	49	99	148	196	243	288	333	376	418	458	498	537	574	611	648	684	720
26	67.4	0	50	100	149	198	245	291	336	380	422	464	504	543	582	619	657	693	730
27	67.6	0	50	101	151	200	248	294	340	384	427	469	510	550	589	627	665	702	740
28	67.8	0	51	102	152	202	250	297	343	388	432	474	515	556	596	635	673	712	750
29	68.0	0	51	103	154	204	253	300	347	392	436	479	521	562	603	642	682	721	759
30	68.2	0	52	104	155	206	255	303	350	396	441	484	527	569	610	650	690	729	769
31	68.4	0	52	105	156	207	257	306	354	400	445	489	532	575	616	657	698	738	778
32	68.6	0	53	105	158	209	260	309	357	404	450	494	538	581	623	665	706	747	788
33	68.8	0	53	106	159	211	262	312	360	408	454	499	543	587	630	672	714	755	797
34	69.0	0	54	107	160	213	264	315	364	412	458	504	549	593	636	679	722	764	806
35	69.2	0	54	108	162	215	267	317	367	415	463	509	554	599	643	686	729	772	815
36	69.4	0	54	109	163	217	269	320	370	419	467	514	560	605	649	693	737	780	824

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	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																		
2	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
5	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351
6	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
7	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
8	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408
9	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428
10	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448
11	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469
12	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
13	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511
14	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532
15	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
16	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576
17	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599
18	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622
19	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645
20	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668
21	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692
22	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716
23	733	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740
24	744	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765
25	755	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
26	766	802	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815
27	777	814	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
28	787	825	863	867	867	867	867	867	867	867	867	867	867	867	867	867	867	867
29	798	837	876	893	893	893	893	893	893	893	893	893	893	893	893	893	893	893
30	808	848	888	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919
31	818	859	899	940	946	946	946	946	946	946	946	946	946	946	946	946	946	946
32	829	870	911	953	973	973	973	973	973	973	973	973	973	973	973	973	973	973
33	838	880	923	965	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34	848	891	934	977	1022	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028
35	858	901	945	989	1035	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056
36	868	912	956	1001	1047	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
37	69.6	0	55	110	164	218	271	323	373	423	471	518	565	611	656	700	744	789	833
38	69.8	0	55	111	166	220	273	326	377	427	475	523	570	616	662	707	752	797	842
39	70.0	0	56	112	167	222	276	328	380	430	479	528	575	622	668	714	759	805	850
40	70.2	0	56	112	168	224	278	331	383	434	484	532	580	628	674	721	767	813	859
41	70.4	0	56	113	170	225	280	334	386	437	488	537	586	633	680	727	774	821	867
42	70.6	0	57	114	171	227	282	336	389	441	492	542	591	639	687	734	781	828	876
43	70.8	0	57	115	172	229	284	339	392	445	496	546	596	644	693	741	788	836	884
44	71.0	0	58	116	173	230	286	341	395	448	500	551	601	650	699	747	795	844	892
45	71.2	0	58	117	175	232	289	344	398	452	504	555	605	655	705	754	802	851	900
46	71.4	0	58	117	176	234	291	347	401	455	508	559	610	661	710	760	809	859	908
47	71.6	0	59	118	177	235	293	349	404	458	512	564	615	666	716	766	816	866	916
48	71.8	0	59	119	178	237	295	352	407	462	515	568	620	671	722	773	823	874	924
49	72.0	0	60	120	180	239	297	354	410	465	519	572	625	676	728	779	830	881	932
50	72.2	0	60	121	181	240	299	357	413	469	523	577	629	682	733	785	837	888	940
51	72.4	0	60	121	182	242	301	359	416	472	527	581	634	687	739	791	843	895	948
52	72.6	0	61	122	183	243	303	361	419	475	531	585	639	692	745	797	850	903	956
53	72.8	0	61	123	184	245	305	364	422	478	534	589	643	697	750	803	856	910	963
54	73.0	0	62	124	185	247	307	366	425	482	538	593	648	702	756	809	863	917	971
55	73.2	2	62	124	187	248	309	369	427	485	542	597	653	707	761	815	869	924	978
56	73.4	6	62	125	188	250	311	371	430	488	545	602	657	712	767	821	876	931	986
57	73.6	11	64	126	189	251	313	373	433	491	549	606	662	717	772	827	882	937	993
58	73.8	17	69	127	190	253	315	376	436	495	553	610	666	722	778	833	888	944	1001
59	74.0	23	74	129	191	254	317	378	438	498	556	614	671	727	783	839	895	951	1008
60	74.2	31	80	133	192	256	319	380	441	501	560	618	675	732	788	845	901	958	1015
61	74.4	39	87	139	195	257	321	383	444	504	563	622	679	737	793	850	907	964	1022
62	74.6	47	94	145	200	259	322	385	447	507	567	626	684	741	799	856	913	971	1029
63	74.8	56	103	153	206	262	324	387	449	510	570	629	688	746	804	862	919	978	1036
64	75.0	66	112	161	213	267	326	390	452	513	574	633	692	751	809	867	926	984	1044
65	75.2	76	121	169	220	274	330	392	455	516	577	637	697	756	814	873	932	991	1051
66	75.4	87	131	178	229	281	336	394	457	519	581	641	701	760	819	878	938	997	1057
67	75.6	98	141	188	237	289	343	399	460	522	584	645	705	765	824	884	944	1004	1064
68	75.8	109	152	198	247	298	350	405	463	525	587	649	709	769	829	889	949	1010	1071
69	76.0	121	164	209	257	307	359	412	468	528	591	652	713	774	834	895	955	1016	1078
70	76.2	133	175	220	268	317	368	421	475	532	594	656	718	779	839	900	961	1023	1085
71	76.4	146	187	232	279	327	378	429	483	539	597	660	722	783	844	906	967	1029	1092
72	76.6	159	200	244	290	338	388	439	492	546	603	664	726	788	849	911	973	1035	1098

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	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	877	922	967	1013	1060	1107	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112
38	887	932	978	1025	1072	1121	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141
39	896	942	989	1036	1085	1134	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170
40	905	952	1000	1048	1097	1147	1198	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199
41	914	962	1010	1059	1109	1160	1212	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229
42	923	972	1020	1070	1121	1173	1226	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258
43	932	981	1031	1081	1133	1185	1239	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289
44	941	991	1041	1092	1144	1198	1252	1309	1319	1319	1319	1319	1319	1319	1319	1319	1319	1319
45	950	1000	1051	1103	1156	1210	1266	1323	1349	1349	1349	1349	1349	1349	1349	1349	1349	1349
46	959	1009	1061	1114	1167	1222	1279	1337	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380
47	967	1019	1071	1124	1179	1234	1292	1350	1410	1411	1411	1411	1411	1411	1411	1411	1411	1411
48	976	1028	1081	1135	1190	1246	1304	1364	1425	1443	1443	1443	1443	1443	1443	1443	1443	1443
49	984	1037	1091	1145	1201	1258	1317	1377	1439	1474	1474	1474	1474	1474	1474	1474	1474	1474
50	993	1046	1100	1156	1212	1270	1330	1391	1454	1506	1506	1506	1506	1506	1506	1506	1506	1506
51	1001	1055	1110	1166	1223	1282	1342	1404	1468	1533	1538	1538	1538	1538	1538	1538	1538	1538
52	1009	1064	1119	1176	1234	1293	1354	1417	1482	1548	1570	1570	1570	1570	1570	1570	1570	1570
53	1018	1073	1129	1186	1245	1305	1367	1430	1496	1563	1603	1603	1603	1603	1603	1603	1603	1603
54	1026	1081	1138	1196	1255	1316	1379	1443	1509	1577	1636	1636	1636	1636	1636	1636	1636	1636
55	1034	1090	1147	1206	1266	1327	1391	1456	1523	1592	1663	1669	1669	1669	1669	1669	1669	1669
56	1042	1099	1156	1216	1276	1339	1403	1469	1536	1606	1678	1702	1702	1702	1702	1702	1702	1702
57	1050	1107	1166	1225	1287	1350	1414	1481	1550	1620	1693	1736	1736	1736	1736	1736	1736	1736
58	1058	1116	1175	1235	1297	1361	1426	1494	1563	1635	1708	1770	1770	1770	1770	1770	1770	1770
59	1065	1124	1184	1245	1307	1372	1438	1506	1576	1648	1723	1800	1804	1804	1804	1804	1804	1804
60	1073	1132	1192	1254	1317	1382	1449	1518	1589	1662	1738	1815	1838	1838	1838	1838	1838	1838
61	1081	1140	1201	1264	1327	1393	1461	1530	1602	1676	1752	1831	1873	1873	1873	1873	1873	1873
62	1089	1149	1210	1273	1337	1404	1472	1542	1615	1690	1767	1846	1908	1908	1908	1908	1908	1908
63	1096	1157	1219	1282	1347	1414	1483	1554	1628	1703	1781	1861	1943	1943	1943	1943	1943	1943
64	1104	1165	1227	1291	1357	1425	1494	1566	1640	1717	1795	1876	1960	1978	1978	1978	1978	1978
65	1111	1173	1236	1301	1367	1435	1506	1578	1653	1730	1809	1891	1976	2013	2013	2013	2013	2013
66	1119	1181	1245	1310	1377	1446	1517	1590	1665	1743	1823	1906	1992	2049	2049	2049	2049	2049
67	1126	1189	1253	1319	1386	1456	1527	1601	1678	1756	1837	1921	2007	2085	2085	2085	2085	2085
68	1133	1197	1261	1328	1396	1466	1538	1613	1690	1769	1851	1936	2023	2112	2121	2121	2121	2121
69	1141	1205	1270	1337	1405	1476	1549	1624	1702	1782	1865	1950	2038	2129	2158	2158	2158	2158
70	1148	1212	1278	1346	1415	1486	1560	1636	1714	1795	1878	1965	2053	2145	2194	2194	2194	2194
71	1155	1220	1286	1354	1424	1496	1570	1647	1726	1808	1892	1979	2069	2161	2231	2231	2231	2231
72	1162	1228	1295	1363	1434	1506	1581	1658	1738	1820	1905	1993	2084	2177	2268	2268	2268	2268

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
73	76.8	173	213	257	302	350	399	449	501	554	610	668	730	792	854	916	978	1041	1105
74	77.0	186	226	270	315	362	410	460	511	564	618	674	734	797	859	921	984	1047	1112
75	77.2	200	240	283	328	374	422	471	522	574	627	682	739	801	864	927	990	1054	1118
76	77.4	215	254	297	341	387	435	483	533	584	637	691	747	806	869	932	996	1060	1125
77	77.6	230	269	311	355	400	447	496	545	595	647	700	756	813	873	937	1001	1066	1131
78	77.8	245	283	325	369	414	461	508	557	607	658	711	765	821	880	942	1007	1072	1138
79	78.0	260	299	340	383	428	474	522	570	619	670	722	775	831	888	948	1012	1078	1144

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	1170	1235	1303	1372	1443	1516	1591	1669	1750	1833	1919	2007	2099	2193	2289	2306	2306	2306
74	1177	1243	1311	1380	1452	1526	1602	1680	1762	1845	1932	2021	2113	2208	2306	2343	2343	2343
75	1184	1250	1319	1389	1461	1536	1612	1691	1773	1858	1945	2035	2128	2224	2322	2381	2381	2381
76	1191	1258	1327	1398	1470	1545	1622	1702	1785	1870	1958	2049	2143	2239	2339	2419	2419	2419
77	1198	1265	1335	1406	1479	1555	1633	1713	1796	1882	1971	2063	2157	2255	2355	2457	2457	2457
78	1205	1273	1343	1414	1488	1564	1643	1724	1808	1894	1984	2076	2172	2270	2371	2475	2496	2496
79	1211	1280	1351	1423	1497	1574	1653	1735	1819	1907	1997	2090	2186	2285	2387	2492	2535	2535

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	INCREMENTAL			Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0.0	3.0	6.1	9.5	12.9	16.5	20.3	24.2	28.2	32.5	36.9	91.8	91.8	91.8	91.8	91.8	91.8
5	63.2	0.0	2.9	6.0	9.3	12.7	16.2	19.9	23.7	27.7	31.8	36.2	84.3	93.7	93.7	93.7	93.7	93.7
6	63.4	0.0	2.9	6.0	9.2	12.5	16.0	19.5	23.3	27.1	31.2	35.4	39.9	95.5	95.5	95.5	95.5	95.5
7	63.6	0.0	2.9	5.9	9.0	12.3	15.7	19.2	22.9	26.6	30.6	34.7	39.0	97.3	97.3	97.3	97.3	97.3
8	63.8	0.0	2.8	5.8	8.9	12.1	15.4	18.9	22.5	26.2	30.0	34.0	38.3	49.5	99.0	99.0	99.0	99.0
9	64.0	0.0	2.8	5.7	8.8	11.9	15.2	18.6	22.1	25.7	29.5	33.4	37.5	41.8	100.8	100.8	100.8	100.8
10	64.2	0.0	2.7	5.6	8.6	11.8	15.0	18.3	21.8	25.3	29.0	32.8	36.8	41.0	69.1	102.5	102.5	102.5
11	64.4	0.0	2.7	5.6	8.5	11.6	14.8	18.0	21.4	24.9	28.5	32.3	36.2	40.3	44.6	104.2	104.2	104.2
12	64.6	0.0	2.7	5.5	8.4	11.4	14.6	17.8	21.1	24.5	28.1	31.7	35.6	39.6	43.7	90.2	105.9	105.9
13	64.8	0.0	2.6	5.4	8.3	11.3	14.4	17.5	20.8	24.2	27.6	31.2	35.0	38.9	43.0	47.3	107.6	107.6
14	65.0	0.0	2.6	5.3	8.2	11.1	14.2	17.3	20.5	23.8	27.2	30.7	34.4	38.2	42.2	46.4	109.2	109.2
15	65.2	0.0	2.6	5.3	8.1	11.0	14.0	17.1	20.2	23.5	26.8	30.3	33.9	37.6	41.5	45.6	54.4	110.9
16	65.4	0.0	2.5	5.2	8.0	10.9	13.8	16.8	19.9	23.1	26.4	29.8	33.4	37.0	40.9	44.9	49.1	112.5
17	65.6	0.0	2.5	5.2	7.9	10.7	13.6	16.6	19.7	22.8	26.1	29.4	32.9	36.5	40.2	44.1	48.2	80.7
18	65.8	0.0	2.5	5.1	7.8	10.6	13.5	16.4	19.4	22.5	25.7	29.0	32.4	35.9	39.6	43.4	47.5	51.7
19	66.0	0.0	2.5	5.1	7.7	10.5	13.3	16.2	19.2	22.2	25.4	28.6	32.0	35.4	39.0	42.8	46.7	50.9
20	66.2	0.0	2.4	5.0	7.6	10.4	13.2	16.0	19.0	22.0	25.1	28.2	31.5	34.9	38.5	42.2	46.0	50.1
21	66.4	0.0	2.4	4.9	7.6	10.3	13.0	15.8	18.7	21.7	24.8	27.9	31.1	34.5	37.9	41.6	45.3	49.3
22	66.6	0.0	2.4	4.9	7.5	10.1	12.9	15.7	18.5	21.5	24.5	27.5	30.7	34.0	37.4	41.0	44.7	48.6
23	66.8	0.0	2.4	4.8	7.4	10.0	12.7	15.5	18.3	21.2	24.2	27.2	30.3	33.6	36.9	40.4	44.1	47.9
24	67.0	0.0	2.3	4.8	7.3	9.9	12.6	15.3	18.1	21.0	23.9	26.9	30.0	33.2	36.5	39.9	43.5	47.2
25	67.2	0.0	2.3	4.8	7.3	9.8	12.5	15.2	17.9	20.7	23.6	26.6	29.6	32.7	36.0	39.4	42.9	46.6
26	67.4	0.0	2.3	4.7	7.2	9.7	12.4	15.0	17.7	20.5	23.4	26.3	29.3	32.4	35.6	38.9	42.4	46.0
27	67.6	0.0	2.3	4.7	7.1	9.6	12.2	14.9	17.5	20.3	23.1	26.0	28.9	32.0	35.1	38.4	41.8	45.4
28	67.8	0.0	2.3	4.6	7.1	9.6	12.1	14.7	17.4	20.1	22.9	25.7	28.6	31.6	34.7	38.0	41.3	44.8
29	68.0	0.0	2.2	4.6	7.0	9.5	12.0	14.6	17.2	19.9	22.6	25.4	28.3	31.3	34.3	37.5	40.8	44.3
30	68.2	0.0	2.2	4.5	6.9	9.4	11.9	14.4	17.0	19.7	22.4	25.2	28.0	30.9	34.0	37.1	40.3	43.7
31	68.4	0.0	2.2	4.5	6.9	9.3	11.8	14.3	16.9	19.5	22.2	24.9	27.7	30.6	33.6	36.7	39.9	43.2
32	68.6	0.0	2.2	4.5	6.8	9.2	11.7	14.2	16.7	19.3	21.9	24.7	27.4	30.3	33.2	36.3	39.4	42.7
33	68.8	0.0	2.2	4.4	6.8	9.1	11.6	14.0	16.6	19.1	21.7	24.4	27.2	30.0	32.9	35.9	39.0	42.3
34	69.0	0.0	2.2	4.4	6.7	9.1	11.5	13.9	16.4	18.9	21.5	24.2	26.9	29.7	32.5	35.5	38.6	41.8
35	69.2	0.0	2.1	4.4	6.6	9.0	11.4	13.8	16.3	18.8	21.3	24.0	26.6	29.4	32.2	35.2	38.2	41.4
36	69.4	0.0	2.1	4.3	6.6	8.9	11.3	13.7	16.1	18.6	21.1	23.7	26.4	29.1	31.9	34.8	37.8	40.9

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	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																			
2	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8
5	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7
6	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5
7	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
8	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
9	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8
10	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5
11	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2
12	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9
13	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6
14	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2
15	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9
16	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5
17	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1
18	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7
19	111.5	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2
20	54.4	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8
21	53.5	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
22	52.7	84.7	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9
23	51.9	56.2	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4
24	51.2	55.3	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9
25	50.5	54.5	61.8	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4
26	49.8	53.8	58.0	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9
27	49.1	53.0	57.2	113.1	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3
28	48.5	52.3	56.4	60.7	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8
29	47.9	51.7	55.7	59.9	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2
30	47.3	51.0	55.0	59.1	105.3	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7
31	46.7	50.4	54.3	58.3	62.6	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1
32	46.2	49.8	53.6	57.6	61.8	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5
33	45.7	49.2	53.0	56.9	61.1	106.3	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9
34	45.2	48.7	52.3	56.2	60.3	64.6	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3
35	44.7	48.1	51.7	55.6	59.6	63.8	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7
36	44.2	47.6	51.2	54.9	58.9	63.1	117.7	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
37	69.6	0.0	2.1	4.3	6.5	8.8	11.2	13.6	16.0	18.4	21.0	23.5	26.1	28.8	31.6	34.5	37.4	40.5
38	69.8	0.0	2.1	4.3	6.5	8.8	11.1	13.5	15.8	18.3	20.8	23.3	25.9	28.6	31.3	34.1	37.1	40.1
39	70.0	0.0	2.1	4.2	6.4	8.7	11.0	13.3	15.7	18.1	20.6	23.1	25.7	28.3	31.0	33.8	36.7	39.7
40	70.2	0.0	2.1	4.2	6.4	8.6	10.9	13.2	15.6	18.0	20.4	22.9	25.4	28.0	30.7	33.5	36.3	39.3
41	70.4	0.0	2.0	4.2	6.3	8.6	10.8	13.1	15.5	17.8	20.3	22.7	25.2	27.8	30.5	33.2	36.0	38.9
42	70.6	0.0	2.0	4.1	6.3	8.5	10.7	13.0	15.3	17.7	20.1	22.5	25.0	27.6	30.2	32.9	35.7	38.6
43	70.8	0.0	2.0	4.1	6.2	8.4	10.7	12.9	15.2	17.6	19.9	22.3	24.8	27.3	29.9	32.6	35.4	38.2
44	71.0	0.0	2.0	4.1	6.2	8.4	10.6	12.8	15.1	17.4	19.8	22.2	24.6	27.1	29.7	32.3	35.1	37.9
45	71.2	0.0	2.0	4.0	6.2	8.3	10.5	12.7	15.0	17.3	19.6	22.0	24.4	26.9	29.4	32.0	34.8	37.6
46	71.4	0.0	2.0	4.0	6.1	8.3	10.4	12.6	14.9	17.2	19.5	21.8	24.2	26.7	29.2	31.8	34.5	37.2
47	71.6	0.0	2.0	4.0	6.1	8.2	10.4	12.6	14.8	17.0	19.3	21.6	24.0	26.5	28.9	31.5	34.2	36.9
48	71.8	0.0	1.9	4.0	6.0	8.1	10.3	12.5	14.7	16.9	19.2	21.5	23.8	26.2	28.7	31.3	33.9	36.6
49	72.0	0.0	1.9	3.9	6.0	8.1	10.2	12.4	14.6	16.8	19.0	21.3	23.7	26.0	28.5	31.0	33.6	36.3
50	72.2	0.0	1.9	3.9	6.0	8.0	10.1	12.3	14.5	16.7	18.9	21.2	23.5	25.8	28.3	30.8	33.3	36.0
51	72.4	0.0	1.9	3.9	5.9	8.0	10.1	12.2	14.4	16.5	18.8	21.0	23.3	25.7	28.1	30.5	33.1	35.7
52	72.6	0.0	1.9	3.9	5.9	7.9	10.0	12.1	14.3	16.4	18.6	20.9	23.1	25.5	27.8	30.3	32.8	35.4
53	72.8	0.0	1.9	3.8	5.8	7.9	9.9	12.0	14.2	16.3	18.5	20.7	23.0	25.3	27.6	30.1	32.6	35.2
54	73.0	11.3	1.9	3.8	5.8	7.8	9.9	12.0	14.1	16.2	18.4	20.6	22.8	25.1	27.4	29.9	32.3	34.9
55	73.2	19.0	1.9	3.8	5.8	7.8	9.8	11.9	14.0	16.1	18.2	20.4	22.7	24.9	27.2	29.6	32.1	34.6
56	73.4	24.6	10.9	3.8	5.7	7.7	9.8	11.8	13.9	16.0	18.1	20.3	22.5	24.7	27.1	29.4	31.9	34.4
57	73.6	29.2	20.3	3.7	5.7	7.7	9.7	11.7	13.8	15.9	18.0	20.2	22.3	24.6	26.9	29.2	31.6	34.1
58	73.8	33.1	26.0	12.1	5.7	7.6	9.6	11.7	13.7	15.8	17.9	20.0	22.2	24.4	26.7	29.0	31.4	33.9
59	74.0	36.6	30.6	21.8	5.6	7.6	9.6	11.6	13.6	15.7	17.8	19.9	22.1	24.3	26.5	28.8	31.2	33.7
60	74.2	39.8	34.6	27.6	14.0	7.5	9.5	11.5	13.5	15.6	17.7	19.8	21.9	24.1	26.3	28.6	31.0	33.4
61	74.4	42.7	38.1	32.3	23.7	7.5	9.5	11.5	13.5	15.5	17.6	19.6	21.8	23.9	26.2	28.4	30.8	33.2
62	74.6	45.5	41.3	36.2	29.5	16.6	9.4	11.4	13.4	15.4	17.4	19.5	21.6	23.8	26.0	28.2	30.6	33.0
63	74.8	48.1	44.3	39.8	34.1	25.9	9.4	11.3	13.3	15.3	17.3	19.4	21.5	23.6	25.8	28.1	30.4	32.7
64	75.0	50.6	47.0	43.0	38.1	31.6	20.0	11.3	13.2	15.2	17.2	19.3	21.4	23.5	25.7	27.9	30.2	32.5
65	75.2	52.9	49.6	45.9	41.6	36.2	28.4	11.9	13.2	15.1	17.1	19.2	21.2	23.3	25.5	27.7	30.0	32.3
66	75.4	55.2	52.1	48.7	44.8	40.1	33.9	23.6	13.1	15.0	17.0	19.1	21.1	23.2	25.3	27.5	29.8	32.1
67	75.6	57.3	54.5	51.3	47.7	43.6	38.4	31.2	15.4	15.0	16.9	18.9	21.0	23.1	25.2	27.4	29.6	31.9
68	75.8	59.4	56.7	53.8	50.5	46.8	42.3	36.5	27.3	14.9	16.8	18.8	20.9	22.9	25.0	27.2	29.4	31.7
69	76.0	61.5	58.9	56.1	53.1	49.7	45.7	40.8	34.2	20.1	16.7	18.7	20.7	22.8	24.9	27.0	29.2	31.5
70	76.2	63.4	61.0	58.4	55.6	52.4	48.8	44.6	39.2	31.2	16.6	18.6	20.6	22.7	24.7	26.9	29.1	31.3
71	76.4	65.3	63.0	60.5	57.9	55.0	51.7	48.0	43.4	37.4	26.2	18.5	20.5	22.5	24.6	26.7	28.9	31.1
72	76.6	67.1	64.9	62.6	60.1	57.4	54.5	51.1	47.1	42.2	35.2	20.4	20.4	22.4	24.4	26.5	28.7	30.9

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	43.7	47.1	50.6	54.3	58.2	62.4	66.7	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5
38	43.3	46.6	50.1	53.7	57.6	61.6	65.9	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8
39	42.8	46.1	49.5	53.2	57.0	61.0	65.2	141.4	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2
40	42.4	45.7	49.0	52.6	56.3	60.3	64.5	68.9	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5
41	42.0	45.2	48.5	52.1	55.8	59.7	63.8	68.1	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8
42	41.6	44.8	48.1	51.5	55.2	59.0	63.1	67.4	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2
43	41.2	44.3	47.6	51.0	54.6	58.4	62.4	66.6	99.9	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5
44	40.8	43.9	47.2	50.5	54.1	57.8	61.8	65.9	70.3	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8
45	40.5	43.5	46.7	50.1	53.6	57.3	61.2	65.3	69.6	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1
46	40.1	43.1	46.3	49.6	53.1	56.7	60.6	64.6	68.9	151.5	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4
47	39.8	42.8	45.9	49.1	52.6	56.2	60.0	64.0	68.2	72.6	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7
48	39.4	42.4	45.5	48.7	52.1	55.7	59.4	63.4	67.5	71.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9
49	39.1	42.0	45.1	48.3	51.6	55.1	58.9	62.8	66.9	71.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2
50	38.8	41.7	44.7	47.9	51.2	54.7	58.3	62.2	66.3	70.5	136.1	160.5	160.5	160.5	160.5	160.5	160.5	160.5	160.5
51	38.5	41.3	44.3	47.4	50.7	54.2	57.8	61.6	65.6	69.9	74.3	161.7	161.7	161.7	161.7	161.7	161.7	161.7	161.7
52	38.2	41.0	44.0	47.0	50.3	53.7	57.3	61.1	65.0	69.2	73.6	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
53	37.9	40.7	43.6	46.7	49.9	53.2	56.8	60.5	64.5	68.6	73.0	164.2	164.2	164.2	164.2	164.2	164.2	164.2	164.2
54	37.6	40.4	43.3	46.3	49.5	52.8	56.3	60.0	63.9	68.0	72.3	134.9	165.5	165.5	165.5	165.5	165.5	165.5	165.5
55	37.3	40.0	42.9	45.9	49.1	52.4	55.8	59.5	63.3	67.4	71.6	76.1	166.7	166.7	166.7	166.7	166.7	166.7	166.7
56	37.0	39.7	42.6	45.6	48.7	51.9	55.4	59.0	62.8	66.8	71.0	75.4	167.9	167.9	167.9	167.9	167.9	167.9	167.9
57	36.7	39.4	42.3	45.2	48.3	51.5	54.9	58.5	62.3	66.2	70.4	74.8	169.2	169.2	169.2	169.2	169.2	169.2	169.2
58	36.5	39.1	41.9	44.9	47.9	51.1	54.5	58.0	61.8	65.7	69.8	74.1	149.8	170.4	170.4	170.4	170.4	170.4	170.4
59	36.2	38.9	41.6	44.5	47.6	50.7	54.1	57.6	61.3	65.1	69.2	73.5	78.0	171.6	171.6	171.6	171.6	171.6	171.6
60	36.0	38.6	41.3	44.2	47.2	50.3	53.7	57.1	60.8	64.6	68.7	72.9	77.4	172.8	172.8	172.8	172.8	172.8	172.8
61	35.7	38.3	41.0	43.9	46.8	50.0	53.2	56.7	60.3	64.1	68.1	72.3	76.7	174.0	174.0	174.0	174.0	174.0	174.0
62	35.5	38.0	40.7	43.6	46.5	49.6	52.8	56.3	59.8	63.6	67.6	71.7	76.1	175.2	175.2	175.2	175.2	175.2	175.2
63	35.2	37.8	40.5	43.2	46.2	49.2	52.5	55.8	59.4	63.1	67.0	71.2	75.5	87.2	176.4	176.4	176.4	176.4	176.4
64	35.0	37.5	40.2	42.9	45.8	48.9	52.1	55.4	58.9	62.6	66.5	70.6	74.9	79.4	177.5	177.5	177.5	177.5	177.5
65	34.7	37.3	39.9	42.6	45.5	48.5	51.7	55.0	58.5	62.2	66.0	70.1	74.3	78.7	178.7	178.7	178.7	178.7	178.7
66	34.5	37.0	39.6	42.4	45.2	48.2	51.3	54.6	58.1	61.7	65.5	69.5	73.7	78.1	179.9	179.9	179.9	179.9	179.9
67	34.3	36.8	39.4	42.1	44.9	47.9	51.0	54.2	57.7	61.3	65.0	69.0	73.2	77.5	136.4	181.0	181.0	181.0	181.0
68	34.1	36.5	39.1	41.8	44.6	47.5	50.6	53.9	57.3	60.8	64.6	68.5	72.6	76.9	81.5	182.2	182.2	182.2	182.2
69	33.9	36.3	38.9	41.5	44.3	47.2	50.3	53.5	56.9	60.4	64.1	68.0	72.1	76.4	80.9	183.3	183.3	183.3	183.3
70	33.7	36.1	38.6	41.3	44.0	46.9	49.9	53.1	56.5	60.0	63.7	67.5	71.6	75.8	80.3	184.5	184.5	184.5	184.5
71	33.5	35.9	38.4	41.0	43.7	46.6	49.6	52.8	56.1	59.6	63.2	67.0	71.1	75.3	79.7	185.6	185.6	185.6	185.6
72	33.2	35.6	38.1	40.7	43.5	46.3	49.3	52.4	55.7	59.2	62.8	66.6	70.6	74.7	79.1	104.2	186.8	186.8	186.8

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
73	76.8	68.9	66.8	64.6	62.3	59.8	57.0	53.9	50.4	46.2	40.8	32.3	20.3	22.3	24.3	26.4	28.5	30.8
74	77.0	70.7	68.7	66.6	64.4	62.0	59.4	56.6	53.4	49.8	45.3	39.2	27.1	22.1	24.2	26.2	28.4	30.6
75	77.2	72.4	70.4	68.4	66.4	64.1	61.7	59.1	56.2	53.0	49.1	44.3	37.5	23.4	24.0	26.1	28.2	30.4
76	77.4	74.0	72.2	70.3	68.3	66.2	64.0	61.5	58.9	55.9	52.6	48.5	43.4	35.2	23.9	26.0	28.1	30.2
77	77.6	75.7	73.9	72.1	70.2	68.2	66.1	63.8	61.4	58.7	55.7	52.2	48.0	42.4	31.5	25.8	27.9	30.1
78	77.8	77.3	75.5	73.8	72.0	70.1	68.1	66.0	63.7	61.3	58.6	55.5	51.9	47.6	41.5	28.8	27.7	29.9
79	78.0																	

RD5-1487

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	33.0	35.4	37.9	40.5	43.2	46.0	49.0	52.1	55.3	58.8	62.4	66.1	70.1	74.2	78.5	83.0	187.9	187.9	187.9
74	32.9	35.2	37.7	40.2	42.9	45.7	48.7	51.7	55.0	58.4	61.9	65.7	69.6	73.7	78.0	82.4	189.0	189.0	189.0
75	32.7	35.0	37.4	40.0	42.7	45.4	48.4	51.4	54.6	58.0	61.5	65.2	69.1	73.2	77.4	81.9	190.2	190.2	190.2
76	32.5	34.8	37.2	39.8	42.4	45.2	48.1	51.1	54.3	57.6	61.1	64.8	68.7	72.7	76.9	81.3	191.3	191.3	191.3
77	32.3	34.6	37.0	39.5	42.1	44.9	47.8	50.8	53.9	57.3	60.7	64.4	68.2	72.2	76.4	80.8	87.4	192.4	192.4
78	32.1	34.4	36.8	39.3	41.9	44.6	47.5	50.5	53.6	56.9	60.4	64.0	67.8	71.7	75.9	80.2	84.7	193.5	193.5
79																			

	A	B
1	Somerset Dam Actual and Projected Releases	
2	Source: Seqwater FOC	
3	02/01/2011 09:00:00	34
4	02/01/2011 10:00:00	34
5	02/01/2011 11:00:00	34
6	02/01/2011 12:00:00	34
7	02/01/2011 13:00:00	34
8	02/01/2011 14:00:00	34
9	02/01/2011 15:00:00	34
10	02/01/2011 16:00:00	34
11	02/01/2011 17:00:00	34
12	02/01/2011 18:00:00	34
13	02/01/2011 19:00:00	34
14	02/01/2011 20:00:00	34
15	02/01/2011 21:00:00	34
16	02/01/2011 22:00:00	34
17	02/01/2011 23:00:00	34
18	03/01/2011 00:00:00	34
19	03/01/2011 01:00:00	34
20	03/01/2011 02:00:00	34
21	03/01/2011 03:00:00	34
22	03/01/2011 04:00:00	34
23	03/01/2011 05:00:00	34
24	03/01/2011 06:00:00	34
25	03/01/2011 07:00:00	34
26	03/01/2011 08:00:00	34
27	03/01/2011 09:00:00	34
28	03/01/2011 10:00:00	34
29	03/01/2011 11:00:00	34
30	03/01/2011 12:00:00	34
31	03/01/2011 13:00:00	34
32	03/01/2011 14:00:00	34
33	03/01/2011 15:00:00	34
34	03/01/2011 16:00:00	34
35	03/01/2011 17:00:00	34
36	03/01/2011 18:00:00	34
37	03/01/2011 19:00:00	34
38	03/01/2011 20:00:00	34

	A	B
39	03/01/2011 21:00:00	34
40	03/01/2011 22:00:00	34
41	03/01/2011 23:00:00	34
42	04/01/2011 00:00:00	34
43	04/01/2011 01:00:00	34
44	04/01/2011 02:00:00	34
45	04/01/2011 03:00:00	34
46	04/01/2011 04:00:00	34
47	04/01/2011 05:00:00	34
48	04/01/2011 06:00:00	34
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50	04/01/2011 08:00:00	34
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52	04/01/2011 10:00:00	34
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54	04/01/2011 12:00:00	34
55	04/01/2011 13:00:00	34
56	04/01/2011 14:00:00	34
57	04/01/2011 15:00:00	34
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59	04/01/2011 17:00:00	34
60	04/01/2011 18:00:00	34
61	04/01/2011 19:00:00	34
62	04/01/2011 20:00:00	34
63	04/01/2011 21:00:00	34
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65	04/01/2011 23:00:00	34
66	05/01/2011 00:00:00	34
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68	05/01/2011 02:00:00	34
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70	05/01/2011 04:00:00	34
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72	05/01/2011 06:00:00	34
73	05/01/2011 07:00:00	34
74	05/01/2011 08:00:00	34
75	05/01/2011 09:00:00	34
76	05/01/2011 10:00:00	34

	A	B
77	05/01/2011 11:00:00	34
78	05/01/2011 12:00:00	34
79	05/01/2011 13:00:00	34
80	05/01/2011 14:00:00	34
81	05/01/2011 15:00:00	34
82	05/01/2011 16:00:00	34
83	05/01/2011 17:00:00	34
84	05/01/2011 18:00:00	34
85	05/01/2011 19:00:00	34
86	05/01/2011 20:00:00	34
87	05/01/2011 21:00:00	34
88	05/01/2011 22:00:00	34
89	05/01/2011 23:00:00	34
90	06/01/2011 00:00:00	34
91	06/01/2011 01:00:00	34
92	06/01/2011 02:00:00	34
93	06/01/2011 03:00:00	34
94	06/01/2011 04:00:00	34
95	06/01/2011 05:00:00	34
96	06/01/2011 06:00:00	34
97	06/01/2011 07:00:00	34
98	06/01/2011 08:00:00	35
99	06/01/2011 09:00:00	35
100	06/01/2011 10:00:00	35
101	06/01/2011 11:00:00	35
102	06/01/2011 12:00:00	35
103	06/01/2011 13:00:00	35
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105	06/01/2011 15:00:00	35
106	06/01/2011 16:00:00	35
107	06/01/2011 17:00:00	35
108	06/01/2011 18:00:00	35
109	06/01/2011 19:00:00	35
110	06/01/2011 20:00:00	35
111	06/01/2011 21:00:00	35
112	06/01/2011 22:00:00	35
113	06/01/2011 23:00:00	35
114	07/01/2011 00:00:00	35

	A	B
115	07/01/2011 01:00:00	35
116	07/01/2011 02:00:00	35
117	07/01/2011 03:00:00	35
118	07/01/2011 04:00:00	35
119	07/01/2011 05:00:00	35
120	07/01/2011 06:00:00	35
121	07/01/2011 07:00:00	35
122	07/01/2011 08:00:00	35
123	07/01/2011 09:00:00	35
124	07/01/2011 10:00:00	35
125	07/01/2011 11:00:00	35
126	07/01/2011 12:00:00	35
127	07/01/2011 13:00:00	35
128	07/01/2011 14:00:00	35
129	07/01/2011 15:00:00	35
130	07/01/2011 16:00:00	35
131	07/01/2011 17:00:00	70
132	07/01/2011 18:00:00	70
133	07/01/2011 19:00:00	206
134	07/01/2011 20:00:00	206
135	07/01/2011 21:00:00	206
136	07/01/2011 22:00:00	206
137	07/01/2011 23:00:00	206
138	08/01/2011 00:00:00	206
139	08/01/2011 01:00:00	206
140	08/01/2011 02:00:00	206
141	08/01/2011 03:00:00	207
142	08/01/2011 04:00:00	207
143	08/01/2011 05:00:00	207
144	08/01/2011 06:00:00	207
145	08/01/2011 07:00:00	207
146	08/01/2011 08:00:00	207
147	08/01/2011 09:00:00	207
148	08/01/2011 10:00:00	207
149	08/01/2011 11:00:00	208
150	08/01/2011 12:00:00	414
151	08/01/2011 13:00:00	414
152	08/01/2011 14:00:00	414

	A	B
153	08/01/2011 15:00:00	413
154	08/01/2011 16:00:00	413
155	08/01/2011 17:00:00	413
156	08/01/2011 18:00:00	413
157	08/01/2011 19:00:00	413
158	08/01/2011 20:00:00	413
159	08/01/2011 21:00:00	413
160	08/01/2011 22:00:00	413
161	08/01/2011 23:00:00	413
162	09/01/2011 00:00:00	412
163	09/01/2011 01:00:00	412
164	09/01/2011 02:00:00	412
165	09/01/2011 03:00:00	412
166	09/01/2011 04:00:00	412
167	09/01/2011 05:00:00	412
168	09/01/2011 06:00:00	412
169	09/01/2011 07:00:00	412
170	09/01/2011 08:00:00	412
171	09/01/2011 09:00:00	618
172	09/01/2011 10:00:00	619
173	09/01/2011 11:00:00	619
174	09/01/2011 12:00:00	619
175	09/01/2011 13:00:00	826
176	09/01/2011 14:00:00	1034
177	09/01/2011 15:00:00	1036
178	09/01/2011 16:00:00	1042
179	09/01/2011 17:00:00	1053
180	09/01/2011 18:00:00	1073
181	09/01/2011 19:00:00	1099
182	09/01/2011 20:00:00	1128
183	09/01/2011 21:00:00	1161
184	09/01/2011 22:00:00	1194
185	09/01/2011 23:00:00	1228
186	10/01/2011 00:00:00	1262
187	10/01/2011 01:00:00	1296
188	10/01/2011 02:00:00	1327
189	10/01/2011 03:00:00	1356
190	10/01/2011 04:00:00	1383

	A	B
191	10/01/2011 05:00:00	1408
192	10/01/2011 06:00:00	1433
193	10/01/2011 07:00:00	1455
194	10/01/2011 08:00:00	1476
195	10/01/2011 09:00:00	1496
196	10/01/2011 10:00:00	1513
197	10/01/2011 11:00:00	1531
198	10/01/2011 12:00:00	1556
199	10/01/2011 13:00:00	1585
200	10/01/2011 14:00:00	1608
201	10/01/2011 15:00:00	1625
202	10/01/2011 16:00:00	1638
203	10/01/2011 17:00:00	1646
204	10/01/2011 18:00:00	1651
205	10/01/2011 19:00:00	1654
206	10/01/2011 20:00:00	1656
207	10/01/2011 21:00:00	1656
208	10/01/2011 22:00:00	1655
209	10/01/2011 23:00:00	1652
210	11/01/2011 00:00:00	1646
211	11/01/2011 01:00:00	1640
212	11/01/2011 02:00:00	1632
213	11/01/2011 03:00:00	1624
214	11/01/2011 04:00:00	1616
215	11/01/2011 05:00:00	1396
216	11/01/2011 06:00:00	1188
217	11/01/2011 07:00:00	989
218	11/01/2011 08:00:00	795
219	11/01/2011 09:00:00	602
220	11/01/2011 10:00:00	628
221	11/01/2011 11:00:00	655
222	11/01/2011 12:00:00	687
223	11/01/2011 13:00:00	728
224	11/01/2011 14:00:00	779
225	11/01/2011 15:00:00	832
226	11/01/2011 16:00:00	884
227	11/01/2011 17:00:00	933
228	11/01/2011 18:00:00	982

	A	B
229	11/01/2011 19:00:00	1030
230	11/01/2011 20:00:00	1076
231	11/01/2011 21:00:00	1118
232	11/01/2011 22:00:00	1157
233	11/01/2011 23:00:00	1190
234	12/01/2011 00:00:00	1220
235	12/01/2011 01:00:00	1245
236	12/01/2011 02:00:00	1267
237	12/01/2011 03:00:00	1284
238	12/01/2011 04:00:00	1298
239	12/01/2011 05:00:00	1308
240	12/01/2011 06:00:00	1316
241	12/01/2011 07:00:00	1320
242	12/01/2011 08:00:00	1322
243	12/01/2011 09:00:00	1322
244	12/01/2011 10:00:00	1319
245	12/01/2011 11:00:00	1539
246	12/01/2011 12:00:00	1528
247	12/01/2011 13:00:00	1515
248	12/01/2011 14:00:00	1501
249	12/01/2011 15:00:00	1487
250	12/01/2011 16:00:00	1471
251	12/01/2011 17:00:00	1454
252	12/01/2011 18:00:00	1437
253	12/01/2011 19:00:00	1419
254	12/01/2011 20:00:00	1401
255	12/01/2011 21:00:00	1383
256	12/01/2011 22:00:00	1364
257	12/01/2011 23:00:00	1345
258	13/01/2011 00:00:00	1326
259	13/01/2011 01:00:00	1306
260	13/01/2011 02:00:00	1287
261	13/01/2011 03:00:00	1268
262	13/01/2011 04:00:00	1248
263	13/01/2011 05:00:00	1229
264	13/01/2011 06:00:00	1210
265	13/01/2011 07:00:00	1191
266	13/01/2011 08:00:00	1172

	A	B
267	13/01/2011 09:00:00	1374
268	13/01/2011 10:00:00	1351
269	13/01/2011 11:00:00	1328
270	13/01/2011 12:00:00	1305
271	13/01/2011 13:00:00	1502
272	13/01/2011 14:00:00	1476
273	13/01/2011 15:00:00	1449
274	13/01/2011 16:00:00	1423
275	13/01/2011 17:00:00	1398
276	13/01/2011 18:00:00	1373
277	13/01/2011 19:00:00	1349
278	13/01/2011 20:00:00	1326
279	13/01/2011 21:00:00	1521
280	13/01/2011 22:00:00	1493
281	13/01/2011 23:00:00	1467
282	14/01/2011 00:00:00	1441
283	14/01/2011 01:00:00	1416
284	14/01/2011 02:00:00	1391
285	14/01/2011 03:00:00	1367
286	14/01/2011 04:00:00	1344
287	14/01/2011 05:00:00	1321
288	14/01/2011 06:00:00	1299
289	14/01/2011 07:00:00	1278
290	14/01/2011 08:00:00	1257
291	14/01/2011 09:00:00	1237
292	14/01/2011 10:00:00	1217
293	14/01/2011 11:00:00	1198
294	14/01/2011 12:00:00	1180
295	14/01/2011 13:00:00	1162
296	14/01/2011 14:00:00	1144
297	14/01/2011 15:00:00	1127
298	14/01/2011 16:00:00	1111
299	14/01/2011 17:00:00	1095
300	14/01/2011 18:00:00	1079
301	14/01/2011 19:00:00	1064
302	14/01/2011 20:00:00	1050
303	14/01/2011 21:00:00	1036
304	14/01/2011 22:00:00	1022

	A	B
305	14/01/2011 23:00:00	1009
306	15/01/2011 00:00:00	996
307	15/01/2011 01:00:00	984
308	15/01/2011 02:00:00	972
309	15/01/2011 03:00:00	961
310	15/01/2011 04:00:00	950
311	15/01/2011 05:00:00	939
312	15/01/2011 06:00:00	929
313	15/01/2011 07:00:00	919
314	15/01/2011 08:00:00	910
315	15/01/2011 09:00:00	901
316	15/01/2011 10:00:00	893
317	15/01/2011 11:00:00	884
318	15/01/2011 12:00:00	877
319	15/01/2011 13:00:00	870
320	15/01/2011 14:00:00	863
321	15/01/2011 15:00:00	857
322	15/01/2011 16:00:00	851
323	15/01/2011 17:00:00	846
324	15/01/2011 18:00:00	841
325	15/01/2011 19:00:00	836
326	15/01/2011 20:00:00	833
327	15/01/2011 21:00:00	830
328	15/01/2011 22:00:00	827
329	15/01/2011 23:00:00	826
330	16/01/2011 00:00:00	825
331	16/01/2011 01:00:00	824
332	16/01/2011 02:00:00	824
333	16/01/2011 03:00:00	823
334	16/01/2011 04:00:00	822
335	16/01/2011 05:00:00	821
336	16/01/2011 06:00:00	820
337	16/01/2011 07:00:00	819
338	16/01/2011 08:00:00	818
339	16/01/2011 09:00:00	817
340	16/01/2011 10:00:00	612
341	16/01/2011 11:00:00	612
342	16/01/2011 12:00:00	611

	A	B
343	16/01/2011 13:00:00	611
344	16/01/2011 14:00:00	610
345	16/01/2011 15:00:00	610
346	16/01/2011 16:00:00	609
347	16/01/2011 17:00:00	609
348	16/01/2011 18:00:00	608
349	16/01/2011 19:00:00	608
350	16/01/2011 20:00:00	607
351	16/01/2011 21:00:00	607
352	16/01/2011 22:00:00	404
353	16/01/2011 23:00:00	404
354	17/01/2011 00:00:00	404
355	17/01/2011 01:00:00	403
356	17/01/2011 02:00:00	403
357	17/01/2011 03:00:00	201
358	17/01/2011 04:00:00	201
359	17/01/2011 05:00:00	201
360	17/01/2011 06:00:00	201
361	17/01/2011 07:00:00	69
362	17/01/2011 08:00:00	69
363	17/01/2011 09:00:00	69
364	17/01/2011 10:00:00	69
365	17/01/2011 11:00:00	69
366	17/01/2011 12:00:00	69
367	17/01/2011 13:00:00	69
368	17/01/2011 14:00:00	69
369	17/01/2011 15:00:00	69
370	17/01/2011 16:00:00	69
371	17/01/2011 17:00:00	69
372	17/01/2011 18:00:00	69
373	17/01/2011 19:00:00	69
374	17/01/2011 20:00:00	69
375	17/01/2011 21:00:00	69
376	17/01/2011 22:00:00	69
377	17/01/2011 23:00:00	69
378	18/01/2011 00:00:00	69
379	18/01/2011 01:00:00	69
380	18/01/2011 02:00:00	69

	A	B
381	18/01/2011 03:00:00	69
382	18/01/2011 04:00:00	69
383	18/01/2011 05:00:00	69
384	18/01/2011 06:00:00	69
385	18/01/2011 07:00:00	0
386	18/01/2011 08:00:00	0
387	18/01/2011 09:00:00	0
388	18/01/2011 10:00:00	0
389	18/01/2011 11:00:00	0
390	18/01/2011 12:00:00	0
391	18/01/2011 13:00:00	0
392	18/01/2011 14:00:00	0
393	18/01/2011 15:00:00	0
394	18/01/2011 16:00:00	0
395	18/01/2011 17:00:00	0
396	18/01/2011 18:00:00	0
397	18/01/2011 19:00:00	0
398	18/01/2011 20:00:00	0
399	18/01/2011 21:00:00	0
400	18/01/2011 22:00:00	0
401	18/01/2011 23:00:00	0
402	19/01/2011 00:00:00	0
403	19/01/2011 01:00:00	0
404	19/01/2011 02:00:00	0
405	19/01/2011 03:00:00	0
406	19/01/2011 04:00:00	0
407	19/01/2011 05:00:00	0
408	19/01/2011 06:00:00	0
409	19/01/2011 07:00:00	0
410	19/01/2011 08:00:00	0
411	19/01/2011 09:00:00	0
412	19/01/2011 10:00:00	0
413	19/01/2011 11:00:00	0
414	19/01/2011 12:00:00	0
415	19/01/2011 13:00:00	0
416	19/01/2011 14:00:00	0
417	19/01/2011 15:00:00	0
418	19/01/2011 16:00:00	0

	A	B
419	19/01/2011 17:00:00	0
420	19/01/2011 18:00:00	0
421	19/01/2011 19:00:00	0

	A	B
1	Wivenhoe Dam Actual and Projected Releases	
2	Source: Seqwater FOC	
3	02/01/2011 09:00:00	50
4	02/01/2011 10:00:00	50
5	02/01/2011 11:00:00	50
6	02/01/2011 12:00:00	50
7	02/01/2011 13:00:00	50
8	02/01/2011 14:00:00	50
9	02/01/2011 15:00:00	50
10	02/01/2011 16:00:00	50
11	02/01/2011 17:00:00	50
12	02/01/2011 18:00:00	50
13	02/01/2011 19:00:00	50
14	02/01/2011 20:00:00	50
15	02/01/2011 21:00:00	50
16	02/01/2011 22:00:00	50
17	02/01/2011 23:00:00	50
18	03/01/2011 00:00:00	50
19	03/01/2011 01:00:00	50
20	03/01/2011 02:00:00	50
21	03/01/2011 03:00:00	50
22	03/01/2011 04:00:00	50
23	03/01/2011 05:00:00	50
24	03/01/2011 06:00:00	50
25	03/01/2011 07:00:00	50
26	03/01/2011 08:00:00	50
27	03/01/2011 09:00:00	50
28	03/01/2011 10:00:00	50
29	03/01/2011 11:00:00	50
30	03/01/2011 12:00:00	50
31	03/01/2011 13:00:00	50
32	03/01/2011 14:00:00	50
33	03/01/2011 15:00:00	50
34	03/01/2011 16:00:00	50
35	03/01/2011 17:00:00	50
36	03/01/2011 18:00:00	50
37	03/01/2011 19:00:00	50
38	03/01/2011 20:00:00	50

	A	B
39	03/01/2011 21:00:00	50
40	03/01/2011 22:00:00	50
41	03/01/2011 23:00:00	50
42	04/01/2011 00:00:00	50
43	04/01/2011 01:00:00	50
44	04/01/2011 02:00:00	50
45	04/01/2011 03:00:00	50
46	04/01/2011 04:00:00	50
47	04/01/2011 05:00:00	50
48	04/01/2011 06:00:00	50
49	04/01/2011 07:00:00	50
50	04/01/2011 08:00:00	50
51	04/01/2011 09:00:00	50
52	04/01/2011 10:00:00	50
53	04/01/2011 11:00:00	50
54	04/01/2011 12:00:00	50
55	04/01/2011 13:00:00	50
56	04/01/2011 14:00:00	50
57	04/01/2011 15:00:00	50
58	04/01/2011 16:00:00	50
59	04/01/2011 17:00:00	50
60	04/01/2011 18:00:00	50
61	04/01/2011 19:00:00	50
62	04/01/2011 20:00:00	50
63	04/01/2011 21:00:00	50
64	04/01/2011 22:00:00	50
65	04/01/2011 23:00:00	50
66	05/01/2011 00:00:00	50
67	05/01/2011 01:00:00	50
68	05/01/2011 02:00:00	50
69	05/01/2011 03:00:00	50
70	05/01/2011 04:00:00	50
71	05/01/2011 05:00:00	50
72	05/01/2011 06:00:00	50
73	05/01/2011 07:00:00	50
74	05/01/2011 08:00:00	50
75	05/01/2011 09:00:00	50
76	05/01/2011 10:00:00	50

	A	B
77	05/01/2011 11:00:00	50
78	05/01/2011 12:00:00	50
79	05/01/2011 13:00:00	50
80	05/01/2011 14:00:00	50
81	05/01/2011 15:00:00	50
82	05/01/2011 16:00:00	50
83	05/01/2011 17:00:00	50
84	05/01/2011 18:00:00	50
85	05/01/2011 19:00:00	50
86	05/01/2011 20:00:00	50
87	05/01/2011 21:00:00	50
88	05/01/2011 22:00:00	50
89	05/01/2011 23:00:00	50
90	06/01/2011 00:00:00	50
91	06/01/2011 01:00:00	50
92	06/01/2011 02:00:00	50
93	06/01/2011 03:00:00	50
94	06/01/2011 04:00:00	50
95	06/01/2011 05:00:00	50
96	06/01/2011 06:00:00	50
97	06/01/2011 07:00:00	50
98	06/01/2011 08:00:00	50
99	06/01/2011 09:00:00	50
100	06/01/2011 10:00:00	50
101	06/01/2011 11:00:00	50
102	06/01/2011 12:00:00	50
103	06/01/2011 13:00:00	50
104	06/01/2011 14:00:00	50
105	06/01/2011 15:00:00	50
106	06/01/2011 16:00:00	50
107	06/01/2011 17:00:00	50
108	06/01/2011 18:00:00	50
109	06/01/2011 19:00:00	50
110	06/01/2011 20:00:00	50
111	06/01/2011 21:00:00	50
112	06/01/2011 22:00:00	50
113	06/01/2011 23:00:00	50
114	07/01/2011 00:00:00	50

	A	B
115	07/01/2011 01:00:00	50
116	07/01/2011 02:00:00	50
117	07/01/2011 03:00:00	50
118	07/01/2011 04:00:00	50
119	07/01/2011 05:00:00	50
120	07/01/2011 06:00:00	50
121	07/01/2011 07:00:00	50
122	07/01/2011 08:00:00	50
123	07/01/2011 09:00:00	50
124	07/01/2011 10:00:00	50
125	07/01/2011 11:00:00	50
126	07/01/2011 12:00:00	50
127	07/01/2011 13:00:00	50
128	07/01/2011 14:00:00	50
129	07/01/2011 15:00:00	65
130	07/01/2011 16:00:00	117
131	07/01/2011 17:00:00	169
132	07/01/2011 18:00:00	220
133	07/01/2011 19:00:00	270
134	07/01/2011 20:00:00	319
135	07/01/2011 21:00:00	368
136	07/01/2011 22:00:00	421
137	07/01/2011 23:00:00	474
138	08/01/2011 00:00:00	528
139	08/01/2011 01:00:00	581
140	08/01/2011 02:00:00	635
141	08/01/2011 03:00:00	689
142	08/01/2011 04:00:00	743
143	08/01/2011 05:00:00	797
144	08/01/2011 06:00:00	851
145	08/01/2011 07:00:00	905
146	08/01/2011 08:00:00	954
147	08/01/2011 09:00:00	1007
148	08/01/2011 10:00:00	1060
149	08/01/2011 11:00:00	1114
150	08/01/2011 12:00:00	1168
151	08/01/2011 13:00:00	1220
152	08/01/2011 14:00:00	1272

	A	B
153	08/01/2011 15:00:00	1272
154	08/01/2011 16:00:00	1273
155	08/01/2011 17:00:00	1273
156	08/01/2011 18:00:00	1273
157	08/01/2011 19:00:00	1273
158	08/01/2011 20:00:00	1274
159	08/01/2011 21:00:00	1273
160	08/01/2011 22:00:00	1273
161	08/01/2011 23:00:00	1273
162	09/01/2011 00:00:00	1273
163	09/01/2011 01:00:00	1273
164	09/01/2011 02:00:00	1319
165	09/01/2011 03:00:00	1319
166	09/01/2011 04:00:00	1318
167	09/01/2011 05:00:00	1370
168	09/01/2011 06:00:00	1369
169	09/01/2011 07:00:00	1369
170	09/01/2011 08:00:00	1368
171	09/01/2011 09:00:00	1367
172	09/01/2011 10:00:00	1367
173	09/01/2011 11:00:00	1367
174	09/01/2011 12:00:00	1420
175	09/01/2011 13:00:00	1420
176	09/01/2011 14:00:00	1421
177	09/01/2011 15:00:00	1423
178	09/01/2011 16:00:00	1426
179	09/01/2011 17:00:00	1429
180	09/01/2011 18:00:00	1433
181	09/01/2011 19:00:00	1438
182	09/01/2011 20:00:00	1443
183	09/01/2011 21:00:00	1449
184	09/01/2011 22:00:00	1457
185	09/01/2011 23:00:00	1465
186	10/01/2011 00:00:00	1475
187	10/01/2011 01:00:00	1486
188	10/01/2011 02:00:00	1552
189	10/01/2011 03:00:00	1619
190	10/01/2011 04:00:00	1687

	A	B
191	10/01/2011 05:00:00	1756
192	10/01/2011 06:00:00	1824
193	10/01/2011 07:00:00	1893
194	10/01/2011 08:00:00	1963
195	10/01/2011 09:00:00	2033
196	10/01/2011 10:00:00	2046
197	10/01/2011 11:00:00	2058
198	10/01/2011 12:00:00	2070
199	10/01/2011 13:00:00	2082
200	10/01/2011 14:00:00	2092
201	10/01/2011 15:00:00	2102
202	10/01/2011 16:00:00	2168
203	10/01/2011 17:00:00	2288
204	10/01/2011 18:00:00	2412
205	10/01/2011 19:00:00	2532
206	10/01/2011 20:00:00	2711
207	10/01/2011 21:00:00	2719
208	10/01/2011 22:00:00	2725
209	10/01/2011 23:00:00	2732
210	11/01/2011 00:00:00	2738
211	11/01/2011 01:00:00	2743
212	11/01/2011 02:00:00	2748
213	11/01/2011 03:00:00	2752
214	11/01/2011 04:00:00	2756
215	11/01/2011 05:00:00	2761
216	11/01/2011 06:00:00	2767
217	11/01/2011 07:00:00	2772
218	11/01/2011 08:00:00	2778
219	11/01/2011 09:00:00	3002
220	11/01/2011 10:00:00	3351
221	11/01/2011 11:00:00	3529
222	11/01/2011 12:00:00	3651
223	11/01/2011 13:00:00	4226
224	11/01/2011 14:00:00	4521
225	11/01/2011 15:00:00	5109
226	11/01/2011 16:00:00	5715
227	11/01/2011 17:00:00	6346
228	11/01/2011 18:00:00	6678

	A	B
229	11/01/2011 19:00:00	7359
230	11/01/2011 20:00:00	7362
231	11/01/2011 21:00:00	7363
232	11/01/2011 22:00:00	7021
233	11/01/2011 23:00:00	7020
234	12/01/2011 00:00:00	6049
235	12/01/2011 01:00:00	6050
236	12/01/2011 02:00:00	5442
237	12/01/2011 03:00:00	5443
238	12/01/2011 04:00:00	4856
239	12/01/2011 05:00:00	4281
240	12/01/2011 06:00:00	3709
241	12/01/2011 07:00:00	3132
242	12/01/2011 08:00:00	2538
243	12/01/2011 09:00:00	2541
244	12/01/2011 10:00:00	2544
245	12/01/2011 11:00:00	2546
246	12/01/2011 12:00:00	2548
247	12/01/2011 13:00:00	2550
248	12/01/2011 14:00:00	2552
249	12/01/2011 15:00:00	2553
250	12/01/2011 16:00:00	2555
251	12/01/2011 17:00:00	2556
252	12/01/2011 18:00:00	2556
253	12/01/2011 19:00:00	2557
254	12/01/2011 20:00:00	2557
255	12/01/2011 21:00:00	2558
256	12/01/2011 22:00:00	2558
257	12/01/2011 23:00:00	2558
258	13/01/2011 00:00:00	2557
259	13/01/2011 01:00:00	2557
260	13/01/2011 02:00:00	2557
261	13/01/2011 03:00:00	2556
262	13/01/2011 04:00:00	2555
263	13/01/2011 05:00:00	2554
264	13/01/2011 06:00:00	2553
265	13/01/2011 07:00:00	2552
266	13/01/2011 08:00:00	2551

	A	B
267	13/01/2011 09:00:00	2550
268	13/01/2011 10:00:00	2549
269	13/01/2011 11:00:00	2548
270	13/01/2011 12:00:00	2547
271	13/01/2011 13:00:00	2606
272	13/01/2011 14:00:00	2665
273	13/01/2011 15:00:00	2665
274	13/01/2011 16:00:00	2784
275	13/01/2011 17:00:00	2842
276	13/01/2011 18:00:00	2900
277	13/01/2011 19:00:00	3016
278	13/01/2011 20:00:00	3131
279	13/01/2011 21:00:00	3244
280	13/01/2011 22:00:00	3299
281	13/01/2011 23:00:00	3354
282	14/01/2011 00:00:00	3408
283	14/01/2011 01:00:00	3461
284	14/01/2011 02:00:00	3514
285	14/01/2011 03:00:00	3567
286	14/01/2011 04:00:00	3562
287	14/01/2011 05:00:00	3557
288	14/01/2011 06:00:00	3552
289	14/01/2011 07:00:00	3546
290	14/01/2011 08:00:00	3541
291	14/01/2011 09:00:00	3536
292	14/01/2011 10:00:00	3530
293	14/01/2011 11:00:00	3524
294	14/01/2011 12:00:00	3519
295	14/01/2011 13:00:00	3513
296	14/01/2011 14:00:00	3507
297	14/01/2011 15:00:00	3501
298	14/01/2011 16:00:00	3495
299	14/01/2011 17:00:00	3489
300	14/01/2011 18:00:00	3483
301	14/01/2011 19:00:00	3532
302	14/01/2011 20:00:00	3526
303	14/01/2011 21:00:00	3519
304	14/01/2011 22:00:00	3513

	A	B
305	14/01/2011 23:00:00	3506
306	15/01/2011 00:00:00	3499
307	15/01/2011 01:00:00	3492
308	15/01/2011 02:00:00	3485
309	15/01/2011 03:00:00	3533
310	15/01/2011 04:00:00	3525
311	15/01/2011 05:00:00	3518
312	15/01/2011 06:00:00	3510
313	15/01/2011 07:00:00	3503
314	15/01/2011 08:00:00	3495
315	15/01/2011 09:00:00	3488
316	15/01/2011 10:00:00	3533
317	15/01/2011 11:00:00	3525
318	15/01/2011 12:00:00	3517
319	15/01/2011 13:00:00	3509
320	15/01/2011 14:00:00	3501
321	15/01/2011 15:00:00	3492
322	15/01/2011 16:00:00	3484
323	15/01/2011 17:00:00	3528
324	15/01/2011 18:00:00	3519
325	15/01/2011 19:00:00	3510
326	15/01/2011 20:00:00	3502
327	15/01/2011 21:00:00	3493
328	15/01/2011 22:00:00	3535
329	15/01/2011 23:00:00	3526
330	16/01/2011 00:00:00	3516
331	16/01/2011 01:00:00	3507
332	16/01/2011 02:00:00	3498
333	16/01/2011 03:00:00	3488
334	16/01/2011 04:00:00	3529
335	16/01/2011 05:00:00	3519
336	16/01/2011 06:00:00	3509
337	16/01/2011 07:00:00	3499
338	16/01/2011 08:00:00	3489
339	16/01/2011 09:00:00	3529
340	16/01/2011 10:00:00	3519
341	16/01/2011 11:00:00	3507
342	16/01/2011 12:00:00	3496

	A	B
343	16/01/2011 13:00:00	3533
344	16/01/2011 14:00:00	3521
345	16/01/2011 15:00:00	3509
346	16/01/2011 16:00:00	3545
347	16/01/2011 17:00:00	3533
348	16/01/2011 18:00:00	3520
349	16/01/2011 19:00:00	3508
350	16/01/2011 20:00:00	3542
351	16/01/2011 21:00:00	3529
352	16/01/2011 22:00:00	3516
353	16/01/2011 23:00:00	3502
354	17/01/2011 00:00:00	3488
355	17/01/2011 01:00:00	3474
356	17/01/2011 02:00:00	3460
357	17/01/2011 03:00:00	3446
358	17/01/2011 04:00:00	3430
359	17/01/2011 05:00:00	3415
360	17/01/2011 06:00:00	3400
361	17/01/2011 07:00:00	3384
362	17/01/2011 08:00:00	3368
363	17/01/2011 09:00:00	3351
364	17/01/2011 10:00:00	3335
365	17/01/2011 11:00:00	3318
366	17/01/2011 12:00:00	3302
367	17/01/2011 13:00:00	3285
368	17/01/2011 14:00:00	3142
369	17/01/2011 15:00:00	3042
370	17/01/2011 16:00:00	2943
371	17/01/2011 17:00:00	2888
372	17/01/2011 18:00:00	2663
373	17/01/2011 19:00:00	2437
374	17/01/2011 20:00:00	2253
375	17/01/2011 21:00:00	2156
376	17/01/2011 22:00:00	2060
377	17/01/2011 23:00:00	1963
378	18/01/2011 00:00:00	1864
379	18/01/2011 01:00:00	1816
380	18/01/2011 02:00:00	1721

	A	B
381	18/01/2011 03:00:00	1621
382	18/01/2011 04:00:00	1572
383	18/01/2011 05:00:00	1522
384	18/01/2011 06:00:00	1471
385	18/01/2011 07:00:00	1421
386	18/01/2011 08:00:00	1370
387	18/01/2011 09:00:00	1319
388	18/01/2011 10:00:00	1268
389	18/01/2011 11:00:00	1216
390	18/01/2011 12:00:00	1171
391	18/01/2011 13:00:00	1074
392	18/01/2011 14:00:00	974
393	18/01/2011 15:00:00	875
394	18/01/2011 16:00:00	824
395	18/01/2011 17:00:00	774
396	18/01/2011 18:00:00	675
397	18/01/2011 19:00:00	624
398	18/01/2011 20:00:00	574
399	18/01/2011 21:00:00	524
400	18/01/2011 22:00:00	474
401	18/01/2011 23:00:00	431
402	19/01/2011 00:00:00	381
403	19/01/2011 01:00:00	332
404	19/01/2011 02:00:00	287
405	19/01/2011 03:00:00	242
406	19/01/2011 04:00:00	195
407	19/01/2011 05:00:00	147
408	19/01/2011 06:00:00	98
409	19/01/2011 07:00:00	49
410	19/01/2011 08:00:00	50
411	19/01/2011 09:00:00	50
412	19/01/2011 10:00:00	50
413	19/01/2011 11:00:00	50
414	19/01/2011 12:00:00	50
415	19/01/2011 13:00:00	50
416	19/01/2011 14:00:00	50
417	19/01/2011 15:00:00	50
418	19/01/2011 16:00:00	50

	A	B
419	19/01/2011 17:00:00	50
420	19/01/2011 18:00:00	50
421	19/01/2011 19:00:00	50

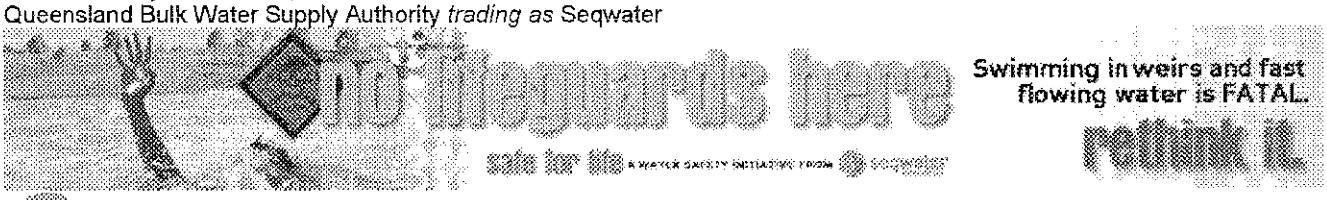
From: Rob Drury <[redacted]>
Sent: Monday, January 17, 2011 1:02 PM
To: 'ken.morris@[redacted]
Subject: Re releases

Ken,
Just confirming we intend to start closing Wivenhoe this afternoon and finalising Wednesday morning.

If you can provide any comments re the drawdown in terms of your discussions with the FOC and any discussions internally re Coro Drive and predicted tide levels that we would be good.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 1:03 PM
To: Peter Allen [redacted] Rob Drury [redacted]
Subject: Lake level comparison & directive summary
Attach: WDHeadwaterLevelsJan2011.xls; Strategy-Summary-Log.xls

---

Rob/Peter

Additional information that may be useful.

Regards

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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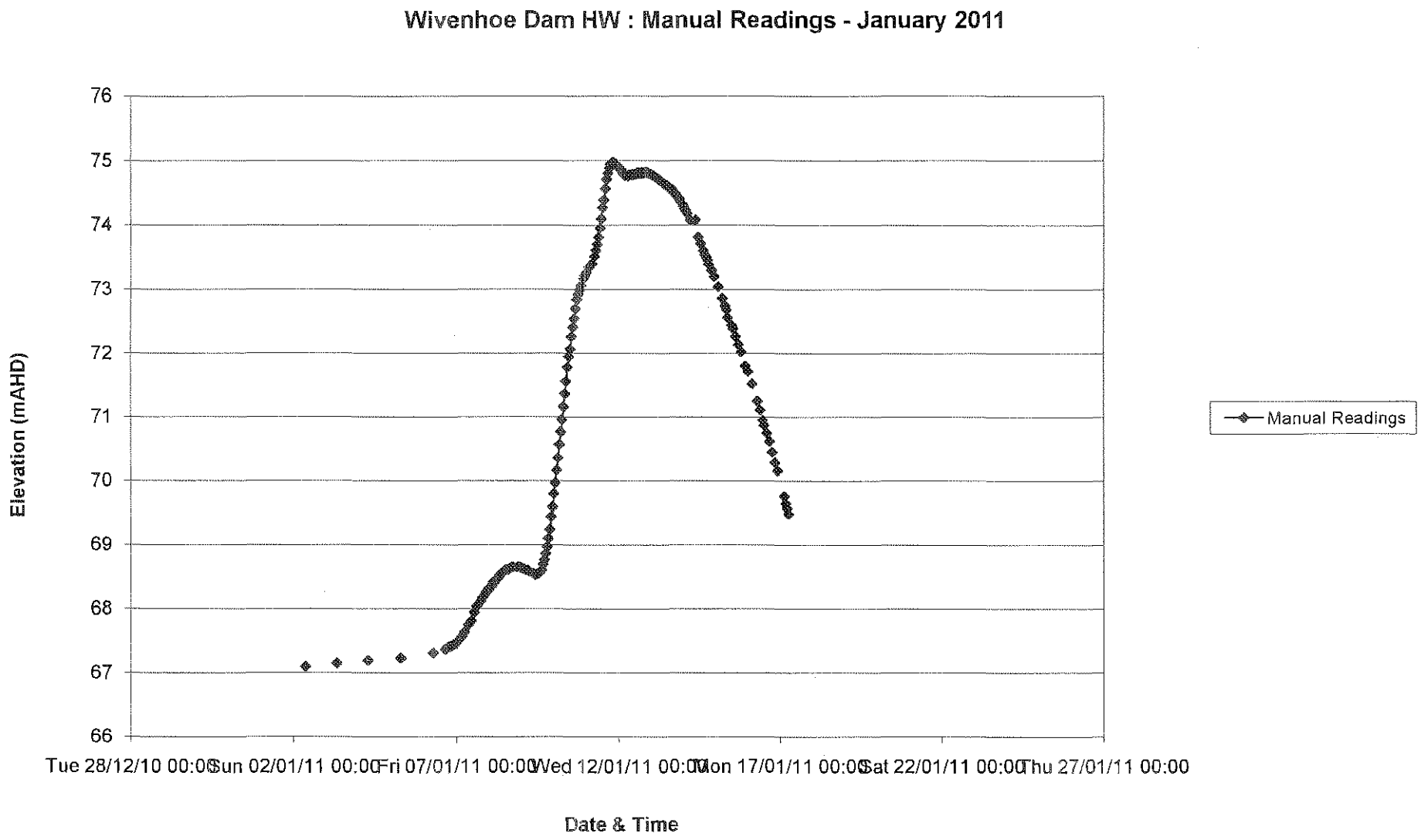
Wivenhoe Dam HW : Manual Readings - January 2011
Elevation (mAHD)
76
75
74
73
72
71
70
69
68
67
66
Tue 28/12/10 00:00
Sun 02/01/11 00:00
Fri 07/01/11 00:00
Wed 12/01/11 00:00
Mon 17/01/11 00:00
Sat 22/01/11 00:00
Thu 27/01/11 00:00
Date & Time
Manual Readings

RD5-1515

	A	B
1	Wivenhoe Dam Manually Read HW	
2		
3	Sun 02/01/11 09:00	67.1
4	Sun 02/01/11 10:00	
5	Sun 02/01/11 11:00	
6	Sun 02/01/11 12:00	
7	Sun 02/01/11 13:00	
8	Sun 02/01/11 14:00	
9	Sun 02/01/11 15:00	
10	Sun 02/01/11 16:00	
11	Sun 02/01/11 17:00	
12	Sun 02/01/11 18:00	
13	Sun 02/01/11 19:00	
14	Sun 02/01/11 20:00	
15	Sun 02/01/11 21:00	
16	Sun 02/01/11 22:00	
17	Sun 02/01/11 23:00	
18	Mon 03/01/11 00:00	
19	Mon 03/01/11 01:00	
20	Mon 03/01/11 02:00	
21	Mon 03/01/11 03:00	
22	Mon 03/01/11 04:00	
23	Mon 03/01/11 05:00	
24	Mon 03/01/11 06:00	
25	Mon 03/01/11 07:00	
26	Mon 03/01/11 08:00	67.15
27	Mon 03/01/11 09:00	
28	Mon 03/01/11 10:00	
29	Mon 03/01/11 11:00	
30	Mon 03/01/11 12:00	
31	Mon 03/01/11 13:00	
32	Mon 03/01/11 14:00	
33	Mon 03/01/11 15:00	
34	Mon 03/01/11 16:00	
35	Mon 03/01/11 17:00	
36	Mon 03/01/11 18:00	
37	Mon 03/01/11 19:00	
38	Mon 03/01/11 20:00	
39	Mon 03/01/11 21:00	
40	Mon 03/01/11 22:00	
41	Mon 03/01/11 23:00	
42	Tue 04/01/11 00:00	
43	Tue 04/01/11 01:00	
44	Tue 04/01/11 02:00	
45	Tue 04/01/11 03:00	
46	Tue 04/01/11 04:00	
47	Tue 04/01/11 05:00	

	A	B
48	Tue 04/01/11 06:00	
49	Tue 04/01/11 07:00	67.19
50	Tue 04/01/11 08:00	
51	Tue 04/01/11 09:00	
52	Tue 04/01/11 10:00	
53	Tue 04/01/11 11:00	
54	Tue 04/01/11 12:00	
55	Tue 04/01/11 13:00	
56	Tue 04/01/11 14:00	
57	Tue 04/01/11 15:00	
58	Tue 04/01/11 16:00	
59	Tue 04/01/11 17:00	
60	Tue 04/01/11 18:00	
61	Tue 04/01/11 19:00	
62	Tue 04/01/11 20:00	
63	Tue 04/01/11 21:00	
64	Tue 04/01/11 22:00	
65	Tue 04/01/11 23:00	
66	Wed 05/01/11 00:00	
67	Wed 05/01/11 01:00	
68	Wed 05/01/11 02:00	
69	Wed 05/01/11 03:00	
70	Wed 05/01/11 04:00	
71	Wed 05/01/11 05:00	
72	Wed 05/01/11 06:00	
73	Wed 05/01/11 07:00	67.23
74	Wed 05/01/11 08:00	
75	Wed 05/01/11 09:00	
76	Wed 05/01/11 10:00	
77	Wed 05/01/11 11:00	
78	Wed 05/01/11 12:00	
79	Wed 05/01/11 13:00	
80	Wed 05/01/11 14:00	
81	Wed 05/01/11 15:00	
82	Wed 05/01/11 16:00	
83	Wed 05/01/11 17:00	
84	Wed 05/01/11 18:00	
85	Wed 05/01/11 19:00	
86	Wed 05/01/11 20:00	
87	Wed 05/01/11 21:00	
88	Wed 05/01/11 22:00	
89	Wed 05/01/11 23:00	
90	Thu 06/01/11 00:00	
91	Thu 06/01/11 01:00	
92	Thu 06/01/11 02:00	
93	Thu 06/01/11 03:00	
94	Thu 06/01/11 04:00	

	A	B
95	Thu 06/01/11 05:00	
96	Thu 06/01/11 06:00	
97	Thu 06/01/11 07:00	67.31
98	Thu 06/01/11 08:00	
99	Thu 06/01/11 09:00	
100	Thu 06/01/11 10:00	
101	Thu 06/01/11 11:00	
102	Thu 06/01/11 12:00	
103	Thu 06/01/11 13:00	
104	Thu 06/01/11 14:00	
105	Thu 06/01/11 15:00	
106	Thu 06/01/11 16:00	67.37
107	Thu 06/01/11 17:00	67.39
108	Thu 06/01/11 18:00	67.4
109	Thu 06/01/11 19:00	67.405
110	Thu 06/01/11 20:00	67.42
111	Thu 06/01/11 21:00	67.425
112	Thu 06/01/11 22:00	67.44
113	Thu 06/01/11 23:00	
114	Fri 07/01/11 00:00	67.46
115	Fri 07/01/11 01:00	
116	Fri 07/01/11 02:00	67.52
117	Fri 07/01/11 03:00	
118	Fri 07/01/11 04:00	67.57
119	Fri 07/01/11 05:00	
120	Fri 07/01/11 06:00	67.64
121	Fri 07/01/11 07:00	
122	Fri 07/01/11 08:00	
123	Fri 07/01/11 09:00	67.75
124	Fri 07/01/11 10:00	
125	Fri 07/01/11 11:00	67.81
126	Fri 07/01/11 12:00	
127	Fri 07/01/11 13:00	67.94
128	Fri 07/01/11 14:00	
129	Fri 07/01/11 15:00	68.03
130	Fri 07/01/11 16:00	68.06
131	Fri 07/01/11 17:00	
132	Fri 07/01/11 18:00	68.12
133	Fri 07/01/11 19:00	68.17
134	Fri 07/01/11 20:00	68.19
135	Fri 07/01/11 21:00	68.22
136	Fri 07/01/11 22:00	68.26
137	Fri 07/01/11 23:00	68.28
138	Sat 08/01/11 00:00	68.32
139	Sat 08/01/11 01:00	68.34
140	Sat 08/01/11 02:00	68.35
141	Sat 08/01/11 03:00	68.41

	A	B
142	Sat 08/01/11 04:00	68.41
143	Sat 08/01/11 05:00	68.45
144	Sat 08/01/11 06:00	68.46
145	Sat 08/01/11 07:00	68.48
146	Sat 08/01/11 08:00	68.52
147	Sat 08/01/11 09:00	68.55
148	Sat 08/01/11 10:00	68.56
149	Sat 08/01/11 11:00	68.59
150	Sat 08/01/11 12:00	68.6
151	Sat 08/01/11 13:00	68.61
152	Sat 08/01/11 14:00	68.61
153	Sat 08/01/11 15:00	68.63
154	Sat 08/01/11 16:00	68.64
155	Sat 08/01/11 17:00	68.65
156	Sat 08/01/11 18:00	68.65
157	Sat 08/01/11 19:00	
158	Sat 08/01/11 20:00	
159	Sat 08/01/11 21:00	68.65
160	Sat 08/01/11 22:00	68.65
161	Sat 08/01/11 23:00	68.65
162	Sun 09/01/11 00:00	68.64
163	Sun 09/01/11 01:00	68.63
164	Sun 09/01/11 02:00	68.62
165	Sun 09/01/11 03:00	
166	Sun 09/01/11 04:00	68.6
167	Sun 09/01/11 05:00	68.6
168	Sun 09/01/11 06:00	68.58
169	Sun 09/01/11 07:00	
170	Sun 09/01/11 08:00	
171	Sun 09/01/11 09:00	68.55
172	Sun 09/01/11 10:00	68.53
173	Sun 09/01/11 11:00	68.54
174	Sun 09/01/11 12:00	68.54
175	Sun 09/01/11 13:00	
176	Sun 09/01/11 14:00	68.58
177	Sun 09/01/11 15:00	68.61
178	Sun 09/01/11 16:00	68.7
179	Sun 09/01/11 17:00	68.77
180	Sun 09/01/11 18:00	68.86
181	Sun 09/01/11 19:00	68.97
182	Sun 09/01/11 20:00	69.1
183	Sun 09/01/11 21:00	69.24
184	Sun 09/01/11 22:00	69.44
185	Sun 09/01/11 23:00	69.6
186	Mon 10/01/11 00:00	69.8
187	Mon 10/01/11 01:00	69.97
188	Mon 10/01/11 02:00	70.17

	A	B
189	Mon 10/01/11 03:00	70.36
190	Mon 10/01/11 04:00	70.57
191	Mon 10/01/11 05:00	70.77
192	Mon 10/01/11 06:00	70.96
193	Mon 10/01/11 07:00	71.16
194	Mon 10/01/11 08:00	71.36
195	Mon 10/01/11 09:00	71.56
196	Mon 10/01/11 10:00	71.78
197	Mon 10/01/11 11:00	71.95
198	Mon 10/01/11 12:00	72.07
199	Mon 10/01/11 13:00	72.26
200	Mon 10/01/11 14:00	72.41
201	Mon 10/01/11 15:00	72.54
202	Mon 10/01/11 16:00	72.7
203	Mon 10/01/11 17:00	72.84
204	Mon 10/01/11 18:00	72.92
205	Mon 10/01/11 19:00	72.99
206	Mon 10/01/11 20:00	73.06
207	Mon 10/01/11 21:00	
208	Mon 10/01/11 22:00	73.17
209	Mon 10/01/11 23:00	73.22
210	Tue 11/01/11 00:00	73.26
211	Tue 11/01/11 01:00	
212	Tue 11/01/11 02:00	73.35
213	Tue 11/01/11 03:00	
214	Tue 11/01/11 04:00	73.4
215	Tue 11/01/11 05:00	
216	Tue 11/01/11 06:00	73.51
217	Tue 11/01/11 07:00	73.61
218	Tue 11/01/11 08:00	73.7
219	Tue 11/01/11 09:00	73.81
220	Tue 11/01/11 10:00	73.95
221	Tue 11/01/11 11:00	74.1
222	Tue 11/01/11 12:00	74.27
223	Tue 11/01/11 13:00	74.39
224	Tue 11/01/11 14:00	74.57
225	Tue 11/01/11 15:00	74.71
226	Tue 11/01/11 16:00	74.81
227	Tue 11/01/11 17:00	74.89
228	Tue 11/01/11 18:00	74.95
229	Tue 11/01/11 19:00	74.97
230	Tue 11/01/11 20:00	74.97
231	Tue 11/01/11 21:00	74.95
232	Tue 11/01/11 22:00	74.95
233	Tue 11/01/11 23:00	74.92
234	Wed 12/01/11 00:00	74.91
235	Wed 12/01/11 01:00	74.87

	A	B
236	Wed 12/01/11 02:00	74.86
237	Wed 12/01/11 03:00	74.81
238	Wed 12/01/11 04:00	74.8
239	Wed 12/01/11 05:00	74.77
240	Wed 12/01/11 06:00	74.77
241	Wed 12/01/11 07:00	74.76
242	Wed 12/01/11 08:00	74.78
243	Wed 12/01/11 09:00	74.78
244	Wed 12/01/11 10:00	74.78
245	Wed 12/01/11 11:00	74.78
246	Wed 12/01/11 12:00	74.79
247	Wed 12/01/11 13:00	74.79
248	Wed 12/01/11 14:00	74.81
249	Wed 12/01/11 15:00	74.81
250	Wed 12/01/11 16:00	74.8
251	Wed 12/01/11 17:00	74.82
252	Wed 12/01/11 18:00	74.8
253	Wed 12/01/11 19:00	74.82
254	Wed 12/01/11 20:00	74.82
255	Wed 12/01/11 21:00	74.82
256	Wed 12/01/11 22:00	74.81
257	Wed 12/01/11 23:00	
258	Thu 13/01/11 00:00	74.79
259	Thu 13/01/11 01:00	
260	Thu 13/01/11 02:00	74.765
261	Thu 13/01/11 03:00	
262	Thu 13/01/11 04:00	74.74
263	Thu 13/01/11 05:00	
264	Thu 13/01/11 06:00	74.71
265	Thu 13/01/11 07:00	
266	Thu 13/01/11 08:00	
267	Thu 13/01/11 09:00	
268	Thu 13/01/11 10:00	74.64
269	Thu 13/01/11 11:00	
270	Thu 13/01/11 12:00	74.61
271	Thu 13/01/11 13:00	74.59
272	Thu 13/01/11 14:00	74.57
273	Thu 13/01/11 15:00	
274	Thu 13/01/11 16:00	74.55
275	Thu 13/01/11 17:00	74.51
276	Thu 13/01/11 18:00	74.5
277	Thu 13/01/11 19:00	74.46
278	Thu 13/01/11 20:00	
279	Thu 13/01/11 21:00	74.405
280	Thu 13/01/11 22:00	74.36
281	Thu 13/01/11 23:00	74.335
282	Fri 14/01/11 00:00	74.3

	A	B
283	Fri 14/01/11 01:00	74.26
284	Fri 14/01/11 02:00	74.22
285	Fri 14/01/11 03:00	74.18
286	Fri 14/01/11 04:00	
287	Fri 14/01/11 05:00	74.08
288	Fri 14/01/11 06:00	
289	Fri 14/01/11 07:00	
290	Fri 14/01/11 08:00	
291	Fri 14/01/11 09:00	74.08
292	Fri 14/01/11 10:00	
293	Fri 14/01/11 11:00	73.81
294	Fri 14/01/11 12:00	
295	Fri 14/01/11 13:00	73.71
296	Fri 14/01/11 14:00	
297	Fri 14/01/11 15:00	73.6
298	Fri 14/01/11 16:00	73.54
299	Fri 14/01/11 17:00	73.5
300	Fri 14/01/11 18:00	73.45
301	Fri 14/01/11 19:00	73.39
302	Fri 14/01/11 20:00	
303	Fri 14/01/11 21:00	73.3
304	Fri 14/01/11 22:00	
305	Fri 14/01/11 23:00	73.2
306	Sat 15/01/11 00:00	
307	Sat 15/01/11 01:00	
308	Sat 15/01/11 02:00	73.04
309	Sat 15/01/11 03:00	
310	Sat 15/01/11 04:00	
311	Sat 15/01/11 05:00	72.86
312	Sat 15/01/11 06:00	
313	Sat 15/01/11 07:00	72.74
314	Sat 15/01/11 08:00	72.68
315	Sat 15/01/11 09:00	72.56
316	Sat 15/01/11 10:00	
317	Sat 15/01/11 11:00	
318	Sat 15/01/11 12:00	72.44
319	Sat 15/01/11 13:00	72.39
320	Sat 15/01/11 14:00	
321	Sat 15/01/11 15:00	72.27
322	Sat 15/01/11 16:00	
323	Sat 15/01/11 17:00	72.14
324	Sat 15/01/11 18:00	
325	Sat 15/01/11 19:00	72.03
326	Sat 15/01/11 20:00	
327	Sat 15/01/11 21:00	
328	Sat 15/01/11 22:00	71.8
329	Sat 15/01/11 23:00	

	A	B
330	Sun 16/01/11 00:00	71.71
331	Sun 16/01/11 01:00	
332	Sun 16/01/11 02:00	
333	Sun 16/01/11 03:00	71.52
334	Sun 16/01/11 04:00	
335	Sun 16/01/11 05:00	
336	Sun 16/01/11 06:00	
337	Sun 16/01/11 07:00	71.25
338	Sun 16/01/11 08:00	
339	Sun 16/01/11 09:00	71.11
340	Sun 16/01/11 10:00	
341	Sun 16/01/11 11:00	70.95
342	Sun 16/01/11 12:00	70.87
343	Sun 16/01/11 13:00	
344	Sun 16/01/11 14:00	70.75
345	Sun 16/01/11 15:00	
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347	Sun 16/01/11 17:00	
348	Sun 16/01/11 18:00	70.45
349	Sun 16/01/11 19:00	
350	Sun 16/01/11 20:00	70.29
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352	Sun 16/01/11 22:00	70.16
353	Sun 16/01/11 23:00	
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355	Mon 17/01/11 01:00	
356	Mon 17/01/11 02:00	
357	Mon 17/01/11 03:00	69.76
358	Mon 17/01/11 04:00	69.65
359	Mon 17/01/11 05:00	69.58
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361	Mon 17/01/11 07:00	
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375	Mon 17/01/11 21:00	
376	Mon 17/01/11 22:00	

	A	B
377	Mon 17/01/11 23:00	
378	Tue 18/01/11 00:00	
379	Tue 18/01/11 01:00	
380	Tue 18/01/11 02:00	
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422	Wed 19/01/11 20:00	
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	A	B
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427	Thu 20/01/11 01:00	
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469	Fri 21/01/11 19:00	
470	Fri 21/01/11 20:00	

	A	B
471	Fri 21/01/11 21:00	
472	Fri 21/01/11 22:00	
473	Fri 21/01/11 23:00	
474	Sat 22/01/11 00:00	
475	Sat 22/01/11 01:00	
476	Sat 22/01/11 02:00	
477	Sat 22/01/11 03:00	
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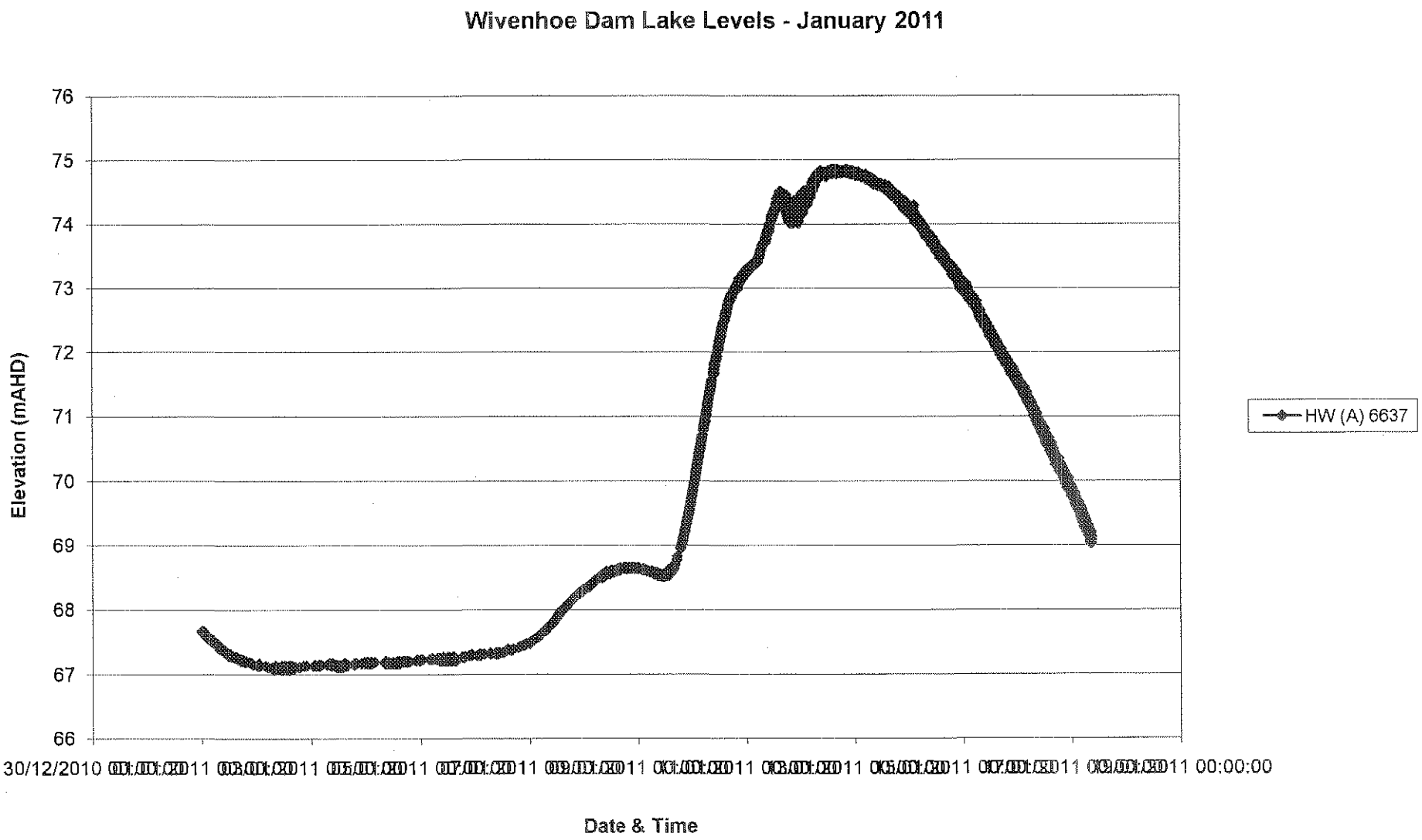
494	Sat 22/01/11 20:00	
495	Sat 22/01/11 21:00	
496	Sat 22/01/11 22:00	
497	Sat 22/01/11 23:00	
498	Sun 23/01/11 00:00	
499	Sun 23/01/11 01:00	
500	Sun 23/01/11 02:00	


Wivenhoe Dam Lake Levels - January 2011
Elevation (mAHD)
76
75
74
73
72
71
70
69
68
67
66
30/12/2010 00:00:00
11 03:00:00
11 05:00:00
11 07:00:00
11 09:00:00
11 01:00:00
11 03:00:00
11 05:00:00
11 07:00:00
11 09:00:00
11 00:00:00
Date & Time
HW (A) 6637

RD5-1527

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1	20110101000205	67.670		01/01/2011 00:02:05	67.67
2	20110101000304	67.650		01/01/2011 00:03:04	67.65
3	20110101003104	67.630		01/01/2011 00:31:04	67.63
4	20110101003405	67.670		01/01/2011 00:34:05	67.67
5	20110101003504	67.630		01/01/2011 00:35:04	67.63
6	20110101004649	67.630		01/01/2011 00:46:49	67.63
7	20110101010204	67.650		01/01/2011 01:02:04	67.65
8	20110101010304	67.630		01/01/2011 01:03:04	67.63
9	20110101010804	67.610		01/01/2011 01:08:04	67.61
10	20110101011804	67.630		01/01/2011 01:18:04	67.63
11	20110101012104	67.610		01/01/2011 01:21:04	67.61
12	20110101012704	67.590		01/01/2011 01:27:04	67.59
13	20110101012904	67.610		01/01/2011 01:29:04	67.61
14	20110101014204	67.590		01/01/2011 01:42:04	67.59
15	20110101015405	67.610		01/01/2011 01:54:05	67.61
16	20110101015504	67.590		01/01/2011 01:55:04	67.59
17	20110101021305	67.570		01/01/2011 02:13:05	67.57
18	20110101021404	67.590		01/01/2011 02:14:04	67.59
19	20110101022105	67.570		01/01/2011 02:21:05	67.57
20	20110101022604	67.590		01/01/2011 02:26:04	67.59
21	20110101022803	67.570		01/01/2011 02:28:03	67.57
22	20110101023804	67.550		01/01/2011 02:38:04	67.55
23	20110101031405	67.550		01/01/2011 03:14:05	67.55
24	20110101034404	67.530		01/01/2011 03:44:04	67.53
25	20110101034649	67.530		01/01/2011 03:46:49	67.53
26	20110101035104	67.510		01/01/2011 03:51:04	67.51
27	20110101035205	67.530		01/01/2011 03:52:05	67.53
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29	20110101044304	67.530		01/01/2011 04:43:04	67.53
30	20110101044404	67.510		01/01/2011 04:44:04	67.51
31	20110101045004	67.530		01/01/2011 04:50:04	67.53
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34	20110101050204	67.510		01/01/2011 05:02:04	67.51
35	20110101051804	67.490		01/01/2011 05:18:04	67.49
36	20110101053704	67.490		01/01/2011 05:37:04	67.49
37	20110101054104	67.470		01/01/2011 05:41:04	67.47
38	20110101062104	67.450		01/01/2011 06:21:04	67.45
39	20110101062204	67.470		01/01/2011 06:22:04	67.47
40	20110101062904	67.450		01/01/2011 06:29:04	67.45
41	20110101063103	67.470		01/01/2011 06:31:03	67.47
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44	20110101064604	67.430		01/01/2011 06:46:04	67.43
45	20110101064649	67.430		01/01/2011 06:46:49	67.43
46	20110101064703	67.470		01/01/2011 06:47:03	67.47
47	20110101064904	67.450		01/01/2011 06:49:04	67.45

	A		B	C	D
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49	20110101065704	67.450		01/01/2011 06:57:04	67.45
50	20110101071205	67.430		01/01/2011 07:12:05	67.43
51	20110101073104	67.410		01/01/2011 07:31:04	67.41
52	20110101073204	67.430		01/01/2011 07:32:04	67.43
53	20110101073904	67.430		01/01/2011 07:39:04	67.43
54	20110101074803	67.430		01/01/2011 07:48:03	67.43
55	20110101074904	67.390		01/01/2011 07:49:04	67.39
56	20110101075604	67.390		01/01/2011 07:56:04	67.39
57	20110101075804	67.430		01/01/2011 07:58:04	67.43
58	20110101080004	67.410		01/01/2011 08:00:04	67.41
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63	20110101092004	67.370		01/01/2011 09:20:04	67.37
64	20110101093404	67.350		01/01/2011 09:34:04	67.35
65	20110101093703	67.370		01/01/2011 09:37:03	67.37
66	20110101093803	67.350		01/01/2011 09:38:03	67.35
67	20110101094003	67.370		01/01/2011 09:40:03	67.37
68	20110101094104	67.350		01/01/2011 09:41:04	67.35
69	20110101094649	67.350		01/01/2011 09:46:49	67.35
70	20110101094703	67.370		01/01/2011 09:47:03	67.37
71	20110101094803	67.350		01/01/2011 09:48:03	67.35
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73	20110101103204	67.350		01/01/2011 10:32:04	67.35
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84	20110101114003	67.310		01/01/2011 11:40:03	67.31
85	20110101114104	67.290		01/01/2011 11:41:04	67.29
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87	20110101114404	67.290		01/01/2011 11:44:04	67.29
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90	20110101115703	67.290		01/01/2011 11:57:03	67.29
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93	20110101124648	67.290		01/01/2011 12:46:48	67.29
94	20110101125903	67.270		01/01/2011 12:59:03	67.27

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97	20110101132502	67.290		01/01/2011 13:25:02	67.29
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103	20110101150503	67.250		01/01/2011 15:05:03	67.25
104	20110101151103	67.270		01/01/2011 15:11:03	67.27
105	20110101151303	67.250		01/01/2011 15:13:03	67.25
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109	20110101165203	67.230		01/01/2011 16:52:03	67.23
110	20110101165403	67.210		01/01/2011 16:54:03	67.21
111	20110101165502	67.230		01/01/2011 16:55:02	67.23
112	20110101170602	67.210		01/01/2011 17:06:02	67.21
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116	20110101174902	67.230		01/01/2011 17:49:02	67.23
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123	20110101190302	67.190		01/01/2011 19:03:02	67.19
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165	20110102111300	67.090		02/01/2011 11:13:00	67.09
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178	20110102130700	67.090		02/01/2011 13:07:00	67.09
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1339	20110111074738	73.670		11/01/2011 07:47:38	73.67
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1967	20110112011335	74.230		12/01/2011 01:13:35	74.23
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2066	20110112032035	74.410		12/01/2011 03:20:35	74.41
2067	20110112032234	74.310		12/01/2011 03:22:34	74.31
2068	20110112032435	74.390		12/01/2011 03:24:35	74.39

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2071	20110112032734	74.330		12/01/2011 03:27:34	74.33
2072	20110112032835	74.390		12/01/2011 03:28:35	74.39
2073	20110112032935	74.410		12/01/2011 03:29:35	74.41
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2075	20110112033135	74.470		12/01/2011 03:31:35	74.47
2076	20110112033235	74.450		12/01/2011 03:32:35	74.45
2077	20110112033334	74.470		12/01/2011 03:33:34	74.47
2078	20110112033435	74.510		12/01/2011 03:34:35	74.51
2079	20110112033535	74.490		12/01/2011 03:35:35	74.49
2080	20110112033735	74.470		12/01/2011 03:37:35	74.47
2081	20110112033834	74.510		12/01/2011 03:38:34	74.51
2082	20110112033935	74.470		12/01/2011 03:39:35	74.47
2083	20110112034035	74.430		12/01/2011 03:40:35	74.43
2084	20110112034235	74.530		12/01/2011 03:42:35	74.53
2085	20110112034334	74.550		12/01/2011 03:43:34	74.55
2086	20110112034534	74.430		12/01/2011 03:45:34	74.43
2087	20110112034619	74.430		12/01/2011 03:46:19	74.43
2088	20110112034634	74.470		12/01/2011 03:46:34	74.47
2089	20110112034735	74.510		12/01/2011 03:47:35	74.51
2090	20110112034834	74.430		12/01/2011 03:48:34	74.43
2091	20110112034934	74.490		12/01/2011 03:49:34	74.49
2092	20110112035135	74.430		12/01/2011 03:51:35	74.43
2093	20110112035234	74.490		12/01/2011 03:52:34	74.49
2094	20110112035434	74.430		12/01/2011 03:54:34	74.43
2095	20110112035535	74.530		12/01/2011 03:55:35	74.53
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2100	20110112040034	74.450		12/01/2011 04:00:34	74.45
2101	20110112040135	74.530		12/01/2011 04:01:35	74.53
2102	20110112040335	74.490		12/01/2011 04:03:35	74.49
2103	20110112040435	74.510		12/01/2011 04:04:35	74.51
2104	20110112040534	74.570		12/01/2011 04:05:34	74.57
2105	20110112040635	74.450		12/01/2011 04:06:35	74.45
2106	20110112040734	74.470		12/01/2011 04:07:34	74.47
2107	20110112040834	74.450		12/01/2011 04:08:34	74.45
2108	20110112040935	74.490		12/01/2011 04:09:35	74.49
2109	20110112041035	74.410		12/01/2011 04:10:35	74.41
2110	20110112041135	74.530		12/01/2011 04:11:35	74.53
2111	20110112041235	74.490		12/01/2011 04:12:35	74.49
2112	20110112041334	74.430		12/01/2011 04:13:34	74.43
2113	20110112041435	74.450		12/01/2011 04:14:35	74.45
2114	20110112041534	74.510		12/01/2011 04:15:34	74.51
2115	20110112041734	74.490		12/01/2011 04:17:34	74.49

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2117	20110112041935	74.490		12/01/2011 04:19:35	74.49
2118	20110112042035	74.450		12/01/2011 04:20:35	74.45
2119	20110112042135	74.430		12/01/2011 04:21:35	74.43
2120	20110112042235	74.470		12/01/2011 04:22:35	74.47
2121	20110112042535	74.450		12/01/2011 04:25:35	74.45
2122	20110112042935	74.490		12/01/2011 04:29:35	74.49
2123	20110112043035	74.410		12/01/2011 04:30:35	74.41
2124	20110112043135	74.490		12/01/2011 04:31:35	74.49
2125	20110112043234	74.430		12/01/2011 04:32:34	74.43
2126	20110112043434	74.490		12/01/2011 04:34:34	74.49
2127	20110112043535	74.430		12/01/2011 04:35:35	74.43
2128	20110112043635	74.450		12/01/2011 04:36:35	74.45
2129	20110112043734	74.470		12/01/2011 04:37:34	74.47
2130	20110112043835	74.450		12/01/2011 04:38:35	74.45
2131	20110112044035	74.430		12/01/2011 04:40:35	74.43
2132	20110112044335	74.490		12/01/2011 04:43:35	74.49
2133	20110112044534	74.550		12/01/2011 04:45:34	74.55
2134	20110112044734	74.590		12/01/2011 04:47:34	74.59
2135	20110112044834	74.550		12/01/2011 04:48:34	74.55
2136	20110112044935	74.530		12/01/2011 04:49:35	74.53
2137	20110112045034	74.590		12/01/2011 04:50:34	74.59
2138	20110112045235	74.570		12/01/2011 04:52:35	74.57
2139	20110112045335	74.590		12/01/2011 04:53:35	74.59
2140	20110112045535	74.510		12/01/2011 04:55:35	74.51
2141	20110112045634	74.570		12/01/2011 04:56:34	74.57
2142	20110112045735	74.530		12/01/2011 04:57:35	74.53
2143	20110112045834	74.550		12/01/2011 04:58:34	74.55
2144	20110112050135	74.550		12/01/2011 05:01:35	74.55
2145	20110112050235	74.590		12/01/2011 05:02:35	74.59
2146	20110112050335	74.550		12/01/2011 05:03:35	74.55
2147	20110112050434	74.510		12/01/2011 05:04:34	74.51
2148	20110112050535	74.590		12/01/2011 05:05:35	74.59
2149	20110112050634	74.550		12/01/2011 05:06:34	74.55
2150	20110112050734	74.530		12/01/2011 05:07:34	74.53
2151	20110112050835	74.590		12/01/2011 05:08:35	74.59
2152	20110112051135	74.610		12/01/2011 05:11:35	74.61
2153	20110112051235	74.590		12/01/2011 05:12:35	74.59
2154	20110112051335	74.530		12/01/2011 05:13:35	74.53
2155	20110112051435	74.570		12/01/2011 05:14:35	74.57
2156	20110112051534	74.650		12/01/2011 05:15:34	74.65
2157	20110112051635	74.550		12/01/2011 05:16:35	74.55
2158	20110112051734	74.630		12/01/2011 05:17:34	74.63
2159	20110112051835	74.590		12/01/2011 05:18:35	74.59
2160	20110112051934	74.570		12/01/2011 05:19:34	74.57
2161	20110112052135	74.530		12/01/2011 05:21:35	74.53
2162	20110112052235	74.550		12/01/2011 05:22:35	74.55

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2164	20110112052535	74.570		12/01/2011 05:25:35	74.57
2165	20110112052635	74.550		12/01/2011 05:26:35	74.55
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2167	20110112052834	74.550		12/01/2011 05:28:34	74.55
2168	20110112052935	74.590		12/01/2011 05:29:35	74.59
2169	20110112053034	74.550		12/01/2011 05:30:34	74.55
2170	20110112053134	74.590		12/01/2011 05:31:34	74.59
2171	20110112053235	74.510		12/01/2011 05:32:35	74.51
2172	20110112053335	74.530		12/01/2011 05:33:35	74.53
2173	20110112053435	74.610		12/01/2011 05:34:35	74.61
2174	20110112053535	74.550		12/01/2011 05:35:35	74.55
2175	20110112053934	74.510		12/01/2011 05:39:34	74.51
2176	20110112054034	74.550		12/01/2011 05:40:34	74.55
2177	20110112054134	74.610		12/01/2011 05:41:34	74.61
2178	20110112054235	74.630		12/01/2011 05:42:35	74.63
2179	20110112054635	74.670		12/01/2011 05:46:35	74.67
2180	20110112054734	74.650		12/01/2011 05:47:34	74.65
2181	20110112054835	74.610		12/01/2011 05:48:35	74.61
2182	20110112054934	74.650		12/01/2011 05:49:34	74.65
2183	20110112055234	74.690		12/01/2011 05:52:34	74.69
2184	20110112055434	74.650		12/01/2011 05:54:34	74.65
2185	20110112055635	74.630		12/01/2011 05:56:35	74.63
2186	20110112055734	74.670		12/01/2011 05:57:34	74.67
2187	20110112060034	74.690		12/01/2011 06:00:34	74.69
2188	20110112060134	74.650		12/01/2011 06:01:34	74.65
2189	20110112060334	74.630		12/01/2011 06:03:34	74.63
2190	20110112060634	74.670		12/01/2011 06:06:34	74.67
2191	20110112060834	74.650		12/01/2011 06:08:34	74.65
2192	20110112060935	74.670		12/01/2011 06:09:35	74.67
2193	20110112061035	74.690		12/01/2011 06:10:35	74.69
2194	20110112061134	74.650		12/01/2011 06:11:34	74.65
2195	20110112061235	74.610		12/01/2011 06:12:35	74.61
2196	20110112061334	74.630		12/01/2011 06:13:34	74.63
2197	20110112061434	74.650		12/01/2011 06:14:34	74.65
2198	20110112061634	74.670		12/01/2011 06:16:34	74.67
2199	20110112061735	74.650		12/01/2011 06:17:35	74.65
2200	20110112061934	74.590		12/01/2011 06:19:34	74.59
2201	20110112062035	74.610		12/01/2011 06:20:35	74.61
2202	20110112062134	74.650		12/01/2011 06:21:34	74.65
2203	20110112062335	74.670		12/01/2011 06:23:35	74.67
2204	20110112062435	74.610		12/01/2011 06:24:35	74.61
2205	20110112062635	74.650		12/01/2011 06:26:35	74.65
2206	20110112062835	74.610		12/01/2011 06:28:35	74.61
2207	20110112063234	74.650		12/01/2011 06:32:34	74.65
2208	20110112063335	74.630		12/01/2011 06:33:35	74.63
2209	20110112063435	74.670		12/01/2011 06:34:35	74.67

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2211	20110112063635	74.610		12/01/2011 06:36:35	74.61
2212	20110112063834	74.690		12/01/2011 06:38:34	74.69
2213	20110112063934	74.650		12/01/2011 06:39:34	74.65
2214	20110112064034	74.730		12/01/2011 06:40:34	74.73
2215	20110112064134	74.690		12/01/2011 06:41:34	74.69
2216	20110112064334	74.730		12/01/2011 06:43:34	74.73
2217	20110112064434	74.690		12/01/2011 06:44:34	74.69
2218	20110112064619	74.690		12/01/2011 06:46:19	74.69
2219	20110112064634	74.710		12/01/2011 06:46:34	74.71
2220	20110112064735	74.730		12/01/2011 06:47:35	74.73
2221	20110112065134	74.710		12/01/2011 06:51:34	74.71
2222	20110112065334	74.730		12/01/2011 06:53:34	74.73
2223	20110112065534	74.710		12/01/2011 06:55:34	74.71
2224	20110112070035	74.730		12/01/2011 07:00:35	74.73
2225	20110112070134	74.710		12/01/2011 07:01:34	74.71
2226	20110112070234	74.750		12/01/2011 07:02:34	74.75
2227	20110112070334	74.730		12/01/2011 07:03:34	74.73
2228	20110112070534	74.690		12/01/2011 07:05:34	74.69
2229	20110112070634	74.730		12/01/2011 07:06:34	74.73
2230	20110112070835	74.710		12/01/2011 07:08:35	74.71
2231	20110112070934	74.730		12/01/2011 07:09:34	74.73
2232	20110112071034	74.710		12/01/2011 07:10:34	74.71
2233	20110112071234	74.730		12/01/2011 07:12:34	74.73
2234	20110112071334	74.690		12/01/2011 07:13:34	74.69
2235	20110112071434	74.750		12/01/2011 07:14:34	74.75
2236	20110112071534	74.710		12/01/2011 07:15:34	74.71
2237	20110112071834	74.690		12/01/2011 07:18:34	74.69
2238	20110112072834	74.750		12/01/2011 07:28:34	74.75
2239	20110112072934	74.690		12/01/2011 07:29:34	74.69
2240	20110112073235	74.710		12/01/2011 07:32:35	74.71
2241	20110112073535	74.750		12/01/2011 07:35:35	74.75
2242	20110112073634	74.730		12/01/2011 07:36:34	74.73
2243	20110112073734	74.790		12/01/2011 07:37:34	74.79
2244	20110112073834	74.710		12/01/2011 07:38:34	74.71
2245	20110112073934	74.750		12/01/2011 07:39:34	74.75
2246	20110112074034	74.770		12/01/2011 07:40:34	74.77
2247	20110112074534	74.790		12/01/2011 07:45:34	74.79
2248	20110112074635	74.750		12/01/2011 07:46:35	74.75
2249	20110112074734	74.790		12/01/2011 07:47:34	74.79
2250	20110112074935	74.770		12/01/2011 07:49:35	74.77
2251	20110112075434	74.790		12/01/2011 07:54:34	74.79
2252	20110112075633	74.770		12/01/2011 07:56:33	74.77
2253	20110112080235	74.790		12/01/2011 08:02:35	74.79
2254	20110112080334	74.770		12/01/2011 08:03:34	74.77
2255	20110112082234	74.750		12/01/2011 08:22:34	74.75
2256	20110112082634	74.770		12/01/2011 08:26:34	74.77

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2257	20110112082734	74.750		12/01/2011 08:27:34	74.75
2258	20110112082834	74.770		12/01/2011 08:28:34	74.77
2259	20110112084234	74.710		12/01/2011 08:42:34	74.71
2260	20110112084334	74.750		12/01/2011 08:43:34	74.75
2261	20110112084535	74.770		12/01/2011 08:45:35	74.77
2262	20110112084634	74.790		12/01/2011 08:46:34	74.79
2263	20110112084934	74.770		12/01/2011 08:49:34	74.77
2264	20110112085734	74.810		12/01/2011 08:57:34	74.81
2265	20110112085834	74.830		12/01/2011 08:58:34	74.83
2266	20110112085934	74.770		12/01/2011 08:59:34	74.77
2267	20110112090135	74.810		12/01/2011 09:01:35	74.81
2268	20110112090334	74.750		12/01/2011 09:03:34	74.75
2269	20110112090534	74.790		12/01/2011 09:05:34	74.79
2270	20110112090734	74.770		12/01/2011 09:07:34	74.77
2271	20110112090934	74.830		12/01/2011 09:09:34	74.83
2272	20110112091034	74.730		12/01/2011 09:10:34	74.73
2273	20110112091235	74.770		12/01/2011 09:12:35	74.77
2274	20110112091435	74.790		12/01/2011 09:14:35	74.79
2275	20110112091534	74.770		12/01/2011 09:15:34	74.77
2276	20110112092134	74.790		12/01/2011 09:21:34	74.79
2277	20110112092234	74.770		12/01/2011 09:22:34	74.77
2278	20110112092535	74.790		12/01/2011 09:25:35	74.79
2279	20110112092734	74.770		12/01/2011 09:27:34	74.77
2280	20110112094134	74.790		12/01/2011 09:41:34	74.79
2281	20110112094534	74.770		12/01/2011 09:45:34	74.77
2282	20110112094619	74.770		12/01/2011 09:46:19	74.77
2283	20110112095034	74.770		12/01/2011 09:50:34	74.77
2284	20110112095534	74.790		12/01/2011 09:55:34	74.79
2285	20110112095633	74.770		12/01/2011 09:56:33	74.77
2286	20110112095735	74.790		12/01/2011 09:57:35	74.79
2287	20110112101134	74.770		12/01/2011 10:11:34	74.77
2288	20110112101234	74.790		12/01/2011 10:12:34	74.79
2289	20110112101533	74.810		12/01/2011 10:15:33	74.81
2290	20110112101634	74.790		12/01/2011 10:16:34	74.79
2291	20110112103933	74.770		12/01/2011 10:39:33	74.77
2292	20110112104334	74.790		12/01/2011 10:43:34	74.79
2293	20110112112434	74.810		12/01/2011 11:24:34	74.81
2294	20110112112634	74.730		12/01/2011 11:26:34	74.73
2295	20110112112734	74.810		12/01/2011 11:27:34	74.81
2296	20110112112834	74.790		12/01/2011 11:28:34	74.79
2297	20110112113534	74.810		12/01/2011 11:35:34	74.81
2298	20110112113634	74.790		12/01/2011 11:36:34	74.79
2299	20110112114533	74.770		12/01/2011 11:45:33	74.77
2300	20110112114634	74.790		12/01/2011 11:46:34	74.79
2301	20110112114734	74.770		12/01/2011 11:47:34	74.77
2302	20110112114834	74.790		12/01/2011 11:48:34	74.79
2303	20110112115433	74.810		12/01/2011 11:54:33	74.81

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2305	20110112120733	74.810		12/01/2011 12:07:33	74.81
2306	20110112121034	74.790		12/01/2011 12:10:34	74.79
2307	20110112121333	74.810		12/01/2011 12:13:33	74.81
2308	20110112121434	74.790		12/01/2011 12:14:34	74.79
2309	20110112121934	74.810		12/01/2011 12:19:34	74.81
2310	20110112122234	74.790		12/01/2011 12:22:34	74.79
2311	20110112122534	74.830		12/01/2011 12:25:34	74.83
2312	20110112122634	74.790		12/01/2011 12:26:34	74.79
2313	20110112122834	74.810		12/01/2011 12:28:34	74.81
2314	20110112123134	74.790		12/01/2011 12:31:34	74.79
2315	20110112123334	74.810		12/01/2011 12:33:34	74.81
2316	20110112123434	74.770		12/01/2011 12:34:34	74.77
2317	20110112123934	74.790		12/01/2011 12:39:34	74.79
2318	20110112124034	74.810		12/01/2011 12:40:34	74.81
2319	20110112124618	74.810		12/01/2011 12:46:18	74.81
2320	20110112125034	74.790		12/01/2011 12:50:34	74.79
2321	20110112125134	74.810		12/01/2011 12:51:34	74.81
2322	20110112125934	74.790		12/01/2011 12:59:34	74.79
2323	20110112130134	74.810		12/01/2011 13:01:34	74.81
2324	20110112130234	74.790		12/01/2011 13:02:34	74.79
2325	20110112130434	74.810		12/01/2011 13:04:34	74.81
2326	20110112131434	74.830		12/01/2011 13:14:34	74.83
2327	20110112131534	74.810		12/01/2011 13:15:34	74.81
2328	20110112131733	74.830		12/01/2011 13:17:33	74.83
2329	20110112132034	74.810		12/01/2011 13:20:34	74.81
2330	20110112132634	74.830		12/01/2011 13:26:34	74.83
2331	20110112132734	74.810		12/01/2011 13:27:34	74.81
2332	20110112133334	74.810		12/01/2011 13:33:34	74.81
2333	20110112134234	74.830		12/01/2011 13:42:34	74.83
2334	20110112134634	74.830		12/01/2011 13:46:34	74.83
2335	20110112134734	74.810		12/01/2011 13:47:34	74.81
2336	20110112135034	74.850		12/01/2011 13:50:34	74.85
2337	20110112135134	74.830		12/01/2011 13:51:34	74.83
2338	20110112135334	74.810		12/01/2011 13:53:34	74.81
2339	20110112140634	74.770		12/01/2011 14:06:34	74.77
2340	20110112140733	74.810		12/01/2011 14:07:33	74.81
2341	20110112141234	74.790		12/01/2011 14:12:34	74.79
2342	20110112141333	74.810		12/01/2011 14:13:33	74.81
2343	20110112141533	74.770		12/01/2011 14:15:33	74.77
2344	20110112141633	74.810		12/01/2011 14:16:33	74.81
2345	20110112141833	74.850		12/01/2011 14:18:33	74.85
2346	20110112141934	74.810		12/01/2011 14:19:34	74.81
2347	20110112142334	74.830		12/01/2011 14:23:34	74.83
2348	20110112142433	74.790		12/01/2011 14:24:33	74.79
2349	20110112142534	74.810		12/01/2011 14:25:34	74.81
2350	20110112142633	74.830		12/01/2011 14:26:33	74.83

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2353	20110112142933	74.810		12/01/2011 14:29:33	74.81
2354	20110112143034	74.830		12/01/2011 14:30:34	74.83
2355	20110112143133	74.810		12/01/2011 14:31:33	74.81
2356	20110112143434	74.830		12/01/2011 14:34:34	74.83
2357	20110112143634	74.810		12/01/2011 14:36:34	74.81
2358	20110112144934	74.830		12/01/2011 14:49:34	74.83
2359	20110112145233	74.810		12/01/2011 14:52:33	74.81
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2361	20110112150333	74.790		12/01/2011 15:03:33	74.79
2362	20110112150433	74.810		12/01/2011 15:04:33	74.81
2363	20110112151133	74.850		12/01/2011 15:11:33	74.85
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2365	20110112152634	74.790		12/01/2011 15:26:34	74.79
2366	20110112152833	74.810		12/01/2011 15:28:33	74.81
2367	20110112153034	74.830		12/01/2011 15:30:34	74.83
2368	20110112153133	74.810		12/01/2011 15:31:33	74.81
2369	20110112153633	74.790		12/01/2011 15:36:33	74.79
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2371	20110112153833	74.830		12/01/2011 15:38:33	74.83
2372	20110112153932	74.810		12/01/2011 15:39:32	74.81
2373	20110112154534	74.830		12/01/2011 15:45:34	74.83
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2376	20110112154733	74.830		12/01/2011 15:47:33	74.83
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2378	20110112155434	74.830		12/01/2011 15:54:34	74.83
2379	20110112155533	74.810		12/01/2011 15:55:33	74.81
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2381	20110112160033	74.850		12/01/2011 16:00:33	74.85
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2384	20110112160434	74.810		12/01/2011 16:04:34	74.81
2385	20110112160533	74.790		12/01/2011 16:05:33	74.79
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2387	20110112160733	74.770		12/01/2011 16:07:33	74.77
2388	20110112160833	74.810		12/01/2011 16:08:33	74.81
2389	20110112160933	74.830		12/01/2011 16:09:33	74.83
2390	20110112161033	74.790		12/01/2011 16:10:33	74.79
2391	20110112161133	74.810		12/01/2011 16:11:33	74.81
2392	20110112161434	74.830		12/01/2011 16:14:34	74.83
2393	20110112161833	74.810		12/01/2011 16:18:33	74.81
2394	20110112162233	74.790		12/01/2011 16:22:33	74.79
2395	20110112162333	74.830		12/01/2011 16:23:33	74.83
2396	20110112162433	74.790		12/01/2011 16:24:33	74.79
2397	20110112162534	74.830		12/01/2011 16:25:34	74.83

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2401	20110112163433	74.830		12/01/2011 16:34:33	74.83
2402	20110112163634	74.810		12/01/2011 16:36:34	74.81
2403	20110112163734	74.790		12/01/2011 16:37:34	74.79
2404	20110112164033	74.850		12/01/2011 16:40:33	74.85
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2407	20110112164433	74.830		12/01/2011 16:44:33	74.83
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2418	20110112173333	74.810		12/01/2011 17:33:33	74.81
2419	20110112174033	74.790		12/01/2011 17:40:33	74.79
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2422	20110112175333	74.830		12/01/2011 17:53:33	74.83
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2424	20110112180633	74.830		12/01/2011 18:06:33	74.83
2425	20110112180734	74.810		12/01/2011 18:07:34	74.81
2426	20110112180934	74.830		12/01/2011 18:09:34	74.83
2427	20110112181133	74.810		12/01/2011 18:11:33	74.81
2428	20110112182334	74.830		12/01/2011 18:23:34	74.83
2429	20110112182433	74.790		12/01/2011 18:24:33	74.79
2430	20110112182533	74.810		12/01/2011 18:25:33	74.81
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2432	20110112182733	74.830		12/01/2011 18:27:33	74.83
2433	20110112182834	74.810		12/01/2011 18:28:34	74.81
2434	20110112183634	74.830		12/01/2011 18:36:34	74.83
2435	20110112184033	74.830		12/01/2011 18:40:33	74.83
2436	20110112184133	74.810		12/01/2011 18:41:33	74.81
2437	20110112184533	74.830		12/01/2011 18:45:33	74.83
2438	20110112184618	74.830		12/01/2011 18:46:18	74.83
2439	20110112184733	74.810		12/01/2011 18:47:33	74.81
2440	20110112185633	74.790		12/01/2011 18:56:33	74.79
2441	20110112185733	74.810		12/01/2011 18:57:33	74.81
2442	20110112190133	74.830		12/01/2011 19:01:33	74.83
2443	20110112190333	74.810		12/01/2011 19:03:33	74.81
2444	20110112190532	74.830		12/01/2011 19:05:32	74.83

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2447	20110112191033	74.810		12/01/2011 19:10:33	74.81
2448	20110112191633	74.830		12/01/2011 19:16:33	74.83
2449	20110112191733	74.810		12/01/2011 19:17:33	74.81
2450	20110112193034	74.830		12/01/2011 19:30:34	74.83
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2452	20110112193932	74.830		12/01/2011 19:39:32	74.83
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2454	20110112194334	74.830		12/01/2011 19:43:34	74.83
2455	20110112194533	74.810		12/01/2011 19:45:33	74.81
2456	20110112195032	74.830		12/01/2011 19:50:32	74.83
2457	20110112195233	74.810		12/01/2011 19:52:33	74.81
2458	20110112195433	74.830		12/01/2011 19:54:33	74.83
2459	20110112195634	74.810		12/01/2011 19:56:34	74.81
2460	20110112202233	74.850		12/01/2011 20:22:33	74.85
2461	20110112202333	74.830		12/01/2011 20:23:33	74.83
2462	20110112202433	74.810		12/01/2011 20:24:33	74.81
2463	20110112202834	74.850		12/01/2011 20:28:34	74.85
2464	20110112202933	74.810		12/01/2011 20:29:33	74.81
2465	20110112203633	74.810		12/01/2011 20:36:33	74.81
2466	20110112203933	74.830		12/01/2011 20:39:33	74.83
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2468	20110112204132	74.810		12/01/2011 20:41:32	74.81
2469	20110112204633	74.830		12/01/2011 20:46:33	74.83
2470	20110112204833	74.790		12/01/2011 20:48:33	74.79
2471	20110112204932	74.810		12/01/2011 20:49:32	74.81
2472	20110112205534	74.810		12/01/2011 20:55:34	74.81
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2474	20110112210133	74.790		12/01/2011 21:01:33	74.79
2475	20110112210533	74.810		12/01/2011 21:05:33	74.81
2476	20110112210933	74.830		12/01/2011 21:09:33	74.83
2477	20110112211133	74.790		12/01/2011 21:11:33	74.79
2478	20110112211332	74.810		12/01/2011 21:13:32	74.81
2479	20110112211433	74.790		12/01/2011 21:14:33	74.79
2480	20110112211533	74.810		12/01/2011 21:15:33	74.81
2481	20110112212033	74.790		12/01/2011 21:20:33	74.79
2482	20110112212233	74.830		12/01/2011 21:22:33	74.83
2483	20110112212333	74.810		12/01/2011 21:23:33	74.81
2484	20110112212633	74.790		12/01/2011 21:26:33	74.79
2485	20110112212833	74.810		12/01/2011 21:28:33	74.81
2486	20110112214618	74.810		12/01/2011 21:46:18	74.81
2487	20110112214633	74.830		12/01/2011 21:46:33	74.83
2488	20110112215134	74.790		12/01/2011 21:51:34	74.79
2489	20110112215533	74.810		12/01/2011 21:55:33	74.81
2490	20110112215832	74.830		12/01/2011 21:58:32	74.83
2491	20110112215933	74.810		12/01/2011 21:59:33	74.81

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2494	20110112221133	74.810		12/01/2011 22:11:33	74.81
2495	20110112221633	74.770		12/01/2011 22:16:33	74.77
2496	20110112221833	74.810		12/01/2011 22:18:33	74.81
2497	20110112222133	74.790		12/01/2011 22:21:33	74.79
2498	20110112222233	74.830		12/01/2011 22:22:33	74.83
2499	20110112222332	74.810		12/01/2011 22:23:32	74.81
2500	20110112222432	74.790		12/01/2011 22:24:32	74.79
2501	20110112223132	74.810		12/01/2011 22:31:32	74.81
2502	20110112223233	74.790		12/01/2011 22:32:33	74.79
2503	20110112223333	74.810		12/01/2011 22:33:33	74.81
2504	20110112223733	74.810		12/01/2011 22:37:33	74.81
2505	20110112224033	74.790		12/01/2011 22:40:33	74.79
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2507	20110112224233	74.810		12/01/2011 22:42:33	74.81
2508	20110112224534	74.790		12/01/2011 22:45:34	74.79
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2510	20110112224833	74.790		12/01/2011 22:48:33	74.79
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2512	20110112225033	74.790		12/01/2011 22:50:33	74.79
2513	20110112225532	74.810		12/01/2011 22:55:32	74.81
2514	20110112230133	74.790		12/01/2011 23:01:33	74.79
2515	20110112230832	74.810		12/01/2011 23:08:32	74.81
2516	20110112231032	74.830		12/01/2011 23:10:32	74.83
2517	20110112231132	74.810		12/01/2011 23:11:32	74.81
2518	20110112231233	74.790		12/01/2011 23:12:33	74.79
2519	20110112231632	74.770		12/01/2011 23:16:32	74.77
2520	20110112231733	74.810		12/01/2011 23:17:33	74.81
2521	20110112231832	74.790		12/01/2011 23:18:32	74.79
2522	20110112231932	74.810		12/01/2011 23:19:32	74.81
2523	20110112232132	74.790		12/01/2011 23:21:32	74.79
2524	20110112232433	74.810		12/01/2011 23:24:33	74.81
2525	20110112232732	74.790		12/01/2011 23:27:32	74.79
2526	20110112233432	74.810		12/01/2011 23:34:32	74.81
2527	20110112233733	74.790		12/01/2011 23:37:33	74.79
2528	20110112234133	74.810		12/01/2011 23:41:33	74.81
2529	20110112234233	74.790		12/01/2011 23:42:33	74.79
2530	20110112234332	74.770		12/01/2011 23:43:32	74.77
2531	20110112234433	74.790		12/01/2011 23:44:33	74.79
2532	20110113000433	74.810		13/01/2011 00:04:33	74.81
2533	20110113000533	74.770		13/01/2011 00:05:33	74.77
2534	20110113000633	74.810		13/01/2011 00:06:33	74.81
2535	20110113000732	74.790		13/01/2011 00:07:32	74.79
2536	20110113001032	74.810		13/01/2011 00:10:32	74.81
2537	20110113001232	74.790		13/01/2011 00:12:32	74.79
2538	20110113001832	74.810		13/01/2011 00:18:32	74.81

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2541	20110113002833	74.790		13/01/2011 00:28:33	74.79
2542	20110113002933	74.750		13/01/2011 00:29:33	74.75
2543	20110113003033	74.790		13/01/2011 00:30:33	74.79
2544	20110113003633	74.770		13/01/2011 00:36:33	74.77
2545	20110113003734	74.810		13/01/2011 00:37:34	74.81
2546	20110113003833	74.790		13/01/2011 00:38:33	74.79
2547	20110113004133	74.770		13/01/2011 00:41:33	74.77
2548	20110113004232	74.810		13/01/2011 00:42:32	74.81
2549	20110113004333	74.770		13/01/2011 00:43:33	74.77
2550	20110113004533	74.790		13/01/2011 00:45:33	74.79
2551	20110113004618	74.790		13/01/2011 00:46:18	74.79
2552	20110113004932	74.770		13/01/2011 00:49:32	74.77
2553	20110113005032	74.790		13/01/2011 00:50:32	74.79
2554	20110113005932	74.790		13/01/2011 00:59:32	74.79
2555	20110113010533	74.770		13/01/2011 01:05:33	74.77
2556	20110113010832	74.790		13/01/2011 01:08:32	74.79
2557	20110113011431	74.750		13/01/2011 01:14:31	74.75
2558	20110113011533	74.770		13/01/2011 01:15:33	74.77
2559	20110113011733	74.790		13/01/2011 01:17:33	74.79
2560	20110113013133	74.750		13/01/2011 01:31:33	74.75
2561	20110113013432	74.770		13/01/2011 01:34:32	74.77
2562	20110113013532	74.790		13/01/2011 01:35:32	74.79
2563	20110113013632	74.810		13/01/2011 01:36:32	74.81
2564	20110113013733	74.770		13/01/2011 01:37:33	74.77
2565	20110113013832	74.790		13/01/2011 01:38:32	74.79
2566	20110113014032	74.770		13/01/2011 01:40:32	74.77
2567	20110113014233	74.790		13/01/2011 01:42:33	74.79
2568	20110113014932	74.790		13/01/2011 01:49:32	74.79
2569	20110113015033	74.750		13/01/2011 01:50:33	74.75
2570	20110113015132	74.790		13/01/2011 01:51:32	74.79
2571	20110113015732	74.750		13/01/2011 01:57:32	74.75
2572	20110113015832	74.770		13/01/2011 01:58:32	74.77
2573	20110113015932	74.790		13/01/2011 01:59:32	74.79
2574	20110113020133	74.750		13/01/2011 02:01:33	74.75
2575	20110113020432	74.790		13/01/2011 02:04:32	74.79
2576	20110113020532	74.770		13/01/2011 02:05:32	74.77
2577	20110113021032	74.750		13/01/2011 02:10:32	74.75
2578	20110113021133	74.770		13/01/2011 02:11:33	74.77
2579	20110113021233	74.790		13/01/2011 02:12:33	74.79
2580	20110113021332	74.770		13/01/2011 02:13:32	74.77
2581	20110113021633	74.770		13/01/2011 02:16:33	74.77
2582	20110113022032	74.750		13/01/2011 02:20:32	74.75
2583	20110113022132	74.790		13/01/2011 02:21:32	74.79
2584	20110113022233	74.770		13/01/2011 02:22:33	74.77
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2588	20110113022932	74.770		13/01/2011 02:29:32	74.77
2589	20110113023332	74.750		13/01/2011 02:33:32	74.75
2590	20110113023532	74.770		13/01/2011 02:35:32	74.77
2591	20110113023632	74.750		13/01/2011 02:36:32	74.75
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2593	20110113024432	74.750		13/01/2011 02:44:32	74.75
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2819	20110113152531	74.590		13/01/2011 15:25:31	74.59
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2825	20110113153331	74.490		13/01/2011 15:33:31	74.49
2826	20110113153431	74.530		13/01/2011 15:34:31	74.53
2827	20110113153631	74.470		13/01/2011 15:36:31	74.47
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2837	20110113155731	74.530		13/01/2011 15:57:31	74.53
2838	20110113155930	74.550		13/01/2011 15:59:30	74.55
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3306	20110114045829	74.030		14/01/2011 04:58:29	74.03
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3314	20110114051028	74.010		14/01/2011 05:10:28	74.01
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3328	20110114054530	73.930		14/01/2011 05:45:30	73.93
3329	20110114054929	73.990		14/01/2011 05:49:29	73.99
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3331	20110114055228	73.950		14/01/2011 05:52:28	73.95
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3334	20110114055829	73.990		14/01/2011 05:58:29	73.99
3335	20110114055929	73.950		14/01/2011 05:59:29	73.95
3336	20110114060029	73.970		14/01/2011 06:00:29	73.97
3337	20110114060328	73.990		14/01/2011 06:03:28	73.99

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3340	20110114060730	73.950		14/01/2011 06:07:30	73.95
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3342	20110114061029	73.950		14/01/2011 06:10:29	73.95
3343	20110114061229	73.990		14/01/2011 06:12:29	73.99
3344	20110114061429	73.970		14/01/2011 06:14:29	73.97
3345	20110114061529	73.930		14/01/2011 06:15:29	73.93
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3348	20110114061929	73.990		14/01/2011 06:19:29	73.99
3349	20110114062030	73.930		14/01/2011 06:20:30	73.93
3350	20110114062229	73.910		14/01/2011 06:22:29	73.91
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3352	20110114063329	73.910		14/01/2011 06:33:29	73.91
3353	20110114063629	73.950		14/01/2011 06:36:29	73.95
3354	20110114063729	73.890		14/01/2011 06:37:29	73.89
3355	20110114063929	73.930		14/01/2011 06:39:29	73.93
3356	20110114064028	73.890		14/01/2011 06:40:28	73.89
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3361	20110114065029	73.910		14/01/2011 06:50:29	73.91
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3378	20110114071629	73.850		14/01/2011 07:16:29	73.85
3379	20110114071729	73.870		14/01/2011 07:17:29	73.87
3380	20110114071829	73.850		14/01/2011 07:18:29	73.85
3381	20110114071930	73.870		14/01/2011 07:19:30	73.87
3382	20110114072229	73.830		14/01/2011 07:22:29	73.83
3383	20110114072329	73.890		14/01/2011 07:23:29	73.89
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3393	20110114073829	73.810		14/01/2011 07:38:29	73.81
3394	20110114073928	73.850		14/01/2011 07:39:28	73.85
3395	20110114074029	73.870		14/01/2011 07:40:29	73.87
3396	20110114074129	73.850		14/01/2011 07:41:29	73.85
3397	20110114074329	73.870		14/01/2011 07:43:29	73.87
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3467	20110114094129	73.750		14/01/2011 09:41:29	73.75
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3501	20110114103528	73.710		14/01/2011 10:35:28	73.71
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3514	20110114105829	73.730		14/01/2011 10:58:29	73.73
3515	20110114105928	73.710		14/01/2011 10:59:28	73.71
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3531	20110114112429	73.630		14/01/2011 11:24:29	73.63
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3533	20110114113129	73.630		14/01/2011 11:31:29	73.63
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3537	20110114113629	73.670		14/01/2011 11:36:29	73.67
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3539	20110114113929	73.730		14/01/2011 11:39:29	73.73
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3542	20110114114528	73.630		14/01/2011 11:45:28	73.63
3543	20110114114628	73.710		14/01/2011 11:46:28	73.71
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3545	20110114115229	73.630		14/01/2011 11:52:29	73.63
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3549	20110114115729	73.650		14/01/2011 11:57:29	73.65
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3551	20110114115928	73.630		14/01/2011 11:59:28	73.63
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3561	20110114122228	73.610		14/01/2011 12:22:28	73.61
3562	20110114122328	73.590		14/01/2011 12:23:28	73.59
3563	20110114122928	73.630		14/01/2011 12:29:28	73.63
3564	20110114123128	73.570		14/01/2011 12:31:28	73.57
3565	20110114123229	73.650		14/01/2011 12:32:29	73.65
3566	20110114123328	73.610		14/01/2011 12:33:28	73.61
3567	20110114124028	73.630		14/01/2011 12:40:28	73.63
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3571	20110114124613	73.590		14/01/2011 12:46:13	73.59
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3578	20110114125528	73.610		14/01/2011 12:55:28	73.61
3579	20110114125629	73.550		14/01/2011 12:56:29	73.55
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3581	20110114125828	73.570		14/01/2011 12:58:28	73.57
3582	20110114125928	73.630		14/01/2011 12:59:28	73.63
3583	20110114130028	73.550		14/01/2011 13:00:28	73.55
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3597	20110114131927	73.570		14/01/2011 13:19:27	73.57
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3604	20110114133528	73.550		14/01/2011 13:35:28	73.55
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3606	20110114134028	73.570		14/01/2011 13:40:28	73.57
3607	20110114134429	73.530		14/01/2011 13:44:29	73.53
3608	20110114134528	73.570		14/01/2011 13:45:28	73.57
3609	20110114134728	73.530		14/01/2011 13:47:28	73.53
3610	20110114134928	73.570		14/01/2011 13:49:28	73.57
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3612	20110114135128	73.570		14/01/2011 13:51:28	73.57
3613	20110114135228	73.510		14/01/2011 13:52:28	73.51
3614	20110114135628	73.470		14/01/2011 13:56:28	73.47
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3616	20110114135928	73.510		14/01/2011 13:59:28	73.51
3617	20110114140029	73.530		14/01/2011 14:00:29	73.53
3618	20110114140228	73.550		14/01/2011 14:02:28	73.55
3619	20110114140328	73.570		14/01/2011 14:03:28	73.57

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3623	20110114140828	73.550		14/01/2011 14:08:28	73.55
3624	20110114140928	73.490		14/01/2011 14:09:28	73.49
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3626	20110114141129	73.570		14/01/2011 14:11:29	73.57
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3628	20110114141428	73.550		14/01/2011 14:14:28	73.55
3629	20110114141629	73.530		14/01/2011 14:16:29	73.53
3630	20110114141728	73.550		14/01/2011 14:17:28	73.55
3631	20110114141828	73.490		14/01/2011 14:18:28	73.49
3632	20110114142128	73.590		14/01/2011 14:21:28	73.59
3633	20110114142229	73.550		14/01/2011 14:22:29	73.55
3634	20110114142328	73.510		14/01/2011 14:23:28	73.51
3635	20110114142429	73.550		14/01/2011 14:24:29	73.55
3636	20110114142528	73.530		14/01/2011 14:25:28	73.53
3637	20110114142628	73.550		14/01/2011 14:26:28	73.55
3638	20110114142729	73.530		14/01/2011 14:27:29	73.53
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3642	20110114143528	73.510		14/01/2011 14:35:28	73.51
3643	20110114143727	73.530		14/01/2011 14:37:27	73.53
3644	20110114143828	73.550		14/01/2011 14:38:28	73.55
3645	20110114143928	73.510		14/01/2011 14:39:28	73.51
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4176	20110115041227	72.790		15/01/2011 04:12:27	72.79
4177	20110115041426	72.770		15/01/2011 04:14:26	72.77
4178	20110115041527	72.810		15/01/2011 04:15:27	72.81
4179	20110115041627	72.750		15/01/2011 04:16:27	72.75
4180	20110115041726	72.810		15/01/2011 04:17:26	72.81
4181	20110115041827	72.830		15/01/2011 04:18:27	72.83
4182	20110115041926	72.810		15/01/2011 04:19:26	72.81
4183	20110115042027	72.750		15/01/2011 04:20:27	72.75

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4185	20110115042327	72.750		15/01/2011 04:23:27	72.75
4186	20110115042426	72.770		15/01/2011 04:24:26	72.77
4187	20110115042627	72.850		15/01/2011 04:26:27	72.85
4188	20110115042726	72.770		15/01/2011 04:27:26	72.77
4189	20110115042827	72.750		15/01/2011 04:28:27	72.75
4190	20110115042926	72.770		15/01/2011 04:29:26	72.77
4191	20110115043026	72.830		15/01/2011 04:30:26	72.83
4192	20110115043127	72.790		15/01/2011 04:31:27	72.79
4193	20110115043226	72.850		15/01/2011 04:32:26	72.85
4194	20110115043326	72.790		15/01/2011 04:33:26	72.79
4195	20110115043526	72.770		15/01/2011 04:35:26	72.77
4196	20110115043727	72.750		15/01/2011 04:37:27	72.75
4197	20110115043826	72.790		15/01/2011 04:38:26	72.79
4198	20110115043927	72.810		15/01/2011 04:39:27	72.81
4199	20110115044227	72.870		15/01/2011 04:42:27	72.87
4200	20110115044326	72.850		15/01/2011 04:43:26	72.85
4201	20110115044427	72.750		15/01/2011 04:44:27	72.75
4202	20110115044727	72.810		15/01/2011 04:47:27	72.81
4203	20110115044826	72.790		15/01/2011 04:48:26	72.79
4204	20110115045026	72.730		15/01/2011 04:50:26	72.73
4205	20110115045227	72.790		15/01/2011 04:52:27	72.79
4206	20110115045626	72.710		15/01/2011 04:56:26	72.71
4207	20110115045726	72.770		15/01/2011 04:57:26	72.77
4208	20110115045827	72.750		15/01/2011 04:58:27	72.75
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4210	20110115050027	72.750		15/01/2011 05:00:27	72.75
4211	20110115050126	72.810		15/01/2011 05:01:26	72.81
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4214	20110115050827	72.790		15/01/2011 05:08:27	72.79
4215	20110115051026	72.750		15/01/2011 05:10:26	72.75
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4217	20110115051226	72.770		15/01/2011 05:12:26	72.77
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4219	20110115051926	72.790		15/01/2011 05:19:26	72.79
4220	20110115052027	72.750		15/01/2011 05:20:27	72.75
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4222	20110115052227	72.750		15/01/2011 05:22:27	72.75
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4224	20110115052427	72.770		15/01/2011 05:24:27	72.77
4225	20110115052526	72.790		15/01/2011 05:25:26	72.79
4226	20110115052926	72.710		15/01/2011 05:29:26	72.71
4227	20110115053127	72.750		15/01/2011 05:31:27	72.75
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4229	20110115053426	72.750		15/01/2011 05:34:26	72.75
4230	20110115053527	72.710		15/01/2011 05:35:27	72.71

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4235	20110115054126	72.730		15/01/2011 05:41:26	72.73
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4237	20110115054327	72.730		15/01/2011 05:43:27	72.73
4238	20110115054427	72.690		15/01/2011 05:44:27	72.69
4239	20110115054526	72.730		15/01/2011 05:45:26	72.73
4240	20110115055026	72.710		15/01/2011 05:50:26	72.71
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4243	20110115055427	72.730		15/01/2011 05:54:27	72.73
4244	20110115055626	72.690		15/01/2011 05:56:26	72.69
4245	20110115055726	72.770		15/01/2011 05:57:26	72.77
4246	20110115055826	72.730		15/01/2011 05:58:26	72.73
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4254	20110115061527	72.730		15/01/2011 06:15:27	72.73
4255	20110115061626	72.690		15/01/2011 06:16:26	72.69
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4257	20110115061926	72.650		15/01/2011 06:19:26	72.65
4258	20110115062026	72.710		15/01/2011 06:20:26	72.71
4259	20110115062226	72.650		15/01/2011 06:22:26	72.65
4260	20110115062526	72.670		15/01/2011 06:25:26	72.67
4261	20110115062927	72.690		15/01/2011 06:29:27	72.69
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4263	20110115063127	72.710		15/01/2011 06:31:27	72.71
4264	20110115063226	72.650		15/01/2011 06:32:26	72.65
4265	20110115063426	72.670		15/01/2011 06:34:26	72.67
4266	20110115063526	72.690		15/01/2011 06:35:26	72.69
4267	20110115063625	72.670		15/01/2011 06:36:25	72.67
4268	20110115064027	72.670		15/01/2011 06:40:27	72.67
4269	20110115064227	72.650		15/01/2011 06:42:27	72.65
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4271	20110115064526	72.650		15/01/2011 06:45:26	72.65
4272	20110115064611	72.650		15/01/2011 06:46:11	72.65
4273	20110115064626	72.630		15/01/2011 06:46:26	72.63
4274	20110115064726	72.650		15/01/2011 06:47:26	72.65
4275	20110115064826	72.610		15/01/2011 06:48:26	72.61
4276	20110115065027	72.590		15/01/2011 06:50:27	72.59
4277	20110115065127	72.650		15/01/2011 06:51:27	72.65

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4279	20110115065426	72.610		15/01/2011 06:54:26	72.61
4280	20110115065527	72.670		15/01/2011 06:55:27	72.67
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4283	20110115070126	72.590		15/01/2011 07:01:26	72.59
4284	20110115070427	72.630		15/01/2011 07:04:27	72.63
4285	20110115070525	72.610		15/01/2011 07:05:25	72.61
4286	20110115070726	72.590		15/01/2011 07:07:26	72.59
4287	20110115070826	72.630		15/01/2011 07:08:26	72.63
4288	20110115071126	72.590		15/01/2011 07:11:26	72.59
4289	20110115071226	72.630		15/01/2011 07:12:26	72.63
4290	20110115071326	72.670		15/01/2011 07:13:26	72.67
4291	20110115071426	72.630		15/01/2011 07:14:26	72.63
4292	20110115071526	72.610		15/01/2011 07:15:26	72.61
4293	20110115072026	72.550		15/01/2011 07:20:26	72.55
4294	20110115072126	72.610		15/01/2011 07:21:26	72.61
4295	20110115072326	72.650		15/01/2011 07:23:26	72.65
4296	20110115072426	72.570		15/01/2011 07:24:26	72.57
4297	20110115072526	72.610		15/01/2011 07:25:26	72.61
4298	20110115072725	72.550		15/01/2011 07:27:25	72.55
4299	20110115072827	72.630		15/01/2011 07:28:27	72.63
4300	20110115072926	72.610		15/01/2011 07:29:26	72.61
4301	20110115073127	72.630		15/01/2011 07:31:27	72.63
4302	20110115073226	72.570		15/01/2011 07:32:26	72.57
4303	20110115073426	72.630		15/01/2011 07:34:26	72.63
4304	20110115073626	72.530		15/01/2011 07:36:26	72.53
4305	20110115073927	72.550		15/01/2011 07:39:27	72.55
4306	20110115074026	72.650		15/01/2011 07:40:26	72.65
4307	20110115074127	72.590		15/01/2011 07:41:27	72.59
4308	20110115074227	72.570		15/01/2011 07:42:27	72.57
4309	20110115074325	72.510		15/01/2011 07:43:25	72.51
4310	20110115074427	72.590		15/01/2011 07:44:27	72.59
4311	20110115074726	72.550		15/01/2011 07:47:26	72.55
4312	20110115074926	72.570		15/01/2011 07:49:26	72.57
4313	20110115075125	72.530		15/01/2011 07:51:25	72.53
4314	20110115075226	72.550		15/01/2011 07:52:26	72.55
4315	20110115075426	72.590		15/01/2011 07:54:26	72.59
4316	20110115075527	72.550		15/01/2011 07:55:27	72.55
4317	20110115075826	72.510		15/01/2011 07:58:26	72.51
4318	20110115075926	72.590		15/01/2011 07:59:26	72.59
4319	20110115080126	72.530		15/01/2011 08:01:26	72.53
4320	20110115080226	72.590		15/01/2011 08:02:26	72.59
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4322	20110115080426	72.570		15/01/2011 08:04:26	72.57
4323	20110115080526	72.530		15/01/2011 08:05:26	72.53
4324	20110115080626	72.550		15/01/2011 08:06:26	72.55

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4326	20110115081327	72.570		15/01/2011 08:13:27	72.57
4327	20110115081426	72.510		15/01/2011 08:14:26	72.51
4328	20110115081526	72.530		15/01/2011 08:15:26	72.53
4329	20110115081726	72.530		15/01/2011 08:17:26	72.53
4330	20110115082025	72.550		15/01/2011 08:20:25	72.55
4331	20110115082225	72.570		15/01/2011 08:22:25	72.57
4332	20110115082526	72.530		15/01/2011 08:25:26	72.53
4333	20110115082726	72.470		15/01/2011 08:27:26	72.47
4334	20110115082926	72.490		15/01/2011 08:29:26	72.49
4335	20110115083026	72.510		15/01/2011 08:30:26	72.51
4336	20110115083226	72.490		15/01/2011 08:32:26	72.49
4337	20110115083325	72.570		15/01/2011 08:33:25	72.57
4338	20110115083427	72.530		15/01/2011 08:34:27	72.53
4339	20110115083527	72.570		15/01/2011 08:35:27	72.57
4340	20110115083626	72.510		15/01/2011 08:36:26	72.51
4341	20110115083727	72.550		15/01/2011 08:37:27	72.55
4342	20110115083826	72.510		15/01/2011 08:38:26	72.51
4343	20110115083926	72.530		15/01/2011 08:39:26	72.53
4344	20110115084226	72.510		15/01/2011 08:42:26	72.51
4345	20110115084326	72.530		15/01/2011 08:43:26	72.53
4346	20110115084527	72.510		15/01/2011 08:45:27	72.51
4347	20110115084827	72.530		15/01/2011 08:48:27	72.53
4348	20110115084926	72.490		15/01/2011 08:49:26	72.49
4349	20110115085027	72.530		15/01/2011 08:50:27	72.53
4350	20110115085126	72.510		15/01/2011 08:51:26	72.51
4351	20110115085326	72.530		15/01/2011 08:53:26	72.53
4352	20110115085525	72.510		15/01/2011 08:55:25	72.51
4353	20110115085626	72.490		15/01/2011 08:56:26	72.49
4354	20110115085926	72.510		15/01/2011 08:59:26	72.51
4355	20110115090126	72.490		15/01/2011 09:01:26	72.49
4356	20110115090226	72.470		15/01/2011 09:02:26	72.47
4357	20110115090726	72.530		15/01/2011 09:07:26	72.53
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4359	20110115091226	72.450		15/01/2011 09:12:26	72.45
4360	20110115091326	72.490		15/01/2011 09:13:26	72.49
4361	20110115091427	72.530		15/01/2011 09:14:27	72.53
4362	20110115091526	72.510		15/01/2011 09:15:26	72.51
4363	20110115091626	72.490		15/01/2011 09:16:26	72.49
4364	20110115091726	72.470		15/01/2011 09:17:26	72.47
4365	20110115091926	72.530		15/01/2011 09:19:26	72.53
4366	20110115092026	72.450		15/01/2011 09:20:26	72.45
4367	20110115092426	72.410		15/01/2011 09:24:26	72.41
4368	20110115092526	72.470		15/01/2011 09:25:26	72.47
4369	20110115092626	72.490		15/01/2011 09:26:26	72.49
4370	20110115092725	72.470		15/01/2011 09:27:25	72.47
4371	20110115092826	72.450		15/01/2011 09:28:26	72.45

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4375	20110115093426	72.430		15/01/2011 09:34:26	72.43
4376	20110115093626	72.450		15/01/2011 09:36:26	72.45
4377	20110115093726	72.490		15/01/2011 09:37:26	72.49
4378	20110115093926	72.470		15/01/2011 09:39:26	72.47
4379	20110115094127	72.450		15/01/2011 09:41:27	72.45
4380	20110115094226	72.430		15/01/2011 09:42:26	72.43
4381	20110115094326	72.450		15/01/2011 09:43:26	72.45
4382	20110115094426	72.410		15/01/2011 09:44:26	72.41
4383	20110115094526	72.450		15/01/2011 09:45:26	72.45
4384	20110115094610	72.450		15/01/2011 09:46:10	72.45
4385	20110115094627	72.410		15/01/2011 09:46:27	72.41
4386	20110115094726	72.450		15/01/2011 09:47:26	72.45
4387	20110115095125	72.430		15/01/2011 09:51:25	72.43
4388	20110115095427	72.390		15/01/2011 09:54:27	72.39
4389	20110115095526	72.470		15/01/2011 09:55:26	72.47
4390	20110115095626	72.450		15/01/2011 09:56:26	72.45
4391	20110115095826	72.430		15/01/2011 09:58:26	72.43
4392	20110115095925	72.390		15/01/2011 09:59:25	72.39
4393	20110115100026	72.470		15/01/2011 10:00:26	72.47
4394	20110115100226	72.390		15/01/2011 10:02:26	72.39
4395	20110115100327	72.410		15/01/2011 10:03:27	72.41
4396	20110115100527	72.370		15/01/2011 10:05:27	72.37
4397	20110115100625	72.450		15/01/2011 10:06:25	72.45
4398	20110115100725	72.430		15/01/2011 10:07:25	72.43
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4404	20110115101725	72.390		15/01/2011 10:17:25	72.39
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4410	20110115102526	72.370		15/01/2011 10:25:26	72.37
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4413	20110115102926	72.430		15/01/2011 10:29:26	72.43
4414	20110115103025	72.410		15/01/2011 10:30:25	72.41
4415	20110115103226	72.370		15/01/2011 10:32:26	72.37
4416	20110115103425	72.410		15/01/2011 10:34:25	72.41
4417	20110115103526	72.370		15/01/2011 10:35:26	72.37
4418	20110115103726	72.450		15/01/2011 10:37:26	72.45

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4420	20110115104026	72.390		15/01/2011 10:40:26	72.39
4421	20110115104225	72.430		15/01/2011 10:42:25	72.43
4422	20110115104425	72.350		15/01/2011 10:44:25	72.35
4423	20110115104526	72.430		15/01/2011 10:45:26	72.43
4424	20110115104625	72.370		15/01/2011 10:46:25	72.37
4425	20110115104725	72.390		15/01/2011 10:47:25	72.39
4426	20110115104826	72.410		15/01/2011 10:48:26	72.41
4427	20110115104926	72.350		15/01/2011 10:49:26	72.35
4428	20110115105725	72.410		15/01/2011 10:57:25	72.41
4429	20110115105825	72.370		15/01/2011 10:58:25	72.37
4430	20110115110026	72.330		15/01/2011 11:00:26	72.33
4431	20110115110126	72.350		15/01/2011 11:01:26	72.35
4432	20110115110226	72.310		15/01/2011 11:02:26	72.31
4433	20110115110625	72.390		15/01/2011 11:06:25	72.39
4434	20110115110726	72.370		15/01/2011 11:07:26	72.37
4435	20110115110826	72.390		15/01/2011 11:08:26	72.39
4436	20110115110926	72.350		15/01/2011 11:09:26	72.35
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6164	20110117062421	69.330		17/01/2011 06:24:21	69.33
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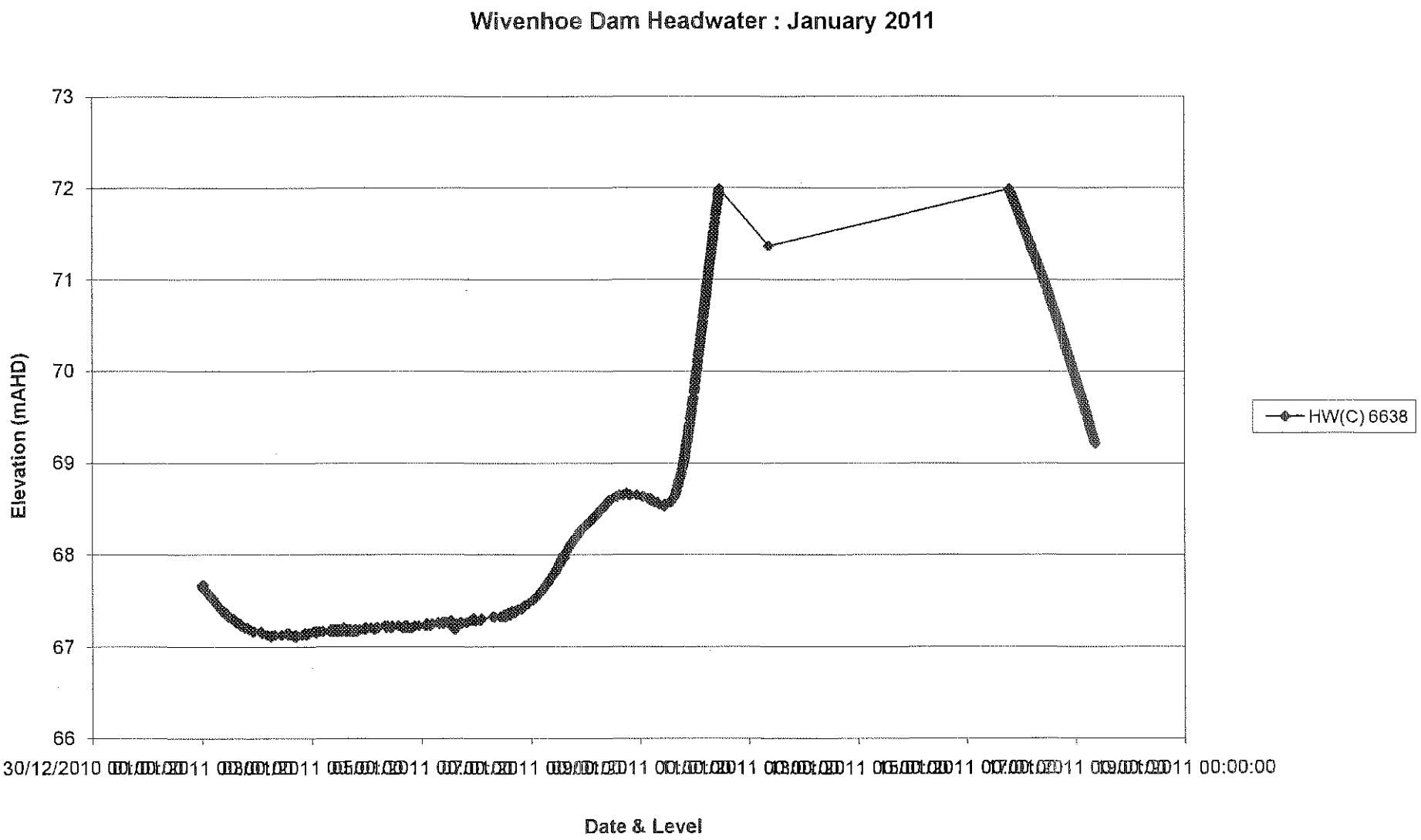
Wivenhoe Dam Headwater : January 2011
73
72
71
70
69
68
67
66
Elevation (mAHD)
30/12/2010 00:00:00
00:00:00
Date & Level
HW(C) 6638

RD5-1662

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15	20110101045939	67.510		01/01/2011 04:59:39	67.51
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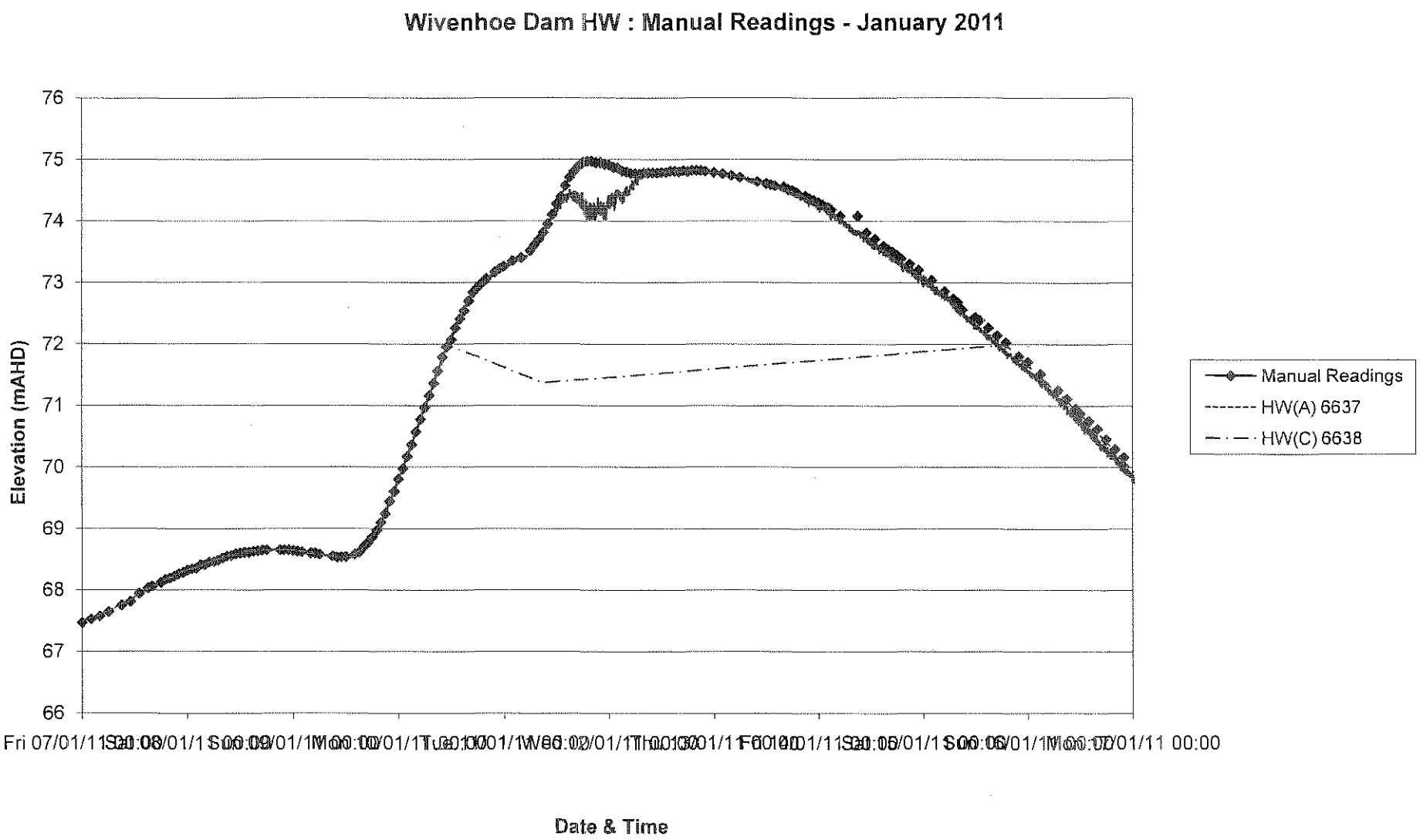
566	20110117045548	69.530		17/01/2011 04:55:48	69.53
567	20110117051049	69.510		17/01/2011 05:10:49	69.51
568	20110117052249	69.490		17/01/2011 05:22:49	69.49
569	20110117053149	69.470		17/01/2011 05:31:49	69.47
570	20110117054949	69.450		17/01/2011 05:49:49	69.45
571	20110117060149	69.430		17/01/2011 06:01:49	69.43
572	20110117061949	69.410		17/01/2011 06:19:49	69.41
573	20110117063149	69.390		17/01/2011 06:31:49	69.39
574	20110117064949	69.370		17/01/2011 06:49:49	69.37
575	20110117070148	69.350		17/01/2011 07:01:48	69.35
576	20110117071049	69.330		17/01/2011 07:10:49	69.33
577	20110117072848	69.310		17/01/2011 07:28:48	69.31
578	20110117073751	69.310		17/01/2011 07:37:51	69.31
579	20110117074349	69.290		17/01/2011 07:43:49	69.29
580	20110117075548	69.270		17/01/2011 07:55:48	69.27
581	20110117081348	69.250		17/01/2011 08:13:48	69.25
582	20110117082849	69.230		17/01/2011 08:28:49	69.23
583	20110117084348	69.210		17/01/2011 08:43:48	69.21


Wivenhoe Dam HW : Manual Readings - January 2011
Elevation (mAHD)
76
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66
Fri 07/01/11 00:00
Date & Time
Manual Readings
HW(A) 6637
HW(C) 6638

RD5-1676

	A	B
1		
2	Duty Engineer	
3	RA - Rob Ayre	
4	JR - John Ruffini	
5	TM - Terry Malone	
6	JT - John Tabaldi	
7		
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RD5-1677

	C
1	FLOOD CONTROL CENTRE - EVENT LOG
2	Agency
3	MBRC - Moreton Bay Regional Council
4	BCC - Brisbane City Council
5	FOC - Flood Operations Center
6	ICC Ipswich City Council
7	SRC - Somerset Regional Council
8	BOMFWC Bureau of Meteorolgy Flood Warning Centre
9	
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RD5-1678

	D	E
1		
2		Data Collector
3		MT - Mark Tan
4		KH - Kim Hang
5		NA - Neville Ablitt
6		LVB - Lou van Blerk
7		AN - Al Navruk
8		BS - Bill Stephens
9		DP - David Pokarier
10		JW - John West

RD5-1679

	A	B
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12	**DATE**	**TIME**
13	Thursday 6/1/2011	7:00 AM
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16		8:14 AM
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12	**ACTION**
13	TM duty Engineer. Rainfall and water had been remote monitored to this point in time. TM advises Senior Duty Engineer that Flood Operations are required at both Somerset, Wivenhoe and North Pine Dams. TM arrived at FOC to assess strategies and mobilises FOC, Wivenhoe, Somerset and North Pine Dam. North Pine Dam At 07:00hrs Thursday, North Pine Dam was 39.60m, 0.05m below gate trigger leval and having risen 0.18m since 2/1/2011 due to a combination of base flow and runoff from rain in the last 24 hours. Given the forecast rain, gate operations will commence tonight. MBRC will be advised this morning. Somerset Dam At 07:00hrs Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday. Wivenhoe Dam The regulator and hydro were discharging at 50 cumecs to manage baseflow recession from previous flow avent. At 07:00hrs Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the
14	Strategy W1 - Various
15	
16	**Situation Report 0800 06/01/2011** Rainfall - Since 9am Wednesday, there have been widespread falls of 30mm with isolated heavy falls up to 50mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been below 10mm. Falls up to 60mm were recorded in the Leslie Harrison catchment. - The forecast for the next 24 to 48 hours is for totals up to 150mm in SE Qld. - The catchments remain wot and are likely to generate additional runoff in the event of rain. North Pine Dam - At 0700 Thursday, North Pine Dam was 39.60m, 0.05m below gate trigger level and having risen 0.18m since 2/1/2011 due to a combination of baseflow and runoff from rain in the last 24 hours. - Given the forecast rain, gate operations will commence tonight. MBRC will be advised this morning Somerset Dam - At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck. Further regulator operations will be required later Thursday.
17	Wivenhoe Dam - At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. Gates will be opened in the next 24 hours to manage the inflows from the upper Brisbane River and the outflow from Somerset. Impacts of Wivenhoe Dam Releases - Somerset Regional, Ipswich City and Brisbane City Councils will be advised of the potential for gate operations after a full assessment of the situation this morning. At this stage it is anticipated that peak releases from Wivenhoe will be below 500m3/s but this will depend on the forecast rain and flows downstream of the dam. - The expected Wivenhoe release and local flows will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days. At this stage, there are not expectad to be any adverse impacts upon Fernvale Bridge, Burtons Bridge or Mt Crosby Weir Bridge Leslie Harrison Dam Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours. The next situation report will be issued at 1800 Thursday 6/1/2011.
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RD5-1681

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12	CATEGORY	INITIALS
13	Situation Report	MT
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15		
16	Situation Report	TM
17	Situation Report	
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RD5-1682

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28		1:30 PM
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35		
36		2:54 PM

RD5-1683

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28	**Revised Operating Strategy 1200 6/1/2011** North Pine - On track to open tonight Somerset/Wivenhoe - No change to current status – expected inflow volume about 45,000ML. Will reach about 99.7m AHD without releases. - Expected inflow volume about 130,000ML including Somerset. Will reach about 68.3m AHD without releases. - There has been further heavy falls in the Lockyer since 0900 Thursday and the flow from the Lockyer is going to be larger than initially assessed, possibly as high as 600m3/s peaking Saturday. This may close Burtons without any contribution from Wivenhoe. The opening of the Wivenhoe gates will therefore be delayed until the Lockyer peak passes.
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36	**Situation Report 1500 06/02/2011** Rainfall - In the 6 hours since 9am Wednesday, there have been general totals around 30mm with isolated heavy falls up to 60mm in the Somerset and Wivenhoe catchments. Totals in the North Pine catchment have generally been between 20 and 30mm. Falls between 20 and 30mm were recorded in the Leslie Harrison catchment. -The forecast for the next 24 to 48 hours is for totals up to 100mm in SE Qld. -The catchments remain wet and are likely to generate additional runoff in the event of rain. North Pine Dam At 1400 Thursday, North Pine Dam was 39.66m, 0.01m above gate trigger level. Gate operations will commence at 1900 Thursday and will impact upon Youngs Crossing. MBRC have been advised and will confirm closure of Youngs Crossing prior to gate operations. Given the forecast rainfall during Friday, gate operations may continue into Saturday. Somerset Dam At 0700 Thursday, Somerset Dam was 99.34m, 0.34m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck, adding to the Somerset inflows. Further regulator/sluice operations will be required in the next 24 to 48 hours. The estimated event inflow volume into Somerset Dam is 50,000ML.

RD5-1684

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28	Situation Report	TM
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36	Situation Report	TM

RD5-1685

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43	7/01/11	
44		5:33 PM

	C
37	Wivenhoe Dam - At 0700 Thursday, Wivenhoe Dam was 67.31m and rising slowly. This is 0.31m above FSL and above the gate trigger level of 67.25m. There have been rises recorded at rivers and stream upstream of Wivenhoe Dam. The estimated event inflow volume into Wivenhoe Dam is 180,000ML including Somerset Dam outflow. - There has been significant rainfalls in the Lockyer Ck catchment since 0900 Thursday and a peak of about 600m3/s is expected from the Lockyer late Friday. Wivenhoe gates will be opened after flood levels in the lower Lockyer subside. At this stage Wivenhoe releases during Saturday may be as high as 1,500m3/s and continue for a couple of days. Impacts of Wivenhoe Dam Releases - Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the potential for gate operations during the next 24 hours. - The will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days. The relatively high Lockyer flows will at least impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days and mey impact upon Burtons Bridge early Saturday. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge. Leslie Harrison Dam Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.
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44	**Situation Report 1800 06/01/2011** Rainfall - In the 8 hours since 9am Wednesday, there have been general totals around 30mm with isolated heavy falls up to 60mm in the Somerset and Wivenhoe catchments. There have been significant rainfalls in the Lockyer Ck catchment in the last 24 hours with widespread falls of 50mm and isolated falls up to 75mm. Totals in the North Pine catchment have generally been about 30mm. Falls between 20 and 30mm were recorded in the Leslie Harrison catchment. - The forecast for the next 24 to 48 hours is for totals up to 100mm in SE Qld. North Pine Dam At 1700 Thursday, North Pine Dam was 39.68m, 0.03m above gate trigger level. Gate operations will commence at 1900 Thursday and will impact upon Youngs Crossing. Moreton Bay Regional Council has been advised and will confirm closure of Youngs Crossing prior to gate operations. Given the forecast rainfall during Friday, gate operations may continue into Saturday. Somerset Dam At 1700 Thursday, Somerset Dam was 99.45m, 0.45m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the upper Stanley but there have been significant rises in Kilcoy Ck, adding to the Somerset inflows. Further regulator/sluice operations will be required in the next 24 to 48 hours. The estimated event inflow volume into Somerset Dam is 50,000ML.

RD5-1687

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44	Situation Report	TM

RD5-1688

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48	7/01/11	
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51	7/01/11	6:07 AM

RD5-1689

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45	Wivenhoe Dam - At 1700 Thursday, Wivenhoe Dam was 67.39m and rising slowly. This is 0.39m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels are still rising at the Linville and Gregors Ck gauges. The estimated event inflow volume into Wivenhoe Dam is 180,000ML including Somerset Dam outflow. - A peak of about 600m3/s is expected from the Lockyer late Friday. At this stage there is some uncertainty associated with this estimate and it may or may not impact Burtons Bridge. Wivenhoe gates will be opened after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. At this stage Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,500m3/s, similar to recent events, and continue for a couple of days. Impacts of Downstream of Wivenhoe - Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the potential for gate operations during the next 24 hours. - The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, Kholo Bridge and Colleges Crossing for several days and may impact upon Burtons Bridge early Saturday. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge. Leslie Harrison Dam Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.
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51	**FOC Situation Report at 06:00 on Friday 7 January 2011** Rainfall - There have been general totals around 30 to 50 mm with isolated heavy falls up to 75mm in the Somerset and Wivenhoe catchments since the event commenced on Wednesday 5 January 2011. There have been significant rainfalls in the Lockyer Ck catchment in the last 72 hours with widespread falls of 50mm and isolated falls up to 100mm. - Totals in the North Pine catchment have generally been about 35mm. - Falls between 20 and 30mm were recorded in the Leslie Harrison catchment. - The forecast for the next five days is for totals between 100 and 200mm in SE Qld. Given the saturated condition of the catchments further runoff will most likely be generated from this rainfall. North Pine Dam At 0600 Friday, North Pine Dam was at 39.48m, 0.12m below FSL. Gate operations commenced at 1915 on Thursday 6 January and are expected to continue until at least mid-day Friday 7 January when North Pine Dam is expected to be at 39.40m. These releases have impacted upon Youngs Crossing. Moreton Bay Regional Council was advised and they closed Youngs Crossing prior to gate operations commencing. Based upon the forecast rainfall, gate operations may continue into Saturday, but at this stage it is anticipated that gate operations will cease at around mid-day on Friday 7 January 2011. Somerset Dam - At 0600 Friday, Somerset Dam was at 99.59m, 0.59m above FSL, and rising slowly. The rain in the Stanley River catchment has produced a small amount of runoff in the Upper Stanley but there have been significant rises in Kilcoy Creek, contributing to the Somerset inflows. Somerset Dam is currently releasing at a rate of 35 cumecs and further regulator/sluice operations will be required in the next 24 to 72 hours.

RD5-1690

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45	Situation Report	
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51	Situation Report	LVB

RD5-1691

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63		12:15 PM
64	7/01/11	12:34 PM
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69	7/01/11	

RD5-1692

	C
52	Wivenhoe Dam - At 0600 Friday, Wivenhoe Dam was at 67.64m and rising slowly. This is 0.64m above FSL and above the gate trigger level of 67.25m. Upstream of the dam river levels have peaked at the Linville and Gregors Ck gauges. The estimated event inflow volume into Wivenhoe Dam is 230,000ML including Somerset Dam outflow. - A peak of about 470 cumecs is expected from Lockyer Creek by mid-afternoon on Friday 7 January. At this stage there is some uncertainty associated with this estimate but it may be of sufficient magnitude to inundate Burtons Bridge. - Wivenhoe gate releases will occur after the impact of Lockyer flows on Burtons Bridge has been ascertained and flood levels in the lower Lockyer subside. It is proposed that Wivenhoe releases will commence late Friday/early Saturday and may be as high as 1,200 cumecs, (similar but slightly smaller to recent events), and the releases are expected to continue over the weekend though to Monday or Tuesday. Impacts of Downstream of Wivenhoe - Somerset Regional Council, Ipswich City Council and Brisbane City Council have been advised of the potential for gate operations during the next 24 hours. - The relatively high Lockyer flows will adversely impact upon Twin Bridges, Savages Crossing, and Colleges Crossing for several days and may impact upon Burtons Bridge from Friday mid-day and Kholo Bridge later on Friday evening. At this stage, there are not expected to be any adverse impacts upon Fernvale Bridge or Mt Crosby Weir Bridge. Leslie Harrison Dam Following the heavy rainfall Wednesday night, gate operations commenced at Leslie Harrison Dam late Wednesday night and are continuing. Given the forecast rainfall, gate operations are expected to continue for the next 24 to 48 hours.
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63	**SitRep** There has been falls between 15 and 30mm in the North Pine catchment in the last 3 hours. This will cause renew rises and increased inflows. There are no gate movements projected for the next 3 hours.
64	Issued Wivenhoe Directive #1. • 15:00 Open Gate 3 from 0.0 metres to 0.5 metres • 16:00 Open Gate 3 from 0.5 metres to 1.0 metres • 17:00 Open Gate 3 from 1.0 metres to 1.5 metres • 18:00 Open Gate 3 from 1.5 metres to 2.0 metres • 19:00 Open Gate 3 from 2.0 metres to 2.5 metres • 20:00 Open Gate 3 from 2.5 metres to 3.0 metres • 21:00 Open Gate 3 from 2.5 metres to 3.5 metres
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RD5-1693

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52	Situation Report	
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63	Situation Report	TM
64	Directive - Strategy W1-C	LVB
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	A	B
70		6:00 PM
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72	7/01/11	9:53 PM
73	8/01/11	4:55 AM

	C
70	**Situation Report 1800 Friday 07/01/2011** Rainfall - Since 0900 Friday, there has been widespread 20 to 40mm throughout North Pine, Somerset and Wivenhoe catchments with isolated higher totals of 70mm in the upper reaches of the Brisbane R. - Advice from BoM indicates that SE Qld can expect further high rainfall totals over the next 4 days. Saturday: Rain light at times 15-50mm with higher falls along the coast Sunday: Widespread rain with totals between 50-100mm Monday: Widespread rain again with totals between 50-100mm Tuesday: Rain easing with totals between 25-50mm Given the saturated conditions of the catchments, significant inflows to Seqwater dams will be generated, especially following the forecast rainfall on Sunday/Monday. North Pine (Full Supply Level 39.60 m AHD) - At 1700 Friday, North Pine currently has 5 gates open releasing runoff from rain on Wed/Thursday. Given the very high likelihood of significant runoff during the next 4 days, gates will be keep open to match inflows over the next few days, rather than opening and closing at various times with short notice. Youngs Crossing will remain adversely impacted for the duration of the gates being open. Moreton Bay Regional Council has been advised and concurs with this strategy. Somerset (Full Supply Level 99.00 m AHD) - At 1700 Friday, Somerset Dam level was 100.04m AHD and rising steadily with one regulator open 100%. However, as the Wivenhoe headwater level is rising and may impact upon the operation of the regulator, this will be closed in the next few hours and a sluice gate opened. However, this strategy may need to be reviewed if significant runoff occurs in the Stanley and Upper Brisbane. Under circumstances of high inflows to
71	Wivenhoe (Full Supply Level 67.00 m AHD) - At 1700 Friday, Wivenhoe Dam was 68.10 m AHD and rising steadily with one gate open to 1.5 metres and releasing about 168m3/s. River levels upstream of Wivenhoe Dam were rising again, generating further inflow to the dam It is intended to ramp up the release from Wivenhoe to about 1,200m3/s during the next 18 hours. However, given the high likelihood of significant inflows in the next week, this may be increased later on the weekend. - Since the commencement of the event on 02/01/2011, approximately 140,000ML has flowed into Wivenhoe Dam with a further 160,000ML expected (including Somerset release) based on the recorded rainfall to date. Approximately 24,000ML has been released from Wivenhoe via the hydro and regulator at about 50m3/s. Impacts downstream of Wivenhoe - The projected Wivenhoe release of 1,200m3/s combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted for several days. At this stage Fernvale and Mt Crosby Weir Bridge are not expected to be affected. - Discussions were held with Brisbane City Council and BoM with all agencies agreeing that the combined flow in the lower Brisbane R will only add 50mm to an upper limit of 100mm to the recorded water levels in the City Reach of the Brisbane River. However, it is noted that tides in the lower Brisbane R will be 0.4 to 0.5 metres higher than predicted tides - Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the Wivenhoe operating strategy. Leslie Harrison
72	Issued Wivenhoe Directive #2. • 07/01/2011 22:00 Open Gate 2 from 0.0 metres to 0.5 metres • 07/01/2011 23:00 Open Gate 4 from 0.0 metres to 0.5 metres • 08/01/2011 00:00 Open Gate 2 from 0.5 metres to 1.0 metres • 08/01/2011 01:00 Open Gate 4 from 0.5 metres to 1.0 metres • 08/01/2011 02:00 Open Gate 1 from 0.0 metres to 0.5 metres • 08/01/2011 03:00 Open Gate 5 from 0.0 metres to 0.5 metres • 08/01/2011 04:00 Open Gate 2 from 1.0 metres to 1.5 metres
73	Issued Wivenhoe Directive #3. • 08/01/2011 05:00 Open Gate 4 from 1.0 metres to 1.5 metres • 08/01/2011 06:00 Open Gate 1 from 0.5 metres to 1.0 metres • 08/01/2011 07:00 Open Gate 5 from 0.5 metres to 1.0 metres • 08/01/2011 08:00 Open Gate 3 from 3.5 metres to 4.0 metres

RD5-1696

	D	E
70	Situation Report	TM
71	Situation Report	
72	Directive Strategy W1-D	MT
73	Directive Strategy W1-D	MT

RD5-1697

	A	B
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75	8/01/11	8:00 AM
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82	8/01/11	11:30 AM
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86	9/01/11	12:00 AM
87		1:00 AM
88		4:30 AM
89		6:15 AM

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75	Issued Wivenhoe Directive #4. • 08/01/2011 09:00 Open Gate 2 from 1.5 metres to 2.0 metres • 08/01/2011 10:00 Open Gate 4 from 1.5 metres to 2.0 metres • 08/01/2011 11:00 Open Gate 1 from 1.0 metres to 1.5 metres • 08/01/2011 12:00 Open Gate 5 from 1.0 metres to 1.5 metres • 08/01/2011 13:00 Open Gate 2 from 2.0 metres to 2.5 metres • 08/01/2011 14:00 Open Gate 4 from 2.0 metres to 2.5 metres
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82	Issued Somerset Directive #3. • Please open Sluice M to 100% at 12:00.
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87	Issued Wivenhoe Directive #5. • Open Gate 3 from 4.0 metres to 4.5 metres
88	Issued Wivenhoe Directive #6. • Open Gate 1 from 1.5 metres to 2.0 metres
89	**FOC Situation Report at 06:00 on Sunday 9 January 2011** Rainfall Catchment average rainfall for the past 12 hours is; North Pine Dam (less than 10 mm); Somerset Dam (40 mm); Wivenhoe Dam (less than 10 mm). The bulk of the rain that has fallen in the Somerset Dam catchment has occurred in the last two hours, with recorded falls exceeding 60mm in some areas. The BOM forecast for the next seven days issued at 0450 this morning is:- Sunday: Rain periods. Monday: Rain periods. Tuesday: Rain periods. Wednesday A few showers. Thursday A shower or two. Friday A shower or two. Saturday Mostly fine. A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates. North Pine Dam (Full Supply Level 39.60 m AHD) The dam level is currently 39.47 m AHD and steady. Two radial gates remain open to release runoff generated from recent rainfall. Based on rainfall forecasts, the radial gates have been kept open in anticipation of further inflows over the next few days. However unless significant rain falls today, consideration will be given to closing the gates late this afternoon or early tomorrow morning and discussions to finalise a decision on the timing of radial gate closure will be held with the Moreton Bay Regional Council later today. Youngs crossing will remain closed while releases are in progress.

RD5-1699

	D	E
74		
75	Directive Strategy W1-D	AN
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82	Directive	AN
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87	Directive - Strategy W1-E	NGA
88	Directive Staregty W1-E	NGA
89	Situation Report	JT

RD5-1700

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93		8:15 AM
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95		
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97		
98		10:30 AM
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101		12:30 PM
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108		3:30 PM
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RD5-1701

	C
	Somerset Dam (Full Supply Level 99.00 m AHD) The dam level is currently falling slowly, with the current level being 100.27m AHD. However the rain that has fallen in the dam catchment over the last two hours (recorded falls exceed 60mm in some areas) will result in significant inflows later today. The current release rate into Wivenhoe Dam is 35,000ML/day. Since the commencement of the event on 02/01/2011approximately 56,000ML has been released from the dam, with a total of at least 150,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase significantly over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Tuesday. Wivenhoe Dam (Full Supply Level 67.00 m AHD) The dam level is currently falling slowly, with the current level being 68.58m AHD. River levels upstream of the dam are receding, however further inflows will result from any additional rainfall. The current gate operation strategy will maintain flows of around 1,600m3/s in the mid-Brisbane River. The current release rate from Wivenhoe Dam is 116,000ML/day. Since the commencement of the event on 02/01/2011approximately 150,000ML has been released from the dam, with a total of at least 450,000ML to be released based on the currently recorded rainfall. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Wednesday. Impacts downstream of Wivenhoe Dam
90	- The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and
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	Issued Somerset Directive #4.
93	• Please open Sluice K to 100% at 09:00.
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	Issued Wivenhoe Directive #7.
98	• Open Gate 5 from 1.5 metres to 2.0 metres
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100	
	Issued Somerset Directive #5. • Please open Sluice N to100% at 13:00 • Please open Sluice J to 100% at 14:00
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107	Strategy W2
	Duty Engineer Conference held at the FOC: Attended by RA, JR, TM with JT on conf phone. At this stage operating at the top end of W1 and the bottom end of W2.Storing approx. 300,000 Ml at present (above Wivenhoe) with an additional 500,000 Ml expected to flow into the dams from rainfall on the ground. The rainfall system is currently in the N-E part of the catchment and expected to travel south over the next 24-36 hours according to the BoM forecasts. This has the potential to significantly increase flows in Lockyer Ck & the Bremer River which potentially could close Fernvale Bridge and Mt Crosby Bridge and increase the risk of flooding in the Lower Brisbane. Releases from Wivenhoe Dam will be maintained at the current level of ~ 1,400 cumecs. If required, releases from Wivenhoe Dam will be reduced to contain the flow in the Mid-Brisbane to 1,600 cumecs and 3,000 cumecs in the Lower Brisbane. At this stage it is anticipated that levels below 102.5 in Somerset and 72.5 in Wivenhoe can be attained.
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RD5-1702

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93	Directive	NGA
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98	Directive Strategy W1-E	NGA
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101	Directive	NGA
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108	Situation Report - Staregty W2	NGA
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RD5-1703

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121	**Situation Report 1700 Sunday 9/1/2011** Rainfall Catchment average rainfall for the past 12 hours is; North Pine Dam (60 mm); Somerset Dam (150 mm); Wivenhoe Dam (80 mm). The bulk of the rain that has fallen in the upper reaches of the Stanley and Brisbane Rivers. The BOM rainfall forecast for the next few days is:- Monday: Very heavy rain periods with totals up to 300mm centred around North Pine. Tuesday: Rain periods with totals up to 150mm centred around North Pine. Wednesday A few showers less than 10mm Thursday A shower or two. Friday A shower or two. Saturday Mostly fine. A severe whether warning remains current for heavy rainfall in the dam catchment areas. The dam catchments are relatively saturated and significant inflows will be generated if the forecast rainfall eventuates. North Pine Dam (Full Supply Level 39.60 m AHD) The dam level is currently 39.65 m AHD and rising at 1600. Following the rain in the 9 hours, the number of open gates has been increased from 2 to 5 which are expected to remain open for the next 12 hours. Youngs Crossing will remain closed while releases are in progress.
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125	Somerset Dam (Full Supply Level 99.00 m AHD) - The dam level is 100.75 m AHD and rising quickly. Estimated peak inflow to the dam is about 3,000m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 101.5 during early Tuesday morning. - Since the commencement of the event on 02/01/2011approximately 80,000ML has been released from the dam, with an event total of at least 320,000ML based on the recorded rainfall to date. The event total is expected to increase significantly due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Wednesday. Wivenhoe Dam (Full Supply Level 67.00 m AHD) - The dam level is currently rising again, with the current level being 68.70m AHD. Estimated peak inflow to the dam just from the Upper Brisbane R is about 5,000m3/s and, at this stage, the dam will reach at least 72.5 m AHD during Wednesday morning. River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. The current gate operation strategy will maintain flows of around 1,600m3/s in the mid-Brisbane River for the next 24 hours. This may mean temporarily reducing releases from Wivenhoe Dam as Lockyer flows increase. However, releases may have to be increased significantly during Monday depending on the rain in the next 12 to 24 hours. The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). - Since the commencement of the event on 02/01/2011 approximately 210,000ML has been released from the dam, with an event total approaching 1,000,000ML (including Somerset outflow) based on the recorded rainfall to date. The total release for the event is likely to increase over the next few days based on the current rainfall forecasts. At this stage, releases will continue until at least Saturday 15th January 2011. Impacts downstream of Wivenhoe Dam - The current Wivenhoe Dam release combined with Lockyer flows and local runoff will mean that all low level crossings downstream of Wivenhoe (Twin Bridges, Savages Crossing, Burtons Bridge, Kholo Bridge and Colleges Crossing) will be adversely impacted until at least Saturday 15 January.
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RD5-1705

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125	Situation Report - Strategy W2	
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RD5-1706

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RD5-1707

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130	FOC called Peter Allen advising him that FOC is now looking at much larger flows and will have to ramp up releases to around 3000 cumecs as by as early as midnight which is likely to have flooding impacts on low-lying areas of Brisbane.
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139	Strategy W3
140	**Situation Report 2100 9/01/2011** Rainfall - Very heavy rainfall has been recorded in the upper reaches of the Brisbane and Stanley in the last 6 hours with totals up 100 to 140mm. Totals for the last 24 hours range from 100 to 300mm. - Rainfall of similar magnitudes is expected in the 12 to 24 hours, especially around the Bremer/Warrill catchments as the system tracks south. - A severe weather warning remains current for heavy rainfall in the dam catchment areas. Somerset Dam (Full Supply Level 99.00 m AHD) - The dam level is 101.68 m AHD (about 500,000ML currently in storage) and rising quickly. Peak inflow to the dam is estimated to be about 4,000 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 early Tuesday morning which will adversely impact areas around Kilcoy. - Since the commencement of the event on 02/01/2011approximately 100,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This may increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.
141	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 6,700m3/s and the river is still rising. - The dam level is rising again, with the current level being 69.10m AHD (1,410,000ML with about 300,00 of flood storage). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 7,500m3/s and, at this stage, the dam will reach at least 73.0 m AHD during Tuesday morning. Given the rapid increaso in inflow volumes, it will be necessary to increase the release from Wivenhoe Monday morning. - The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows is the lower Brisbane will be limited to 4,000m3/s. This is below the limit of urban damages in the City reaches. - The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased from noon Monday and the release is expected increase to at least 2,600m3/s during Tuesday morning. - Since the commencement of the event on 02/01/2011 approximately 220,000ML has been released from the dam, with an event total approaching 1,000,000ML without further rain and as much as 1,500,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011. Impacts downstream of Wivenhoe Dam - The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees. - Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam.
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RD5-1708

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130	Correspondence - Strategy W2 - transition to W3	BS
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140	Situation Report - Strategy W3	TM
141	Situation Report - Strategy W3	
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RD5-1709

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168	**FOC Situation Report at 01:00 hrs on Monday 10 January 2011** Rainfall - Very heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up 100 to 240mm. Totals for the last 24 hours range from 100 to 300mm. - Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south. - A severe weather warning remains current for heavy rainfall in the dam catchment areas. North Pine Dam (Full Supply Level 39.60 m AHD) - The dam level was 39.95 m and steady. Five gates are open releasing 445 m3/s. The inflow into the dam since the commencement of the event is 42,000 ML. Estimated event volume is 57,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011. Somerset Dam (Full Supply Level 99.00 m AHD) - The dam level is 102.22 m AHD and rising quickly (storing 157,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam will reach at least 103.5 on Monday afternoon which will adversely impact areas around Kilcoy.
169	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - River levels upstream of the dam are rising quickly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have already reached 7,350m3/s and the river has just peaked at 23:00 on Sunday 9 January. - The dam level is rising quickly, with the current level being 69.60m AHD (storing 301,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R alone may reach as high as 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it will be necessary to increase the release from Wivenhoe during Monday morning. - The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible. - Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed or are in the process of being closed. - The current release rate from Wivenhoe Dam is 1,400m3/s (120,000ML/day). Gate opening will start to be increased during early Monday morning and the release is expected to increase to at least 2,600m3/s. - Since the commencement of the event on 02/01/2011 approximately 240,000ML has been released from the dam, with an event total approaching 1,500,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011. Impacts downstream of Wivenhoe Dam - The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees. - Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary

RD5-1711

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168	Situation Report - Strategy W3	JR
169	Situation Report - Strategy W3	

RD5-1712

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170		2:00 AM
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180		6:30 AM
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RD5-1713

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170	Issued Wivenhoe Directive #8. • Open Gate 1 from 2.0 metres To 2.5 metres At 02:00 • Open Gate 5 from 2.0 metres To 2.5 metres At 03:00 • Open Gate 2 from 2.5 metres To 3.0 metres At 04:00 • Open Gate 4 from 2.5 metres To 3.0 metres At 05:00 • Open Gate 2 from 3.0 metres To 3.5 metres At 06:00
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180	**FOC Situation Report at 06:00 on Monday 10 January 2011** Rainfall - Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm. - Mt Glorious recorded 100 mm in the last 12 hours. - Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south. - A severe weather warning remains current for heavy rainfall in the dam catchment areas. North Pine Dam (Full Supply Level 39.60 m AHD) - The dam level was 39.97 m and steady. Five gates are open releasing 475 m3/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011. Somerset Dam (Full Supply Level 99.00 m AHD) - The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m3/s based on observed rainfall and could be as high as 5,000m3/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m3/s (95,000Ml/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 mAHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.
181	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m3/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location. - The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m3/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning. - The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, releases will be kept below 3,500m3/s and the combined flows in the lower Brisbane will be limited to 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m3/s. - Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed. - The current release rate from Wivenhoe Dam is 1,753m3/s (150,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m3/s in the next 12 to 24 hours. - Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16th January 2011. Impacts downstream of Wivenhoe Dam - The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees. - Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

RD5-1714

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170	Directive # 8 Strategy W3	BS
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180	Situation Report Strategy W3	JR
181	Situation Report - Strategy W3	

RD5-1715

	A	B
182		6:30 AM
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185		8:30 AM
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194		2:58 PM
195		12:02 PM
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182	Issued Wivenhoe Directive #9. • Open Gate 4 from 3.0 metres To 3.5 metres At 07:00 • Open Gate 1 from 2.5 metres To 3.0 metres At 08:00 • Open Gate 5 from 2.5 metres To 3.0 metres At 09:00 • Open Gate 2 from 3.5 metres To 4.0 metres At 10:00 • Open Gate 4 from 3.5 metres To 4.0 metres At 11:00
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185	Issued Wivenhoe Directive #10. • Open Gate 4 from 3.0 metres To 3.5 metres at 07:00 • Open Gate 1 from 2.5 metres To 3.0 metres at 08:00 • Open Gate 5 from 2.5 metres To 3.0 metres at 09:00
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194	**FOC Situation Report at 12:00 on Monday 10 January 2011** Rainfall Significant rainfall has fallen in the Wivenhoe Dam catchment over the last 3 hours, with falls exceeding 100mm. This rainfall will significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (75mm to 150mm); Wivenhoe/Somerset Dam Catchments (50mm – 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar. Somerset Dam (Full Supply Level 99.00 m AHD) The dam level is 103.41m AHD and rising. Peak inflow to the dam is estimated to be about 4,200 m3/s. Five sluice gates are open releasing about 1,100m3/s (95,000ML/day) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected. Wivenhoe Dam (Full Supply Level 67.00 m AHD) - The dam level is 72.41m AHD and rising quickly. The rainfall experienced over the last 2 to 3 hours will result in significant further inflows into the dam and releases from the dam will need to ba increased in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. - Five radial gates are currently open at the dam releasing about 2,000m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s over the next 9 hours (commencing at 1500). At this stage, the dam will reach about 73.8m AHD during Tuesday morning. - The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s. Impacts downstream of Wivenhoe Dam
195	Spoke with Peter Borrows (Seqwater) to answer elaborate on Situation Report and inform him of large rainfalls currently occurring in the Wivenhoe catchment.
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RD5-1717

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182	Directive - Strategy W3	LVB
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185	Directive - Strategy W3	LVB
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194	Situation Report - Strategy W3	TM
195	Correspondence	LVB
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203		4:00 PM
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211		6:06 PM
212		6:43 PM

RD5-1719

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203	Issued Wivenhoe Directive #11. • Open Gate 2 to 4.0 m at 15:00 • Open Gate 4 to 4.0 m at 15:30 • Open Gate 3 to 5.0 m at 16:00 • Open Gate 1 to 3.5 m at 16:30 • Open Gate 5 to 3.5 m at 17:00 • Open Gate 2 to 4.5 m at 17:30 • Open Gate 4 to 4.5 m at 18:00 • Open Gate 1 to 4.0 m at 18:30 • Open Gate 5 to 4.0 m at 19:00 • Open Gate 1 to 4.5 m at 19:30
204	Had conference call with BoM. They agree with FCC on model discharge results. However, BoM included 6hrs of additional rain which takes the discharge to 4600m3/s
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211	Get weather update from BoM - the forecast now is - still more of the same of what we had today.
212	FOC Situation Report at 18:00 on Monday 10 January 2011 Rainfall - Only minor rainfall has been experienced in the North Pine Dam and Somerset Dam catchments with a catchment averages of less than 20mm. - However, significant rain has fallen in the Wivenhoe Dam catchment over the last 6 hours, with isolated falls exceeding 100mm. This rainfall has significantly increase inflows into the dam. A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 10:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). Potentially significant rain moving towards the dam catchments is currently evident on the BOM radar. North Pine Dam (Full Supply Level 39.60 m AHD) - The dam level is 39.84m AHD and falling slowly (storing 9,000ML above FSL). Five gates are open and releasing 362 m3/s. The inflow into the dam since the commencement of the event is 72,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011. Somerset Dam (Full Supply Level 99.00 m AHD) The dam level is 103.46m AHD and rising slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next 24 hours to be around 1200m3/s late Tuesday. The dam level will peak at 103.5m AHD in the next few hours, unless further significant rainfall is experienced. Areas around Kilcoy will continue to be adversely affected.

RD5-1720

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203	Directive Stategy W3	LVB
204	Correspondence	LVB
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211	Other	LVB
212	Situation Report	TM

RD5-1721

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218		20:00 PM
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220		21:00 PM
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224		20:20 PM
225		11:20 PM
226		11:56 PM

RD5-1722

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	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - The dam level is 72.92m AHD and rising quickly. Releases from the dam have been increased over the last 3 hours in accordance with Flood Mitigation procedures and to ensure that a fuse plug is not initiated. The initiation of a fuse plug will result in a rapid uncontrolled outflow from the dam of 2,000m3/s being added to the gate release outflow. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. The flash flooding experienced in the upper areas of Lockyer Creek have been examined and are not expected to significantly increase Brisbane River flows above the current projection of 4000m3/s at Moggill. - Five radial gates are currently open at the dam releasing about 2,400m3/s into the Brisbane River and this will need to be increased steadily to an outflow of 2,800m3/s. At this stage, the dam will reach about 73.8m AHD during Tuesday morning. - The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s. Impacts downstream of Wivenhoe Dam The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees. - Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.
213	Outlook
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218	Peter Baddiley (BoM) called to advise of situation regarding flows in Lockyer. Estimated very heavy localised rainfall (eg. 600mm in few hours) on Toowoomba escarpment to cause observed flood flooding. Will monitor via Glenore Grove gauging station.
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220	Spoke to Peter Allan regarding strategies for reducing Wivenhoe release to mitigate latest event in Lockyer. Peter endorsed variation to manual to operate at minimum gate settings to create gap to allow peak of flash flood to pass. Also endorsed concept allowing Wivenhoe HW to rise above 74 mAHD briefly.
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224	Spoke to Peter Baddiley (BoM) regarding reducing Wivenhoe release to accommodate peak of Lockyer flash flood.
225	Spoke to Rob Drury to give situation update. Rob agreed that if possible to reduce flow from Wivenhoe to accommodate Lockyer flash flood peak.
	FOC Situation Report at 00:00 Tuesday 11 Janaury 2011 Rainfall - Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments with falls of generally less than 20mm since 18:00 today. However, some isolated falls in the Upper Brisbane River of up to 110 mm have been recorded at Monsildale in this time. This rainfall will increase inflows into the dam. - A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). North Pine Dam (Full Supply Level 39.60 m AHD) The dam level is 39.80m AHD and falling slowly (storing 4,400ML above FSL). Five gates are open, releasing 153 m3/s. The inflow into the dam since the commencement of the event is 74,000 ML. Estimated event volume is 84,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011. Somerset Dam (Full Supply Level 99.00 m AHD)
226	The dam level is 103.40m AHD and falling slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1700m3/s and this discharge will decrease slowly in the next

RD5-1723

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213	Situation Report Strategy W3	
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218	Correspondence	JW
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220	Correspondence	JW
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224	Correspondence	JW
225	Correspondence	JW
226	Situation Report	RA

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228	11/01/11	
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235		4:30 AM
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237		5:15 AM
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239		
240		6:12 AM

	C
227	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - The dam level is 73.22m AHD and rising at about 50 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. - The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be very significant. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow may result in increases in Brisbane River levels below the junction of Lockyer Creek. - Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach about 73.8m AHD during Tuesday afternoon. - The objective for dam operations is currently to minimise the impact of urban flooding in areas downstream of the dam and to keep river flows in the lower Brisbane River below 4,000m3/s if possible. This is significantly less than the current estimated combined pre-dam peak inflow of 12,000m3/s. If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s. Impacts downstream of Wivenhoe Dam - The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees. - Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam. - The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration will be given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek.
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235	Issued Somerset Directive #6. • Please close Sluice J at 05:00 • Please close Sluice N at 06:00 • Please close Sluice K at 07:00
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237	Spoke to Peter Baddiley (BoM) regarding reducing Wivenhoe release to accommodate peak of Lockyer flash flood. Update: Consensus was that reducing release from Wivenhoe would no longer be feasible due to attenuation of Lockyer peak and significant additional rainfall in upper Brisbane during the night.
238	
239	
240	**FOC Situation Report at 06:00 on Tuesday 11 January 2011** Rainfall - Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam. - There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River. - A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm). North Pine Dam (Full Supply Level 39.60 m AHD) The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011. Somerset Dam (Full Supply Level 99.00 m AHD) - The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about 4,200 m3/s. Total discharge into Wivenhoe Dam is currently 1400 m3/s and this discharge will be decreased in the next few hours to be around 500 m3/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

RD5-1726

	D	E
227	Situation Report - Strategy W3	
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235	Directive	JW
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237	Correspondence	JW
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240	Situation Report	

RD5-1727

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251		8:00 AM
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255		8:10 AM
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	C
241	Wivenhoe Dam (Full Supply Level 67.00 m AHD) - The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m3/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing. - The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek. - Five radial gates are currently open at the dam releasing about 2,750m3/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening. - Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible. - If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m3/s. Impacts downstream of Wivenhoe Dam - The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees. - Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam. - The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.
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251	Issued Wivenhoe Directive #12. • Open Gate 5 to 4.5 m at 08:00 • Open Gates 2 and 4 to 5.0 m at 08:30 • Open Gate 3 to 5.5 m at 09:00
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255	JT called Peter Allen to advise of current Wivenhoe situation - Will exceed EL74m. Increasing gate opening to a minimum of 3700 m3/s and gate operations will progress. Advising tansition from strategy W3 to W4
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RD5-1729

	D	E
241	Situation Report - Strategy W3/W4	
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251	Directive - Strategy W3/W4	DP
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255	Correspondence - Strategy W3/W4	DP
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RD5-1730

	A	B
265		9:00 AM
266		9:09 AM
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268		9:13 AM
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278		10:29 AM
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283		11:02 AM
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291		11:38 AM
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295		
296		12:00 PM
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RD5-1731

	C
265	Issued Wivenhoe Directive #13. • Open Gates 2 and 4 to 5.5 m at 09:30 • Open Gates 1 and 5 to 5.5 m at 10:00 • Open Gate 3 to 6.0 m at 10:30 • Open Gates 2 and 4 to 6.0 m at 11:00 • Open Gates 1 and 5 to 6.0 m at 11:30
266	JT called SEQWater maintenance (Jo Misner) advised that Wivenhoe has lost power, possibly blown high voltage fuses. JO to resolve issue.
267	
268	Energex called. All incoming power has been lost at Wivenhoe.
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278	Stan from SEQWater called TM. In conference with Barton Maher. Internal questioning of release strategy. Internal discussion regarding current approved strategy. Preparing a briefing note.
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283	Peter Borrows (Seqwater) requested update on situation.
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291	JT called Peter Burrows and advised that releases at Wivenhoe will be ramped up to 4000cumecs and strategy will be revised on an hourly basis. In reality releasing slightly less than the Flood Ops manual.
292	
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294	
295	Strategy W4A
296	Issued Wivenhoe Directive #14. • Open Gates 2, 3 and 4 to 6.5 m at 12:00 • Open Gates 1 and 5 to 6.5 m at 12:30 • Open Gate 3 to 7.0 m at 13:00
297	
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RD5-1732

	D	E
265	Directive - Strategy W3/W4	DP
266	Correspondence	DP
267		
268	Correspondence	DP
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278	Correspondence	DP
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283	Correspondence	DP
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291	Correspondence	DP
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296	Directive Strategy W4A	DP
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	A	B
299		12:11 PM
300		
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302		
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304		1:00 PM
305		1:00 PM
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307		1:26 PM
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310		1:55 PM
311		
312		
313		2:00 PM
314		2:15 PM
315		
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318		
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320		
321		3:14 PM
322		3:15 PM
323		3:30 PM
324		3:49 PM
325		
326		

RD5-1734

	C
	SitRep 1200 11/1/2011
	Somerset/Wivenhoe
	- Our current strategy revolves around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m3/s in outflow from the dam in addition to the gate release which could be as high as 4,500 to 5,000m3/s at the time. However, it may be that fuse plug initiation might provide a lower outflow than increasing the gate outflow to protect it. In this case, we would adopt an alternate scenario.
	- Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.
	- With no further rainfall, Wivenhoe will approach 75.0m AHD and there will be an attempt to limit the dam outflow to 4,500m3/s, however this strategy currently being reviewed on an hour by hour basis. The release will be 4,000m3/s by 1300.
	-With 50mm rainfall in the Stanley and Upper Brisbane in the next 12 to 24 hours, the release will need to be significantly increased to be in the order 6,000m3/s.
	- It should be noted that the flow in the lower Brisbane River in 1974 was about 9,500m3/s
	- Wivenhoe has lost incoming mains power and are on backup power. Energex are attempting to rectify.
	North Pine
299	Inflows and outflows are increasing very rapid and will exceed 2,000m3/s.
300	
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303	
	Issued Wivenhoe Directive #15.
304	• Open Gates 1,2, 4 and 5 to 7.0 m at 13:15
	Issued Wivenhoe Directive #16.
305	• Open Gates 1,2, 3, 4 and 5 to 7.5 m
306	
307	Peter Burrows (Seqwater) called and requested the FOC request the BoM to consider if Wivenhoe is releasing 9000cumecs.
308	
309	
	SEQWater is continually revising release strategy, could be as high as 6500cumecs by tonight. If dam stabilise, then estimates may be reduce. TM also passed on information for BoM to consider the effects at Brisbane if
310	Wivenhoe releases 9000cumecs.
311	
312	
	Issued Wivenhoe Directive #17.
313	• Open Gates 1,2, 3, 4 and 5 to 8.0 m
	Issued Wivenhoe Directive #18.
314	• Open Gates 1,2, 3, 4 and 5 to 8.5 m
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320	
	Peter Burrows (Seqwater) called to discuss the proposed release of 10,000cumecs. JT and TM explained release strategy is constantly being revised.
321	
	Issued Wivenhoe Directive #19.
322	• Open Gates 1,2, 3, 4 and 5 to 9.0 m
	Issued Wivenhoe Directive #20.
323	• Open Gates 1,2, 3, 4 and 5 to 9.5 m
	Peter Baddiley & Jimmy Stewart had a conference with JT, JR, TM and RA about current release strategy and possible maximum release scenario of 10000m3/s. This would be of a similar magnitude to the 1893 event
324	(~8.36m in Brisbane Port Office)
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RD5-1735

	D	E
299	Situation Report - Stategy W4A/W4B	
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304	Directive Staregy W4A	DP
305	Directive Strategy W4A	DP
306		
307	Correspondence	DP
308		
309		
310	Situation Report Staregy W4A/W4B	DP
311		
312		
313	Directive Staregy W4A	DP
314	Directive Strategy W4A	DP
315		
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317		
318		
319		
320		
321	Correspondence Strategy	DP
322	Directive Stratgey W4A	DP
323	Directive Staregy W4A	DP
324	Correspondence	DP
325		
326		

RD5-1736

	A	B
327		4:15 PM
328		
329		4:33 PM
330		4:41 PM
331		4:45 PM
332		
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334		
335		5:15 PM
336		5:22 PM
337		
338		5:48 PM
339		
340		
341		6:00 PM
342		6:00 PM
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344		6:07 PM
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352		7:30 PM
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357		8:25 PM
358		
359		8:30 PM
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RD5-1737

	C
327	Issued Wivenhoe Directive #21. • Open Gates 1,2, 3, 4 and 5 to 10.0 m
328	
329	Phone call with TM and Peter Burrows. Discussed that even though the magnitude flood in Brisbane is similar to 1974 flood event, the no-dam flood would be significantly larger without Wivenhoe.
330	Peter Allen phone call. PA requested more technical information in the status reports released by Duty Engineers. PA will send through an example of the technical data requested in the report.
331	Issued Wivenhoe Directive #22. • Open Gates 1,2, 3, 4 and 5 to 10.5 m
332	
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335	Issued Wivenhoe Directive #23. • Open Gates 1,2, 3, 4 and 5 to 11.0 m
336	Jimmy Stewart (BoM), TM and JR discussed current Wivenhoe inflows and anticipated outflows. TM confirmed that 7500cumecs is still likely early tonight.
337	
338	Rob Drury asking Tarong Energy to hold off releasing water from Spiltyard Creek.
339	
340	
341	Issued Wivenhoe Directive #24. • Open Gates 1,2, 3, 4 and 5 to 12.0 m
342	**Situation Report 1800 11 January 2011** -In the last twelve hours totals of up to 370mm have fallen in the area around Wivenhoe Dam. In the last hour, rainfalls between 15 and 30mm have been recorded in the same area. At 1600, the BoM advised that falls between 50 to 100mm are still forecast for the 24hrs to 1600 Wednesday 12 January 2011 for the North Pine and Somerset/Wivenhoe catchments. - At 1730 Wivenhoe Dam was 74.92m AHD and rising slowly and releasing about 6,700m3/s. - The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall. At this time, release from the dam will be about 8,000 m3/s. - If there is no further rainfall, it may be possible to then slowly reduce this release overnight. - The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level. - Note that the automatic recorder as indicated on the BoM website is affected by drawdown and is not reflecting the actual lake level and tendency. - The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils. - The next report will be issued at 2100 12 January 2011.
343	
344	Recap of current release strategy amongst Duty Engineers. Current Wivenhoe scenario: 74.9 m - all gates at 12m. Won't go to 13m settings until level reaches 75.0 m AHD.
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352	Doug Grigg (Wivenhoe Dam) called to report that Wivenhoe Level 74.97mAHD is holding.
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357	Joe Meisner rang to advise that the high voltage feeder to Wivenhoe will not be restored for the duration of this event. JT advised that Wivenhoe is operating successfully on the generator, and they have a fair bit of diesel. There are still 2 other backups to operate the gates.
358	
359	Doug Grigg (Wivenhoe Dam) called to advise that Wivenhoe's level is 5mm down.
360	

RD5-1738

	D	E
327	Directive Stragety W4A	DP
328		
329	Correspondence	DP
330	Correspondence	DP
331	Directive Straegy W4A	DP
332		
333		
334		
335	Directive Strategy W4A	DP
336	Correspondence	DP
337		
338	Correspondence	DP
339		
340		
341	Directive Strategy W4A	DP
342	Situation Report Strategy W4A/W4B	TM
343		
344	Correspondence Strategy W4A	DP
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352	Correspondence	AN
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355		
356		
357	Correspondence	AN
358		
359	Correspondence	AN
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	A	B
361		
362		8:30 PM
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364		8:35 PM
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368		8:55 PM
369		
370		
371		9:00 PM
372		
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376		9:25 PM
377		9:30 PM
378		9:30 PM
379		
380		9:40 PM
381		
382		
383		
384		10:15 AM
385		
386		10:35 PM
387		11:00 PM
388		11:00 AM
389		
390	12/01/11	11:30 PM
391		12:00 AM

RD5-1740

	C
361	
362	Issued Somerset Directive #7. • Fully Open Sluice L at 10:30.
363	
364	Peter Burrows (Seqwater) called FOC to speak with all duty engineers on the operating strategies for Wivenhoe releases.
365	
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367	
368	Peter Burrows (Seqwater) rang asking about possibly reducing releases. TM advised that we are seriously considering it, but this would have little effect on the levels in Brisbane River. Peter would like technical reports every hour throughout the night.
369	
370	Drainage Phase
371	Issued Wivenhoe Directive #25. • Close Gates 1,2, 3, 4 and 5 to 11.0 m
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376	The last directive to lower the Wivenhoe gates to 11m should have been 11.5m. A new directive to raise to 11.5m was issued.
377	Mal Lane (North Pine Dam) called. They are still behind in gate closures.
378	Issued Wivenhoe Directive #26. • Close Gates 1,2, 3, 4 and 5 to 11.5 m
379	
380	JW called Doug Grigg (Wivenhoe Dam) to obtain a current level. EL 74.9? Gates have been raised to 11.5m.
381	
382	
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384	Issued North Pine Directive #21a. • Gate B: Close to increment 4 at 22:30 • Gate D: Close to increment 4 at 22:45 • Gate A: Close to increment 4 at 23:00 • Gate E: Close to increment 4 at 23:15 • Gate C: Close to increment 4 at 23:30 • Gate B: Close to increment 3 at 23:45
385	
386	Doug Grigg (Wivenhoe Dam) called to report lake level of 74.94mAHD @ 10:30hrs.
387	Doug Grigg (Wivenhoe Dam) called to report lake level of 74.92mAHD @ 11:00hrs.
388	Issued Wivenhoe Directive #27 - note directive #28 was a duplicate and not sent • Close Gates 5,1,4,2 and 3 to 10.0 m
389	
390	JW called Doug Grigg (Wivenhoe Dam) to obtain a current level. EL 74.9? Gates have been raised to 11.5m.
391	Issued North Pine Directive #22. • Gate D: Close to increment 3 at 00:15 • Gate A: Close to increment 3 at 00:30 • Gate E: Close to increment 3 at 00:45 • Gate C: Close to increment 3 at 01:00 • Gate B: Close to increment 2 at 01:15

RD5-1741

	D	E
361		
362	Directive	AN
363		
364	Correspondence Strategy W4A	AN
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367		
368	Correspondence	AN
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371	Directive Drainage Phase	AN
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374		
375		
376	Directive	AN
377	Correspondence	AN
378	Directive	AN
379		
380	Correspondence	AN
381		
382		
383		
384	Directive	AN
385		
386	Correspondence	AN
387	Correspondence	AN
388	Directive	AN
389		
390	Correspondence	AN
391	Directive	AN

	A	B
392		12:30 AM
393		1:00 AM
394		1:15 AM
395		1:15 AM
396		2:00 AM
397		2:10 AM
398		3:10 AM
399		3:15 AM
400		3:30 AM
401		3:50 AM
402		4:05 AM
403		4:15 AM
404		4:30 AM
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408		5:30 AM
409		5:30 AM
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411		5:49 AM
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RD5-1743

	C
392	Doug Grigg (Wivenhoe Dam) called to report lake level of 74.88mAHD @ 12:30hrs.
393	John Thornton (SunWater) called to provide Energex contact details; Steve, phone number [redacted]. Steve indicated that he didn't believe [redacted] Turbot St would be disconnected from power grid in the morning.
394	RA rang Doug Grigg (Wivenhoe Dam) advising next directive. We want to get releases down as quick as possible while still lowering lake levels. Advised that we may possibly have a communications problem in the morning if power to 179 Turbot Street is cut.
395	Issued Wivenhoe Directive #29. • Close Gates 5,1,4,2 and 3 to 9.0 m
396	Issued North Pine Directive #23. • Gate D: Close to increment 2 at 02:15 • Gate A: Close to increment 2 at 02:30 • Gate E: Close to increment 2 at 02:45 • Gate C: Close to increment 2 at 03:00
397	James Charalambous (BCC) rang enquiring about a release strategy. Advised one will be issued at about 3:00am. Talked about the activities of the last 24 hours.
398	JR rang Mal Lane (NPD) and advised no changes to gate settings planned for the next hour or so.
399	Issued Wivenhoe Directive #30. • Close Gates 5,1,4,2 and 3 to 8.0 m
400	Brett Myatt (SEQWater Mt Crosby WTP) called enquiring about levels at Mt Crosby.
401	RA called Chris Lahey (BoM) advising him that because inflows are not as much as earlier anticipated, the releases from Wivenhoe are less than previously suggested.
402	Ian Douglas, OIC of Lowood Police, rang enquiring about the Wivenhoe fuse plug. JW advised that there is no danger of the fuse plug failing, and that current releases from Wivenhoe Dam are about 4,900 cumecs.
403	Issued North Pine Directive #24. • Gate B Close to increment 1 at 04:30 • Gate D: Close to increment 1 at 04:45 • Gate A: Close to increment 1 at 05:00 • Gate E: Close to increment 1 at 05:15
404	Issued Wivenhoe Directive #31. • Close Gates 5,1,4,2 and 3 to 7.0 m
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408	Issued Wivenhoe Directive #32. • Close Gates 5,1,4,2 and 3 to 6.0 m
409	Issued Wivenhoe Directive #33. • Close Gates 5,1,4,2 and 3 to 5.0 m
410	
411	**Situation Report 0600 Wed 12/01/2011** - No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours. - Wivenhoe Dam peaked on the 11th January, Tuesday night at 19:00 at 74.97 mAHD with a corresponding discharge of 7,450 m3/s. The release have now been scaled back to 4,300m3/s at 05:00 am. Wivenhoe Dam is currently 74.77 m AHD and falling slowly. - The releases from Wivenhoe Dam will be temporarily reduced to 2,500 m3/s to allow the peak of Lockyer Creek to enter the Brisbane River, after which they will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days. - Somerset Dam is at 105.10 mAHD and slowly rising. The dam is discharging 1,230 m3/s over the spillway. The dam is expected to peak this morning near its current level. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing on Thursday. - The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres. - North Pine Dam is currently releasing 105 m3/s through five gates. At 17:00 the lake was 39.78 mAHD. The event has a volume of around 200,000 ML. The peak discharge from the dam was 2,800 m3/s. This is categorised as an extreme event in the order of 1 in 10,000. - The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact
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RD5-1744

	D	E
392	Correspondence	AN
393	Correspondence	JW
394	Correspondence	AN
395	Directive	AN
396	Directive	AN
397	Correspondence	AN
398	Correspondence	AN
399	Directive	AN
400	Correspondence	AN
401	Correspondence	AN
402	Correspondence	AN
403	Directive	AN
404	Directive	AN
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407		
408	Directive	AN
409	Directive	AN
410		
411	Situation Report	RA
412		

RD5-1745

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420		7:15 AM
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427		10:15 AM
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435		12:55 PM
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RD5-1746

	C
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419	
420	Issued Wivenhoe Directive #34. • Close Gates 1 and 5 to 3.5 m • Close Gates 2 and 4 to 4.0 m
421	
422	**Situation Report 0800 Wed 12/01/2011** Rainfall - No significant rain has fallen over the catchments in the past twelve hours. Less than 10 to 15 millimeters of rainfall is expected over the next 24-48 hours. Somerset/Wivenhoe - Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011 and the dam is discharging 1,230 m3/s over the spillway. Sluice gates will be utilised to assist the draining of the flood storage compartment commencing later Wednesday. - Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.75 m AHD at 07:30 and generally falling slowly. - The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days. - The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres. North Pine At 07:00 North Pine Dam was 39.78 mAHD falling and releasing about 105 m3/s. North Pine has peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be close later Wednesday or early Thursday. Strategy - The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with
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424	Issued North Pine Directive #25. • Gate E: Open to increment 2 at 08:45
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427	Issued Somerset Directive #8. • Fully Open Sluice L at 10:30.
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435	Peter Baddiley, Rob Vertessey, Jim Stevenson from BoM visited FOC to liaise with the Duty Engineers.
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RD5-1747

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420	Directive	KH
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422	Situation Report	TM
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424	Directive	KH
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427	Directive	KH
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434		
435	Correspondence	NGA
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	A	B
440		2:15 PM
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443		2:45 PM
444		3:00 PM
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450		4:20 PM
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RD5-1749

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440	Issued North Pine Directive #26. • Gate E: Close to increment 1 at 14:15
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443	Issued North Pine Directive #27. • Gate C: Close to increment 1 at 14:45
444	**Situation Report 1500 Wed 12/01/2011** Rainfall Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days. Somerset/Wivenhoe - Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011 and the dam is discharging 1,440 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days. - Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.81 m AHD at 15:00 and steady. - The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. This release will then be maintained to drain the flood storage component within the required 7 days. - The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2 million megalitres. North Pine At 15:00 North Pine Dam was 39.74 mAHD falling with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be closed on Thursday or Thursday. Strategy The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is maintaining close contact with warning agencies and local councils. The next report will be issued at 18:00 12 January 2011.
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450	Ken Morris (BCC) called FOC and had phone conference with Duty Engs. He was seeking update for briefing with Lord Mayor.
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RD5-1750

	D	E
440	Directive	NGA
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443	Directive	NGA
444	Situation Report	TM
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450	Correspondence	NGA
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RD5-1751

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	C
	Situation Report 1800 Wed 12/01/2011
	Rainfall
	Rainfall in the last 12 hours is generally below 5mm with a couple of 10mm falls in the Stanley and North Pine catchments. There is no significant rain expected fin the next 4 days.
	Somerset/Wivenhoe
	- Somerset Dam has peaked at 105.11 mAHD at 06:00 on 12 January 2011. One sluice was opened at 1030 12 January 2011. Somerset Dam was 104.87 mAHD at 1700 12 January 2011 and discharging 1,410 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.
	- Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.82 m AHD at 17:00 and steady.
	- The release from Wivenhoe Dam was reduced to 2,500 m3/s at 07:30 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River and this release has been maintained since. After the downstream peak in the lower Brisbane River has passed, releases will be increased to maximum of 3,500 m3/s. The release is expected to commence Thursday and then be maintained at this level to drain the flood storage component within the required 7 days. The releases will not result in any renewed rises at downstream locations.
	- The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be 2.6 million megalitres.
	North Pine
	At 17:00 North Pine Dam was 39.74 mAHD steady with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on 11 January 1974 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that gates will be closed on Thursday or Friday.
	Strategy
454	The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy regularly. The FOC is maintaining close contact with warning
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	Situation Report 0600 13 January 2011
	Rainfall
	Rainfall in the last 12 hours is generally below 5mm with isolated falls of up to 15mm in the Stanley, Lockyer and Pine River catchments. There is no significant rain expected fin the next 4 days.
	Somerset/Wivenhoe
	- Somerset Dam peaked at 105.11 mAHD at 06:00 on Wednesday 12 January 2011. The current level is 104.34 mAHD. One sluice was opened at 10:30 on 12 January 2011 and the dam is currently discharging 1,130 m3/s. Sluice gates will be utilised to drain of the flood storage compartment during the next 5 days.
	- Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. Wivenhoe Dam was 74.72 m AHD at 06:00 and commence to fall slowly.
	- The releases from Wivenhoe Dam have been temporarily reduced to 2,500 m3/s at 07:30 on Wednesday 12 January 2011 to allow the peak of Lockyer Creek to enter the Brisbane River. The Brisbane River has peaked at the Port Office Gauge early Thursday morning. Releases from Wivenhoe Dam will be managed to achieve a target flow of around 3,500 m3/s at Moggill. This release will then be maintained to drain the flood storage component within the required 7 days.
471	- The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

RD5-1753

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471	Situation Report	RA

RD5-1754

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484		12:30 PM
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489		2:15 PM
490		2:30 PM
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493		4:45 PM
494		6:00 PM
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RD5-1755

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472	North Pine At 06:00 North Pine Dam was 39.70 mAHD falling with all gates open 1 increment, releasing about 80 m3/s. North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML. It is expected that all gates will be closed on Friday. Strategy - The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and reviewing operating strategy. The FOC will continue to maintain close contact with warning agencies and local councils. - The next report will be issued at 18:00 on Thursday 13 January 2011.
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484	Wivenhoe directive #35 issued • Open Gate 2 from 4.0 metres to 4.5 metres at 1300. • Open Gate 4 from 4.0 metres to 4.5 metres at 1400.
485	Somerset directive #10 issued • Fully Open Sluice K at 13:00.
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489	Phone call from Steve Roso, MBRC. Advice as follows: * damage to Gympie Rd abutments * No evacuations * No suburban flooding * Not aware of any over floor flooding. Pine Shire had 0.75m freeboard.
490	Wivenhoe directive #36 issued • Open Gate 1 from 3.5 metres to 4.0 metres at 1500. • Open Gate 5 from 3.5 metres to 4.0 metres at 1600. • Open Gate 1 from 4.0 metres to 4.5 metres at 1700. • Open Gate 5 from 4.0 metres to 4.5 metres at 1800.
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493	Judy (MBRC) was advised that NPD gates will be closed at 0500 Friday
494	Wivenhoe directive #37 issued • Open Gate 2 from 4.5 metres to 5.0 metres at 1830. • Open Gate 4 from 4.5 metres to 5.0 metres at 1900. • Open Gate 1 from 4.5 metres to 5.0 metres at 1930. • Open Gate 5 from 4.5 metres to 5.0 metres at 2000. • Open Gate 3 from 5.0 metres to 5.5 metres at 2030.
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RD5-1756

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484	Directive	JW
485	Directive	JW
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489	Correspondence	JW
490	Correspondence	JW
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492		
493	Correspondence	TM
494	Directive	JW
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	A	B
496		7:51 PM
497		8:15 PM
498		8:28 PM
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501	14/01/11	
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504		2:10 AM
505		5:13 AM
506		5:15 AM
507		5:16 AM
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	C
496	Rob called Mal Lane (North Pine Dam) to discuss the current drainage strategy to close all gates by 5am tomorrow. Water level in North Pine Dam will be frequently monitored against the predictive model results, and gate opening will be adjusted accordingly if required.
497	Wivenhoe directive #38 issued • Open Gate 2 from 5.0 metres to 5.5 metres at 2100. • Open Gate 4 from 5.0 metres to 5.5 metres at 2200. • Open Gate 1 from 5.0 metres to 5.5 metres at 2300. • Open Gate 5 from 5.0 metres to 5.5 metres at 2000. • Open Gate 3 from 5.5 metres to 6.0 metres at 0100 on 14/1/11 • Open Gate 3 from 5.5 metres to 6.0 metres at 0200 • Open Gate 3 from 5.5 metres to 6.0 metres at 0300
498	Somerset directive #11 issued • Fully Open Sluice N at 21:00.
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504	Rob Ayre called Shane Watson to advise commencement of shut down of gates in accordance with Directive #30: Please undertake the following gate operations commencing at 03:15 on Friday 14 January 2011. The interval between gate operations is to be 15 minutes. • Gate A: Close to 1 increment at 03:15 • Gate E: Close to 1 increment at 03:30 • Gate C: Close to 1 increment at 03:45 • Fully Close Gate B at 04:00 • Fully Close Gate D at 04:15 • Fully Close Gate A at 04:30 • Fully Close Gate E at 04:45 • Fully Close Gate C at 05:00
505	Fax received from North Pine Dam confirming closure of all gates.
506	Rob Ayre called MBRC to advise that North Pine Dam has closed the final gate at 5am.
507	Malcom from North Pine Dam called to confirm that all gates are closed, and Young's Crossing should be passable within 2 hours. Lake Kurwongbah level is 20.43 m.
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518	Murray Dunstan rang from North Pine. The dam ceased flood operations at 5:00am this morning and fish recovery end clean-up has been completed. Approx. 31 lung fish were rescued. Quite a number of dead lung fish and other species. Erosion damage downstream of the dam is severe with loss of vegetation, stripped and fallen trees, bank erosion, and many dead fish caught within the root ball of fallen trees. Murray is organising back hoes and front end loader machinery to clear the debris between the NP dam wall and Grant Street.
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RD5-1759

	D	E
496	Correspondence	DP
497	Directive	DP
498	Directive	DP
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504	Directive	DP
505	Correspondence	DP
506	Correspondence	DP
507	Correspondence	DP
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518	Correspondance	NGA
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RD5-1760

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534		10:20 AM
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RD5-1761

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531	Wivenhoe directive #40 issued • Open Gate 5 from 5.5 metres to 6.0 metres at 02:30.
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534	Wivenhoe directive #41 issued. Open Gate 3 from 6.0m to 6.5m at 10:30.
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RD5-1762

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531	Directive	KH
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534	Directive	AN
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RD5-1763

From: Allen Peter [redacted]
Sent: Monday, January 17, 2011 1:05 PM
To: Rob Drury [redacted]
Subject: Fw: Current Ops Spreadsheet
Attach: SDWD-201101151200.xls

----- Original Message -----
From: Duty Engineer <dutyseq@[redacted]
To: Allen Peter
Sent: Mon Jan 17 12:58:27 2011
Subject: Current Ops Spreadsheet

Peter

Copy of Current Spreadsheet attached.

Regards

Duty Engineer

Flood Operations Centre

Phone: [redacted]

[redacted]

Fax: [redacted]

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+----------+
Think B4U Print
1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere
3 sheets of A4 paper = 1 litre of water
+----------+

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.

For more information regarding this service, please contact your service provider.

	A	B
1	**General Description**	
2	This is a general spread sheet to test out the operation of Emergency	
3	Flood Control procedures for Somerset Dam	
4		
5	It relies on the inputs from 2% AEP floods concentrated over Somerset Dam	
6	catchment. The option is given in the 'Inflows' work sheet to factor the time base,	
7	and the discharge factor for both Somerset inflows and Wivenhoe inflows	
8		
9	**List of Sheets & Description**	
10		
11	Ops Sheet	Main work sheet with levels, rates of rise etc
12	Wiv-Som Interaction	Interaction curve plot of levels at Wivenhoe Dam and those at Somerset Dam
13	H_W graphs	Headwater graphs for Somerset & Wivenhoe as a function of Time
14	Som Q Graph	Inflows and Outflows for Somerset Dam
15	Wiv Q Graph	Inflows and Outflows for Wivenhoe dam
16	Inflows	Inflow hydrographs for Somerset & Wivenhoe
17	Wiv Discharges	Discharge rating for Wivenhoe ... set at Emergency Control Procedure
18	PLOT+0 Macro	Macro routine for plotting +1, as is and -1 sluice trends
19	Sheet 4	Work sheet which does not want to be hidden
20		
21	**General Use**	
22		
23	1. Initialise columns P, Q and R by setting each cell equal to the value of the cell above it	
24	2. In Row 3 .. set the inital openings eg. 0 regulators, 0 sluices, 8 crest gates	
25	3. Step though each time cycle and determine the operating procedure for Somerset	
26	4. Don't forget ... You need to close down to FSL at the end of the event.	

RD5-1766

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RD5-1767

	A	B	C	D	E	F	G	H
1	Start Date	2/01/2011 9:00					Interaction	
2							Somerset	Wivenhoe
3	Title1	Somerset Dam					90.00	60.00
4	Starting Level	99.1					100.45	60.00
5	Starting flow	60					100.45	70.00
6							109.70	80.00
7	Title2	Wivenhoe Dam						
8	Starting Level	67.1						
9	Starting flow	150						
10								
11		Lockyer						
12	Starting flow	0						
13								
14		Bremer						
15	Starting flow	0						
16								
17								
18	Event Title	December 2010						
19	Time Step (hrs)	1						
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21								
22		5/05/2011 11:43						
23	0	100000						

	A	B	C	D	E	F	G	H	I	J
1	WDI									SDI
2	Curve:	Inflow	For	Wivenhoe	(cumecs					Curve:
3	File:	/usr/local/foo/dat/BrisbaneC								File:
4	Number	of	Records:	481						Number
5	Minimum	Value:	1							Minimum
6	Maximum	Value:	8871							Maximum
7	20110102090000	1								20110102090000
8	20110102100000	1								20110102100000
9	20110102110000	1								20110102110000
10	20110102120000	1								20110102120000
11	20110102130000	1								20110102130000
12	20110102140000	1								20110102140000
13	20110102150000	1								20110102150000
14	20110102160000	1								20110102160000
15	20110102170000	1								20110102170000
16	20110102180000	1								20110102180000
17	20110102190000	1								20110102190000
18	20110102200000	1								20110102200000
19	20110102210000	1								20110102210000
20	20110102220000	1								20110102220000
21	20110102230000	1								20110102230000
22	20110103000000	1								20110103000000
23	20110103010000	1								20110103010000
24	20110103020000	1								20110103020000
25	20110103030000	1								20110103030000
26	20110103040000	1								20110103040000
27	20110103050000	1								20110103050000
28	20110103060000	1								20110103060000
29	20110103070000	1								20110103070000
30	20110103080000	1								20110103080000
31	20110103090000	1								20110103090000
32	20110103100000	1								20110103100000
33	20110103110000	1								20110103110000
34	20110103120000	1								20110103120000
35	20110103130000	1								20110103130000
36	20110103140000	1								20110103140000
37	20110103150000	1								20110103150000
38	20110103160000	1								20110103160000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1									Lockyer					
2	Inflow	For	Somerset	(cumecs)					Curve:	Discharge	At	Node	17	of
3	/usr/local/foo/dat/BrisbaneCa								File:	/usr/local/foo/dat/BrisbaneCat				
4	of	Records:	481						Number	of	Records:	481		
5	Value:	0							Minimum	Value:	0			
6	Value:	3578.771							Maximum	Value:	2930.249			
7	0								20110102090000	0				
8	0								20110102100000	0				
9	0								20110102110000	0				
10	0								20110102120000	0				
11	0								20110102130000	0				
12	0								20110102140000	0				
13	0								20110102150000	0				
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16	0								20110102180000	0				
17	0								20110102190000	0				
18	0								20110102200000	0				
19	0								20110102210000	0				
20	0								20110102220000	0				
21	0								20110102230000	0				
22	0								20110103000000	0				
23	0								20110103010000	0				
24	0								20110103020000	0				
25	0								20110103030000	0				
26	0								20110103040000	0				
27	0								20110103050000	0				
28	0								20110103060000	0				
29	0								20110103070000	0				
30	0								20110103080000	0				
31	0								20110103090000	0				
32	0								20110103100000	0				
33	0								20110103110000	0				
34	0								20110103120000	0				
35	0								20110103130000	0				
36	0								20110103140000	0				
37	0								20110103150000	0				
38	43.677								20110103160000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1								Bremer									
2	SAV	-	Lockyer	Creek	at	O'Reilly's	Weir	Curve:	Output	Discharge	For	IPS					Curve:
3								File:	/usr/local/foo/dat/BrisbaneC								File:
4								Number	of	Records:	481						Number
5								Minimum	Value:	0							Minimum
6								Maximum	Value:	2727.384			Wivin	SomOut			Maximum
7								20110102090000	0				1	1	0		2.01101E+13
8								20110102100000	0				1	1	0		2.01101E+13
9								20110102110000	0				1	1	0		2.01101E+13
10								20110102120000	0				1	1	0		2.01101E+13
11								20110102130000	0				1	1	0		2.01101E+13
12								20110102140000	0				1	1	0		2.01101E+13
13								20110102150000	0				1	1	0		2.01101E+13
14								20110102160000	0				1	1	0		2.01101E+13
15								20110102170000	0				1	1	0		2.01101E+13
16								20110102180000	0				1	1	0		2.01101E+13
17								20110102190000	0				1	1	0		2.01101E+13
18								20110102200000	0				1	1	0		2.01101E+13
19								20110102210000	0				1	1	0		2.01101E+13
20								20110102220000	0				1	1	0		2.01101E+13
21								20110102230000	0				1	1	0		2.01101E+13
22								20110103000000	0				1	1	0		2.01101E+13
23								20110103010000	0				1	1	0		2.01101E+13
24								20110103020000	0				1	1	0		2.01101E+13
25								20110103030000	0				1	1	0		2.01101E+13
26								20110103040000	0				1	1	0		2.01101E+13
27								20110103050000	0				1	1	0		2.01101E+13
28								20110103060000	0				1	1	0		2.01101E+13
29								20110103070000	0				1	1	0		2.01101E+13
30								20110103080000	0				1	1	0		2.01101E+13
31								20110103090000	0				1	1	0		2.01101E+13
32								20110103100000	0				1	1	0		2.01101E+13
33								20110103110000	0				1	1	0		2.01101E+13
34								20110103120000	0				1	1	0		2.01101E+13
35								20110103130000	0				1	1	0		2.01101E+13
36								20110103140000	0				1	1	0		2.01101E+13
37								20110103150000	0				1	1	0		2.01101E+13
38								20110103160000	0				1	1	0		2.01101E+13

	AP	AQ	AR	AS
1				
2	Outflow	For	Somerset	(cumecs)
3	/usr/local/foo/dat/BrisbaneCat			
4	of	Records:	481	
5	Value:	0.686		
6	Value:	3094.794		
7	0.686			
8	0.686			
9	0.686			
10	0.686			
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12	0.686			
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14	0.686			
15	0.686			
16	0.686			
17	0.686			
18	0.686			
19	0.686			
20	0.686			
21	0.686			
22	0.686			
23	0.687			
24	0.687			
25	0.687			
26	0.687			
27	0.687			
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29	0.687			
30	0.687			
31	0.687			
32	0.687			
33	0.687			
34	0.687			
35	0.687			
36	0.687			
37	0.687			
38	0.687			

RD5-1772

	A	B	C	D	E	F	G	H	I	J
39	20110103170000	1								20110103170000
40	20110103180000	1								20110103180000
41	20110103190000	1								20110103190000
42	20110103200000	1								20110103200000
43	20110103210000	2								20110103210000
44	20110103220000	72								20110103220000
45	20110103230000	27								20110103230000
46	20110104000000	17								20110104000000
47	20110104010000	15								20110104010000
48	20110104020000	13								20110104020000
49	20110104030000	12								20110104030000
50	20110104040000	12								20110104040000
51	20110104050000	11								20110104050000
52	20110104060000	10								20110104060000
53	20110104070000	10								20110104070000
54	20110104080000	9								20110104080000
55	20110104090000	9								20110104090000
56	20110104100000	9								20110104100000
57	20110104110000	8								20110104110000
58	20110104120000	8								20110104120000
59	20110104130000	8								20110104130000
60	20110104140000	7								20110104140000
61	20110104150000	7								20110104150000
62	20110104160000	7								20110104160000
63	20110104170000	6								20110104170000
64	20110104180000	6								20110104180000
65	20110104190000	6								20110104190000
66	20110104200000	6								20110104200000
67	20110104210000	5								20110104210000
68	20110104220000	5								20110104220000
69	20110104230000	5								20110104230000
70	20110105000000	5								20110105000000
71	20110105010000	5								20110105010000
72	20110105020000	4								20110105020000
73	20110105030000	4								20110105030000
74	20110105040000	4								20110105040000
75	20110105050000	4								20110105050000
76	20110105060000	4								20110105060000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
39	110.6								20110103170000	0				
40	85.032								20110103180000	0				
41	66.342								20110103190000	0				
42	54.16								20110103200000	0				
43	45.444								20110103210000	0				
44	42.969								20110103220000	0				
45	33.803								20110103230000	0				
46	29.776								20110104000000	0				
47	26.531								20110104010000	0				
48	23.877								20110104020000	0				
49	21.675								20110104030000	0				
50	19.826								20110104040000	0				
51	18.253								20110104050000	0				
52	16.899								20110104060000	0				
53	15.722								20110104070000	0				
54	14.688								20110104080000	0				
55	13.77								20110104090000	0				
56	12.95								20110104100000	0				
57	12.211								20110104110000	0				
58	11.539								20110104120000	0				
59	10.926								20110104130000	0				
60	10.362								20110104140000	0				
61	9.841								20110104150000	0				
62	9.358								20110104160000	0				
63	8.908								20110104170000	0				
64	8.487								20110104180000	0				
65	8.093								20110104190000	0				
66	7.722								20110104200000	0				
67	7.372								20110104210000	0				
68	7.042								20110104220000	0				
69	6.73								20110104230000	0				
70	6.434								20110105000000	0				
71	6.154								20110105010000	0				
72	5.888								20110105020000	0				
73	5.635								20110105030000	0				
74	5.395								20110105040000	0				
75	5.166								20110105050000	0				
76	4.948								20110105060000	0				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
39								20110103170000	0				1	1	1		2.01101E+13
40								20110103180000	0				1	1	1		2.01101E+13
41								20110103190000	0				1	1	1		2.01101E+13
42								20110103200000	0				1	1	1		2.01101E+13
43								20110103210000	0				2	1	1		2.01101E+13
44								20110103220000	0				72	1	72		2.01101E+13
45								20110103230000	0				27	1	27		2.01101E+13
46								20110104000000	0				17	1	16		2.01101E+13
47								20110104010000	0				15	1	14		2.01101E+13
48								20110104020000	0				13	1	13		2.01101E+13
49								20110104030000	0				12	1	12		2.01101E+13
50								20110104040000	0				12	1	11		2.01101E+13
51								20110104050000	0				11	1	10		2.01101E+13
52								20110104060000	0				10	1	10		2.01101E+13
53								20110104070000	0				10	1	9		2.01101E+13
54								20110104080000	0				9	1	9		2.01101E+13
55								20110104090000	0				9	1	8		2.01101E+13
56								20110104100000	0				9	1	8		2.01101E+13
57								20110104110000	0				8	1	8		2.01101E+13
58								20110104120000	0				8	1	7		2.01101E+13
59								20110104130000	0				8	1	7		2.01101E+13
60								20110104140000	0				7	1	7		2.01101E+13
61								20110104150000	0				7	1	6		2.01101E+13
62								20110104160000	0				7	1	6		2.01101E+13
63								20110104170000	0				6	1	6		2.01101E+13
64								20110104180000	0				6	1	5		2.01101E+13
65								20110104190000	0				6	1	5		2.01101E+13
66								20110104200000	0				6	1	5		2.01101E+13
67								20110104210000	0				5	1	5		2.01101E+13
68								20110104220000	0				5	1	4		2.01101E+13
69								20110104230000	0				5	1	4		2.01101E+13
70								20110105000000	0				5	1	4		2.01101E+13
71								20110105010000	0				5	1	4		2.01101E+13
72								20110105020000	0				4	1	4		2.01101E+13
73								20110105030000	0				4	1	4		2.01101E+13
74								20110105040000	0				4	1	3		2.01101E+13
75								20110105050000	0				4	1	3		2.01101E+13
76								20110105060000	0				4	1	3		2.01101E+13

	AP	AQ	AR	AS
39	0.687			
40	0.687			
41	0.687			
42	0.687			
43	0.687			
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72	0.688			
73	0.688			
74	0.688			
75	0.688			
76	0.688			

	A	B	C	D	E	F	G	H	I	J
77	20110105070000	4								20110105070000
78	20110105080000	4								20110105080000
79	20110105090000	3								20110105090000
80	20110105100000	3								20110105100000
81	20110105110000	3								20110105110000
82	20110105120000	3								20110105120000
83	20110105130000	3								20110105130000
84	20110105140000	3								20110105140000
85	20110105150000	3								20110105150000
86	20110105160000	3								20110105160000
87	20110105170000	4								20110105170000
88	20110105180000	8								20110105180000
89	20110105190000	231								20110105190000
90	20110105200000	389								20110105200000
91	20110105210000	244								20110105210000
92	20110105220000	215								20110105220000
93	20110105230000	193								20110105230000
94	20110106000000	181								20110106000000
95	20110106010000	173								20110106010000
96	20110106020000	166								20110106020000
97	20110106030000	166								20110106030000
98	20110106040000	156								20110106040000
99	20110106050000	149								20110106050000
100	20110106060000	143								20110106060000
101	20110106070000	137								20110106070000
102	20110106080000	132								20110106080000
103	20110106090000	127								20110106090000
104	20110106100000	123								20110106100000
105	20110106110000	205								20110106110000
106	20110106120000	329								20110106120000
107	20110106130000	352								20110106130000
108	20110106140000	357								20110106140000
109	20110106150000	322								20110106150000
110	20110106160000	311								20110106160000
111	20110106170000	309								20110106170000
112	20110106180000	309								20110106180000
113	20110106190000	316								20110106190000
114	20110106200000	335								20110106200000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
77	4.74								20110105070000	0				
78	4.542								20110105080000	0				
79	4.354								20110105090000	0				
80	4.174								20110105100000	0				
81	4.002								20110105110000	0				
82	3.838								20110105120000	0				
83	3.681								20110105130000	0				
84	3.532								20110105140000	0				
85	3.392								20110105150000	0.001				
86	8.577								20110105160000	0.004				
87	20.319								20110105170000	0.012				
88	31.079								20110105180000	5.883				
89	63.969								20110105190000	17.469				
90	124.532								20110105200000	28.075				
91	181.329								20110105210000	38.232				
92	199.005								20110105220000	44.911				
93	182.112								20110105230000	53.465				
94	166.88								20110106000000	63.793				
95	154.732								20110106010000	74.986				
96	145.297								20110106020000	85.924				
97	137.606								20110106030000	95.685				
98	130.982								20110106040000	103.702				
99	125.004								20110106050000	109.763				
100	119.471								20110106060000	113.919				
101	114.239								20110106070000	116.384				
102	109.224								20110106080000	117.445				
103	104.379								20110106090000	117.411				
104	99.684								20110106100000	116.598				
105	106.011								20110106110000	129.044				
106	226.341								20110106120000	155.227				
107	372.455								20110106130000	167.4				
108	358.154								20110106140000	169.593				
109	306.551								20110106150000	177.765				
110	273.255								20110106160000	187.85				
111	253.347								20110106170000	197.811				
112	239.566								20110106180000	207.131				
113	228.674								20110106190000	215.311				
114	219.808								20110106200000	222.205				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
77								20110105070000	0				4	1	3		2.01101E+13
78								20110105080000	0				4	1	3		2.01101E+13
79								20110105090000	0				3	1	3		2.01101E+13
80								20110105100000	0				3	1	3		2.01101E+13
81								20110105110000	0				3	1	2		2.01101E+13
82								20110105120000	0.002				3	1	2		2.01101E+13
83								20110105130000	0.008				3	1	2		2.01101E+13
84								20110105140000	0.035				3	1	2		2.01101E+13
85								20110105150000	0.114				3	1	2		2.01101E+13
86								20110105160000	0.31				3	1	2		2.01101E+13
87								20110105170000	0.717				4	1	4		2.01101E+13
88								20110105180000	1.441				8	1	7		2.01101E+13
89								20110105190000	2.566				231	1	231		2.01101E+13
90								20110105200000	8.935				389	1	389		2.01101E+13
91								20110105210000	28.257				244	1	243		2.01101E+13
92								20110105220000	59.308				215	1	215		2.01101E+13
93								20110105230000	95.907				193	1	192		2.01101E+13
94								20110106000000	126.238				181	1	181		2.01101E+13
95								20110106010000	144.277				173	1	172		2.01101E+13
96								20110106020000	151.667				166	1	165		2.01101E+13
97								20110106030000	152.213				166	1	165		2.01101E+13
98								20110106040000	148.68				156	1	155		2.01101E+13
99								20110106050000	142.649				149	1	149		2.01101E+13
100								20110106060000	135.134				143	1	142		2.01101E+13
101								20110106070000	126.91				137	1	136		2.01101E+13
102								20110106080000	118.594				132	1	131		2.01101E+13
103								20110106090000	110.633				127	1	126		2.01101E+13
104								20110106100000	103.307				123	1	122		2.01101E+13
105								20110106110000	109.129				205	1	204		2.01101E+13
106								20110106120000	138.049				329	1	328		2.01101E+13
107								20110106130000	152.944				352	1	352		2.01101E+13
108								20110106140000	141.74				357	1	356		2.01101E+13
109								20110106150000	134.08				322	1	322		2.01101E+13
110								20110106160000	132.039				311	1	310		2.01101E+13
111								20110106170000	134.655				309	1	308		2.01101E+13
112								20110106180000	142.279				309	1	308		2.01101E+13
113								20110106190000	155.636				316	1	316		2.01101E+13
114								20110106200000	174.956				335	1	334		2.01101E+13

	AP	AQ	AR	AS
77	0.688			
78	0.688			
79	0.688			
80	0.688			
81	0.688			
82	0.688			
83	0.688			
84	0.688			
85	0.688			
86	0.688			
87	0.688			
88	0.688			
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90	0.688			
91	0.688			
92	0.688			
93	0.688			
94	0.688			
95	0.688			
96	0.688			
97	0.688			
98	0.688			
99	0.688			
100	0.688			
101	0.688			
102	0.689			
103	0.689			
104	0.689			
105	0.689			
106	0.689			
107	0.689			
108	0.689			
109	0.689			
110	0.689			
111	0.69			
112	0.69			
113	0.69			
114	0.69			

	A	B	C	D	E	F	G	H	I	J
115	20110106210000	368								20110106210000
116	20110106220000	420								20110106220000
117	20110106230000	494								20110106230000
118	20110107000000	597								20110107000000
119	20110107010000	844								20110107010000
120	20110107020000	925								20110107020000
121	20110107030000	1029								20110107030000
122	20110107040000	1150								20110107040000
123	20110107050000	1259								20110107050000
124	20110107060000	1362								20110107060000
125	20110107070000	1390								20110107070000
126	20110107080000	1535								20110107080000
127	20110107090000	1620								20110107090000
128	20110107100000	1633								20110107100000
129	20110107110000	2050								20110107110000
130	20110107120000	2127								20110107120000
131	20110107130000	1970								20110107130000
132	20110107140000	1773								20110107140000
133	20110107150000	1689								20110107150000
134	20110107160000	1623								20110107160000
135	20110107170000	1572								20110107170000
136	20110107180000	1556								20110107180000
137	20110107190000	1531								20110107190000
138	20110107200000	1522								20110107200000
139	20110107210000	1524								20110107210000
140	20110107220000	1533								20110107220000
141	20110107230000	1544								20110107230000
142	20110108000000	1557								20110108000000
143	20110108010000	1570								20110108010000
144	20110108020000	1581								20110108020000
145	20110108030000	1589								20110108030000
146	20110108040000	1593								20110108040000
147	20110108050000	1590								20110108050000
148	20110108060000	1577								20110108060000
149	20110108070000	1554								20110108070000
150	20110108080000	1520								20110108080000
151	20110108090000	1476								20110108090000
152	20110108100000	1424								20110108100000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
115	212.09								20110106210000	228.032				
116	204.968								20110106220000	233.269				
117	198.108								20110106230000	238.526				
118	192.795								20110107000000	244.442				
119	218.455								20110107010000	251.599				
120	224.936								20110107020000	260.489				
121	208.24								20110107030000	271.501				
122	198.833								20110107040000	284.91				
123	223.134								20110107050000	300.798				
124	230.754								20110107060000	318.963				
125	257.387								20110107070000	338.931				
126	363.893								20110107080000	360.044				
127	359.139								20110107090000	396.731				
128	372.159								20110107100000	435.657				
129	541.405								20110107110000	457.103				
130	681.457								20110107120000	478.293				
131	738.02								20110107130000	500.075				
132	696.626								20110107140000	518.178				
133	639.754								20110107150000	535.214				
134	601.745								20110107160000	550.702				
135	574.701								20110107170000	563.924				
136	558.68								20110107180000	574.113				
137	535.586								20110107190000	580.798				
138	512.173								20110107200000	583.876				
139	488.422								20110107210000	583.541				
140	464.274								20110107220000	580.17				
141	439.929								20110107230000	574.218				
142	415.751								20110108000000	566.145				
143	392.044								20110108010000	556.378				
144	368.964								20110108020000	545.287				
145	346.701								20110108030000	533.186				
146	325.509								20110108040000	520.333				
147	305.409								20110108050000	506.944				
148	286.378								20110108060000	493.199				
149	268.517								20110108070000	479.249				
150	251.818								20110108080000	465.226				
151	236.242								20110108090000	451.24				
152	221.724								20110108100000	437.39				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
115								20110106210000	200.294				368	1	367		2.01101E+13
116								20110106220000	231.27				420	1	419		2.01101E+13
117								20110106230000	262.245				494	1	494		2.01101E+13
118								20110107000000	289.387				597	1	596		2.01101E+13
119								20110107010000	312.636				844	1	843		2.01101E+13
120								20110107020000	329.996				925	1	924		2.01101E+13
121								20110107030000	341.051				1029	1	1028		2.01101E+13
122								20110107040000	346.317				1150	1	1149		2.01101E+13
123								20110107050000	346.703				1259	1	1258		2.01101E+13
124								20110107060000	343.22				1362	1	1361		2.01101E+13
125								20110107070000	336.854				1390	1	1390		2.01101E+13
126								20110107080000	328.488				1535	1	1534		2.01101E+13
127								20110107090000	345.738				1620	1	1619		2.01101E+13
128								20110107100000	379.664				1633	1	1633		2.01101E+13
129								20110107110000	384.782				2050	1	2050		2.01101E+13
130								20110107120000	379.253				2127	1	2127		2.01101E+13
131								20110107130000	380.105				1970	1	1969		2.01101E+13
132								20110107140000	384.839				1773	1	1772		2.01101E+13
133								20110107150000	389.394				1689	1	1688		2.01101E+13
134								20110107160000	391.881				1623	1	1622		2.01101E+13
135								20110107170000	391.038				1572	1	1572		2.01101E+13
136								20110107180000	386.552				1556	1	1555		2.01101E+13
137								20110107190000	380.021				1531	1	1530		2.01101E+13
138								20110107200000	371.015				1522	1	1521		2.01101E+13
139								20110107210000	359.488				1524	1	1523		2.01101E+13
140								20110107220000	347.305				1533	1	1532		2.01101E+13
141								20110107230000	334.602				1544	1	1544		2.01101E+13
142								20110108000000	321.545				1557	1	1556		2.01101E+13
143								20110108010000	308.333				1570	1	1569		2.01101E+13
144								20110108020000	295.168				1581	1	1580		2.01101E+13
145								20110108030000	282.228				1589	1	1589		2.01101E+13
146								20110108040000	269.644				1593	1	1592		2.01101E+13
147								20110108050000	257.504				1590	1	1589		2.01101E+13
148								20110108060000	245.854				1577	1	1576		2.01101E+13
149								20110108070000	234.711				1554	1	1553		2.01101E+13
150								20110108080000	224.075				1520	1	1519		2.01101E+13
151								20110108090000	213.934				1476	1	1476		2.01101E+13
152								20110108100000	204.272				1424	1	1423		2.01101E+13

	AP	AQ	AR	AS
115	0.69			
116	0.69			
117	0.69			
118	0.691			
119	0.691			
120	0.691			
121	0.691			
122	0.691			
123	0.691			
124	0.692			
125	0.692			
126	0.692			
127	0.692			
128	0.692			
129	0.693			
130	0.693			
131	0.694			
132	0.695			
133	0.695			
134	0.696			
135	0.697			
136	0.697			
137	0.698			
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139	0.698			
140	0.699			
141	0.699			
142	0.7			
143	0.7			
144	0.7			
145	0.7			
146	0.701			
147	0.701			
148	0.701			
149	0.701			
150	0.701			
151	0.701			
152	0.701			

	A	B	C	D	E	F	G	H	I	J
153	20110108110000	1364								20110108110000
154	20110108120000	1300								20110108120000
155	20110108130000	1233								20110108130000
156	20110108140000	1168								20110108140000
157	20110108150000	1141								20110108150000
158	20110108160000	1045								20110108160000
159	20110108170000	979								20110108170000
160	20110108180000	916								20110108180000
161	20110108190000	858								20110108190000
162	20110108200000	804								20110108200000
163	20110108210000	755								20110108210000
164	20110108220000	715								20110108220000
165	20110108230000	677								20110108230000
166	20110109000000	637								20110109000000
167	20110109010000	603								20110109010000
168	20110109020000	573								20110109020000
169	20110109030000	549								20110109030000
170	20110109040000	533								20110109040000
171	20110109050000	519								20110109050000
172	20110109060000	589								20110109060000
173	20110109070000	519								20110109070000
174	20110109080000	508								20110109080000
175	20110109090000	501								20110109090000
176	20110109100000	513								20110109100000
177	20110109110000	955								20110109110000
178	20110109120000	1129								20110109120000
179	20110109130000	937								20110109130000
180	20110109140000	958								20110109140000
181	20110109150000	1729								20110109150000
182	20110109160000	2090								20110109160000
183	20110109170000	2233								20110109170000
184	20110109180000	2938								20110109180000
185	20110109190000	3015								20110109190000
186	20110109200000	3618								20110109200000
187	20110109210000	4249								20110109210000
188	20110109220000	4855								20110109220000
189	20110109230000	5764								20110109230000
190	20110110000000	6616								20110110000000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
153	208.192								20110108110000	423.755				
154	195.765								20110108120000	410.404				
155	184.319								20110108130000	397.389				
156	175.521								20110108140000	384.84				
157	174.701								20110108150000	374.005				
158	173.847								20110108160000	364.172				
159	177.109								20110108170000	353.7				
160	187.315								20110108180000	343.007				
161	196.524								20110108190000	332.431				
162	203.66								20110108200000	322.147				
163	208.618								20110108210000	312.231				
164	246.737								20110108220000	302.693				
165	242.7								20110108230000	293.513				
166	243.954								20110109000000	284.649				
167	237.524								20110109010000	276.058				
168	229.492								20110109020000	267.696				
169	221.662								20110109030000	259.525				
170	215.92								20110109040000	251.515				
171	285.228								20110109050000	243.647				
172	433.734								20110109060000	235.906				
173	473.496								20110109070000	228.286				
174	497.276								20110109080000	220.785				
175	516.868								20110109090000	213.405				
176	646.854								20110109100000	206.151				
177	924.396								20110109110000	218.99				
178	1130.937								20110109120000	237.611				
179	1143.096								20110109130000	237.092				
180	1296.2								20110109140000	233.199				
181	1853.546								20110109150000	231.996				
182	2587.299								20110109160000	260.977				
183	3004.589								20110109170000	318.211				
184	3507.945								20110109180000	351.083				
185	3578.771								20110109190000	364.872				
186	3507.829								20110109200000	407.365				
187	3431.609								20110109210000	491.546				
188	3329.934								20110109220000	573.052				
189	3264.68								20110109230000	623.689				
190	3209.258								20110110000000	664.138				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
153								20110108110000	195.073				1364	1	1363		2.01101E+13
154								20110108120000	186.319				1300	1	1299		2.01101E+13
155								20110108130000	177.995				1233	1	1233		2.01101E+13
156								20110108140000	171.812				1168	1	1167		2.01101E+13
157								20110108150000	165.676				1141	1	1141		2.01101E+13
158								20110108160000	158.094				1045	1	1044		2.01101E+13
159								20110108170000	151.243				979	1	978		2.01101E+13
160								20110108180000	144.799				916	1	916		2.01101E+13
161								20110108190000	138.596				858	1	857		2.01101E+13
162								20110108200000	132.61				804	1	803		2.01101E+13
163								20110108210000	126.883				755	1	754		2.01101E+13
164								20110108220000	121.453				715	1	714		2.01101E+13
165								20110108230000	116.334				677	1	676		2.01101E+13
166								20110109000000	111.522				637	1	637		2.01101E+13
167								20110109010000	107.002				603	1	602		2.01101E+13
168								20110109020000	102.76				573	1	573		2.01101E+13
169								20110109030000	98.79				549	1	548		2.01101E+13
170								20110109040000	95.102				533	1	532		2.01101E+13
171								20110109050000	91.711				519	1	518		2.01101E+13
172								20110109060000	88.632				589	1	589		2.01101E+13
173								20110109070000	85.869				519	1	518		2.01101E+13
174								20110109080000	83.401				508	1	507		2.01101E+13
175								20110109090000	81.187				501	1	500		2.01101E+13
176								20110109100000	81.315				513	1	512		2.01101E+13
177								20110109110000	109.11				955	1	954		2.01101E+13
178								20110109120000	144.663				1129	1	1128		2.01101E+13
179								20110109130000	158.521				937	1	936		2.01101E+13
180								20110109140000	177.931				958	1	957		2.01101E+13
181								20110109150000	202.137				1729	4	1725		2.01101E+13
182								20110109160000	241.083				2090	16	2073		2.01101E+13
183								20110109170000	295.059				2233	35	2198		2.01101E+13
184								20110109180000	322.931				2938	63	2875		2.01101E+13
185								20110109190000	321.8				3015	103	2912		2.01101E+13
186								20110109200000	319.262				3618	150	3468		2.01101E+13
187								20110109210000	332.509				4249	194	4055		2.01101E+13
188								20110109220000	339.803				4855	229	4626		2.01101E+13
189								20110109230000	323.971				5764	265	5498		2.01101E+13
190								20110110000000	310.442				6616	299	6317		2.01101E+13

	AP	AQ	AR	AS
153	0.701			
154	0.701			
155	0.701			
156	0.701			
157	0.701			
158	0.701			
159	0.701			
160	0.7			
161	0.7			
162	0.7			
163	0.7			
164	0.7			
165	0.7			
166	0.7			
167	0.7			
168	0.7			
169	0.7			
170	0.699			
171	0.699			
172	0.699			
173	0.699			
174	0.699			
175	0.699			
176	0.7			
177	0.7			
178	0.7			
179	0.701			
180	0.701			
181	3.581			
182	16.382			
183	34.799			
184	63.072			
185	103.309			
186	150.015			
187	194.146			
188	228.742			
189	265.364			
190	299.027			

	A	B	C	D	E	F	G	H	I	J
191	20110110010000	7315								20110110010000
192	20110110020000	7905								20110110020000
193	20110110030000	8312								20110110030000
194	20110110040000	8558								20110110040000
195	20110110050000	8800								20110110050000
196	20110110060000	8871								20110110060000
197	20110110070000	8550								20110110070000
198	20110110080000	8329								20110110080000
199	20110110090000	7946								20110110090000
200	20110110100000	7451								20110110100000
201	20110110110000	7182								20110110110000
202	20110110120000	8037								20110110120000
203	20110110130000	7091								20110110130000
204	20110110140000	6541								20110110140000
205	20110110150000	6193								20110110150000
206	20110110160000	5768								20110110160000
207	20110110170000	5451								20110110170000
208	20110110180000	5176								20110110180000
209	20110110190000	4980								20110110190000
210	20110110200000	4932								20110110200000
211	20110110210000	4651								20110110210000
212	20110110220000	4452								20110110220000
213	20110110230000	4250								20110110230000
214	20110111000000	4022								20110111000000
215	20110111010000	3809								20110111010000
216	20110111020000	3620								20110111020000
217	20110111030000	3422								20110111030000
218	20110111040000	3255								20110111040000
219	20110111050000	4124								20110111050000
220	20110111060000	4508								20110111060000
221	20110111070000	4737								20110111070000
222	20110111080000	5471								20110111080000
223	20110111090000	5883								20110111090000
224	20110111100000	6326								20110111100000
225	20110111110000	6550								20110111110000
226	20110111120000	6830								20110111120000
227	20110111130000	7343								20110111130000
228	20110111140000	8227								20110111140000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
191	3052.006								20110110010000	695.916				
192	2867.992								20110110020000	714.026				
193	2689.272								20110110030000	721.789				
194	2586.103								20110110040000	720.057				
195	2540.351								20110110050000	715.842				
196	2459.539								20110110060000	726.353				
197	2325.925								20110110070000	726.231				
198	2330.523								20110110080000	709.207				
199	2236.366								20110110090000	700.334				
200	2078.003								20110110100000	690.67				
201	2335.587								20110110110000	680.365				
202	2777.988								20110110120000	676.135				
203	2660.322								20110110130000	673.85				
204	2313.773								20110110140000	672.019				
205	2084.447								20110110150000	678.51				
206	1886.306								20110110160000	697.848				
207	1715.349								20110110170000	731.146				
208	1594.701								20110110180000	773.638				
209	1503.173								20110110190000	816.636				
210	1508.013								20110110200000	851.805				
211	1424.118								20110110210000	874.298				
212	1313.859								20110110220000	883.308				
213	1214.665								20110110230000	880.877				
214	1124.119								20110111000000	870.302				
215	1067.828								20110111010000	854.885				
216	1038.962								20110111020000	837.349				
217	975.496								20110111030000	819.764				
218	1041.237								20110111040000	803.673				
219	1432.116								20110111050000	792.793				
220	1776.897								20110111060000	871.781				
221	1941.922								20110111070000	1105.861				
222	1847.331								20110111080000	1388.216				
223	1722.972								20110111090000	1624.259				
224	1659.195								20110111100000	1794.912				
225	1823.031								20110111110000	1934.388				
226	2128.176								20110111120000	2046.537				
227	2680.635								20110111130000	2151.539				
228	2993.631								20110111140000	2291.232				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
191								20110110010000	301.174				7315	334	6980		2.01101E+13
192								20110110020000	293.299				7905	360	7545		2.01101E+13
193								20110110030000	285.995				8312	381	7931		2.01101E+13
194								20110110040000	278.623				8558	403	8154		2.01101E+13
195								20110110050000	277.642				8800	420	8380		2.01101E+13
196								20110110060000	280.793				8871	448	8422		2.01101E+13
197								20110110070000	277.314				8550	460	8091		2.01101E+13
198								20110110080000	299.547				8329	477	7851		2.01101E+13
199								20110110090000	339.188				7946	489	7457		2.01101E+13
200								20110110100000	369.781				7451	501	6950		2.01101E+13
201								20110110110000	407.355				7182	519	6663		2.01101E+13
202								20110110120000	452.497				8037	544	7493		2.01101E+13
203								20110110130000	506.425				7091	569	6522		2.01101E+13
204								20110110140000	568.736				6541	588	5953		2.01101E+13
205								20110110150000	638.582				6193	594	5599		2.01101E+13
206								20110110160000	709.621				5768	601	5168		2.01101E+13
207								20110110170000	771.822				5451	607	4844		2.01101E+13
208								20110110180000	816.061				5176	601	4576		2.01101E+13
209								20110110190000	838.899				4980	601	4379		2.01101E+13
210								20110110200000	842.003				4932	607	4325		2.01101E+13
211								20110110210000	829.948				4651	601	4051		2.01101E+13
212								20110110220000	808.09				4452	601	3852		2.01101E+13
213								20110110230000	782.54				4250	588	3663		2.01101E+13
214								20110111000000	754.934				4022	575	3447		2.01101E+13
215								20110111010000	726.304				3809	569	3241		2.01101E+13
216								20110111020000	702.321				3620	562	3057		2.01101E+13
217								20110111030000	680.664				3422	550	2873		2.01101E+13
218								20110111040000	658.802				3255	537	2718		2.01101E+13
219								20110111050000	638.964				4124	544	3580		2.01101E+13
220								20110111060000	626.173				4508	569	3940		2.01101E+13
221								20110111070000	617.45				4737	588	4149		2.01101E+13
222								20110111080000	608.267				5471	607	4864		2.01101E+13
223								20110111090000	627.727				5883	613	5270		2.01101E+13
224								20110111100000	687.132				6326	633	5693		2.01101E+13
225								20110111110000	830.884				6550	653	5897		2.01101E+13
226								20110111120000	1046.287				6830	680	6151		2.01101E+13
227								20110111130000	1303.008				7343	728	6615		2.01101E+13
228								20110111140000	1620.668				8227	770	7457		2.01101E+13

	AP	AQ	AR	AS
191	334.169			
192	360.164			
193	381.486			
194	403.276			
195	419.921			
196	448.243			
197	459.77			
198	477.278			
199	489.092			
200	501.02			
201	519.122			
202	543.656			
203	568.639			
204	587.674			
205	594.074			
206	600.504			
207	606.959			
208	600.504			
209	600.504			
210	606.959			
211	600.504			
212	600.504			
213	587.674			
214	574.957			
215	568.639			
216	562.352			
217	549.859			
218	537.479			
219	543.656			
220	568.639			
221	587.674			
222	606.959			
223	613.443			
224	633.067			
225	652.94			
226	679.83			
227	727.961			
228	770.305			

	A	B	C	D	E	F	G	H	I	J
229	20110111150000	8108								20110111150000
230	20110111160000	8232								20110111160000
231	20110111170000	8296								20110111170000
232	20110111180000	8105								20110111180000
233	20110111190000	7872								20110111190000
234	20110111200000	7564								20110111200000
235	20110111210000	7225								20110111210000
236	20110111220000	6858								20110111220000
237	20110111230000	6647								20110111230000
238	20110112000000	6442								20110112000000
239	20110112010000	6323								20110112010000
240	20110112020000	6215								20110112020000
241	20110112030000	6119								20110112030000
242	20110112040000	6033								20110112040000
243	20110112050000	5956								20110112050000
244	20110112060000	5888								20110112060000
245	20110112070000	5829								20110112070000
246	20110112080000	5780								20110112080000
247	20110112090000	5522								20110112090000
248	20110112100000	5280								20110112100000
249	20110112110000	5052								20110112110000
250	20110112120000	4840								20110112120000
251	20110112130000	4641								20110112130000
252	20110112140000	4455								20110112140000
253	20110112150000	4281								20110112150000
254	20110112160000	4118								20110112160000
255	20110112170000	3966								20110112170000
256	20110112180000	3824								20110112180000
257	20110112190000	3691								20110112190000
258	20110112200000	3567								20110112200000
259	20110112210000	3450								20110112210000
260	20110112220000	3340								20110112220000
261	20110112230000	3237								20110112230000
262	20110113000000	3140								20110113000000
263	20110113010000	3049								20110113010000
264	20110113020000	2964								20110113020000
265	20110113030000	2883								20110113030000
266	20110113040000	2808								20110113040000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
229	2961.391								20110111150000	2363.64				
230	2857.218								20110111160000	2386.219				
231	2802.981								20110111170000	2446.011				
232	2834.008								20110111180000	2527.769				
233	2821.411								20110111190000	2610.276				
234	2703.021								20110111200000	2685.086				
235	2554.457								20110111210000	2745.96				
236	2401.192								20110111220000	2792.789				
237	2246.698								20110111230000	2832.749				
238	2093.335								20110112000000	2867.278				
239	1943.387								20110112010000	2896.139				
240	1798.881								20110112020000	2917.742				
241	1661.375								20110112030000	2929.842				
242	1531.882								20110112040000	2930.249				
243	1410.916								20110112050000	2917.328				
244	1298.585								20110112060000	2890.22				
245	1194.707								20110112070000	2848.866				
246	1098.916								20110112080000	2793.907				
247	1010.742								20110112090000	2726.544				
248	929.674								20110112100000	2648.366				
249	855.193								20110112110000	2561.19				
250	786.799								20110112120000	2466.914				
251	724.016								20110112130000	2367.41				
252	666.402								20110112140000	2264.437				
253	613.545								20110112150000	2159.592				
254	565.064								20110112160000	2054.276				
255	520.607								20110112170000	1949.684				
256	479.848								20110112180000	1846.805				
257	442.484								20110112190000	1746.432				
258	408.236								20110112200000	1649.182				
259	376.845								20110112210000	1555.513				
260	348.071								20110112220000	1465.747				
261	321.694								20110112230000	1380.088				
262	297.509								20110113000000	1298.649				
263	275.33								20110113010000	1221.46				
264	254.983								20110113020000	1148.491				
265	236.311								20110113030000	1079.666				
266	219.169								20110113040000	1014.868				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
229								20110111150000	1925.43				8108	836	7272		2.01101E+13
230								20110111160000	2182.354				8232	881	7351		2.01101E+13
231								20110111170000	2401.783				8296	934	7362		2.01101E+13
232								20110111180000	2569.075				8105	973	7131		2.01101E+13
233								20110111190000	2675.125				7872	1005	6867		2.01101E+13
234								20110111200000	2727.384				7564	1045	6519		2.01101E+13
235								20110111210000	2727.002				7225	1087	6138		2.01101E+13
236								20110111220000	2685.748				6858	1112	5747		2.01101E+13
237								20110111230000	2611.851				6647	1287	5360		2.01101E+13
238								20110112000000	2511.229				6442	1454	4989		2.01101E+13
239								20110112010000	2391.502				6323	1686	4637		2.01101E+13
240								20110112020000	2260.62				6215	1911	4305		2.01101E+13
241								20110112030000	2124.604				6119	2127	3992		2.01101E+13
242								20110112040000	1987.671				6033	2335	3698		2.01101E+13
243								20110112050000	1852.858				5956	2536	3420		2.01101E+13
244								20110112060000	1722.394				5888	2729	3158		2.01101E+13
245								20110112070000	1597.868				5829	2915	2914		2.01101E+13
246								20110112080000	1480.341				5780	3095	2685		2.01101E+13
247								20110112090000	1370.426				5522	3049	2473		2.01101E+13
248								20110112100000	1268.375				5280	3003	2277		2.01101E+13
249								20110112110000	1174.159				5052	2956	2096		2.01101E+13
250								20110112120000	1087.545				4840	2910	1930		2.01101E+13
251								20110112130000	1008.164				4641	2863	1778		2.01101E+13
252								20110112140000	935.558				4455	2817	1638		2.01101E+13
253								20110112150000	869.229				4281	2771	1510		2.01101E+13
254								20110112160000	808.663				4118	2725	1393		2.01101E+13
255								20110112170000	753.353				3966	2680	1286		2.01101E+13
256								20110112180000	702.818				3824	2636	1189		2.01101E+13
257								20110112190000	656.603				3691	2592	1099		2.01101E+13
258								20110112200000	614.291				3567	2549	1018		2.01101E+13
259								20110112210000	575.501				3450	2507	943		2.01101E+13
260								20110112220000	539.888				3340	2466	874		2.01101E+13
261								20110112230000	507.141				3237	2426	811		2.01101E+13
262								20110113000000	476.982				3140	2387	754		2.01101E+13
263								20110113010000	449.159				3049	2349	701		2.01101E+13
264								20110113020000	423.449				2964	2312	652		2.01101E+13
265								20110113030000	399.651				2883	2276	608		2.01101E+13
266								20110113040000	377.587				2808	2241	567		2.01101E+13

	AP	AQ	AR	AS
229	835.702			
230	880.554			
231	934.154			
232	973.279			
233	1005.085			
234	1045.474			
235	1086.57			
236	1111.564			
237	1286.9			
238	1453.674			
239	1686.259			
240	1910.632			
241	2126.902			
242	2335.258			
243	2535.936			
244	2729.219			
245	2915.399			
246	3094.794			
247	3049.018			
248	3002.772			
249	2956.254			
250	2909.64			
251	2863.085			
252	2816.737			
253	2770.717			
254	2725.145			
255	2680.117			
256	2635.727			
257	2592.051			
258	2549.168			
259	2507.133			
260	2466.012			
261	2425.85			
262	2386.7			
263	2348.6			
264	2311.595			
265	2275.725			
266	2241.025			

	A	B	C	D	E	F	G	H	I	J
267	20110113050000	2736								20110113050000
268	20110113060000	2669								20110113060000
269	20110113070000	2606								20110113070000
270	20110113080000	2547								20110113080000
271	20110113090000	2492								20110113090000
272	20110113100000	2440								20110113100000
273	20110113110000	2391								20110113110000
274	20110113120000	2346								20110113120000
275	20110113130000	2304								20110113130000
276	20110113140000	2266								20110113140000
277	20110113150000	2232								20110113150000
278	20110113160000	2203								20110113160000
279	20110113170000	2180								20110113170000
280	20110113180000	2161								20110113180000
281	20110113190000	2144								20110113190000
282	20110113200000	2127								20110113200000
283	20110113210000	2111								20110113210000
284	20110113220000	2095								20110113220000
285	20110113230000	2080								20110113230000
286	20110114000000	1932								20110114000000
287	20110114010000	1786								20110114010000
288	20110114020000	1637								20110114020000
289	20110114030000	1494								20110114030000
290	20110114040000	1351								20110114040000
291	20110114050000	1206								20110114050000
292	20110114060000	1066								20110114060000
293	20110114070000	927								20110114070000
294	20110114080000	785								20110114080000
295	20110114090000	648								20110114090000
296	20110114100000	511								20110114100000
297	20110114110000	371								20110114110000
298	20110114120000	299								20110114120000
299	20110114130000	227								20110114130000
300	20110114140000	156								20110114140000
301	20110114150000	152								20110114150000
302	20110114160000	149								20110114160000
303	20110114170000	146								20110114170000
304	20110114180000	143								20110114180000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
267	203.423								20110113050000	953.958				
268	188.953								20110113060000	896.774				
269	175.647								20110113070000	843.146				
270	163.405								20110113080000	792.894				
271	152.135								20110113090000	745.837				
272	141.753								20110113100000	701.793				
273	132.182								20110113110000	660.586				
274	123.353								20110113120000	622.041				
275	115.202								20110113130000	585.992				
276	107.673								20110113140000	552.279				
277	100.712								20110113150000	520.748				
278	94.272								20110113160000	491.256				
279	88.309								20110113170000	463.666				
280	82.784								20110113180000	437.85				
281	77.662								20110113190000	413.686				
282	72.908								20110113200000	391.062				
283	68.494								20110113210000	369.872				
284	64.392								20110113220000	350.018				
285	60.577								20110113230000	331.407				
286	57.026								20110114000000	313.955				
287	53.72								20110114010000	297.582				
288	50.638								20110114020000	282.213				
289	47.763								20110114030000	267.78				
290	45.08								20110114040000	254.22				
291	42.575								20110114050000	241.472				
292	40.233								20110114060000	229.483				
293	38.042								20110114070000	218.201				
294	35.992								20110114080000	207.578				
295	34.073								20110114090000	197.572				
296	32.274								20110114100000	188.141				
297	30.587								20110114110000	179.247				
298	29.004								20110114120000	170.855				
299	27.517								20110114130000	162.934				
300	26.121								20110114140000	155.452				
301	24.809								20110114150000	148.381				
302	23.574								20110114160000	141.696				
303	22.412								20110114170000	135.372				
304	21.318								20110114180000	129.387				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
267								20110113050000	357.095				2736	2208	529		2.01101E+13
268								20110113060000	338.033				2669	2175	494		2.01101E+13
269								20110113070000	320.272				2606	2144	462		2.01101E+13
270								20110113080000	303.697				2547	2115	432		2.01101E+13
271								20110113090000	288.208				2492	2087	405		2.01101E+13
272								20110113100000	273.713				2440	2060	380		2.01101E+13
273								20110113110000	260.132				2391	2035	356		2.01101E+13
274								20110113120000	247.391				2346	2011	335		2.01101E+13
275								20110113130000	235.428				2304	1990	315		2.01101E+13
276								20110113140000	224.185				2266	1971	296		2.01101E+13
277								20110113150000	213.612				2232	1954	279		2.01101E+13
278								20110113160000	203.663				2203	1940	263		2.01101E+13
279								20110113170000	194.297				2180	1932	248		2.01101E+13
280								20110113180000	185.477				2161	1928	234		2.01101E+13
281								20110113190000	177.169				2144	1923	221		2.01101E+13
282								20110113200000	169.34				2127	1918	209		2.01101E+13
283								20110113210000	161.962				2111	1913	198		2.01101E+13
284								20110113220000	155.005				2095	1908	187		2.01101E+13
285								20110113230000	148.443				2080	1903	178		2.01101E+13
286								20110114000000	142.252				1932	1764	169		2.01101E+13
287								20110114010000	136.407				1786	1626	160		2.01101E+13
288								20110114020000	130.886				1637	1485	152		2.01101E+13
289								20110114030000	125.667				1494	1349	145		2.01101E+13
290								20110114040000	120.73				1351	1214	138		2.01101E+13
291								20110114050000	116.057				1206	1075	131		2.01101E+13
292								20110114060000	111.628				1066	941	125		2.01101E+13
293								20110114070000	107.428				927	808	119		2.01101E+13
294								20110114080000	103.442				785	671	114		2.01101E+13
295								20110114090000	99.656				648	539	109		2.01101E+13
296								20110114100000	96.057				511	407	104		2.01101E+13
297								20110114110000	92.633				371	271	100		2.01101E+13
298								20110114120000	89.375				299	204	96		2.01101E+13
299								20110114130000	86.273				227	136	92		2.01101E+13
300								20110114140000	83.319				156	68	88		2.01101E+13
301								20110114150000	80.506				152	68	84		2.01101E+13
302								20110114160000	77.827				149	68	81		2.01101E+13
303								20110114170000	75.276				146	68	78		2.01101E+13
304								20110114180000	72.848				143	68	75		2.01101E+13

	AP	AQ	AR	AS
267	2207.538			
268	2175.304			
269	2144.371			
270	2114.789			
271	2086.621			
272	2059.941			
273	2034.843			
274	2011.45			
275	1989.929			
276	1970.522			
277	1953.621			
278	1939.995			
279	1932.396			
280	1927.608			
281	1922.747			
282	1917.812			
283	1912.803			
284	1907.717			
285	1902.554			
286	1763.708			
287	1625.854			
288	1484.904			
289	1348.874			
290	1213.649			
291	1075.154			
292	941.342			
293	808.116			
294	671.405			
295	539.118			
296	407.17			
297	271.492			
298	203.554			
299	135.673			
300	67.828			
301	67.824			
302	67.819			
303	67.815			
304	67.81			

	A	B	C	D	E	F	G	H	I	J
305	20110114190000	140								20110114190000
306	20110114200000	137								20110114200000
307	20110114210000	135								20110114210000
308	20110114220000	133								20110114220000
309	20110114230000	130								20110114230000
310	20110115000000	128								20110115000000
311	20110115010000	126								20110115010000
312	20110115020000	124								20110115020000
313	20110115030000	122								20110115030000
314	20110115040000	121								20110115040000
315	20110115050000	119								20110115050000
316	20110115060000	117								20110115060000
317	20110115070000	116								20110115070000
318	20110115080000	115								20110115080000
319	20110115090000	113								20110115090000
320	20110115100000	112								20110115100000
321	20110115110000	111								20110115110000
322	20110115120000	109								20110115120000
323	20110115130000	108								20110115130000
324	20110115140000	107								20110115140000
325	20110115150000	106								20110115150000
326	20110115160000	105								20110115160000
327	20110115170000	104								20110115170000
328	20110115180000	103								20110115180000
329	20110115190000	102								20110115190000
330	20110115200000	101								20110115200000
331	20110115210000	101								20110115210000
332	20110115220000	100								20110115220000
333	20110115230000	99								20110115230000
334	20110116000000	98								20110116000000
335	20110116010000	98								20110116010000
336	20110116020000	97								20110116020000
337	20110116030000	96								20110116030000
338	20110116040000	95								20110116040000
339	20110116050000	95								20110116050000
340	20110116060000	94								20110116060000
341	20110116070000	94								20110116070000
342	20110116080000	93								20110116080000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
305	20.287								20110114190000	123.719				
306	19.315								20110114200000	118.349				
307	18.399								20110114210000	113.259				
308	17.534								20110114220000	108.432				
309	16.717								20110114230000	103.852				
310	15.945								20110115000000	99.504				
311	15.215								20110115010000	95.375				
312	14.525								20110115020000	91.452				
313	13.872								20110115030000	87.723				
314	13.254								20110115040000	84.177				
315	12.669								20110115050000	80.802				
316	12.114								20110115060000	77.591				
317	11.588								20110115070000	74.532				
318	11.09								20110115080000	71.619				
319	10.616								20110115090000	68.842				
320	10.167								20110115100000	66.195				
321	9.74								20110115110000	63.67				
322	9.335								20110115120000	61.26				
323	8.95								20110115130000	58.96				
324	8.583								20110115140000	56.764				
325	8.235								20110115150000	54.666				
326	7.903								20110115160000	52.661				
327	7.587								20110115170000	50.744				
328	7.286								20110115180000	48.911				
329	6.999								20110115190000	47.157				
330	6.726								20110115200000	45.479				
331	6.466								20110115210000	43.872				
332	6.217								20110115220000	42.334				
333	5.98								20110115230000	40.86				
334	5.754								20110116000000	39.448				
335	5.537								20110116010000	38.094				
336	5.331								20110116020000	36.796				
337	5.133								20110116030000	35.55				
338	4.945								20110116040000	34.356				
339	4.764								20110116050000	33.209				
340	4.592								20110116060000	32.108				
341	4.427								20110116070000	31.051				
342	4.269								20110116080000	30.036				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
305								20110114190000	70.535				140	68	72		2.01101E+13
306								20110114200000	68.335				137	68	70		2.01101E+13
307								20110114210000	66.241				135	68	67		2.01101E+13
308								20110114220000	64.248				133	68	65		2.01101E+13
309								20110114230000	62.352				130	68	63		2.01101E+13
310								20110115000000	60.547				128	68	60		2.01101E+13
311								20110115010000	58.829				126	68	58		2.01101E+13
312								20110115020000	57.192				124	68	56		2.01101E+13
313								20110115030000	55.633				122	68	55		2.01101E+13
314								20110115040000	54.147				121	68	53		2.01101E+13
315								20110115050000	52.729				119	68	51		2.01101E+13
316								20110115060000	51.375				117	68	50		2.01101E+13
317								20110115070000	50.082				116	68	48		2.01101E+13
318								20110115080000	48.844				115	68	47		2.01101E+13
319								20110115090000	47.659				113	68	45		2.01101E+13
320								20110115100000	46.523				112	68	44		2.01101E+13
321								20110115110000	45.433				111	68	43		2.01101E+13
322								20110115120000	44.385				109	68	42		2.01101E+13
323								20110115130000	43.378				108	68	41		2.01101E+13
324								20110115140000	42.408				107	68	39		2.01101E+13
325								20110115150000	41.473				106	68	38		2.01101E+13
326								20110115160000	40.57				105	68	37		2.01101E+13
327								20110115170000	39.699				104	68	36		2.01101E+13
328								20110115180000	38.856				103	68	36		2.01101E+13
329								20110115190000	38.04				102	68	35		2.01101E+13
330								20110115200000	37.25				101	68	34		2.01101E+13
331								20110115210000	36.484				101	68	33		2.01101E+13
332								20110115220000	35.74				100	68	32		2.01101E+13
333								20110115230000	35.018				99	68	31		2.01101E+13
334								20110116000000	34.316				98	68	31		2.01101E+13
335								20110116010000	33.634				98	68	30		2.01101E+13
336								20110116020000	32.97				97	68	29		2.01101E+13
337								20110116030000	32.323				96	68	29		2.01101E+13
338								20110116040000	31.693				95	68	28		2.01101E+13
339								20110116050000	31.079				95	68	27		2.01101E+13
340								20110116060000	30.48				94	68	27		2.01101E+13
341								20110116070000	29.896				94	68	26		2.01101E+13
342								20110116080000	29.326				93	68	25		2.01101E+13

	AP	AQ	AR	AS
305	67.805			
306	67.8			
307	67.795			
308	67.789			
309	67.784			
310	67.779			
311	67.773			
312	67.768			
313	67.762			
314	67.756			
315	67.75			
316	67.744			
317	67.738			
318	67.733			
319	67.726			
320	67.72			
321	67.714			
322	67.708			
323	67.702			
324	67.696			
325	67.689			
326	67.683			
327	67.676			
328	67.67			
329	67.664			
330	67.657			
331	67.651			
332	67.644			
333	67.637			
334	67.631			
335	67.624			
336	67.617			
337	67.611			
338	67.604			
339	67.597			
340	67.591			
341	67.584			
342	67.577			

	A	B	C	D	E	F	G	H	I	J
343	20110116090000	93								20110116090000
344	20110116100000	92								20110116100000
345	20110116110000	91								20110116110000
346	20110116120000	91								20110116120000
347	20110116130000	90								20110116130000
348	20110116140000	90								20110116140000
349	20110116150000	89								20110116150000
350	20110116160000	89								20110116160000
351	20110116170000	89								20110116170000
352	20110116180000	88								20110116180000
353	20110116190000	88								20110116190000
354	20110116200000	87								20110116200000
355	20110116210000	87								20110116210000
356	20110116220000	87								20110116220000
357	20110116230000	86								20110116230000
358	20110117000000	86								20110117000000
359	20110117010000	85								20110117010000
360	20110117020000	85								20110117020000
361	20110117030000	85								20110117030000
362	20110117040000	84								20110117040000
363	20110117050000	84								20110117050000
364	20110117060000	84								20110117060000
365	20110117070000	83								20110117070000
366	20110117080000	83								20110117080000
367	20110117090000	83								20110117090000
368	20110117100000	83								20110117100000
369	20110117110000	82								20110117110000
370	20110117120000	82								20110117120000
371	20110117130000	82								20110117130000
372	20110117140000	82								20110117140000
373	20110117150000	81								20110117150000
374	20110117160000	81								20110117160000
375	20110117170000	81								20110117170000
376	20110117180000	81								20110117180000
377	20110117190000	80								20110117190000
378	20110117200000	80								20110117200000
379	20110117210000	80								20110117210000
380	20110117220000	80								20110117220000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
343	4.117								20110116090000	29.06				
344	3.972								20110116100000	28.122				
345	3.834								20110116110000	27.221				
346	3.7								20110116120000	26.354				
347	3.573								20110116130000	25.52				
348	3.451								20110116140000	24.718				
349	3.333								20110116150000	23.945				
350	3.221								20110116160000	23.202				
351	3.113								20110116170000	22.486				
352	3.009								20110116180000	21.797				
353	2.909								20110116190000	21.133				
354	2.814								20110116200000	20.493				
355	2.722								20110116210000	19.877				
356	2.633								20110116220000	19.282				
357	2.548								20110116230000	18.709				
358	2.467								20110117000000	18.156				
359	2.388								20110117010000	17.623				
360	2.313								20110117020000	17.108				
361	2.24								20110117030000	16.611				
362	2.17								20110117040000	16.132				
363	2.103								20110117050000	15.669				
364	2.038								20110117060000	15.222				
365	1.975								20110117070000	14.79				
366	1.915								20110117080000	14.373				
367	1.857								20110117090000	13.97				
368	1.801								20110117100000	13.581				
369	1.747								20110117110000	13.204				
370	1.695								20110117120000	12.84				
371	1.645								20110117130000	12.488				
372	1.597								20110117140000	12.147				
373	1.55								20110117150000	11.818				
374	1.505								20110117160000	11.499				
375	1.461								20110117170000	11.191				
376	1.419								20110117180000	10.892				
377	1.379								20110117190000	10.603				
378	1.34								20110117200000	10.323				
379	1.302								20110117210000	10.052				
380	1.265								20110117220000	9.789				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
343								20110116090000	28.77				93	68	25		2.01101E+13
344								20110116100000	28.226				92	68	24		2.01101E+13
345								20110116110000	27.696				91	68	24		2.01101E+13
346								20110116120000	27.178				91	68	23		2.01101E+13
347								20110116130000	26.671				90	68	23		2.01101E+13
348								20110116140000	26.177				90	68	22		2.01101E+13
349								20110116150000	25.695				89	68	22		2.01101E+13
350								20110116160000	25.224				89	68	22		2.01101E+13
351								20110116170000	24.764				89	68	21		2.01101E+13
352								20110116180000	24.316				88	68	21		2.01101E+13
353								20110116190000	23.88				88	68	20		2.01101E+13
354								20110116200000	23.455				87	67	20		2.01101E+13
355								20110116210000	23.041				87	67	19		2.01101E+13
356								20110116220000	22.639				87	67	19		2.01101E+13
357								20110116230000	22.249				86	67	19		2.01101E+13
358								20110117000000	21.869				86	67	18		2.01101E+13
359								20110117010000	21.501				85	67	18		2.01101E+13
360								20110117020000	21.144				85	67	18		2.01101E+13
361								20110117030000	20.798				85	67	17		2.01101E+13
362								20110117040000	20.463				84	67	17		2.01101E+13
363								20110117050000	20.138				84	67	17		2.01101E+13
364								20110117060000	19.824				84	67	16		2.01101E+13
365								20110117070000	19.519				83	67	16		2.01101E+13
366								20110117080000	19.224				83	67	16		2.01101E+13
367								20110117090000	18.939				83	67	15		2.01101E+13
368								20110117100000	18.662				83	67	15		2.01101E+13
369								20110117110000	18.393				82	67	15		2.01101E+13
370								20110117120000	18.133				82	67	15		2.01101E+13
371								20110117130000	17.881				82	67	14		2.01101E+13
372								20110117140000	17.635				82	67	14		2.01101E+13
373								20110117150000	17.397				81	67	14		2.01101E+13
374								20110117160000	17.166				81	67	14		2.01101E+13
375								20110117170000	16.941				81	67	13		2.01101E+13
376								20110117180000	16.722				81	67	13		2.01101E+13
377								20110117190000	16.508				80	67	13		2.01101E+13
378								20110117200000	16.3				80	67	13		2.01101E+13
379								20110117210000	16.097				80	67	13		2.01101E+13
380								20110117220000	15.898				80	67	12		2.01101E+13

	AP	AQ	AR	AS
343	67.57			
344	67.563			
345	67.556			
346	67.55			
347	67.543			
348	67.536			
349	67.529			
350	67.522			
351	67.515			
352	67.508			
353	67.501			
354	67.494			
355	67.487			
356	67.48			
357	67.473			
358	67.466			
359	67.459			
360	67.452			
361	67.444			
362	67.437			
363	67.43			
364	67.423			
365	67.416			
366	67.409			
367	67.402			
368	67.394			
369	67.387			
370	67.38			
371	67.373			
372	67.366			
373	67.358			
374	67.351			
375	67.344			
376	67.337			
377	67.329			
378	67.322			
379	67.315			
380	67.307			

	A	B	C	D	E	F	G	H	I	J
381	20110117230000	79								20110117230000
382	20110118000000	79								20110118000000
383	20110118010000	79								20110118010000
384	20110118020000	79								20110118020000
385	20110118030000	79								20110118030000
386	20110118040000	78								20110118040000
387	20110118050000	78								20110118050000
388	20110118060000	78								20110118060000
389	20110118070000	78								20110118070000
390	20110118080000	78								20110118080000
391	20110118090000	78								20110118090000
392	20110118100000	77								20110118100000
393	20110118110000	77								20110118110000
394	20110118120000	77								20110118120000
395	20110118130000	77								20110118130000
396	20110118140000	77								20110118140000
397	20110118150000	77								20110118150000
398	20110118160000	76								20110118160000
399	20110118170000	76								20110118170000
400	20110118180000	76								20110118180000
401	20110118190000	76								20110118190000
402	20110118200000	76								20110118200000
403	20110118210000	76								20110118210000
404	20110118220000	76								20110118220000
405	20110118230000	75								20110118230000
406	20110119000000	75								20110119000000
407	20110119010000	75								20110119010000
408	20110119020000	75								20110119020000
409	20110119030000	75								20110119030000
410	20110119040000	75								20110119040000
411	20110119050000	75								20110119050000
412	20110119060000	75								20110119060000
413	20110119070000	74								20110119070000
414	20110119080000	74								20110119080000
415	20110119090000	74								20110119090000
416	20110119100000	74								20110119100000
417	20110119110000	74								20110119110000
418	20110119120000	74								20110119120000

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
381	1.23								20110117230000	9.535				
382	1.196								20110118000000	9.288				
383	1.163								20110118010000	9.05				
384	1.131								20110118020000	8.818				
385	1.1								20110118030000	8.594				
386	1.07								20110118040000	8.376				
387	1.041								20110118050000	8.165				
388	1.013								20110118060000	7.96				
389	0.986								20110118070000	7.762				
390	0.96								20110118080000	7.569				
391	0.935								20110118090000	7.382				
392	0.91								20110118100000	7.201				
393	0.886								20110118110000	7.025				
394	0.863								20110118120000	6.854				
395	0.841								20110118130000	6.688				
396	0.819								20110118140000	6.527				
397	0.798								20110118150000	6.37				
398	0.778								20110118160000	6.218				
399	0.758								20110118170000	6.07				
400	0.739								20110118180000	5.927				
401	0.72								20110118190000	5.788				
402	0.702								20110118200000	5.652				
403	0.685								20110118210000	5.52				
404	0.668								20110118220000	5.392				
405	0.651								20110118230000	5.268				
406	0.636								20110119000000	5.147				
407	0.62								20110119010000	5.029				
408	0.605								20110119020000	4.914				
409	0.59								20110119030000	4.803				
410	0.576								20110119040000	4.695				
411	0.562								20110119050000	4.589				
412	0.549								20110119060000	4.487				
413	0.536								20110119070000	4.387				
414	0.523								20110119080000	4.289				
415	0.511								20110119090000	4.195				
416	0.499								20110119100000	4.103				
417	0.488								20110119110000	4.013				
418	0.476								20110119120000	3.926				

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
381								20110117230000	15.704				79	67	12		2.01101E+13
382								20110118000000	15.514				79	67	12		2.01101E+13
383								20110118010000	15.329				79	67	12		2.01101E+13
384								20110118020000	15.147				79	67	12		2.01101E+13
385								20110118030000	14.969				79	67	11		2.01101E+13
386								20110118040000	14.794				78	67	11		2.01101E+13
387								20110118050000	14.622				78	67	11		2.01101E+13
388								20110118060000	14.453				78	67	11		2.01101E+13
389								20110118070000	14.288				78	67	11		2.01101E+13
390								20110118080000	14.125				78	67	10		2.01101E+13
391								20110118090000	13.965				78	67	10		2.01101E+13
392								20110118100000	13.808				77	67	10		2.01101E+13
393								20110118110000	13.653				77	67	10		2.01101E+13
394								20110118120000	13.5				77	67	10		2.01101E+13
395								20110118130000	13.35				77	67	10		2.01101E+13
396								20110118140000	13.202				77	67	10		2.01101E+13
397								20110118150000	13.056				77	67	9		2.01101E+13
398								20110118160000	12.912				76	67	9		2.01101E+13
399								20110118170000	12.77				76	67	9		2.01101E+13
400								20110118180000	12.63				76	67	9		2.01101E+13
401								20110118190000	12.492				76	67	9		2.01101E+13
402								20110118200000	12.355				76	67	9		2.01101E+13
403								20110118210000	12.221				76	67	9		2.01101E+13
404								20110118220000	12.088				76	67	8		2.01101E+13
405								20110118230000	11.957				75	67	8		2.01101E+13
406								20110119000000	11.828				75	67	8		2.01101E+13
407								20110119010000	11.7				75	67	8		2.01101E+13
408								20110119020000	11.574				75	67	8		2.01101E+13
409								20110119030000	11.45				75	67	8		2.01101E+13
410								20110119040000	11.326				75	67	8		2.01101E+13
411								20110119050000	11.205				75	67	8		2.01101E+13
412								20110119060000	11.085				75	67	8		2.01101E+13
413								20110119070000	10.966				74	67	7		2.01101E+13
414								20110119080000	10.849				74	67	7		2.01101E+13
415								20110119090000	10.733				74	67	7		2.01101E+13
416								20110119100000	10.619				74	67	7		2.01101E+13
417								20110119110000	10.505				74	67	7		2.01101E+13
418								20110119120000	10.394				74	67	7		2.01101E+13

	AP	AQ	AR	AS
381	67.3			
382	67.293			
383	67.286			
384	67.278			
385	67.271			
386	67.264			
387	67.256			
388	67.249			
389	67.242			
390	67.234			
391	67.227			
392	67.219			
393	67.212			
394	67.205			
395	67.197			
396	67.19			
397	67.182			
398	67.175			
399	67.168			
400	67.16			
401	67.153			
402	67.145			
403	67.138			
404	67.13			
405	67.123			
406	67.115			
407	67.108			
408	67.1			
409	67.093			
410	67.085			
411	67.078			
412	67.07			
413	67.063			
414	67.055			
415	67.048			
416	67.04			
417	67.033			
418	67.025			

	A	B	C	D	E	F	G	H	I	J
419	20110119130000	74								20110119130000
420	20110119140000	74								20110119140000
421	20110119150000	74								20110119150000
422	20110119160000	74								20110119160000
423	20110119170000	73								20110119170000
424	20110119180000	73								20110119180000
425	20110119190000	73								20110119190000
426	20110119200000	73								20110119200000
427	20110119210000	73								20110119210000
428	20110119220000	73								20110119220000
429	20110119230000	73								20110119230000
430	20110120000000	73								20110120000000
431	20110120010000	73								20110120010000
432	20110120020000	73								20110120020000
433	20110120030000	73								20110120030000
434	20110120040000	72								20110120040000
435	20110120050000	72								20110120050000
436	20110120060000	72								20110120060000
437	20110120070000	72								20110120070000
438	20110120080000	72								20110120080000
439	20110120090000	72								20110120090000
440	20110120100000	72								20110120100000
441	20110120110000	72								20110120110000
442	20110120120000	72								20110120120000
443	20110120130000	72								20110120130000
444	20110120140000	72								20110120140000
445	20110120150000	72								20110120150000
446	20110120160000	72								20110120160000
447	20110120170000	72								20110120170000
448	20110120180000	71								20110120180000
449	20110120190000	71								20110120190000
450	20110120200000	71								20110120200000
451	20110120210000	71								20110120210000
452	20110120220000	71								20110120220000
453	20110120230000	71								20110120230000
454	20110121000000	71								20110121000000
455	20110121010000	71								20110121010000
456	20110121020000	71								20110121020000

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419	0.465								20110119130000	3.84				
420	0.455								20110119140000	3.758				
421	0.444								20110119150000	3.677				
422	0.434								20110119160000	3.598				
423	0.424								20110119170000	3.521				
424	0.415								20110119180000	3.447				
425	0.406								20110119190000	3.374				
426	0.396								20110119200000	3.303				
427	0.388								20110119210000	3.234				
428	0.379								20110119220000	3.166				
429	0.371								20110119230000	3.101				
430	0.363								20110120000000	3.036				
431	0.355								20110120010000	2.974				
432	0.347								20110120020000	2.913				
433	0.34								20110120030000	2.853				
434	0.332								20110120040000	2.795				
435	0.325								20110120050000	2.739				
436	0.318								20110120060000	2.683				
437	0.311								20110120070000	2.629				
438	0.305								20110120080000	2.577				
439	0.298								20110120090000	2.525				
440	0.292								20110120100000	2.475				
441	0.286								20110120110000	2.426				
442	0.28								20110120120000	2.378				
443	0.274								20110120130000	2.332				
444	0.269								20110120140000	2.286				
445	0.263								20110120150000	2.242				
446	0.258								20110120160000	2.198				
447	0.252								20110120170000	2.156				
448	0.247								20110120180000	2.114				
449	0.242								20110120190000	2.074				
450	0.237								20110120200000	2.034				
451	0.233								20110120210000	1.995				
452	0.228								20110120220000	1.958				
453	0.223								20110120230000	1.921				
454	0.219								20110121000000	1.885				
455	0.215								20110121010000	1.849				
456	0.21								20110121020000	1.815				

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420								20110119140000	10.174				74	67	7		2.01101E+13
421								20110119150000	10.066				74	67	7		2.01101E+13
422								20110119160000	9.959				74	67	7		2.01101E+13
423								20110119170000	9.854				73	67	6		2.01101E+13
424								20110119180000	9.75				73	67	6		2.01101E+13
425								20110119190000	9.646				73	67	6		2.01101E+13
426								20110119200000	9.544				73	67	6		2.01101E+13
427								20110119210000	9.444				73	67	6		2.01101E+13
428								20110119220000	9.344				73	67	6		2.01101E+13
429								20110119230000	9.246				73	67	6		2.01101E+13
430								20110120000000	9.148				73	67	6		2.01101E+13
431								20110120010000	9.052				73	67	6		2.01101E+13
432								20110120020000	8.957				73	67	6		2.01101E+13
433								20110120030000	8.863				73	67	6		2.01101E+13
434								20110120040000	8.769				72	67	6		2.01101E+13
435								20110120050000	8.677				72	67	5		2.01101E+13
436								20110120060000	8.586				72	67	5		2.01101E+13
437								20110120070000	8.496				72	67	5		2.01101E+13
438								20110120080000	8.407				72	67	5		2.01101E+13
439								20110120090000	8.319				72	67	5		2.01101E+13
440								20110120100000	8.232				72	67	5		2.01101E+13
441								20110120110000	8.146				72	67	5		2.01101E+13
442								20110120120000	8.061				72	67	5		2.01101E+13
443								20110120130000	7.977				72	67	5		2.01101E+13
444								20110120140000	7.894				72	67	5		2.01101E+13
445								20110120150000	7.811				72	67	5		2.01101E+13
446								20110120160000	7.73				72	67	5		2.01101E+13
447								20110120170000	7.649				72	67	5		2.01101E+13
448								20110120180000	7.569				71	67	5		2.01101E+13
449								20110120190000	7.491				71	67	5		2.01101E+13
450								20110120200000	7.413				71	67	5		2.01101E+13
451								20110120210000	7.336				71	67	4		2.01101E+13
452								20110120220000	7.259				71	67	4		2.01101E+13
453								20110120230000	7.184				71	67	4		2.01101E+13
454								20110121000000	7.109				71	67	4		2.01101E+13
455								20110121010000	7.035				71	67	4		2.01101E+13
456								20110121020000	6.962				71	67	4		2.01101E+13

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419	67.018			
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421	67.003			
422	66.995			
423	66.988			
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425	66.972			
426	66.965			
427	66.957			
428	66.95			
429	66.942			
430	66.934			
431	66.927			
432	66.919			
433	66.912			
434	66.904			
435	66.896			
436	66.889			
437	66.881			
438	66.873			
439	66.866			
440	66.858			
441	66.85			
442	66.843			
443	66.835			
444	66.827			
445	66.82			
446	66.812			
447	66.804			
448	66.797			
449	66.789			
450	66.781			
451	66.773			
452	66.766			
453	66.758			
454	66.75			
455	66.742			
456	66.735			

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458	20110121040000	71								20110121040000
459	20110121050000	71								20110121050000
460	20110121060000	71								20110121060000
461	20110121070000	71								20110121070000
462	20110121080000	71								20110121080000
463	20110121090000	71								20110121090000
464	20110121100000	70								20110121100000
465	20110121110000	70								20110121110000
466	20110121120000	70								20110121120000
467	20110121130000	70								20110121130000
468	20110121140000	70								20110121140000
469	20110121150000	70								20110121150000
470	20110121160000	70								20110121160000
471	20110121170000	70								20110121170000
472	20110121180000	70								20110121180000
473	20110121190000	70								20110121190000
474	20110121200000	70								20110121200000
475	20110121210000	70								20110121210000
476	20110121220000	70								20110121220000
477	20110121230000	70								20110121230000
478	20110122000000	70								20110122000000
479	20110122010000	70								20110122010000
480	20110122020000	70								20110122020000
481	20110122030000	70								20110122030000
482	20110122040000	70								20110122040000
483	20110122050000	70								20110122050000
484	20110122060000	70								20110122060000
485	20110122070000	69								20110122070000
486	20110122080000	69								20110122080000
487	20110122090000	69								20110122090000
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458	0.202								20110121040000	1.748				
459	0.198								20110121050000	1.716				
460	0.195								20110121060000	1.684				
461	0.191								20110121070000	1.653				
462	0.187								20110121080000	1.623				
463	0.184								20110121090000	1.594				
464	0.18								20110121100000	1.565				
465	0.177								20110121110000	1.536				
466	0.173								20110121120000	1.509				
467	0.17								20110121130000	1.482				
468	0.167								20110121140000	1.455				
469	0.164								20110121150000	1.429				
470	0.161								20110121160000	1.404				
471	0.158								20110121170000	1.379				
472	0.155								20110121180000	1.355				
473	0.152								20110121190000	1.331				
474	0.149								20110121200000	1.308				
475	0.146								20110121210000	1.285				
476	0.144								20110121220000	1.263				
477	0.141								20110121230000	1.241				
478	0.139								20110122000000	1.22				
479	0.136								20110122010000	1.199				
480	0.134								20110122020000	1.178				
481	0.131								20110122030000	1.158				
482	0.129								20110122040000	1.138				
483	0.127								20110122050000	1.119				
484	0.124								20110122060000	1.1				
485	0.122								20110122070000	1.082				
486	0.12								20110122080000	1.063				
487	0.118								20110122090000	1.046				
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458								20110121040000	6.819				71	67	4		2.01101E+13
459								20110121050000	6.748				71	67	4		2.01101E+13
460								20110121060000	6.678				71	67	4		2.01101E+13
461								20110121070000	6.609				71	67	4		2.01101E+13
462								20110121080000	6.541				71	67	4		2.01101E+13
463								20110121090000	6.473				71	67	4		2.01101E+13
464								20110121100000	6.406				70	67	4		2.01101E+13
465								20110121110000	6.34				70	67	4		2.01101E+13
466								20110121120000	6.274				70	67	4		2.01101E+13
467								20110121130000	6.21				70	67	4		2.01101E+13
468								20110121140000	6.146				70	67	4		2.01101E+13
469								20110121150000	6.082				70	67	4		2.01101E+13
470								20110121160000	6.019				70	67	4		2.01101E+13
471								20110121170000	5.957				70	67	3		2.01101E+13
472								20110121180000	5.896				70	67	3		2.01101E+13
473								20110121190000	5.835				70	67	3		2.01101E+13
474								20110121200000	5.775				70	67	3		2.01101E+13
475								20110121210000	5.716				70	67	3		2.01101E+13
476								20110121220000	5.657				70	67	3		2.01101E+13
477								20110121230000	5.599				70	67	3		2.01101E+13
478								20110122000000	5.541				70	67	3		2.01101E+13
479								20110122010000	5.484				70	67	3		2.01101E+13
480								20110122020000	5.428				70	67	3		2.01101E+13
481								20110122030000	5.372				70	67	3		2.01101E+13
482								20110122040000	5.317				70	67	3		2.01101E+13
483								20110122050000	5.262				70	67	3		2.01101E+13
484								20110122060000	5.208				70	67	3		2.01101E+13
485								20110122070000	5.155				69	67	3		2.01101E+13
486								20110122080000	5.102				69	67	3		2.01101E+13
487								20110122090000	5.05				69	66	3		2.01101E+13
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457	66.727			
458	66.719			
459	66.711			
460	66.704			
461	66.696			
462	66.688			
463	66.68			
464	66.673			
465	66.665			
466	66.657			
467	66.649			
468	66.641			
469	66.634			
470	66.626			
471	66.618			
472	66.61			
473	66.602			
474	66.594			
475	66.587			
476	66.579			
477	66.571			
478	66.563			
479	66.555			
480	66.547			
481	66.539			
482	66.532			
483	66.524			
484	66.516			
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	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Time Factor =	1.00		Date/Time	Wivenhoe Inflow				Somerset Inflow				Loc
2	Flow Factors =	1.00	1.00				BR= 0.9760				BR= 0.9840		
3	Day	Somerset Inflow	Wivenhoe Inflows				BC= 0.0025				BC= 0.0020		
4							BM= 1.0000				BM= 1.0000		
5					Scale Factor= 0.96		1		Scale Factor= 1.06		1		Scale Factor= 1.00
6	0.000	0.0	0.0	Peak (m3/s)	8,422		438	8,287	3,579		197	3,844	2,930
7	0.042	0.0	0.0	Volume (ML)	1,666,241		188,118	1,781,045	680,786		102,207	820,437	627,001
8	0.083	0.0	0.0	02/01/2011 09:00	0	0	150	150	0	0	60	60	0
9	0.125	0.0	0.0	02/01/2011 10:00	0	0	146	146	0	0	59	59	0
10	0.167	0.0	0.0	02/01/2011 11:00	0	0	143	143	0	0	58	58	0
11	0.208	0.0	0.0	02/01/2011 12:00	0	0	139	139	0	0	57	57	0
12	0.250	0.0	0.0	02/01/2011 13:00	0	0	136	136	0	0	56	56	0
13	0.292	0.0	0.0	02/01/2011 14:00	0	0	133	133	0	0	55	55	0
14	0.333	0.0	0.0	02/01/2011 15:00	0	0	130	130	0	0	54	54	0
15	0.375	0.2	0.0	02/01/2011 16:00	0	0	127	127	0	0	54	54	0
16	0.417	0.6	0.0	02/01/2011 17:00	0	0	124	124	0	0	53	53	0
17	0.458	1.5	0.0	02/01/2011 18:00	0	0	121	121	0	0	52	52	0
18	0.500	3.2	0.0	02/01/2011 19:00	0	0	118	118	0	0	51	51	0
19	0.542	6.0	0.0	02/01/2011 20:00	0	0	115	115	0	0	50	50	0
20	0.583	10.2	0.0	02/01/2011 21:00	0	0	112	112	0	0	49	49	0
21	0.625	15.7	0.0	02/01/2011 22:00	0	0	109	109	0	0	49	49	0
22	0.667	22.8	0.0	02/01/2011 23:00	0	0	107	107	0	0	48	48	0
23	0.708	31.4	0.0	03/01/2011 00:00	0	0	104	104	0	0	47	47	0
24	0.750	41.4	0.0	03/01/2011 01:00	0	0	102	102	0	0	46	46	0
25	0.792	52.4	0.0	03/01/2011 02:00	0	0	99	99	0	0	46	46	0
26	0.833	63.6	0.0	03/01/2011 03:00	0	0	97	97	0	0	45	45	0
27	0.875	74.3	174.7	03/01/2011 04:00	0	0	95	95	0	0	44	44	0
28	0.917	85.9	36.1	03/01/2011 05:00	0	0	92	92	0	0	43	43	0
29	0.958	110.6	30.9	03/01/2011 06:00	0	0	90	90	0	0	43	43	0
30	1.000	111.1	30.3	03/01/2011 07:00	0	0	88	88	0	0	42	42	0
31	1.042	145.6	36.8	03/01/2011 08:00	0	0	86	86	0	0	41	41	0
32	1.083	150.2	53.6	03/01/2011 09:00	0	0	84	84	0	0	41	41	0
33	1.125	205.3	83.1	03/01/2011 10:00	0	0	82	82	0	0	40	40	0
34	1.167	266.9	157.2	03/01/2011 11:00	0	0	80	80	0	0	39	39	0
35	1.208	457.7	238.5	03/01/2011 12:00	0	0	78	78	0	0	39	39	0
36	1.250	531.4	397.1	03/01/2011 13:00	0	0	76	76	0	0	38	38	0
37	1.292	492.5	362.3	03/01/2011 14:00	0	0	74	74	0	0	38	38	0
38	1.333	506.7	497.4	03/01/2011 15:00	0	0	72	72	0	0	37	37	0
39	1.375	518.0	498.0	03/01/2011 16:00	0	0	71	71	44	46	36	83	0
40	1.417	537.4	520.1	03/01/2011 17:00	1	1	69	69	111	117	36	153	0
41	1.458	605.4	636.9	03/01/2011 18:00	1	1	67	68	85	90	36	125	0
42	1.500	602.4	591.9	03/01/2011 19:00	1	1	66	66	66	70	35	105	0
43	1.542	593.3	589.2	03/01/2011 20:00	1	1	64	65	54	57	35	92	0
44	1.583	612.3	586.5	03/01/2011 21:00	1	1	63	64	45	48	34	82	0

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	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	kyer Creek			Bremer River				Incremental Wivenhoe	Incremental Somerset	Incremental Lockyer	Incremental Bremer			Incremental Somerset Inflow
2		BR= 0.9750				BR= 0.9750								
3		BC= 0.0020				BC= 0.0020								
4		BM= 1.0000				BM= 1.0000								
5		1		Scale Factor= 1.00		1								
6		135	3,040	2,727		91	2,793	-86.4	-23.0	0.0	0.0	2/1/2011 9:00	0.7	0.922
7		50,030	677,031	400,621		31,906	432,527	-84.3	-22.7	0.0	0.0	2/1/2011 10:00	1.6	0.072
8	0	0	0	0	0	0	0	-82.3	-22.3	0.0	0.0	2/1/2011 11:00	1.7	4.878
9	0	0	0	0	0	0	0	-80.3	-22.0	0.0	0.0	2/1/2011 12:00	6.6	24.354
10	0	0	0	0	0	0	0	-78.4	-21.6	0.0	0.0	2/1/2011 13:00	30.9	19.096
11	0	0	0	0	0	0	0	-76.5	-21.3	0.0	0.0	2/1/2011 14:00	50.0	10.636
12	0	0	0	0	0	0	0	-74.7	-20.9	0.0	0.0	2/1/2011 15:00	60.6	2.517
13	0	0	0	0	0	0	0	-72.9	-20.6	0.0	0.0	2/1/2011 16:00	63.2	3.974
14	0	0	0	0	0	0	0	-71.1	-20.3	0.0	0.0	2/1/2011 17:00	67.1	7.182
15	0	0	0	0	0	0	0	-69.4	-19.9	0.0	0.0	2/1/2011 18:00	74.3	8.667000001
16	0	0	0	0	0	0	0	-67.8	-19.6	0.0	0.0	2/1/2011 19:00	83.0	6.976
17	0	0	0	0	0	0	0	-66.1	-19.3	0.0	0.0	2/1/2011 20:00	90.0	9.467000001
18	0	0	0	0	0	0	0	-64.6	-19.0	0.0	0.0	2/1/2011 21:00	99.4	10.12
19	0	0	0	0	0	0	0	-63.0	-18.7	0.0	0.0	2/1/2011 22:00	109.5	8.365
20	0	0	0	0	0	0	0	-61.5	-18.4	0.0	0.0	2/1/2011 23:00	117.9	8.352
21	0	0	0	0	0	0	0	-60.0	-18.1	0.0	0.0	3/1/2011 0:00	126.3	7.775
22	0	0	0	0	0	0	0	-58.6	-17.8	0.0	0.0	3/1/2011 1:00	134.0	6.739
23	0	0	0	0	0	0	0	-57.2	-17.5	0.0	0.0	3/1/2011 2:00	140.8	5.401
24	0	0	0	0	0	0	0	-55.8	-17.2	0.0	0.0	3/1/2011 3:00	146.2	4.07
25	0	0	0	0	0	0	0	-54.5	-17.0	0.0	0.0	3/1/2011 4:00	150.3	20.874
26	0	0	0	0	0	0	0	-53.2	-16.7	0.0	0.0	3/1/2011 5:00	171.1	75.34
27	0	0	0	0	0	0	0	-51.9	-16.4	0.0	0.0	3/1/2011 6:00	246.5	79.647
28	0	0	0	0	0	0	0	-50.6	-16.2	0.0	0.0	3/1/2011 7:00	326.1	83.464
29	0	0	0	0	0	0	0	-49.4	-15.9	0.0	0.0	3/1/2011 8:00	409.6	99.98500001
30	0	0	0	0	0	0	0	-48.2	-15.6	0.0	0.0	3/1/2011 9:00	509.6	14.172
31	0	0	0	0	0	0	0	-47.1	-15.4	0.0	0.0	3/1/2011 10:00	523.7	-7.729
32	0	0	0	0	0	0	0	-45.9	-15.1	0.0	0.0	3/1/2011 11:00	516.0	-6.797
33	0	0	0	0	0	0	0	-44.8	-14.9	0.0	0.0	3/1/2011 12:00	509.2	-6.996
34	0	0	0	0	0	0	0	-43.8	-14.7	0.0	0.0	3/1/2011 13:00	502.2	-8.268
35	0	0	0	0	0	0	0	-42.7	-14.4	0.0	0.0	3/1/2011 14:00	493.9	-3.543
36	0	0	0	0	0	0	0	-36.1	1093.9	0.0	0.0	3/1/2011 15:00	490.4	26.6
37	0	0	0	0	0	0	0	-33.4	1686.1	0.0	0.0	3/1/2011 16:00	517.0	-1.172
38	0	0	0	0	0	0	0	-39.7	-657.0	0.0	0.0	3/1/2011 17:00	515.8	-20.126
39	0	0	0	0	0	0	0	-37.9	-483.6	0.0	0.0	3/1/2011 18:00	495.7	-26.34
40	0	0	0	0	0	0	0	-36.1	-319.3	0.0	0.0	3/1/2011 19:00	469.4	-23.74
41	0	0	0	0	0	0	0	-27.1	-231.8	0.0	0.0	3/1/2011 20:00	445.6	-22.519
42	0	0	0	0	0	0	0	1587.8	-73.7	0.0	0.0	3/1/2011 21:00	423.1	-20.099
43	0	0	0	0	0	0	0	-1066.7	-243.4	0.0	0.0	3/1/2011 22:00	403.0	-16.978
44	0	0	0	0	0	0	0	-282.3	-113.3	0.0	0.0	3/1/2011 23:00	386.0	-14.456

RD5-1839

	A	B	C	D	E	F	G	H	I	J	K	L	M
45	1.625	625.9	584.3	03/01/2011 22:00	72	69	61	130	43	45	34	79	0
46	1.667	662.0	599.8	03/01/2011 23:00	27	25	60	85	34	36	33	69	0
47	1.708	799.2	649.1	04/01/2011 00:00	16	15	58	74	30	31	33	64	0
48	1.750	1299.8	1361.7	04/01/2011 01:00	14	13	57	71	27	28	33	61	0
49	1.792	1999.5	3002.6	04/01/2011 02:00	13	12	56	68	24	25	32	57	0
50	1.833	2065.8	2038.6	04/01/2011 03:00	12	11	54	66	22	23	32	54	0
51	1.875	1989.5	2363.9	04/01/2011 04:00	11	10	53	64	20	21	31	52	0
52	1.917	1846.4	2090.6	04/01/2011 05:00	10	10	52	62	18	19	31	50	0
53	1.958	1741.2	2058.8	04/01/2011 06:00	10	9	51	60	17	18	30	48	0
54	2.000	1694.4	2065.7	04/01/2011 07:00	9	9	49	58	16	17	30	46	0
55	2.042	1862.0	2395.6	04/01/2011 08:00	9	8	48	57	15	15	29	45	0
56	2.083	1980.7	2564.8	04/01/2011 09:00	8	8	47	55	14	15	29	43	0
57	2.125	2144.5	2633.0	04/01/2011 10:00	8	8	46	54	13	14	28	42	0
58	2.167	2258.7	2810.7	04/01/2011 11:00	8	7	45	52	12	13	28	41	0
59	2.208	2347.2	2953.2	04/01/2011 12:00	7	7	44	51	12	12	28	40	0
60	2.250	2397.3	3130.3	04/01/2011 13:00	7	7	43	49	11	12	27	39	0
61	2.292	2448.8	3362.6	04/01/2011 14:00	7	6	42	48	10	11	27	38	0
62	2.333	2959.6	3781.5	04/01/2011 15:00	6	6	41	47	10	10	26	37	0
63	2.375	3266.8	4115.5	04/01/2011 16:00	6	6	40	46	9	10	26	36	0
64	2.417	3658.0	4624.6	04/01/2011 17:00	6	5	39	44	9	9	26	35	0
65	2.458	3765.7	5084.5	04/01/2011 18:00	5	5	38	43	8	9	25	34	0
66	2.500	3709.4	5340.8	04/01/2011 19:00	5	5	37	42	8	9	25	33	0
67	2.542	3534.4	5536.4	04/01/2011 20:00	5	5	36	41	8	8	24	33	0
68	2.583	3420.3	5826.4	04/01/2011 21:00	5	5	35	40	7	8	24	32	0
69	2.625	3397.8	6114.5	04/01/2011 22:00	4	4	35	39	7	7	24	31	0
70	2.667	3353.7	6363.2	04/01/2011 23:00	4	4	34	38	7	7	23	30	0
71	2.708	3398.9	6545.6	05/01/2011 00:00	4	4	33	37	6	7	23	30	0
72	2.750	3500.2	6758.8	05/01/2011 01:00	4	4	32	36	6	6	23	29	0
73	2.792	3435.9	6861.9	05/01/2011 02:00	4	4	31	35	6	6	22	28	0
74	2.833	3223.6	6652.6	05/01/2011 03:00	4	3	31	34	6	6	22	28	0
75	2.875	2998.8	6466.4	05/01/2011 04:00	3	3	30	33	5	6	22	27	0
76	2.917	2795.1	6232.6	05/01/2011 05:00	3	3	29	32	5	5	21	27	0
77	2.958	2612.1	5969.6	05/01/2011 06:00	3	3	29	31	5	5	21	26	0
78	3.000	2439.2	5689.9	05/01/2011 07:00	3	3	28	31	5	5	21	26	0
79	3.042	2270.2	5399.6	05/01/2011 08:00	3	3	27	30	5	5	20	25	0
80	3.083	2106.8	5101.1	05/01/2011 09:00	3	3	27	29	4	5	20	25	0
81	3.125	1949.8	4796.5	05/01/2011 10:00	3	2	26	28	4	4	20	24	0
82	3.167	1800.6	4488.4	05/01/2011 11:00	2	2	25	28	4	4	19	24	0
83	3.208	1659.9	4180.6	05/01/2011 12:00	2	2	25	27	4	4	19	23	0
84	3.250	1528.5	3877.0	05/01/2011 13:00	2	2	24	26	4	4	19	23	0
85	3.292	1406.6	3581.1	05/01/2011 14:00	2	2	24	26	4	4	18	22	0
86	3.333	1297.8	3296.3	05/01/2011 15:00	2	2	23	25	3	4	18	22	0
87	3.375	1199.1	3025.2	05/01/2011 16:00	2	2	22	24	9	9	18	27	0
88	3.417	1106.2	2769.7	05/01/2011 17:00	4	4	22	25	20	21	18	39	0
89	3.458	1020.4	2531.2	05/01/2011 18:00	7	7	21	28	31	33	17	50	6

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	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
45	0	0	0	0	0	0	0	-72.2	-93.5	0.0	0.0	4/1/2011 0:00	371.6	-15.247
46	0	0	0	0	0	0	0	-62.4	-78.5	0.0	0.0	4/1/2011 1:00	356.3	-16.077
47	0	0	0	0	0	0	0	-55.1	-67.0	0.0	0.0	4/1/2011 2:00	340.2	-13.884
48	0	0	0	0	0	0	0	-49.6	-57.9	0.0	0.0	4/1/2011 3:00	326.4	-13.201
49	0	0	0	0	0	0	0	-45.6	-50.9	0.0	0.0	4/1/2011 4:00	313.2	-9.530000001
50	0	0	0	0	0	0	0	-42.5	-45.2	0.0	0.0	4/1/2011 5:00	303.6	-6.989
51	0	0	0	0	0	0	0	-40.1	-40.6	0.0	0.0	4/1/2011 6:00	296.6	-9.070000001
52	0	0	0	0	0	0	0	-38.3	-36.9	0.0	0.0	4/1/2011 7:00	287.6	-1.655
53	0	0	0	0	0	0	0	-36.8	-33.8	0.0	0.0	4/1/2011 8:00	285.9	-5.922
54	0	0	0	0	0	0	0	-35.5	-31.2	0.0	0.0	4/1/2011 9:00	280.0	-11.231
55	0	0	0	0	0	0	0	-34.4	-29.0	0.0	0.0	4/1/2011 10:00	268.8	-11.56
56	0	0	0	0	0	0	0	-33.4	-27.2	0.0	0.0	4/1/2011 11:00	257.2	-11.462
57	0	0	0	0	0	0	0	-32.5	-25.6	0.0	0.0	4/1/2011 12:00	245.7	-10.589
58	0	0	0	0	0	0	0	-31.6	-24.2	0.0	0.0	4/1/2011 13:00	235.2	2.839
59	0	0	0	0	0	0	0	-30.7	-23.0	0.0	0.0	4/1/2011 14:00	238.0	131.819
60	0	0	0	0	0	0	0	-29.9	-21.9	0.0	0.0	4/1/2011 15:00	369.8	-16.031
61	0	0	0	0	0	0	0	-29.1	-20.9	0.0	0.0	4/1/2011 16:00	353.8	-49.191
62	0	0	0	0	0	0	0	-28.2	-20.0	0.0	0.0	4/1/2011 17:00	304.6	-30.652
63	0	0	0	0	0	0	0	-27.5	-19.2	0.0	0.0	4/1/2011 18:00	273.9	-10.754
64	0	0	0	0	0	0	0	-26.7	-18.5	0.0	0.0	4/1/2011 19:00	263.2	-10.624
65	0	0	0	0	0	0	0	-25.9	-17.9	0.0	0.0	4/1/2011 20:00	252.6	-18.132
66	0	0	0	0	0	0	0	-25.2	-17.2	0.0	0.0	4/1/2011 21:00	234.4	-17.682
67	0	0	0	0	0	0	0	-24.5	-16.6	0.0	0.0	4/1/2011 22:00	216.7	-14.792
68	0	0	0	0	0	0	0	-23.8	-16.1	0.0	0.0	4/1/2011 23:00	202.0	-13.069
69	0	0	0	0	0	0	0	-23.1	-15.6	0.0	0.0	5/1/2011 0:00	188.9	-11.927
70	0	0	0	0	0	0	0	-22.4	-15.1	0.0	0.0	5/1/2011 1:00	177.0	-11.076
71	0	0	0	0	0	0	0	-21.8	-14.7	0.0	0.0	5/1/2011 2:00	165.9	-10.368
72	0	0	0	0	0	0	0	-21.1	-14.2	0.0	0.0	5/1/2011 3:00	155.5	-9.734000001
73	0	0	0	0	0	0	0	-20.5	-13.8	0.0	0.0	5/1/2011 4:00	145.8	-9.138000001
74	0	0	0	0	0	0	0	-19.9	-13.4	0.0	0.0	5/1/2011 5:00	136.6	-8.57
75	0	0	0	0	0	0	0	-19.4	-13.0	0.0	0.0	5/1/2011 6:00	128.1	-8.024
76	0	0	0	0	0	0	0	-18.8	-12.7	0.0	0.0	5/1/2011 7:00	120.0	-7.501
77	0	0	0	0	0	0	0	-18.3	-12.3	0.0	0.0	5/1/2011 8:00	112.5	-7.001
78	0	0	0	0	0	0	0	-17.8	-12.0	0.0	0.0	5/1/2011 9:00	105.5	-6.527
79	0	0	0	0	0	0	0	-17.3	-11.7	0.0	0.0	5/1/2011 10:00	99.0	-6.08
80	0	0	0	0	0	0	0	-16.8	-11.4	0.0	0.0	5/1/2011 11:00	92.9	-5.66
81	0	0	0	0	0	0	0	-16.4	-11.1	0.0	0.1	5/1/2011 12:00	87.3	-5.267
82	0	0	0	0	0	0	0	-15.9	-10.8	0.0	0.6	5/1/2011 13:00	82.0	-4.902
83	0	0	0	0	0	0	0	-15.4	-10.4	0.0	1.9	5/1/2011 14:00	77.1	-4.562
84	0	0	0	0	0	0	0	-12.7	124.8	0.1	4.7	5/1/2011 15:00	72.5	-4.246
85	0	0	0	0	0	0	0	23.4	291.5	0.2	9.8	5/1/2011 16:00	68.3	-3.955
86	0	0	0	0	0	0	0	70.6	267.3	141.2	17.4	5/1/2011 17:00	64.3	-3.685
87	0	0	0	0	0	0	0	5123.8	829.3	278.9	27.1	5/1/2011 18:00	60.7	-3.435
88	0	0	0	1	1	0	1	3633.4	1533.1	255.9	153.3	5/1/2011 19:00	57.2	-3.205
89	6	0	6	1	1	0	1	-3334.8	1440.7	245.5	465.1	5/1/2011 20:00	54.0	-2.991

RD5-1841

	A	B	C	D	E	F	G	H	I	J	K	L	M
90	3.500	941.1	2310.4	05/01/2011 19:00	231	220	21	242	64	67	17	85	17
91	3.542	867.8	2107.4	05/01/2011 20:00	389	371	22	393	125	131	17	149	28
92	3.583	800.2	1921.8	05/01/2011 21:00	243	232	22	254	181	191	17	209	38
93	3.625	737.9	1752.9	05/01/2011 22:00	215	205	22	227	199	210	17	227	45
94	3.667	680.5	1599.9	05/01/2011 23:00	192	184	22	206	182	192	18	210	53
95	3.708	627.8	1461.6	06/01/2011 00:00	181	173	22	194	167	176	18	194	64
96	3.750	579.3	1336.9	06/01/2011 01:00	172	165	22	186	155	163	18	181	75
97	3.792	534.7	1224.5	06/01/2011 02:00	165	158	21	180	145	153	18	171	86
98	3.833	493.7	1123.4	06/01/2011 03:00	165	158	21	179	138	145	18	163	96
99	3.875	456.0	1032.4	06/01/2011 04:00	155	148	21	170	131	138	18	156	104
100	3.917	421.4	950.4	06/01/2011 05:00	149	142	21	163	125	132	18	150	110
101	3.958	389.6	876.5	06/01/2011 06:00	142	136	21	157	119	126	18	144	114
102	4.000	361.3	809.8	06/01/2011 07:00	136	130	21	151	114	121	18	138	116
103	4.042	335.8	749.5	06/01/2011 08:00	131	125	21	146	109	115	18	133	117
104	4.083	311.9	694.9	06/01/2011 09:00	126	121	20	141	104	110	18	128	117
105	4.125	289.6	645.4	06/01/2011 10:00	122	117	20	137	100	105	17	123	117
106	4.167	269.5	600.4	06/01/2011 11:00	204	195	20	216	106	112	17	129	129
107	4.208	251.9	559.4	06/01/2011 12:00	328	314	20	334	226	239	18	256	155
108	4.250	236.0	522.1	06/01/2011 13:00	352	336	21	357	372	393	18	411	167
109	4.292	221.1	488.0	06/01/2011 14:00	356	341	21	362	358	378	19	396	170
110	4.333	207.1	456.8	06/01/2011 15:00	322	308	21	329	307	323	19	342	178
111	4.375	194.0	428.2	06/01/2011 16:00	310	297	22	318	273	288	19	307	188
112	4.417	181.8	402.0	06/01/2011 17:00	308	295	22	317	253	267	19	287	198
113	4.458	170.4	377.9	06/01/2011 18:00	308	294	22	316	240	253	20	272	207
114	4.500	159.7	355.9	06/01/2011 19:00	316	302	22	324	229	241	20	261	215
115	4.542	149.7	335.6	06/01/2011 20:00	334	320	23	342	220	232	20	252	222
116	4.583	140.4	316.9	06/01/2011 21:00	367	351	23	374	212	224	20	244	228
117	4.625	131.7	299.6	06/01/2011 22:00	419	401	23	424	205	216	20	236	233
118	4.667	123.5	283.7	06/01/2011 23:00	494	472	24	496	198	209	20	229	239
119	4.708	115.9	268.9	07/01/2011 00:00	596	570	25	595	193	203	20	224	244
120	4.750	108.9	255.1	07/01/2011 01:00	843	806	26	832	218	230	20	251	252
121	4.792	102.3	242.2	07/01/2011 02:00	924	883	28	911	225	237	21	258	260
122	4.833	96.1	230.1	07/01/2011 03:00	1028	983	30	1012	208	220	21	240	272
123	4.875	90.4	218.6	07/01/2011 04:00	1149	1099	32	1130	199	210	21	231	285
124	4.917	85.0	207.8	07/01/2011 05:00	1258	1203	34	1237	223	235	21	256	301
125	4.958	80.0	197.6	07/01/2011 06:00	1361	1301	36	1337	231	243	21	265	319
126	5.000	75.3	187.9	07/01/2011 07:00	1390	1329	39	1367	257	272	21	293	339
127	5.042	71.0	178.6	07/01/2011 08:00	1534	1467	42	1508	364	384	22	406	360
128	5.083	66.9	169.8	07/01/2011 09:00	1619	1548	44	1592	359	379	22	401	397
129	5.125	63.1	161.4	07/01/2011 10:00	1633	1561	47	1608	372	393	23	415	436
130	5.167	59.5	153.4	07/01/2011 11:00	2050	1959	51	2010	541	571	23	595	457
131	5.208	56.2	145.8	07/01/2011 12:00	2127	2033	55	2088	681	719	24	743	478
132	5.250	53.0	138.5	07/01/2011 13:00	1969	1883	58	1941	738	779	26	804	500
133	5.292	50.1	131.6	07/01/2011 14:00	1772	1694	61	1755	697	735	27	762	518
134	5.333	47.4	125.0	07/01/2011 15:00	1688	1614	64	1678	640	675	28	703	535

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
90	17	0	18	3	3	0	3	-649.9	451.0	162.3	748.0	5/1/2011 21:00	51.0	-2.795
91	28	0	28	9	9	0	9	-516.6	-425.2	207.7	882.9	5/1/2011 22:00	48.2	-2.613
92	38	0	38	28	28	0	28	-273.3	-384.0	250.7	733.8	5/1/2011 23:00	45.6	-2.444
93	45	0	45	59	59	0	60	-192.0	-306.5	271.9	439.5	6/1/2011 0:00	43.2	-2.289
94	53	0	54	96	96	0	96	-158.4	-238.3	266.3	184.1	6/1/2011 1:00	40.9	-2.145
95	64	0	64	126	126	1	127	-8.3	-194.6	238.4	19.7	6/1/2011 2:00	38.7	-2.011
96	75	1	76	144	144	1	145	-232.4	-167.9	196.8	-78.5	6/1/2011 3:00	36.7	-1.887
97	86	1	87	152	152	1	153	-154.7	-151.8	150.1	-138.9	6/1/2011 4:00	34.8	-1.772
98	96	1	97	152	152	1	154	-148.8	-140.8	104.4	-175.1	6/1/2011 5:00	33.1	-1.665
99	104	1	105	149	149	2	150	-141.0	-133.5	63.8	-192.6	6/1/2011 6:00	31.4	-1.566
100	110	1	111	143	143	2	145	-130.4	-128.2	30.1	-195.3	6/1/2011 7:00	29.8	-1.474
101	114	2	115	135	135	2	137	-116.3	-124.1	3.7	-187.3	6/1/2011 8:00	28.4	-1.387
102	116	2	118	127	127	2	129	-95.9	-120.6	-15.2	-172.5	6/1/2011 9:00	27.0	-1.308
103	117	2	119	119	119	3	121	1890.9	158.9	303.5	143.3	6/1/2011 10:00	25.7	-1.232
104	117	2	120	111	111	3	113	2847.5	3051.5	634.4	698.9	6/1/2011 11:00	24.4	-1.163
105	117	2	119	103	103	3	106	541.4	3711.7	298.6	362.9	6/1/2011 12:00	23.3	-1.098
106	129	2	132	109	109	3	112	119.2	-350.9	59.0	-264.2	6/1/2011 13:00	22.2	-1.036
107	155	3	158	138	138	3	141	-786.0	-1298.2	202.7	-179.6	6/1/2011 14:00	21.1	-0.98
108	167	3	170	153	153	3	156	-256.6	-836.5	248.9	-44.9	6/1/2011 15:00	20.2	-0.926
109	170	3	173	142	142	4	145	-42.7	-498.6	246.3	66.9	6/1/2011 16:00	19.2	-0.876
110	178	4	181	134	134	4	138	-3.7	-344.3	231.2	187.3	6/1/2011 17:00	18.4	-0.829
111	188	4	192	132	132	4	136	185.7	-271.7	204.0	325.4	6/1/2011 18:00	17.5	-0.785
112	198	4	202	135	135	4	139	433.4	-221.0	173.3	469.4	6/1/2011 19:00	16.7	-0.744
113	207	4	212	142	142	4	147	766.4	-192.3	147.8	614.9	6/1/2011 20:00	16.0	-0.705
114	215	5	220	156	156	5	160	1199.9	-177.7	133.6	751.5	6/1/2011 21:00	15.3	-0.668
115	222	5	227	175	175	5	180	1719.2	-171.4	134.2	752.8	6/1/2011 22:00	14.6	-0.634
116	228	5	233	200	200	5	205	2369.7	-132.5	150.1	661.8	6/1/2011 23:00	14.0	-0.602
117	233	6	239	231	231	5	237	5702.4	653.0	180.0	569.3	7/1/2011 0:00	13.4	-0.571
118	239	6	245	262	262	6	268	1898.9	167.6	221.8	428.5	7/1/2011 1:00	12.8	-0.543
119	244	6	251	289	289	6	296	2428.6	-420.1	273.1	277.4	7/1/2011 2:00	12.3	-0.516
120	252	7	258	313	313	7	319	2832.6	-236.1	331.0	138.4	7/1/2011 3:00	11.8	-0.49
121	260	7	268	330	330	7	337	2545.6	618.6	391.0	21.0	7/1/2011 4:00	11.3	-0.467
122	272	7	279	341	341	8	349	2418.1	196.6	446.3	-72.3	7/1/2011 5:00	10.8	-0.443
123	285	8	293	346	346	8	354	722.1	679.3	490.3	-142.1	7/1/2011 6:00	10.4	-0.423
124	301	8	309	347	347	9	355	3380.4	2707.0	518.5	-190.8	7/1/2011 7:00	9.9	-0.402
125	319	9	328	343	343	9	352	2014.5	-110.5	893.7	424.6	7/1/2011 8:00	9.5	-0.383
126	339	9	348	337	337	10	346	382.7	340.0	949.0	826.2	7/1/2011 9:00	9.2	-0.365
127	360	10	370	328	328	10	338	9655.7	4304.1	530.2	134.7	7/1/2011 10:00	8.8	-0.347
128	397	10	407	346	346	10	356	1862.6	3571.7	524.6	-121.4	7/1/2011 11:00	8.4	-0.332
129	436	11	446	380	380	11	391	-3528.2	1460.2	539.5	31.6	7/1/2011 12:00	8.1	-0.316
130	457	11	469	385	385	11	396	-4455.1	-1022.6	451.7	124.7	7/1/2011 13:00	7.8	-0.302
131	478	12	490	379	379	12	391	-1867.6	-1417.8	426.4	120.3	7/1/2011 14:00	7.5	-0.288
132	500	13	513	380	380	12	392	-1454.7	-942.5	389.6	70.5	7/1/2011 15:00	7.2	-0.275
133	518	14	532	385	385	13	398	-1110.5	-666.6	335.4	-9.7	7/1/2011 16:00	6.9	-0.263
134	535	14	549	389	389	13	403	-331.8	-388.6	262.6	-97.6	7/1/2011 17:00	6.7	-0.251

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	A	B	C	D	E	F	G	H	I	J	K	L	M
135	5.375	44.8	118.7	07/01/2011 16:00	1622	1551	66	1617	602	635	28	663	551
136	5.417	42.4	112.8	07/01/2011 17:00	1572	1503	68	1571	575	606	29	635	564
137	5.458	40.2	107.1	07/01/2011 18:00	1555	1487	70	1557	559	589	30	619	574
138	5.500	38.1	101.7	07/01/2011 19:00	1530	1463	72	1535	536	565	31	596	581
139	5.542	36.1	96.7	07/01/2011 20:00	1521	1455	74	1529	512	540	31	571	584
140	5.583	34.2	91.9	07/01/2011 21:00	1523	1456	76	1532	488	515	32	547	584
141	5.625	32.5	87.3	07/01/2011 22:00	1532	1465	78	1542	464	490	32	522	580
142	5.667	30.8	83.0	07/01/2011 23:00	1544	1476	80	1555	440	464	33	497	574
143	5.708	29.3	79.0	08/01/2011 00:00	1556	1488	81	1569	416	439	33	472	566
144	5.750	27.8	75.1	08/01/2011 01:00	1569	1500	83	1583	392	414	33	447	556
145	5.792	26.4	71.5	08/01/2011 02:00	1580	1511	85	1596	369	389	33	423	545
146	5.833	25.1	68.1	08/01/2011 03:00	1589	1519	87	1606	347	366	34	399	533
147	5.875	23.9	64.9	08/01/2011 04:00	1592	1522	89	1611	326	343	34	377	520
148	5.917	22.8	61.8	08/01/2011 05:00	1589	1519	90	1609	305	322	34	356	507
149	5.958	21.7	59.0	08/01/2011 06:00	1576	1507	92	1599	286	302	34	336	493
150	6.000	20.6	56.3	08/01/2011 07:00	1553	1485	93	1578	269	283	34	317	479
151	6.042	19.7	53.8	08/01/2011 08:00	1519	1453	95	1547	252	266	34	300	465
152	6.083	18.8	51.5	08/01/2011 09:00	1476	1411	96	1507	236	249	34	283	451
153	6.125	17.9	49.3	08/01/2011 10:00	1423	1360	97	1457	222	234	34	268	437
154	6.167	17.2	47.3	08/01/2011 11:00	1363	1303	98	1401	208	220	34	253	424
155	6.208	16.4	45.5	08/01/2011 12:00	1299	1242	99	1341	196	207	34	240	410
156	6.250	15.7	44.0	08/01/2011 13:00	1233	1178	99	1278	184	194	33	228	397
157	6.292	15.1	42.8	08/01/2011 14:00	1167	1116	100	1216	176	185	33	218	385
158	6.333	14.5	41.9	08/01/2011 15:00	1141	1090	100	1190	175	184	33	217	374
159	6.375	13.9	41.5	08/01/2011 16:00	1044	998	100	1098	174	183	33	216	364
160	6.417	13.4	41.4	08/01/2011 17:00	978	935	100	1035	177	187	33	220	354
161	6.458	12.9	41.8	08/01/2011 18:00	916	875	100	975	187	198	33	230	343
162	6.500	12.4	42.6	08/01/2011 19:00	857	820	100	919	197	207	33	240	332
163	6.542	11.9	43.6	08/01/2011 20:00	803	767	99	867	204	215	32	247	322
164	6.583	11.5	44.9	08/01/2011 21:00	754	721	98	819	209	220	32	253	312
165	6.625	11.0	46.3	08/01/2011 22:00	714	683	98	780	247	260	32	293	303
166	6.667	10.6	47.7	08/01/2011 23:00	676	646	97	743	243	256	32	288	294
167	6.708	10.3	49.0	09/01/2011 00:00	637	609	96	705	244	257	32	290	285
168	6.750	9.9	50.1	09/01/2011 01:00	602	576	95	671	238	251	32	283	276
169	6.792	9.5	51.0	09/01/2011 02:00	573	547	94	642	229	242	32	274	268
170	6.833	9.2	51.6	09/01/2011 03:00	548	524	94	617	222	234	32	266	260
171	6.875	8.9	51.8	09/01/2011 04:00	532	509	93	601	216	228	32	260	252
172	6.917	8.6	51.7	09/01/2011 05:00	518	495	92	587	285	301	32	333	244
173	6.958	8.3	51.3	09/01/2011 06:00	589	563	91	654	434	458	33	490	236
174	7.000	8.0	50.6	09/01/2011 07:00	518	495	90	585	473	500	33	533	228
175	7.042	7.7	49.7	09/01/2011 08:00	507	485	89	574	497	525	34	558	221
176	7.083	7.4	48.6	09/01/2011 09:00	500	478	88	566	517	545	34	580	213
177	7.125	7.2	47.3	09/01/2011 10:00	512	490	87	577	647	682	35	718	206
178	7.167	6.9	45.8	09/01/2011 11:00	954	912	87	1000	924	975	36	1012	219
179	7.208	6.7	44.3	09/01/2011 12:00	1128	1079	88	1167	1131	1193	38	1231	238

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
135	551	15	566	392	392	14	406	-530.5	-569.1	178.4	-147.3	7/1/2011 18:00	6.4	-0.24
136	564	16	580	391	391	14	405	-147.4	-578.6	91.5	-207.3	7/1/2011 19:00	6.2	-0.229
137	574	17	591	387	387	15	401	89.0	-588.6	9.2	-268.6	7/1/2011 20:00	5.9	-0.219
138	581	17	598	380	380	15	395	239.4	-600.1	-64.3	-285.1	7/1/2011 21:00	5.7	-0.21
139	584	18	602	371	371	15	386	312.7	-606.5	-126.9	-298.4	7/1/2011 22:00	5.5	-0.201
140	584	19	602	359	359	16	375	336.7	-603.6	-178.6	-307.7	7/1/2011 23:00	5.3	-0.192
141	580	19	600	347	347	16	363	331.5	-593.0	-220.1	-312.2	8/1/2011 0:00	5.1	-0.184
142	574	20	594	335	335	16	351	301.0	-578.5	-252.8	-311.8	8/1/2011 1:00	4.9	-0.176
143	566	21	587	322	322	17	338	236.3	-559.0	-277.9	-307.1	8/1/2011 2:00	4.8	-0.169
144	556	21	578	308	308	17	325	124.8	-533.0	-296.9	-299.3	8/1/2011 3:00	4.6	-0.161
145	545	22	567	295	295	17	312	-39.3	-506.4	-310.7	-289.3	8/1/2011 4:00	4.4	-0.155
146	533	22	556	282	282	17	299	-250.6	-480.4	-320.2	-278.1	8/1/2011 5:00	4.3	-0.149
147	520	23	543	270	270	17	287	-492.4	-451.7	-326.0	-266.5	8/1/2011 6:00	4.1	-0.143
148	507	23	530	258	258	17	275	-742.2	-423.1	-328.7	-254.9	8/1/2011 7:00	4.0	-0.136
149	493	24	517	246	246	17	263	-978.1	-395.5	-328.6	-243.5	8/1/2011 8:00	3.9	-0.131
150	479	24	503	235	235	17	252	-1182.8	-369.4	-326.2	-232.5	8/1/2011 9:00	3.7	-0.126
151	465	24	490	224	224	17	241	-1345.6	-345.1	-321.9	-221.8	8/1/2011 10:00	3.6	-0.121
152	451	25	476	214	214	17	231	-1447.3	-317.7	-315.8	-211.5	8/1/2011 11:00	3.5	-0.116
153	437	25	462	204	204	17	222	-1515.3	-293.4	-308.5	-201.6	8/1/2011 12:00	3.4	-0.112
154	424	25	449	195	195	17	212	-1491.3	-226.7	-298.0	-150.4	8/1/2011 13:00	3.2	-0.107
155	410	25	436	186	186	17	204	-605.1	-24.7	-257.5	-149.5	8/1/2011 14:00	3.1	-0.103
156	397	26	423	178	178	17	195	-2213.6	-25.5	-234.0	-184.5	8/1/2011 15:00	3.0	-0.099
157	385	26	410	172	172	17	189	-1513.5	78.9	-249.9	-167.3	8/1/2011 16:00	2.9	-0.095
158	374	26	400	166	166	17	183	-1434.5	255.3	-255.7	-157.7	8/1/2011 17:00	2.8	-0.092
159	364	26	390	158	158	17	175	-1348.2	230.6	-253.4	-152.2	8/1/2011 18:00	2.8	-0.088
160	354	26	380	151	151	17	168	-1263.0	178.5	-246.9	-147.2	8/1/2011 19:00	2.7	-0.084
161	343	26	369	145	145	17	161	-1136.5	123.6	-238.6	-141.1	8/1/2011 20:00	2.6	-0.082
162	332	26	358	139	139	16	155	-932.1	965.2	-229.9	-134.2	8/1/2011 21:00	2.5	-0.078
163	322	26	348	133	133	16	149	-887.9	-102.4	-221.8	-126.9	8/1/2011 22:00	2.4	-0.076
164	312	26	338	127	127	16	143	-919.7	31.7	-214.6	-119.6	8/1/2011 23:00	2.3	-0.072
165	303	26	329	121	121	16	137	-813.2	-163.2	-208.4	-112.7	9/1/2011 0:00	2.3	-0.071
166	294	26	319	116	116	16	132	-700.5	-204.2	-203.2	-106.2	9/1/2011 1:00	2.2	-0.067
167	285	26	310	112	112	16	127	-592.7	-199.5	-199.0	-99.7	9/1/2011 2:00	2.1	-0.065
168	276	26	302	107	107	15	122	-378.2	-146.9	-195.4	-93.0	9/1/2011 3:00	2.1	-0.063
169	268	26	293	103	103	15	118	-347.6	1756.9	-192.3	-85.9	9/1/2011 4:00	2.0	-0.06
170	260	25	285	99	99	15	114	1596.8	3769.7	-189.6	-78.5	9/1/2011 5:00	1.9	-0.059
171	252	25	277	95	95	15	110	-1645.1	1018.2	-186.9	-70.9	9/1/2011 6:00	1.9	-0.056
172	244	25	269	92	92	15	106	-268.7	614.5	-184.3	-63.8	9/1/2011 7:00	1.8	-0.054
173	236	25	261	89	89	15	103	-185.3	509.3	-181.7	-57.7	9/1/2011 8:00	1.8	-0.052
174	228	25	253	86	86	14	100	254.4	3310.8	-178.9	-1.4	9/1/2011 9:00	1.7	-0.051
175	221	25	245	83	83	14	98	10153.8	7060.7	304.1	664.0	9/1/2011 10:00	1.7	-0.049
176	213	24	238	81	81	14	95	4004.6	5272.9	443.9	852.0	9/1/2011 11:00	1.6	-0.047
177	206	24	230	81	81	14	95	-4404.2	351.1	-15.5	332.0	9/1/2011 12:00	1.6	-0.045
178	219	24	243	109	109	14	123	486.4	3926.8	-96.5	466.2	9/1/2011 13:00	1.5	-0.044
179	238	24	262	145	145	14	158	17660.4	14189.7	-32.0	582.5	9/1/2011 14:00	1.5	-0.043

	A	B	C	D	E	F	G	H	I	J	K	L	M
180	7.250	6.5	42.7	09/01/2011 13:00	936	895	88	983	1143	1206	40	1246	237
181	7.292	6.3	41.0	09/01/2011 14:00	957	915	88	1003	1296	1367	42	1410	233
182	7.333	6.0	39.3	09/01/2011 15:00	1725	1649	90	1739	1854	1955	45	2001	232
183	7.375	5.8	37.7	09/01/2011 16:00	2073	1982	93	2075	2587	2730	50	2780	261
184	7.417	5.6	36.0	09/01/2011 17:00	2198	2101	96	2197	3005	3170	56	3226	318
185	7.458	5.5	34.4	09/01/2011 18:00	2875	2749	101	2849	3508	3701	62	3763	351
186	7.500	5.3	32.8	09/01/2011 19:00	2912	2783	105	2889	3579	3776	69	3844	365
187	7.542	5.1	31.3	09/01/2011 20:00	3468	3315	111	3426	3508	3701	75	3776	407
188	7.583	4.9	29.8	09/01/2011 21:00	4055	3877	118	3995	3432	3620	81	3701	492
189	7.625	4.8	28.4	09/01/2011 22:00	4626	4423	126	4549	3330	3513	87	3600	573
190	7.667	4.6	27.0	09/01/2011 23:00	5498	5256	136	5393	3265	3444	92	3537	624
191	7.708	4.5	25.7	10/01/2011 00:00	6317	6039	148	6187	3209	3386	98	3483	664
192	7.750	4.3	24.4	10/01/2011 01:00	6980	6673	161	6834	3052	3220	102	3322	696
193	7.792	4.2	23.3	10/01/2011 02:00	7545	7213	175	7388	2868	3026	107	3133	714
194	7.833	4.1	22.1	10/01/2011 03:00	7931	7582	190	7772	2689	2837	111	2948	722
195	7.875	3.9	21.1	10/01/2011 04:00	8154	7796	205	8001	2586	2728	115	2843	720
196	7.917	3.8	20.1	10/01/2011 05:00	8380	8012	220	8232	2540	2680	118	2798	716
197	7.958	3.7	19.1	10/01/2011 06:00	8422	8052	235	8287	2460	2595	121	2716	726
198	8.000	3.6	18.2	10/01/2011 07:00	8091	7735	249	7983	2326	2454	124	2578	726
199	8.042	3.4	17.3	10/01/2011 08:00	7851	7506	261	7767	2331	2459	127	2586	709
200	8.083	3.3	16.5	10/01/2011 09:00	7457	7128	273	7401	2236	2359	130	2489	700
201	8.125	3.2	15.8	10/01/2011 10:00	6950	6644	283	6927	2078	2192	132	2325	691
202	8.167	3.1	15.0	10/01/2011 11:00	6663	6370	292	6662	2336	2464	135	2599	680
203	8.208	3.0	14.4	10/01/2011 12:00	7493	7164	303	7467	2778	2931	139	3070	676
204	8.250	2.9	13.7	10/01/2011 13:00	6522	6235	311	6547	2660	2807	142	2949	674
205	8.292	2.9	13.1	10/01/2011 14:00	5953	5691	318	6009	2314	2441	145	2586	672
206	8.333	2.8	12.5	10/01/2011 15:00	5599	5352	324	5676	2084	2199	147	2346	679
207	8.375	2.7	12.0	10/01/2011 16:00	5168	4940	328	5269	1886	1990	148	2139	698
208	8.417	2.6	11.5	10/01/2011 17:00	4844	4631	332	4963	1715	1810	150	1959	731
209	8.458	2.5	11.0	10/01/2011 18:00	4576	4374	335	4710	1595	1682	151	1833	774
210	8.500	2.4	10.5	10/01/2011 19:00	4379	4186	338	4524	1503	1586	151	1737	817
211	8.542	2.4	10.1	10/01/2011 20:00	4325	4135	340	4475	1508	1591	152	1743	852
212	8.583	2.3	9.7	10/01/2011 21:00	4051	3873	341	4214	1424	1502	153	1655	874
213	8.625	2.2	9.3	10/01/2011 22:00	3852	3682	342	4025	1314	1386	153	1539	883
214	8.667	2.2	8.9	10/01/2011 23:00	3663	3501	343	3844	1215	1281	153	1435	881
215	8.708	2.1	8.6	11/01/2011 00:00	3447	3295	343	3638	1124	1186	153	1339	870
216	8.750	2.0	8.2	11/01/2011 01:00	3241	3098	342	3441	1068	1127	153	1280	855
217	8.792	2.0	7.9	11/01/2011 02:00	3057	2923	342	3264	1039	1096	153	1249	837
218	8.833	1.9	7.6	11/01/2011 03:00	2873	2746	340	3086	975	1029	152	1181	820
219	8.875	1.9	7.3	11/01/2011 04:00	2718	2598	339	2937	1041	1099	152	1251	804
220	8.917	1.8	7.1	11/01/2011 05:00	3580	3422	339	3761	1432	1511	153	1664	793
221	8.958	1.8	6.8	11/01/2011 06:00	3940	3766	340	4107	1777	1875	154	2029	872
222	9.000	1.7	6.6	11/01/2011 07:00	4149	3967	342	4309	1942	2049	156	2204	1106
223	9.042	1.7	6.3	11/01/2011 08:00	4864	4650	345	4996	1847	1949	157	2106	1388
224	9.083	1.6	6.1	11/01/2011 09:00	5270	5038	350	5388	1723	1818	158	1976	1624

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
180	237	24	261	159	159	14	172	8058.7	18692.2	693.9	938.1	9/1/2011 15:00	1.4	-0.04
181	233	24	257	178	178	14	192	2931.4	10698.7	1374.8	1301.3	9/1/2011 16:00	1.4	-0.04
182	232	24	256	202	202	14	216	15647.6	12901.2	791.6	676.0	9/1/2011 17:00	1.4	-0.038
183	261	24	284	241	241	14	255	946.5	1950.7	334.2	-20.3	9/1/2011 18:00	1.3	-0.037
184	318	24	342	295	295	14	309	12905.8	-1645.0	1025.1	-54.4	9/1/2011 19:00	1.3	-0.036
185	351	24	375	323	323	14	337	13639.1	-1784.9	2029.5	324.9	9/1/2011 20:00	1.3	-0.035
186	365	24	389	322	322	15	336	13298.0	-2436.9	1969.0	182.3	9/1/2011 21:00	1.2	-0.033
187	407	24	431	319	319	15	334	20252.7	-1520.2	1230.3	-373.7	9/1/2011 22:00	1.2	-0.033
188	492	24	516	333	333	15	348	19061.4	-1276.2	987.3	-319.2	9/1/2011 23:00	1.2	-0.031
189	573	25	598	340	340	15	355	15545.0	-3864.5	780.3	-217.6	10/1/2011 0:00	1.1	-0.03
190	624	26	649	324	324	16	340	13295.6	-4553.4	452.7	-184.6	10/1/2011 1:00	1.1	-0.03
191	664	26	690	310	310	16	326	9197.8	-4430.1	204.3	-171.4	10/1/2011 2:00	1.1	-0.028
192	696	27	723	301	301	16	317	5494.6	-2523.9	-24.1	-173.5	10/1/2011 3:00	1.0	-0.027
193	714	28	742	293	293	16	310	5543.9	-1073.8	-84.3	-20.2	10/1/2011 4:00	1.0	-0.027
194	722	29	750	286	286	17	303	1322.7	-1966.9	269.2	79.0	10/1/2011 5:00	1.0	-0.026
195	720	29	749	279	279	17	295	-7281.9	-3311.9	13.5	-80.4	10/1/2011 6:00	1.0	-0.025
196	716	30	746	278	278	17	294	-5180.9	186.7	-393.3	537.7	10/1/2011 7:00	0.9	-0.024
197	726	31	757	281	281	17	298	-8783.3	-2319.7	-198.5	957.3	10/1/2011 8:00	0.9	-0.024
198	726	31	758	277	277	17	294	-11389.3	-3954.4	-218.3	741.5	10/1/2011 9:00	0.9	-0.022
199	709	32	741	300	300	17	317	-6352.5	6589.5	-234.5	910.6	10/1/2011 10:00	0.9	-0.022
200	700	33	733	339	339	18	357	19310.9	11290.4	-89.3	1094.2	10/1/2011 11:00	0.8	-0.022
201	691	33	724	370	370	18	388	-22082.8	-2897.9	-43.0	1307.4	10/1/2011 12:00	0.8	-0.02
202	680	34	714	407	407	18	426	-12903.2	-8712.0	-32.5	1511.3	10/1/2011 13:00	0.8	-0.021
203	676	34	710	452	452	19	471	-7991.5	-5756.6	167.3	1695.1	10/1/2011 14:00	0.8	-0.019
204	674	35	709	506	506	19	526	-9775.4	-4977.8	476.2	1726.6	10/1/2011 15:00	0.8	-0.019
205	672	35	707	569	569	20	589	-7329.8	-4298.8	812.6	1517.0	10/1/2011 16:00	0.7	-0.018
206	679	36	714	639	639	21	659	-6092.1	-3031.5	1034.9	1087.4	10/1/2011 17:00	0.7	-0.018
207	698	36	734	710	710	22	731	-4455.2	-2299.2	1048.8	574.2	10/1/2011 18:00	0.7	-0.017
208	731	37	768	772	772	23	794	-1175.6	140.8	862.1	100.1	10/1/2011 19:00	0.7	-0.017
209	774	37	811	816	816	24	840	-6266.9	-2110.6	558.5	-264.9	10/1/2011 20:00	0.7	-0.016
210	817	38	855	839	839	25	864	-4536.6	-2783.9	234.9	-501.9	10/1/2011 21:00	0.7	-0.016
211	852	39	891	842	842	26	868	-4333.0	-2508.9	-40.3	-592.3	10/1/2011 22:00	0.6	-0.016
212	874	40	914	830	830	27	857	-4953.4	-2294.5	-236.7	-643.5	10/1/2011 23:00	0.6	-0.015
213	883	40	924	808	808	28	836	-4733.5	-1430.0	-354.0	-669.9	11/1/2011 0:00	0.6	-0.014
214	881	41	922	783	783	29	811	-4231.7	-737.0	-406.1	-559.9	11/1/2011 1:00	0.6	-0.014
215	870	42	912	755	755	29	784	-4272.0	-1616.2	-408.5	-505.5	11/1/2011 2:00	0.6	-0.014
216	855	42	897	726	726	30	756	-3595.9	1658.8	-373.8	-511.9	11/1/2011 3:00	0.6	-0.013
217	837	43	880	702	702	31	733	19797.8	9911.2	-249.6	-464.6	11/1/2011 4:00	0.5	-0.013
218	820	44	863	681	681	31	712	8282.3	8761.2	1910.8	-296.3	11/1/2011 5:00	0.5	-0.013
219	804	44	848	659	659	32	691	4848.9	4217.7	5643.8	-199.4	11/1/2011 6:00	0.5	-0.012
220	793	45	837	639	639	32	671	16492.0	-2361.2	6815.4	-211.1	11/1/2011 7:00	0.5	-0.012
221	872	45	917	626	626	33	659	9405.1	-3121.8	5714.2	477.0	11/1/2011 8:00	0.5	-0.011
222	1106	46	1152	617	617	33	651	9836.5	-1591.5	4151.8	1438.3	11/1/2011 9:00	0.5	-0.011
223	1388	48	1436	608	608	34	642	4823.4	4179.6	3408.9	3469.2	11/1/2011 10:00	0.5	-0.011
224	1624	50	1674	628	628	34	662	5955.0	7772.4	2756.9	5198.7	11/1/2011 11:00	0.5	-0.011

	A	B	C	D	E	F	G	H	I	J	K	L	M
225	9.125	1.6	5.9	11/01/2011 10:00	5693	5443	355	5797	1659	1750	159	1910	1795
226	9.167	1.5	5.7	11/01/2011 11:00	5897	5638	360	5998	1823	1923	160	2084	1934
227	9.208	1.5	5.5	11/01/2011 12:00	6151	5880	367	6247	2128	2245	162	2408	2047
228	9.250	1.4	5.3	11/01/2011 13:00	6615	6324	374	6698	2681	2828	165	2993	2152
229	9.292	1.4	5.1	11/01/2011 14:00	7457	7129	382	7511	2994	3158	169	3327	2291
230	9.333	1.4	5.0	11/01/2011 15:00	7272	6952	391	7343	2961	3124	173	3297	2364
231	9.375	1.3	4.8	11/01/2011 16:00	7351	7028	399	7426	2857	3014	176	3190	2386
232	9.417	1.3	4.6	11/01/2011 17:00	7362	7038	407	7444	2803	2957	179	3136	2446
233	9.458	1.3	4.5	11/01/2011 18:00	7131	6818	414	7232	2834	2990	182	3172	2528
234	9.500	1.2	4.4	11/01/2011 19:00	6867	6565	421	6985	2821	2977	185	3162	2610
235	9.542	1.2	4.2	11/01/2011 20:00	6519	6232	426	6658	2703	2852	188	3040	2685
236	9.583	1.2	4.1	11/01/2011 21:00	6138	5868	431	6298	2554	2695	190	2885	2746
237	9.625	1.1	4.0	11/01/2011 22:00	5747	5494	434	5928	2401	2533	192	2726	2793
238	9.667	1.1	3.9	11/01/2011 23:00	5360	5124	436	5560	2247	2370	194	2564	2833
239	9.708	1.1	3.7	12/01/2011 00:00	4989	4769	438	5207	2093	2208	195	2404	2867
240	9.750	1.0	3.6	12/01/2011 01:00	4637	4433	438	4871	1943	2050	196	2246	2896
241	9.792	1.0	3.5	12/01/2011 02:00	4305	4115	438	4554	1799	1898	197	2095	2918
242	9.833	1.0	3.4	12/01/2011 03:00	3992	3817	437	4254	1661	1753	197	1950	2930
243	9.875	1.0	3.3	12/01/2011 04:00	3698	3535	435	3970	1532	1616	197	1813	2930
244	9.917	0.9	3.2	12/01/2011 05:00	3420	3269	433	3702	1411	1489	197	1686	2917
245	9.958	0.9	3.1	12/01/2011 06:00	3158	3019	430	3450	1299	1370	197	1567	2890
246	10.000	0.9	3.1	12/01/2011 07:00	2914	2785	427	3212	1195	1260	196	1457	2849
247	10.042	0.9	3.0	12/01/2011 08:00	2685	2567	423	2990	1099	1159	195	1355	2794
248	10.083	0.8	2.9	12/01/2011 09:00	2473	2364	419	2783	1011	1066	194	1261	2727
249	10.125	0.8	2.8	12/01/2011 10:00	2277	2177	414	2591	930	981	193	1174	2648
250	10.167	0.8	2.7	12/01/2011 11:00	2096	2004	409	2413	855	902	192	1094	2561
251	10.208	0.8	2.7	12/01/2011 12:00	1930	1845	404	2249	787	830	190	1021	2467
252	10.250	0.8	2.6	12/01/2011 13:00	1778	1699	399	2098	724	764	189	953	2367
253	10.292	0.7	2.5	12/01/2011 14:00	1638	1566	393	1959	666	703	187	890	2264
254	10.333	0.7	2.5	12/01/2011 15:00	1510	1444	387	1831	614	647	186	833	2160
255	10.375	0.7	2.4	12/01/2011 16:00	1393	1332	381	1713	565	596	184	780	2054
256	10.417	0.7	2.3	12/01/2011 17:00	1286	1230	375	1605	521	549	182	731	1950
257	10.458	0.7	2.3	12/01/2011 18:00	1189	1136	369	1505	480	506	180	686	1847
258	10.500	0.7	2.2	12/01/2011 19:00	1099	1051	363	1414	442	467	178	645	1746
259	10.542	0.6	2.2	12/01/2011 20:00	1018	973	357	1329	408	431	176	607	1649
260	10.583	0.6	2.1	12/01/2011 21:00	943	901	350	1251	377	398	174	572	1556
261	10.625	0.6	2.1	12/01/2011 22:00	874	836	344	1180	348	367	172	539	1466
262	10.667	0.6	2.0	12/01/2011 23:00	811	776	338	1113	322	339	170	509	1380
263	10.708	0.6	2.0	13/01/2011 00:00	754	721	331	1052	298	314	168	482	1299
264	10.750	0.6	1.9	13/01/2011 01:00	701	670	325	995	275	290	166	456	1221
265	10.792	0.6	1.9	13/01/2011 02:00	652	624	319	942	255	269	164	433	1148
266	10.833	0.5	1.8	13/01/2011 03:00	608	581	313	894	236	249	162	411	1080
267	10.875	0.5	1.8	13/01/2011 04:00	567	542	306	848	219	231	159	391	1015
268	10.917	0.5	1.8	13/01/2011 05:00	529	506	300	806	203	215	157	372	954
269	10.958	0.5	1.7	13/01/2011 06:00	494	472	294	767	189	199	155	355	897

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
225	1795	52	1847	687	687	35	722	10823.2	14061.7	2588.7	6201.9	11/1/2011 12:00	0.5	-0.01
226	1934	55	1989	831	831	35	866	19533.5	8013.1	3426.3	7678.7	11/1/2011 13:00	0.4	-0.01
227	2047	58	2104	1046	1046	37	1083	-4052.4	-731.3	1813.1	7382.4	11/1/2011 14:00	0.4	-0.01
228	2152	60	2212	1303	1303	38	1341	2013.9	-2559.2	616.4	6244.9	11/1/2011 15:00	0.4	-0.01
229	2291	64	2355	1621	1621	41	1661	431.2	-1298.9	1510.5	5353.6	11/1/2011 16:00	0.4	-0.009
230	2364	67	2430	1925	1925	43	1969	-5104.1	860.4	2039.8	4108.2	11/1/2011 17:00	0.4	-0.009
231	2386	70	2456	2182	2182	47	2229	-5914.7	-246.0	2059.8	2641.1	11/1/2011 18:00	0.4	-0.009
232	2446	73	2519	2402	2402	50	2452	-7858.3	-2931.8	1676.6	1350.2	11/1/2011 19:00	0.4	-0.008
233	2528	76	2604	2569	2569	54	2623	-8625.5	-3704.4	1543.1	84.4	11/1/2011 20:00	0.4	-0.008
234	2610	79	2690	2675	2675	58	2733	-8899.8	-3832.1	1206.2	-900.8	11/1/2011 21:00	0.4	-0.009
235	2685	83	2768	2727	2727	62	2790	-8813.2	-3871.8	1041.2	-1690.0	11/1/2011 22:00	0.4	-0.007
236	2746	86	2832	2727	2727	66	2793	-8487.1	-3851.6	910.4	-2338.3	11/1/2011 23:00	0.4	-0.008
237	2793	90	2883	2686	2686	70	2756	-8061.1	-3773.2	773.7	-2804.5	12/1/2011 0:00	0.3	-0.008
238	2833	93	2926	2612	2612	73	2685	-7617.5	-3643.1	598.6	-3080.3	12/1/2011 1:00	0.3	-0.007
239	2867	97	2964	2511	2511	76	2588	-7195.3	-3473.1	369.1	-3211.5	12/1/2011 2:00	0.3	-0.007
240	2896	100	2996	2392	2392	79	2471	-6802.0	-3276.9	86.5	-3241.4	12/1/2011 3:00	0.3	-0.007
241	2918	103	3021	2261	2261	82	2342	-6428.6	-3067.2	-235.9	-3198.1	12/1/2011 4:00	0.3	-0.007
242	2930	107	3036	2125	2125	84	2209	-6063.2	-2854.2	-579.6	-3101.0	12/1/2011 5:00	0.3	-0.006
243	2930	110	3040	1988	1988	86	2074	-5698.2	-2645.2	-925.2	-2965.2	12/1/2011 6:00	0.3	-0.007
244	2917	113	3030	1853	1853	87	1940	-5332.2	-2445.1	-1256.1	-2803.4	12/1/2011 7:00	0.3	-0.006
245	2890	116	3006	1722	1722	89	1811	-4968.2	-2256.4	-1558.6	-2626.4	12/1/2011 8:00	0.3	-0.006
246	2849	119	2967	1598	1598	90	1688	-4611.3	-2080.2	-1823.3	-2442.9	12/1/2011 9:00	0.3	-0.006
247	2794	121	2915	1480	1480	90	1571	-4266.5	-1916.7	-2044.8	-2259.5	12/1/2011 10:00	0.3	-0.006
248	2727	124	2850	1370	1370	91	1461	-3938.0	-1765.6	-2220.9	-2081.3	12/1/2011 11:00	0.3	-0.005
249	2648	126	2774	1268	1268	91	1360	-3628.5	-1626.1	-2352.2	-1911.4	12/1/2011 12:00	0.3	-0.006
250	2561	128	2689	1174	1174	91	1265	-3339.6	-1497.6	-2441.3	-1752.2	12/1/2011 13:00	0.3	-0.005
251	2467	130	2596	1088	1088	91	1179	-3071.8	-1379.2	-2492.0	-1604.5	12/1/2011 14:00	0.3	-0.006
252	2367	131	2498	1008	1008	91	1099	-2824.8	-1270.2	-2509.0	-1468.7	12/1/2011 15:00	0.3	-0.005
253	2264	132	2397	936	936	90	1026	-2598.0	-1169.9	-2497.1	-1344.9	12/1/2011 16:00	0.2	-0.005
254	2160	133	2293	869	869	90	959	-2390.1	-1077.6	-2461.2	-1232.3	12/1/2011 17:00	0.2	-0.005
255	2054	134	2188	809	809	89	898	-2200.2	-992.8	-2406.1	-1130.3	12/1/2011 18:00	0.2	-0.004
256	1950	135	2084	753	753	89	842	-2026.7	-914.9	-2335.9	-1038.1	12/1/2011 19:00	0.2	-0.005
257	1847	135	1982	703	703	88	791	-1868.5	-843.4	-2254.4	-954.9	12/1/2011 20:00	0.2	-0.005
258	1746	135	1882	657	657	87	744	-1724.2	-777.8	-2164.9	-879.8	12/1/2011 21:00	0.2	-0.004
259	1649	135	1784	614	614	86	700	-1592.7	-717.7	-2070.2	-811.9	12/1/2011 22:00	0.2	-0.004
260	1556	135	1690	576	576	85	660	-1472.8	-662.6	-1972.4	-750.6	12/1/2011 23:00	0.2	-0.005
261	1466	134	1600	540	540	84	624	-1363.4	-612.1	-1873.7	-695.2	13/1/2011 0:00	0.2	-0.004
262	1380	134	1514	507	507	83	590	-1263.6	-565.9	-1775.4	-645.1	13/1/2011 1:00	0.2	-0.004
263	1299	133	1432	477	477	82	559	-1172.5	-523.7	-1678.6	-599.6	13/1/2011 2:00	0.2	-0.004
264	1221	132	1354	449	449	81	530	-1089.2	-485.0	-1584.4	-558.3	13/1/2011 3:00	0.2	-0.004
265	1148	131	1280	423	423	79	503	-1013.1	-449.6	-1493.3	-520.9	13/1/2011 4:00	0.2	-0.003
266	1080	130	1210	400	400	78	478	-943.4	-417.2	-1405.8	-486.8	13/1/2011 5:00	0.2	-0.004
267	1015	129	1144	378	378	77	455	-879.5	-387.6	-1322.2	-455.6	13/1/2011 6:00	0.2	-0.004
268	954	127	1081	357	357	76	433	-821.0	-360.5	-1242.7	-427.2	13/1/2011 7:00	0.2	-0.003
269	897	126	1023	338	338	75	413	-767.3	-335.6	-1167.4	-401.2	13/1/2011 8:00	0.2	-0.003

	A	B	C	D	E	F	G	H	I	J	K	L	M
270	11.000	0.5	1.7	13/01/2011 07:00	462	442	288	730	176	185	153	338	843
271	11.042	0.5	1.6	13/01/2011 08:00	432	413	282	696	163	172	151	323	793
272	11.083	0.5	1.6	13/01/2011 09:00	405	387	277	664	152	161	149	309	746
273	11.125	0.5	1.6	13/01/2011 10:00	380	363	271	634	142	150	147	296	702
274	11.167	0.5	1.5	13/01/2011 11:00	356	341	265	606	132	139	145	284	661
275	11.208	0.4	1.5	13/01/2011 12:00	335	320	260	580	123	130	143	273	622
276	11.250	0.4	1.5	13/01/2011 13:00	315	301	254	555	115	122	141	262	586
277	11.292	0.4	1.4	13/01/2011 14:00	296	283	249	532	108	114	139	252	552
278	11.333	0.4	1.4	13/01/2011 15:00	279	266	244	510	101	106	137	243	521
279	11.375	0.4	1.4	13/01/2011 16:00	263	251	238	489	94	99	135	234	491
280	11.417	0.4	1.3	13/01/2011 17:00	248	237	233	470	88	93	133	226	464
281	11.458	0.4	1.3	13/01/2011 18:00	234	224	228	452	83	87	131	218	438
282	11.500	0.4	1.3	13/01/2011 19:00	221	211	223	434	78	82	129	211	414
283	11.542	0.4	1.3	13/01/2011 20:00	209	200	218	418	73	77	127	204	391
284	11.583	0.4	1.2	13/01/2011 21:00	198	189	214	403	68	72	125	197	370
285	11.625	0.4	1.2	13/01/2011 22:00	187	179	209	388	64	68	123	191	350
286	11.667	0.3	1.2	13/01/2011 23:00	178	170	204	374	61	64	121	185	331
287	11.708	0.3	1.2	14/01/2011 00:00	169	161	200	361	57	60	119	180	314
288	11.750	0.3	1.1	14/01/2011 01:00	160	153	195	348	54	57	118	174	298
289	11.792	0.3	1.1	14/01/2011 02:00	152	145	191	336	51	53	116	169	282
290	11.833	0.3	1.1	14/01/2011 03:00	145	138	187	325	48	50	114	165	268
291	11.875	0.3	1.1	14/01/2011 04:00	138	132	183	314	45	48	112	160	254
292	11.917	0.3	1.0	14/01/2011 05:00	131	125	179	304	43	45	111	156	241
293	11.958	0.3	1.0	14/01/2011 06:00	125	120	175	294	40	42	109	151	229
294	12.000	0.3	1.0	14/01/2011 07:00	119	114	171	285	38	40	107	147	218
295	12.042	0.3	1.0	14/01/2011 08:00	114	109	167	276	36	38	106	144	208
296	12.083	0.3	1.0	14/01/2011 09:00	109	104	163	267	34	36	104	140	198
297	12.125	0.3	0.9	14/01/2011 10:00	104	100	159	259	32	34	102	137	188
298	12.167	0.3	0.9	14/01/2011 11:00	100	95	156	251	31	32	101	133	179
299	12.208	0.3	0.9	14/01/2011 12:00	96	91	152	244	29	31	99	130	171
300	12.250	0.3	0.9	14/01/2011 13:00	92	88	149	236	28	29	98	127	163
301	12.292	0.3	0.9	14/01/2011 14:00	88	84	146	230	26	28	96	124	155
302	12.333	0.2	0.9	14/01/2011 15:00	84	81	142	223	25	26	95	121	148
303	12.375	0.2	0.8	14/01/2011 16:00	81	78	139	217	24	25	93	118	142
304	12.417	0.2	0.8	14/01/2011 17:00	78	75	136	210	22	24	92	116	135
305	12.458	0.2	0.8	14/01/2011 18:00	75	72	133	205	21	22	90	113	129
306	12.500	0.2	0.8	14/01/2011 19:00	72	69	130	199	20	21	89	110	124
307	12.542	0.2	0.8	14/01/2011 20:00	70	67	127	193	19	20	88	108	118
308	12.583	0.2	0.8	14/01/2011 21:00	67	64	124	188	18	19	86	106	113
309	12.625	0.2	0.8	14/01/2011 22:00	65	62	121	183	18	18	85	103	108
310	12.667	0.2	0.7	14/01/2011 23:00	63	60	118	178	17	18	84	101	104
311	12.708	0.2	0.7	15/01/2011 00:00	60	58	116	173	16	17	82	99	100
312	12.750	0.2	0.7	15/01/2011 01:00	58	56	113	169	15	16	81	97	95
313	12.792	0.2	0.7	15/01/2011 02:00	56	54	110	164	15	15	80	95	91
314	12.833	0.2	0.7	15/01/2011 03:00	55	52	108	160	14	15	79	93	88

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
270	843	125	968	320	320	73	394	-717.9	-312.9	-1096.2	-377.3	13/1/2011 9:00	0.2	-0.004
271	793	123	916	304	304	72	376	-672.4	-292.0	-1029.2	-355.3	13/1/2011 10:00	0.2	-0.003
272	746	121	867	288	288	71	359	-630.6	-272.9	-966.1	-335.0	13/1/2011 11:00	0.2	-0.003
273	702	120	822	274	274	70	343	-592.0	-255.3	-906.9	-316.2	13/1/2011 12:00	0.2	-0.003
274	661	118	779	260	260	68	329	-556.4	-239.2	-851.4	-298.7	13/1/2011 13:00	0.2	-0.004
275	622	116	738	247	247	67	315	-523.5	-224.4	-799.5	-282.4	13/1/2011 14:00	0.2	-0.003
276	586	115	701	235	235	66	301	-493.1	-210.7	-750.9	-267.2	13/1/2011 15:00	0.2	-0.002
277	552	113	665	224	224	65	289	-465.0	-198.2	-705.5	-252.9	13/1/2011 16:00	0.2	-0.003
278	521	111	632	214	214	64	277	-438.8	-186.6	-663.1	-239.6	13/1/2011 17:00	0.2	-0.003
279	491	109	601	204	204	62	266	-414.6	-175.9	-623.5	-227.0	13/1/2011 18:00	0.2	-0.003
280	464	108	571	194	194	61	256	-392.1	-166.1	-586.6	-215.2	13/1/2011 19:00	0.1	-0.003
281	438	106	544	185	185	60	246	-371.2	-157.0	-552.1	-204.0	13/1/2011 20:00	0.1	-0.002
282	414	104	518	177	177	59	236	-351.7	-148.6	-519.9	-193.6	13/1/2011 21:00	0.1	-0.003
283	391	102	493	169	169	58	227	-333.6	-140.8	-489.9	-183.7	13/1/2011 22:00	0.1	-0.002
284	370	100	470	162	162	57	219	-316.6	-133.6	-461.8	-174.5	13/1/2011 23:00	0.1	-0.003
285	350	98	449	155	155	56	211	-300.8	-126.9	-435.6	-165.8	14/1/2011 0:00	0.1	-0.002
286	331	97	428	148	148	55	203	-286.0	-120.7	-411.2	-157.6	14/1/2011 1:00	0.1	-0.002
287	314	95	409	142	142	53	196	-272.2	-114.9	-388.4	-150.0	14/1/2011 2:00	0.1	-0.003
288	298	93	391	136	136	52	189	-259.3	-109.5	-367.0	-142.9	14/1/2011 3:00	0.1	-0.002
289	282	91	374	131	131	51	182	-247.1	-104.4	-347.1	-136.2	14/1/2011 4:00	0.1	-0.002
290	268	90	357	126	126	50	176	-235.8	-99.8	-328.4	-129.9	14/1/2011 5:00	0.1	-0.002
291	254	88	342	121	121	49	170	-225.1	-95.4	-311.0	-124.0	14/1/2011 6:00	0.1	-0.002
292	241	86	328	116	116	48	164	-215.1	-91.3	-294.7	-118.5	14/1/2011 7:00	0.1	-0.002
293	229	84	314	112	112	47	159	-205.6	-87.5	-279.3	-113.3	14/1/2011 8:00	0.1	-0.003
294	218	83	301	107	107	46	154	-196.8	-83.9	-265.0	-108.4	14/1/2011 9:00	0.1	-0.001
295	208	81	289	103	103	45	149	-188.4	-80.5	-251.6	-103.8	14/1/2011 10:00	0.1	-0.002
296	198	80	277	100	100	44	144	-180.5	-77.4	-239.0	-99.5	14/1/2011 11:00	0.1	-0.002
297	188	78	266	96	96	44	140	-173.1	-74.4	-227.1	-95.3	14/1/2011 12:00	0.1	-0.002
298	179	76	256	93	93	43	135	-166.0	-71.6	-216.0	-91.4	14/1/2011 13:00	0.1	-0.002
299	171	75	246	89	89	42	131	-159.4	-68.9	-205.6	-87.7	14/1/2011 14:00	0.1	-0.002
300	163	73	236	86	86	41	127	-153.1	-66.5	-195.8	-84.1	14/1/2011 15:00	0.1	-0.002
301	155	72	227	83	83	40	123	-147.2	-64.1	-186.5	-80.6	14/1/2011 16:00	0.1	-0.001
302	148	70	219	81	81	39	120	-141.6	-61.9	-177.8	-77.3	14/1/2011 17:00	0.1	-0.002
303	142	69	210	78	78	38	116	-136.2	-59.8	-169.6	-74.2	14/1/2011 18:00	0.1	-0.002
304	135	67	203	75	75	38	113	-131.2	-57.8	-161.9	-71.1	14/1/2011 19:00	0.1	-0.001
305	129	66	195	73	73	37	110	-126.4	-55.9	-154.6	-68.2	14/1/2011 20:00	0.1	-0.002
306	124	64	188	71	71	36	107	-121.8	-54.2	-147.7	-65.4	14/1/2011 21:00	0.1	-0.001
307	118	63	181	68	68	35	104	-117.5	-52.5	-141.2	-62.7	14/1/2011 22:00	0.1	-0.002
308	113	62	175	66	66	34	101	-113.4	-50.9	-135.0	-60.2	14/1/2011 23:00	0.1	-0.001
309	108	60	169	64	64	34	98	-109.5	-49.3	-129.2	-57.8	15/1/2011 0:00	0.1	-0.002
310	104	59	163	62	62	33	95	-105.7	-47.9	-123.7	-55.5	15/1/2011 1:00	0.1	-0.001
311	100	58	157	61	61	32	93	-102.2	-46.5	-118.5	-53.3	15/1/2011 2:00	0.1	-0.002
312	95	57	152	59	59	32	90	-98.8	-45.1	-113.5	-51.2	15/1/2011 3:00	0.1	-0.001
313	91	55	147	57	57	31	88	-95.5	-43.9	-108.9	-49.3	15/1/2011 4:00	0.1	-0.001
314	88	54	142	56	56	30	86	-92.5	-42.7	-104.4	-47.4	15/1/2011 5:00	0.1	-0.002

	A	B	C	D	E	F	G	H	I	J	K	L	M
315	12.875	0.2	0.7	15/01/2011 04:00	53	51	105	156	13	14	77	91	84
316	12.917	0.2	0.7	15/01/2011 05:00	51	49	103	152	13	13	76	89	81
317	12.958	0.2	0.7	15/01/2011 06:00	50	48	101	148	12	13	75	88	78
318	13.000	0.2	0.6	15/01/2011 07:00	48	46	98	145	12	12	74	86	75
319	13.042	0.2	0.6	15/01/2011 08:00	47	45	96	141	11	12	73	84	72
320	13.083	0.2	0.6	15/01/2011 09:00	45	43	94	137	11	11	71	83	69
321	13.125	0.2	0.6	15/01/2011 10:00	44	42	92	134	10	11	70	81	66
322	13.167	0.2	0.6	15/01/2011 11:00	43	41	90	131	10	10	69	80	64
323	13.208	0.2	0.6	15/01/2011 12:00	42	40	88	128	9	10	68	78	61
324	13.250	0.2	0.6	15/01/2011 13:00	41	39	86	124	9	9	67	77	59
325	13.292	0.2	0.6	15/01/2011 14:00	39	38	84	121	9	9	66	75	57
326	13.333	0.2	0.6	15/01/2011 15:00	38	37	82	119	8	9	65	74	55
327	13.375	0.2	0.6	15/01/2011 16:00	37	36	80	116	8	8	64	72	53
328	13.417	0.2	0.6	15/01/2011 17:00	36	35	78	113	8	8	63	71	51
329	13.458	0.2	0.6	15/01/2011 18:00	36	34	76	110	7	8	62	70	49
330	13.500	0.2	0.6	15/01/2011 19:00	35	33	75	108	7	7	61	68	47
331	13.542	0.2	0.6	15/01/2011 20:00	34	32	73	105	7	7	60	67	45
332	13.583	0.2	0.6	15/01/2011 21:00	33	31	71	103	6	7	59	66	44
333	13.625	0.2	0.6	15/01/2011 22:00	32	31	70	100	6	7	58	65	42
334	13.667	0.2	0.6	15/01/2011 23:00	31	30	68	98	6	6	57	64	41
335	13.708	0.2	0.6	16/01/2011 00:00	31	29	66	96	6	6	56	62	39
336	13.750	0.2	0.6	16/01/2011 01:00	30	29	65	93	6	6	55	61	38
337	13.792	0.2	0.6	16/01/2011 02:00	29	28	63	91	5	6	55	60	37
338	13.833	0.2	0.6	16/01/2011 03:00	29	27	62	89	5	5	54	59	36
339	13.875	0.2	0.6	16/01/2011 04:00	28	27	61	87	5	5	53	58	34
340	13.917	0.2	0.6	16/01/2011 05:00	27	26	59	85	5	5	52	57	33
341	13.958	0.2	0.6	16/01/2011 06:00	27	25	58	83	5	5	51	56	32
342	14.000	0.2	0.6	16/01/2011 07:00	26	25	56	81	4	5	50	55	31
343	14.042	0.2	0.6	16/01/2011 08:00	25	24	55	80	4	5	50	54	30
344	14.083	0.2	0.6	16/01/2011 09:00	25	24	54	78	4	4	49	53	29
345	14.125	0.2	0.6	16/01/2011 10:00	24	23	53	76	4	4	48	52	28
346	14.167	0.2	0.6	16/01/2011 11:00	24	23	51	74	4	4	47	51	27
347	14.208	0.2	0.6	16/01/2011 12:00	23	22	50	73	4	4	47	50	26
348	14.250	0.2	0.6	16/01/2011 13:00	23	22	49	71	4	4	46	50	26
349	14.292	0.2	0.6	16/01/2011 14:00	22	21	48	69	3	4	45	49	25
350	14.333	0.2	0.6	16/01/2011 15:00	22	21	47	68	3	4	44	48	24
351	14.375	0.2	0.6	16/01/2011 16:00	22	21	46	66	3	3	44	47	23
352	14.417	0.2	0.6	16/01/2011 17:00	21	20	45	65	3	3	43	46	22
353	14.458	0.2	0.6	16/01/2011 18:00	21	20	44	63	3	3	42	45	22
354	14.500	0.2	0.6	16/01/2011 19:00	20	19	43	62	3	3	42	45	21
355	14.542	0.2	0.6	16/01/2011 20:00	20	19	42	61	3	3	41	44	20
356	14.583	0.2	0.6	16/01/2011 21:00	19	19	41	59	3	3	40	43	20
357	14.625	0.2	0.6	16/01/2011 22:00	19	18	40	58	3	3	40	42	19
358	14.667	0.2	0.6	16/01/2011 23:00	19	18	39	57	3	3	39	42	19
359	14.708	0.2	0.6	17/01/2011 00:00	18	18	38	56	2	3	38	41	18

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	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
315	84	53	137	54	54	30	84	-89.5	-41.5	-100.2	-45.6	15/1/2011 6:00	0.1	-0.001
316	81	52	133	53	53	29	82	-86.7	-40.4	-96.2	-44.0	15/1/2011 7:00	0.1	-0.001
317	78	51	128	51	51	28	80	-84.0	-39.3	-92.4	-42.5	15/1/2011 8:00	0.1	-0.002
318	75	50	124	50	50	28	78	-81.4	-38.3	-88.8	-41.0	15/1/2011 9:00	0.1	-0.001
319	72	48	120	49	49	27	76	-79.0	-37.3	-85.3	-39.6	15/1/2011 10:00	0.1	-0.001
320	69	47	116	48	48	27	74	-76.6	-36.4	-82.1	-38.3	15/1/2011 11:00	0.1	-0.001
321	66	46	112	47	47	26	73	-74.3	-35.5	-78.9	-37.0	15/1/2011 12:00	0.1	-0.001
322	64	45	109	45	45	25	71	-72.2	-34.6	-75.9	-35.9	15/1/2011 13:00	0.1	-0.001
323	61	44	106	44	44	25	69	-70.0	-33.7	-73.1	-34.8	15/1/2011 14:00	0.1	-0.002
324	59	43	102	43	43	24	68	-68.0	-33.0	-70.4	-33.7	15/1/2011 15:00	0.1	-0.001
325	57	42	99	42	42	24	66	-66.1	-32.2	-67.8	-32.7	15/1/2011 16:00	0.1	-0.001
326	55	41	96	41	41	23	65	-64.3	-31.4	-65.4	-31.8	15/1/2011 17:00	0.1	-0.067
327	53	40	93	41	41	23	63	-62.4	-30.7	-63.0	-30.9	15/1/2011 18:00		
328	51	40	90	40	40	22	62	-60.7	-30.0	-60.7	-30.0	15/1/2011 19:00		
329	49	39	88	39	39	22	61	-59.1	-29.3	-58.6	-29.2	15/1/2011 20:00		
330	47	38	85	38	38	21	59	-57.5	-28.7	-56.5	-28.4	15/1/2011 21:00		
331	45	37	82	37	37	21	58	-55.9	-28.0	-54.6	-27.7	15/1/2011 22:00		
332	44	36	80	36	36	20	57	-54.4	-27.4	-52.7	-27.0	15/1/2011 23:00		
333	42	35	78	36	36	20	56	-53.0	-26.8	-50.9	-26.3	16/1/2011 0:00		
334	41	34	75	35	35	20	55	-51.6	-26.2	-49.1	-25.6	16/1/2011 1:00		
335	39	34	73	34	34	19	53	-50.3	-25.7	-47.5	-25.0	16/1/2011 2:00		
336	38	33	71	34	34	19	52	-48.9	-25.1	-45.9	-24.4	16/1/2011 3:00		
337	37	32	69	33	33	18	51	-47.6	-24.6	-44.4	-23.8	16/1/2011 4:00		
338	36	31	67	32	32	18	50	-46.5	-24.1	-42.9	-23.2	16/1/2011 5:00		
339	34	31	65	32	32	18	49	-45.2	-23.6	-41.5	-22.7	16/1/2011 6:00		
340	33	30	63	31	31	17	48	-44.1	-23.1	-40.1	-22.2	16/1/2011 7:00		
341	32	29	61	30	30	17	47	-43.0	-22.7	-38.8	-21.6	16/1/2011 8:00		
342	31	29	60	30	30	16	46	-41.9	-22.2	-37.6	-21.2	16/1/2011 9:00		
343	30	28	58	29	29	16	45	-40.9	-21.7	-36.4	-20.7	16/1/2011 10:00		
344	29	27	56	29	29	16	45	-39.9	-21.4	-35.2	-20.2	16/1/2011 11:00		
345	28	27	55	28	28	15	44	-38.8	-20.9	-34.1	-19.8	16/1/2011 12:00		
346	27	26	53	28	28	15	43	-37.9	-20.5	-33.0	-19.3	16/1/2011 13:00		
347	26	26	52	27	27	15	42	-37.0	-20.1	-32.0	-18.8	16/1/2011 14:00		
348	26	25	50	27	27	14	41	-36.0	-19.7	-31.0	-18.4	16/1/2011 15:00		
349	25	24	49	26	26	14	40	-35.2	-19.3	-30.0	-18.0	16/1/2011 16:00		
350	24	24	48	26	26	14	40	-34.3	-19.0	-29.1	-17.5	16/1/2011 17:00		
351	23	23	46	25	25	14	39	-33.5	-18.6	-28.2	-17.1	16/1/2011 18:00		
352	22	23	45	25	25	13	38	-32.7	-18.2	-27.4	-16.7	16/1/2011 19:00		
353	22	22	44	24	24	13	37	-31.9	-17.9	-26.5	-16.3	16/1/2011 20:00		
354	21	22	43	24	24	13	37	-31.1	-17.6	-25.8	-15.9	16/1/2011 21:00		
355	20	21	42	23	23	12	36	-30.4	-17.2	-25.0	-15.4	16/1/2011 22:00		
356	20	21	41	23	23	12	35	-29.6	-16.9	-24.2	-15.1	16/1/2011 23:00		
357	19	20	39	23	23	12	35	-28.9	-16.6	-23.5	-14.6	17/1/2011 0:00		
358	19	20	38	22	22	12	34	-28.3	-16.3	-22.8	-14.3	17/1/2011 1:00		
359	18	19	37	22	22	11	33	-27.5	-16.0	-22.2	-13.9	17/1/2011 2:00		

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	A	B	C	D	E	F	G	H	I	J	K	L	M
360	14.750	0.2	0.6	17/01/2011 01:00	18	17	37	54	2	3	38	40	18
361	14.792	0.2	0.6	17/01/2011 02:00	18	17	36	53	2	2	37	40	17
362	14.833	0.2	0.6	17/01/2011 03:00	17	17	36	52	2	2	37	39	17
363	14.875	0.2	0.6	17/01/2011 04:00	17	16	35	51	2	2	36	38	16
364	14.917	0.2	0.6	17/01/2011 05:00	17	16	34	50	2	2	35	38	16
365	14.958	0.2	0.6	17/01/2011 06:00	16	16	33	49	2	2	35	37	15
366	15.000	0.2	0.6	17/01/2011 07:00	16	15	32	48	2	2	34	36	15
367	15.042	0.2	0.6	17/01/2011 08:00	16	15	32	47	2	2	34	36	14
368	15.083	0.2	0.6	17/01/2011 09:00	15	15	31	46	2	2	33	35	14
369	15.125	0.2	0.6	17/01/2011 10:00	15	15	30	45	2	2	33	35	14
370	15.167	0.2	0.6	17/01/2011 11:00	15	14	30	44	2	2	32	34	13
371	15.208	0.2	0.6	17/01/2011 12:00	15	14	29	43	2	2	32	33	13
372	15.250	0.2	0.6	17/01/2011 13:00	14	14	28	42	2	2	31	33	12
373	15.292	0.2	0.6	17/01/2011 14:00	14	14	28	41	2	2	31	32	12
374	15.333	0.2	0.6	17/01/2011 15:00	14	13	27	40	2	2	30	32	12
375	15.375	0.2	0.6	17/01/2011 16:00	14	13	26	39	2	2	30	31	11
376	15.417	0.2	0.6	17/01/2011 17:00	13	13	26	39	1	2	29	31	11
377	15.458	0.2	0.6	17/01/2011 18:00	13	13	25	38	1	1	29	30	11
378	15.500	0.2	0.6	17/01/2011 19:00	13	12	25	37	1	1	28	30	11
379	15.542	0.2	0.6	17/01/2011 20:00	13	12	24	36	1	1	28	29	10
380	15.583	0.2	0.6	17/01/2011 21:00	13	12	23	35	1	1	27	29	10
381	15.625	0.2	0.6	17/01/2011 22:00	12	12	23	35	1	1	27	28	10
382	15.667	0.2	0.6	17/01/2011 23:00	12	12	22	34	1	1	27	28	10
383	15.708	0.2	0.6	18/01/2011 00:00	12	11	22	33	1	1	26	27	9
384	15.750	0.2	0.6	18/01/2011 01:00	12	11	21	33	1	1	26	27	9
385	15.792	0.2	0.6	18/01/2011 02:00	12	11	21	32	1	1	25	27	9
386	15.833	0.2	0.6	18/01/2011 03:00	11	11	20	31	1	1	25	26	9
387	15.875	0.2	0.6	18/01/2011 04:00	11	11	20	31	1	1	25	26	8
388	15.917	0.2	0.6	18/01/2011 05:00	11	11	20	30	1	1	24	25	8
389	15.958	0.2	0.6	18/01/2011 06:00	11	10	19	29	1	1	24	25	8
390	16.000	0.2	0.6	18/01/2011 07:00	11	10	19	29	1	1	23	24	8
391	16.042	0.2	0.6	18/01/2011 08:00	10	10	18	28	1	1	23	24	8
392	16.083	0.2	0.6	18/01/2011 09:00	10	10	18	28	1	1	23	24	7
393	16.125	0.2	0.6	18/01/2011 10:00	10	10	17	27	1	1	22	23	7
394	16.167	0.2	0.6	18/01/2011 11:00	10	10	17	27	1	1	22	23	7
395	16.208	0.2	0.6	18/01/2011 12:00	10	9	17	26	1	1	22	22	7
396	16.250	0.2	0.6	18/01/2011 13:00	10	9	16	26	1	1	21	22	7
397	16.292	0.2	0.6	18/01/2011 14:00	10	9	16	25	1	1	21	22	7
398	16.333	0.2	0.6	18/01/2011 15:00	9	9	16	25	1	1	21	21	6
399	16.375	0.2	0.6	18/01/2011 16:00	9	9	15	24	1	1	20	21	6
400	16.417	0.2	0.6	18/01/2011 17:00	9	9	15	24	1	1	20	21	6
401	16.458	0.2	0.6	18/01/2011 18:00	9	9	14	23	1	1	20	20	6
402	16.500	0.2	0.6	18/01/2011 19:00	9	8	14	23	1	1	19	20	6
403	16.542	0.2	0.6	18/01/2011 20:00	9	8	14	22	1	1	19	20	6
404	16.583	0.2	0.6	18/01/2011 21:00	9	8	14	22	1	1	19	19	6

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
360	18	19	36	22	22	11	33	-26.9	-15.7	-21.5	-13.5	17/1/2011 3:00		
361	17	18	35	21	21	11	32	-26.3	-15.4	-20.9	-13.1	17/1/2011 4:00		
362	17	18	35	21	21	11	32	-25.7	-15.2	-20.3	-12.7	17/1/2011 5:00		
363	16	18	34	20	20	10	31	-25.0	-14.9	-19.7	-12.4	17/1/2011 6:00		
364	16	17	33	20	20	10	30	-24.5	-14.6	-19.1	-12.1	17/1/2011 7:00		
365	15	17	32	20	20	10	30	-23.9	-14.3	-18.6	-11.7	17/1/2011 8:00		
366	15	16	31	20	20	10	29	-23.3	-14.1	-18.0	-11.4	17/1/2011 9:00		
367	14	16	30	19	19	10	29	-22.8	-13.8	-17.6	-11.1	17/1/2011 10:00		
368	14	16	30	19	19	9	28	-22.3	-13.6	-17.1	-10.8	17/1/2011 11:00		
369	14	15	29	19	19	9	28	-21.7	-13.4	-16.6	-10.5	17/1/2011 12:00		
370	13	15	28	18	18	9	27	-21.2	-13.1	-16.1	-10.2	17/1/2011 13:00		
371	13	15	27	18	18	9	27	-20.7	-12.9	-15.6	-10.0	17/1/2011 14:00		
372	12	14	27	18	18	9	27	-20.2	-12.7	-15.2	-9.7	17/1/2011 15:00		
373	12	14	26	18	18	8	26	-19.8	-12.5	-14.8	-9.5	17/1/2011 16:00		
374	12	14	25	17	17	8	26	-19.3	-12.2	-14.4	-9.2	17/1/2011 17:00		
375	11	13	25	17	17	8	25	-18.9	-12.0	-14.0	-9.0	17/1/2011 18:00		
376	11	13	24	17	17	8	25	-18.4	-11.8	-13.6	-8.8	17/1/2011 19:00		
377	11	13	24	17	17	8	25	-18.0	-11.6	-13.2	-8.6	17/1/2011 20:00		
378	11	12	23	17	17	8	24	-17.6	-11.4	-12.9	-8.4	17/1/2011 21:00		
379	10	12	22	16	16	7	24	-17.2	-11.2	-12.5	-8.2	17/1/2011 22:00		
380	10	12	22	16	16	7	23	-16.8	-11.0	-12.2	-8.0	17/1/2011 23:00		
381	10	11	21	16	16	7	23	-16.4	-10.8	-11.8	-7.8	18/1/2011 0:00		
382	10	11	21	16	16	7	23	-16.0	-10.6	-11.6	-7.7	18/1/2011 1:00		
383	9	11	20	16	16	7	22	-15.7	-10.5	-11.2	-7.5	18/1/2011 2:00		
384	9	11	20	15	15	7	22	-15.3	-10.3	-11.0	-7.4	18/1/2011 3:00		
385	9	10	19	15	15	7	22	-15.0	-10.1	-10.7	-7.2	18/1/2011 4:00		
386	9	10	19	15	15	6	21	-14.7	-9.9	-10.4	-7.1	18/1/2011 5:00		
387	8	10	18	15	15	6	21	-14.3	-9.8	-10.1	-6.9	18/1/2011 6:00		
388	8	10	18	15	15	6	21	-14.0	-9.6	-9.8	-6.8	18/1/2011 7:00		
389	8	10	17	14	14	6	21	-13.7	-9.4	-9.6	-6.7	18/1/2011 8:00		
390	8	9	17	14	14	6	20	-13.3	-9.3	-9.3	-6.5	18/1/2011 9:00		
391	8	9	17	14	14	6	20	-13.1	-9.1	-9.1	-6.4	18/1/2011 10:00		
392	7	9	16	14	14	6	20	-12.8	-9.0	-8.8	-6.3	18/1/2011 11:00		
393	7	9	16	14	14	6	19	-12.5	-8.8	-8.6	-6.2	18/1/2011 12:00		
394	7	8	15	14	14	5	19	-12.2	-8.7	-8.4	-6.1	18/1/2011 13:00		
395	7	8	15	14	14	5	19	-11.9	-8.5	-8.2	-6.0	18/1/2011 14:00		
396	7	8	15	13	13	5	19	-11.7	-8.4	-8.0	-5.9	18/1/2011 15:00		
397	7	8	14	13	13	5	18	-11.4	-8.2	-7.8	-5.8	18/1/2011 16:00		
398	6	8	14	13	13	5	18	-11.2	-8.1	-7.5	-5.7	18/1/2011 17:00		
399	6	8	14	13	13	5	18	-10.9	-8.0	-7.4	-5.6	18/1/2011 18:00		
400	6	7	13	13	13	5	18	-10.7	-7.8	-7.2	-5.5	18/1/2011 19:00		
401	6	7	13	13	13	5	17	-10.5	-7.7	-7.0	-5.4	18/1/2011 20:00		
402	6	7	13	12	12	5	17	-10.2	-7.6	-6.8	-5.3	18/1/2011 21:00		
403	6	7	12	12	12	5	17	-10.0	-7.5	-6.6	-5.2	18/1/2011 22:00		
404	6	7	12	12	12	4	17	-9.8	-7.3	-6.5	-5.1	18/1/2011 23:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
405	16.625	0.2	0.6	18/01/2011 22:00	8	8	13	21	1	1	18	19	5
406	16.667	0.2	0.6	18/01/2011 23:00	8	8	13	21	1	1	18	19	5
407	16.708	0.2	0.6	19/01/2011 00:00	8	8	13	20	1	1	18	18	5
408	16.750	0.2	0.6	19/01/2011 01:00	8	8	12	20	1	1	18	18	5
409	16.792	0.2	0.6	19/01/2011 02:00	8	8	12	20	1	1	17	18	5
410	16.833	0.2	0.6	19/01/2011 03:00	8	8	12	19	1	1	17	18	5
411	16.875	0.2	0.6	19/01/2011 04:00	8	7	12	19	1	1	17	17	5
412	16.917	0.2	0.6	19/01/2011 05:00	8	7	11	19	1	1	16	17	5
413	16.958	0.2	0.6	19/01/2011 06:00	8	7	11	18	1	1	16	17	4
414	17.000	0.2	0.6	19/01/2011 07:00	7	7	11	18	1	1	16	16	4
415	17.042	0.2	0.6	19/01/2011 08:00	7	7	11	18	1	1	16	16	4
416	17.083	0.2	0.6	19/01/2011 09:00	7	7	10	17	1	1	15	16	4
417	17.125	0.2	0.6	19/01/2011 10:00	7	7	10	17	0	1	15	16	4
418	17.167	0.2	0.6	19/01/2011 11:00	7	7	10	17	0	1	15	15	4
419	17.208	0.2	0.6	19/01/2011 12:00	7	7	10	16	0	1	15	15	4
420	17.250	0.2	0.6	19/01/2011 13:00	7	7	9	16	0	0	14	15	4
421	17.292	0.2	0.6	19/01/2011 14:00	7	6	9	16	0	0	14	15	4
422	17.333	0.2	0.6	19/01/2011 15:00	7	6	9	15	0	0	14	14	4
423	17.375	0.2	0.6	19/01/2011 16:00	7	6	9	15	0	0	14	14	4
424	17.417	0.2	0.6	19/01/2011 17:00	6	6	9	15	0	0	14	14	4
425	17.458	0.2	0.6	19/01/2011 18:00	6	6	8	15	0	0	13	14	3
426	17.500	0.2	0.6	19/01/2011 19:00	6	6	8	14	0	0	13	14	3
427	17.542	0.2	0.6	19/01/2011 20:00	6	6	8	14	0	0	13	13	3
428	17.583	0.2	0.6	19/01/2011 21:00	6	6	8	14	0	0	13	13	3
429	17.625	0.2	0.6	19/01/2011 22:00	6	6	8	13	0	0	12	13	3
430	17.667	0.2	0.6	19/01/2011 23:00	6	6	8	13	0	0	12	13	3
431	17.708	0.2	0.6	20/01/2011 00:00	6	6	7	13	0	0	12	12	3
432	17.750	0.2	0.6	20/01/2011 01:00	6	6	7	13	0	0	12	12	3
433	17.792	0.2	0.6	20/01/2011 02:00	6	5	7	13	0	0	12	12	3
434	17.833	0.2	0.6	20/01/2011 03:00	6	5	7	12	0	0	12	12	3
435	17.875	0.2	0.6	20/01/2011 04:00	6	5	7	12	0	0	11	12	3
436	17.917	0.2	0.6	20/01/2011 05:00	5	5	7	12	0	0	11	12	3
437	17.958	0.2	0.6	20/01/2011 06:00	5	5	6	12	0	0	11	11	3
438	18.000	0.2	0.6	20/01/2011 07:00	5	5	6	11	0	0	11	11	3
439	18.042	0.2	0.6	20/01/2011 08:00	5	5	6	11	0	0	11	11	3
440	18.083	0.2	0.6	20/01/2011 09:00	5	5	6	11	0	0	10	11	3
441	18.125	0.2	0.6	20/01/2011 10:00	5	5	6	11	0	0	10	11	2
442	18.167	0.2	0.6	20/01/2011 11:00	5	5	6	11	0	0	10	10	2
443	18.208	0.2	0.6	20/01/2011 12:00	5	5	6	10	0	0	10	10	2
444	18.250	0.2	0.6	20/01/2011 13:00	5	5	6	10	0	0	10	10	2
445	18.292	0.2	0.6	20/01/2011 14:00	5	5	5	10	0	0	10	10	2
446	18.333	0.2	0.6	20/01/2011 15:00	5	5	5	10	0	0	10	10	2
447	18.375	0.2	0.6	20/01/2011 16:00	5	5	5	10	0	0	9	10	2
448	18.417	0.2	0.6	20/01/2011 17:00	5	4	5	10	0	0	9	9	2
449	18.458	0.2	0.6	20/01/2011 18:00	5	4	5	9	0	0	9	9	2

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
405	5	7	12	12	12	4	16	-9.6	-7.2	-6.3	-5.0	19/1/2011 0:00		
406	5	6	12	12	12	4	16	-9.3	-7.1	-6.2	-5.0	19/1/2011 1:00		
407	5	6	11	12	12	4	16	-9.1	-7.0	-6.0	-4.9	19/1/2011 2:00		
408	5	6	11	12	12	4	16	-8.9	-6.8	-5.8	-4.8	19/1/2011 3:00		
409	5	6	11	12	12	4	16	-8.8	-6.7	-5.7	-4.7	19/1/2011 4:00		
410	5	6	11	11	11	4	15	-8.5	-6.6	-5.5	-4.6	19/1/2011 5:00		
411	5	6	10	11	11	4	15	-8.4	-6.5	-5.4	-4.6	19/1/2011 6:00		
412	5	6	10	11	11	4	15	-8.2	-6.4	-5.3	-4.5	19/1/2011 7:00		
413	4	5	10	11	11	4	15	-8.0	-6.3	-5.1	-4.4	19/1/2011 8:00		
414	4	5	10	11	11	4	15	-7.8	-6.2	-5.0	-4.4	19/1/2011 9:00		
415	4	5	9	11	11	4	14	-7.7	-6.1	-4.9	-4.3	19/1/2011 10:00		
416	4	5	9	11	11	4	14	-7.5	-6.0	-4.8	-4.2	19/1/2011 11:00		
417	4	5	9	11	11	3	14	-7.4	-5.9	-4.7	-4.2	19/1/2011 12:00		
418	4	5	9	11	11	3	14	-7.2	-5.8	-4.5	-4.1	19/1/2011 13:00		
419	4	5	9	10	10	3	14	-7.0	-5.7	-4.4	-4.0	19/1/2011 14:00		
420	4	5	8	10	10	3	14	-6.9	-5.6	-4.3	-4.0	19/1/2011 15:00		
421	4	4	8	10	10	3	13	-6.8	-5.5	-4.2	-3.9	19/1/2011 16:00		
422	4	4	8	10	10	3	13	-6.6	-5.4	-4.1	-3.9	19/1/2011 17:00		
423	4	4	8	10	10	3	13	-6.5	-5.3	-4.0	-3.8	19/1/2011 18:00		
424	4	4	8	10	10	3	13	-6.3	-5.3	-3.9	-3.8	19/1/2011 19:00		
425	3	4	8	10	10	3	13	-6.2	-5.1	-3.8	-3.7	19/1/2011 20:00		
426	3	4	7	10	10	3	13	-6.1	-5.1	-3.7	-3.6	19/1/2011 21:00		
427	3	4	7	10	10	3	12	-5.9	-5.0	-3.6	-3.6	19/1/2011 22:00		
428	3	4	7	9	9	3	12	-5.8	-4.9	-3.6	-3.5	19/1/2011 23:00		
429	3	4	7	9	9	3	12	-5.7	-4.8	-3.5	-3.5	20/1/2011 0:00		
430	3	4	7	9	9	3	12	-5.6	-4.8	-3.4	-3.4	20/1/2011 1:00		
431	3	4	7	9	9	3	12	-5.5	-4.7	-3.3	-3.4	20/1/2011 2:00		
432	3	3	6	9	9	3	12	-5.3	-4.6	-3.2	-3.4	20/1/2011 3:00		
433	3	3	6	9	9	3	12	-5.2	-4.5	-3.1	-3.3	20/1/2011 4:00		
434	3	3	6	9	9	3	11	-5.1	-4.4	-3.1	-3.2	20/1/2011 5:00		
435	3	3	6	9	9	2	11	-5.0	-4.4	-3.0	-3.2	20/1/2011 6:00		
436	3	3	6	9	9	2	11	-4.9	-4.3	-2.9	-3.1	20/1/2011 7:00		
437	3	3	6	9	9	2	11	-4.8	-4.2	-2.9	-3.1	20/1/2011 8:00		
438	3	3	6	8	8	2	11	-4.7	-4.2	-2.8	-3.1	20/1/2011 9:00		
439	3	3	5	8	8	2	11	-4.6	-4.1	-2.7	-3.0	20/1/2011 10:00		
440	3	3	5	8	8	2	11	-4.5	-4.0	-2.7	-3.0	20/1/2011 11:00		
441	2	3	5	8	8	2	10	-4.4	-4.0	-2.6	-2.9	20/1/2011 12:00		
442	2	3	5	8	8	2	10	-4.3	-3.9	-2.5	-2.9	20/1/2011 13:00		
443	2	3	5	8	8	2	10	-4.3	-3.8	-2.5	-2.9	20/1/2011 14:00		
444	2	3	5	8	8	2	10	-4.2	-3.8	-2.4	-2.8	20/1/2011 15:00		
445	2	3	5	8	8	2	10	-4.1	-3.7	-2.4	-2.8	20/1/2011 16:00		
446	2	2	5	8	8	2	10	-4.0	-3.6	-2.3	-2.7	20/1/2011 17:00		
447	2	2	5	8	8	2	10	-3.9	-3.6	-2.2	-2.7	20/1/2011 18:00		
448	2	2	5	8	8	2	10	-3.8	-3.5	-2.2	-2.7	20/1/2011 19:00		
449	2	2	4	8	8	2	10	-3.8	-3.5	-2.2	-2.6	20/1/2011 20:00		

	A	B	C	D	E	F	G	H	I	J	K	L	M
450	18.500	0.2	0.6	20/01/2011 19:00	5	4	5	9	0	0	9	9	2
451	18.542	0.2	0.6	20/01/2011 20:00	5	4	5	9	0	0	9	9	2
452	18.583	0.2	0.6	20/01/2011 21:00	4	4	5	9	0	0	9	9	2
453	18.625	0.2	0.6	20/01/2011 22:00	4	4	5	9	0	0	8	9	2
454	18.667	0.2	0.6	20/01/2011 23:00	4	4	4	9	0	0	8	9	2
455	18.708	0.2	0.6	21/01/2011 00:00	4	4	4	8	0	0	8	8	2
456	18.750	0.2	0.6	21/01/2011 01:00	4	4	4	8	0	0	8	8	2
457	18.792	0.2	0.6	21/01/2011 02:00	4	4	4	8	0	0	8	8	2
458	18.833	0.2	0.6	21/01/2011 03:00	4	4	4	8	0	0	8	8	2
459	18.875	0.2	0.6	21/01/2011 04:00	4	4	4	8	0	0	8	8	2
460	18.917	0.2	0.6	21/01/2011 05:00	4	4	4	8	0	0	8	8	2
461	18.958	0.2	0.6	21/01/2011 06:00	4	4	4	8	0	0	7	8	2
462	19.000	0.2	0.6	21/01/2011 07:00	4	4	4	7	0	0	7	8	2
463	19.042	0.2	0.6	21/01/2011 08:00	4	4	4	7	0	0	7	7	2
464	19.083	0.2	0.6	21/01/2011 09:00	4	4	4	7	0	0	7	7	2
465	19.125	0.2	0.6	21/01/2011 10:00	4	4	3	7	0	0	7	7	2
466	19.167	0.2	0.6	21/01/2011 11:00	4	4	3	7	0	0	7	7	2
467	19.208	0.2	0.6	21/01/2011 12:00	4	4	3	7	0	0	7	7	2
468	19.250	0.2	0.6	21/01/2011 13:00	4	4	3	7	0	0	7	7	1
469	19.292	0.2	0.6	21/01/2011 14:00	4	3	3	7	0	0	7	7	1
470	19.333	0.2	0.6	21/01/2011 15:00	4	3	3	7	0	0	6	7	1
471	19.375	0.2	0.6	21/01/2011 16:00	4	3	3	6	0	0	6	7	1
472	19.417	0.2	0.6	21/01/2011 17:00	3	3	3	6	0	0	6	6	1
473	19.458	0.2	0.6	21/01/2011 18:00	3	3	3	6	0	0	6	6	1
474	19.500	0.2	0.6	21/01/2011 19:00	3	3	3	6	0	0	6	6	1
475	19.542	0.2	0.6	21/01/2011 20:00	3	3	3	6	0	0	6	6	1
476	19.583	0.2	0.6	21/01/2011 21:00	3	3	3	6	0	0	6	6	1
477	19.625	0.2	0.6	21/01/2011 22:00	3	3	3	6	0	0	6	6	1
478	19.667	0.2	0.6	21/01/2011 23:00	3	3	3	6	0	0	6	6	1
479	19.708	0.2	0.6	22/01/2011 00:00	3	3	3	6	0	0	6	6	1
480	19.750	0.2	0.6	22/01/2011 01:00	3	3	3	6	0	0	6	6	1
481	19.792	0.2	0.6	22/01/2011 02:00	3	3	2	5	0	0	5	6	1
482	19.833	0.2	0.6	22/01/2011 03:00	3	3	2	5	0	0	5	5	1
483	19.875	0.2	0.6	22/01/2011 04:00	3	3	2	5	0	0	5	5	1
484	19.917	0.2	0.6	22/01/2011 05:00	3	3	2	5	0	0	5	5	1
485	19.958	0.2	0.6	22/01/2011 06:00	3	3	2	5	0	0	5	5	1
486	20.000	0.2	0.6	22/01/2011 07:00	3	3	2	5	0	0	5	5	1
487				22/01/2011 08:00	3	3	2	5	0	0	5	5	1
488				22/01/2011 09:00	3	3	2	5	0	0	5	5	1
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	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
450	2	2	4	7	7	2	9	-3.7	-3.4	-2.1	-2.6	20/1/2011 21:00		
451	2	2	4	7	7	2	9	-3.6	-3.4	-2.1	-2.5	20/1/2011 22:00		
452	2	2	4	7	7	2	9	-3.6	-3.3	-2.0	-2.5	20/1/2011 23:00		
453	2	2	4	7	7	2	9	-3.5	-3.2	-2.0	-2.5	21/1/2011 0:00		
454	2	2	4	7	7	2	9	-3.4	-3.2	-1.9	-2.4	21/1/2011 1:00		
455	2	2	4	7	7	2	9	-3.3	-3.1	-1.9	-2.4	21/1/2011 2:00		
456	2	2	4	7	7	2	9	-3.3	-3.1	-1.8	-2.4	21/1/2011 3:00		
457	2	2	4	7	7	2	9	-3.2	-3.1	-1.8	-2.4	21/1/2011 4:00		
458	2	2	4	7	7	2	9	-3.2	-3.0	-1.8	-2.3	21/1/2011 5:00		
459	2	2	4	7	7	2	8	-3.1	-3.0	-1.7	-2.3	21/1/2011 6:00		
460	2	2	3	7	7	2	8	-3.0	-2.9	-1.7	-2.2	21/1/2011 7:00		
461	2	2	3	7	7	2	8	-3.0	-2.8	-1.6	-2.2	21/1/2011 8:00		
462	2	2	3	7	7	2	8	-2.9	-2.8	-1.6	-2.2	21/1/2011 9:00		
463	2	2	3	7	7	2	8	-2.8	-2.8	-1.6	-2.2	21/1/2011 10:00		
464	2	2	3	6	6	1	8	-2.8	-2.7	-1.5	-2.2	21/1/2011 11:00		
465	2	2	3	6	6	1	8	-2.7	-2.7	-1.5	-2.1	21/1/2011 12:00		
466	2	2	3	6	6	1	8	-2.7	-2.6	-1.5	-2.1	21/1/2011 13:00		
467	2	2	3	6	6	1	8	-2.6	-2.6	-1.4	-2.1	21/1/2011 14:00		
468	1	1	3	6	6	1	8	-2.6	-2.5	-1.4	-2.0	21/1/2011 15:00		
469	1	1	3	6	6	1	8	-2.5	-2.5	-1.4	-2.0	21/1/2011 16:00		
470	1	1	3	6	6	1	7	-2.5	-2.5	-1.3	-2.0	21/1/2011 17:00		
471	1	1	3	6	6	1	7	-2.4	-2.4	-1.3	-2.0	21/1/2011 18:00		
472	1	1	3	6	6	1	7	-2.4	-2.4	-1.3	-1.9	21/1/2011 19:00		
473	1	1	3	6	6	1	7	-2.4	-2.4	-1.2	-1.9	21/1/2011 20:00		
474	1	1	3	6	6	1	7	-2.3	-2.3	-1.2	-1.9	21/1/2011 21:00		
475	1	1	3	6	6	1	7	-2.3	-2.3	-1.2	-1.9	21/1/2011 22:00		
476	1	1	3	6	6	1	7	-2.2	-2.2	-1.1	-1.8	21/1/2011 23:00		
477	1	1	2	6	6	1	7	-2.2	-2.2	-1.1	-1.8	22/1/2011 0:00		
478	1	1	2	6	6	1	7	-2.1	-2.2	-1.1	-1.8	22/1/2011 1:00		
479	1	1	2	6	6	1	7	-2.1	-2.1	-1.1	-1.8	22/1/2011 2:00		
480	1	1	2	5	5	1	7	-2.1	-2.1	-1.1	-1.7	22/1/2011 3:00		
481	1	1	2	5	5	1	7	-2.0	-2.1	-1.0	-1.7	22/1/2011 4:00		
482	1	1	2	5	5	1	6	-2.0	-2.1	-1.0	-1.7	22/1/2011 5:00		
483	1	1	2	5	5	1	6	-1.9	-2.0	-1.0	-1.7	22/1/2011 6:00		
484	1	1	2	5	5	1	6	-1.9	-2.0	-1.0	-1.7	22/1/2011 7:00		
485	1	1	2	5	5	1	6	-1.9	-1.9	-0.9	-1.6	22/1/2011 8:00		
486	1	1	2	5	5	1	6	0.0	0.0	0.0	0.0	22/1/2011 9:00		
487	1	1	2	5	5	1	6							
488	1	1	2	5	5	1	6							
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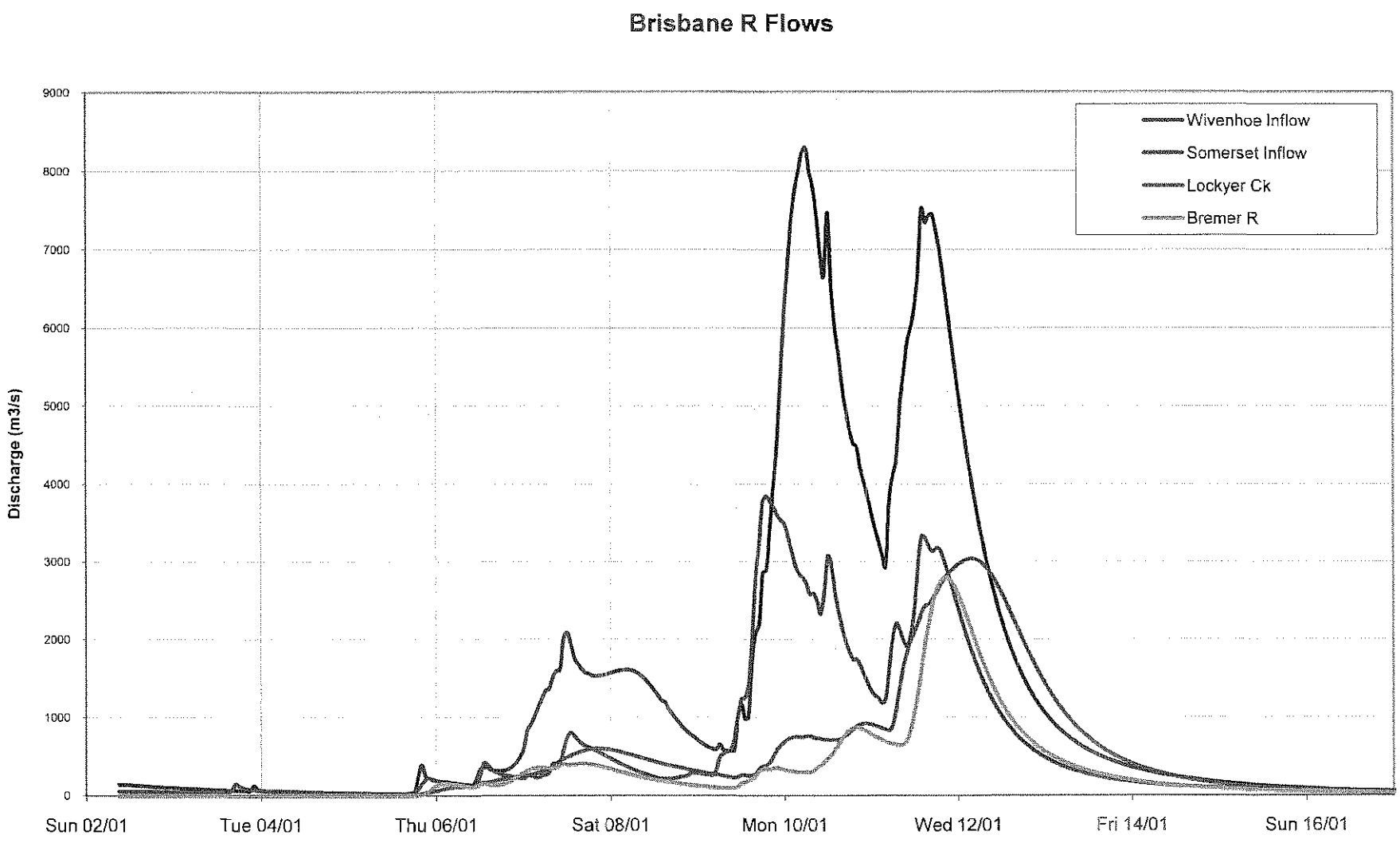
Brisbane R Flows
Discharge (m3/s)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Sun 02/01
Tue 04/01
Thu 06/01
Sat 08/01
Mon 10/01
Wed 12/01
Fri 14/01
Sun 16/01
Wivenhoe Inflow
Somerset Inflow
Lockyer Ck
Bremer R

RD5-1870

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1			2	16	hrs		60 minutes	Somerset																
2	Wivenhoe Inflow	Somerset Inflow	Lockyer Creek	Bremer River	Somerset Change in Storage	Wivenhoe Change in Storage	Date/Time	Cal Lake Level	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)	Rec Gauge Boards	No of Regulators Open	No of Sluices Open	No of Gates Open	Hydro	Total Somerset Discharge	1	2	3	4	5	Increments	Regulator + Hydro
3	m3/s	m3/s	m3/s	m3/s	ML	ML		m AHD	NI 100 (100mm/hr)	Rate of Rise (mm/hr)	Net Inflow (m3/sec)					m3/s	m3/s							m3/s
4	150	60	143	102			Sun 02/01/11 09:00	99.10				99.10	0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
5	146	59	139	99	0.0021	0.0045	Sun 02/01/11 10:00	99.10	1187.66	-50.83	-603.69		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
6	143	58	136	97	0.0020	0.0043	Sun 02/01/11 11:00	99.10	1187.89	-48.89	-580.80		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
7	139	57	133	95	0.0020	0.0042	Sun 02/01/11 12:00	99.11	1188.10	-46.99	-558.28		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
8	136	56	130	92	0.0019	0.0041	Sun 02/01/11 13:00	99.11	1188.31	-45.12	-536.12		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
9	133	55	127	90	0.0018	0.0040	Sun 02/01/11 14:00	99.11	1188.51	-43.27	-514.32		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
10	130	54	124	88	0.0017	0.0039	Sun 02/01/11 15:00	99.11	1188.70	-41.46	-492.87		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
11	127	54	121	86	0.0017	0.0038	Sun 02/01/11 16:00	99.11	1188.88	-39.68	-471.76		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
12	124	53	118	84	0.0016	0.0037	Sun 02/01/11 17:00	99.11	1189.06	-37.93	-450.99		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
13	121	52	115	82	0.0015	0.0036	Sun 02/01/11 18:00	99.12	1189.23	-36.20	-430.55		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
14	118	51	112	80	0.0014	0.0035	Sun 02/01/11 19:00	99.12	1189.39	-34.51	-410.44		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
15	115	50	109	78	0.0014	0.0034	Sun 02/01/11 20:00	99.12	1189.54	-32.84	-390.65		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
16	112	49	107	76	0.0013	0.0033	Sun 02/01/11 21:00	99.12	1189.68	-31.20	-371.18		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
17	109	49	104	74	0.0012	0.0032	Sun 02/01/11 22:00	99.12	1189.82	-29.59	-352.02		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
18	107	48	102	72	0.0012	0.0031	Sun 02/01/11 23:00	99.12	1189.95	-28.00	-333.17		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
19	104	47	99	71	0.0011	0.0030	Mon 03/01/11 00:00	99.12	1190.08	-26.44	-314.62		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
20	102	46	97	69	0.0010	0.0029	Mon 03/01/11 01:00	99.12	1190.19	-24.90	-296.37		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
21	99	46	95	68	0.0010	0.0028	Mon 03/01/11 02:00	99.13	1190.30	-23.39	-278.41		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
22	97	45	92	66	0.0009	0.0028	Mon 03/01/11 03:00	99.13	1190.41	-21.90	-260.74		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
23	95	44	90	65	0.0009	0.0027	Mon 03/01/11 04:00	99.13	1190.50	-20.44	-243.35		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
24	92	43	88	64	0.0008	0.0026	Mon 03/01/11 05:00	99.13	1190.60	-19.00	-226.24		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
25	90	43	86	130	0.0007	0.0025	Mon 03/01/11 06:00	99.13	1190.68	-17.59	-209.41		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
26	88	42	84	85	0.0007	0.0025	Mon 03/01/11 07:00	99.13	1190.76	-16.20	-192.84		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
27	86	41	82	74	0.0006	0.0024	Mon 03/01/11 08:00	99.13	1190.83	-14.83	-176.55	99.20	0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
28	84	41	80	71	0.0006	0.0023	Mon 03/01/11 09:00	99.13	1190.89	-13.48	-160.51		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
29	82	40	78	68	0.0005	0.0022	Mon 03/01/11 10:00	99.13	1190.95	-12.15	-144.73		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
30	80	39	76	66	0.0005	0.0022	Mon 03/01/11 11:00	99.13	1191.01	-10.85	-129.20		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
31	78	39	74	64	0.0004	0.0021	Mon 03/01/11 12:00	99.13	1191.06	-9.56	-113.92		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
32	76	38	72	62	0.0003	0.0021	Mon 03/01/11 13:00	99.13	1191.10	-8.30	-98.89		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
33	74	38	71	60	0.0003	0.0020	Mon 03/01/11 14:00	99.13	1191.13	-7.06	-84.10		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
34	72	37	69	58	0.0002	0.0019	Mon 03/01/11 15:00	99.13	1191.17	-5.84	-69.55		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
35	71	83	67	57	0.0021	0.0019	Mon 03/01/11 16:00	99.14	1191.19	-51.15	-609.28		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
36	69	153	66	55	0.0070	0.0018	Mon 03/01/11 17:00	99.14	1191.42	-167.80	-1999.25		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
37	68	125	64	54	0.0088	0.0018	Mon 03/01/11 18:00	99.15	1192.16	-210.85	-2513.71		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
38	66	105	63	52	0.0068	0.0017	Mon 03/01/11 19:00	99.16	1193.10	-162.88	-1943.32		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50
39	65	92	61	51	0.0054	0.0017	Mon 03/01/11 20:00	99.16	1193.82	-129.15	-1541.79		0.5	0.0	8	0	34	0.0	0.0	0.0	0.0	0.0	0	50

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
1	Wivenhoe											10195	11736	12257		Inflows				
2	1	2	3	4	5	Total Wivenhoe Discharge	Cal Lake Level	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	Rec Gauge Boards	Lowood Flow	Moggill Flow (JT Upda	Moggill Flow		Stanley R	Upper Brisbane R	Upper Brisbane + Somerset Outflow	Total	
3	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m AHD	Rate of Rise (mm/hr)	NI 100 (100mm/hr)	Nett Inflow (m3/sec)	m AHD	m3/s	m3/s	m3/s		ML	ML		ML	
4	0	0	0	0	0	50	**67.10**				**67.10**	50		50		0	0	123	0	
5	0	0	0	0	0	50	67.10	107.1	2970	3182		50		50		213	527	773	740	
6	0	0	0	0	0	50	67.11	104.2	2971	3096		50		50		422	1,041	1,411	1,463	
7	0	0	0	0	0	50	67.11	101.4	2971	3013		50		50		627	1,543	2,036	2,171	
8	0	0	0	0	0	50	67.12	98.6	2972	2932		50		50		830	2,033	2,649	2,863	
9	0	0	0	0	0	50	67.12	95.9	2973	2852		50		50		1,029	2,512	3,251	3,541	
10	0	0	0	0	0	50	67.13	93.3	2974	2775		50		50		1,225	2,978	3,841	4,204	
11	0	0	0	0	0	50	67.13	90.8	2974	2699		50		50		1,418	3,434	4,419	4,852	
12	0	0	0	0	0	50	67.13	88.3	2975	2626		50		50		1,608	3,879	4,987	5,487	
13	0	0	0	0	0	50	67.14	85.8	2976	2554		50		50		1,795	4,313	5,544	6,108	
14	0	0	0	0	0	50	67.14	83.4	2976	2483		50		50		1,979	4,736	6,091	6,715	
15	0	0	0	0	0	50	67.14	81.1	2977	2415		50		50		2,160	5,150	6,628	7,309	
16	0	0	0	0	0	50	67.15	78.8	2978	2348		50	50	50		2,338	5,553	7,154	7,891	
17	0	0	0	0	0	50	67.15	76.6	2978	2282		50	50	50		2,513	5,947	7,671	8,460	
18	0	0	0	0	0	50	67.15	74.5	2979	2219		50	50	50		2,685	6,331	8,179	9,016	
19	0	0	0	0	0	50	67.16	72.4	2979	2156		50	50	50		2,855	6,706	8,677	9,561	
20	0	0	0	0	0	50	67.16	70.3	2980	2096		50	50	50		3,022	7,072	9,166	10,094	
21	0	0	0	0	0	50	67.16	68.3	2980	2036		50	50	50		3,186	7,430	9,647	10,615	
22	0	0	0	0	0	50	67.16	66.4	2981	1979		50	50	50		3,347	7,778	10,119	11,126	
23	0	0	0	0	0	50	67.17	64.5	2981	1922		50	50	50		3,506	8,119	10,582	11,625	
24	0	0	0	0	0	50	67.17	62.6	2982	1867		50	50	50		3,663	8,451	11,038	12,114	
25	0	0	0	0	0	50	67.17	60.8	2982	1813		50	50	50		3,817	8,775	11,485	12,592	
26	0	0	0	0	0	50	67.17	59.0	2983	1761		50	50	50		3,968	9,091	11,925	13,060	
27	0	0	0	0	0	50	67.18	57.3	2983	1709	**67.15**	50	50	50		4,117	9,400	12,357	13,518	
28	0	0	0	0	0	50	67.18	55.6	2984	1659		50	50	50		4,264	9,702	12,781	13,966	
29	0	0	0	0	0	50	67.18	54.0	2984	1611		50	50	50		4,408	9,996	13,199	14,404	
30	0	0	0	0	0	50	67.18	52.4	2985	1563		50	50	50		4,550	10,283	13,609	14,833	
31	0	0	0	0	0	50	67.19	50.8	2985	1517		50	50	50		4,690	10,563	14,013	15,253	
32	0	0	0	0	0	50	67.19	49.3	2985	1471		50	50	50		4,827	10,837	14,409	15,664	
33	0	0	0	0	0	50	67.19	47.8	2986	1427		50	50	50		4,963	11,104	14,800	16,067	
34	0	0	0	0	0	50	67.19	46.3	2986	1384		50	50	50		5,096	11,364	15,183	16,460	
35	0	0	0	0	0	50	67.19	45.0	2986	1344		50	50	50		5,393	11,620	15,562	17,013	
36	0	0	0	0	0	50	67.20	43.8	2987	1310		50	50	50		5,943	11,870	15,935	17,813	
37	0	0	0	0	0	50	67.20	42.6	2987	1273		50	50	50		6,395	12,114	16,302	18,509	
38	0	0	0	0	0	50	67.20	41.3	2987	1234		50	50	50		6,774	12,352	16,664	19,126	
39	0	0	0	0	0	50	67.20	40.1	2988	1197		50	50	50		7,105	12,585	17,021	19,690	

RD5-1872

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
1	Outflows											
2	Somerset	Wivenhoe										
3	ML	ML										
4	123	180		-180								
5	246	360		380								
6	369	540		923								
7	493	720		1,451								
8	616	900		1,963								
9	739	1,080		2,461								
10	862	1,260		2,944								
11	985	1,440		3,412								
12	1,108	1,620		3,867								
13	1,232	1,800		4,308								
14	1,355	1,980		4,735								
15	1,478	2,160		5,149								
16	1,601	2,340		5,551								
17	1,724	2,520		5,940								
18	1,848	2,700		6,316								
19	1,971	2,880		6,681								
20	2,094	3,060		7,034								
21	2,217	3,240		7,375								
22	2,340	3,420		7,706								
23	2,464	3,600		8,025								
24	2,587	3,780		8,334								
25	2,710	3,960		8,632								
26	2,833	4,140		8,920								
27	2,956	4,320		9,198								
28	3,080	4,500		9,466								
29	3,203	4,680		9,724								
30	3,326	4,860		9,973								
31	3,449	5,040		10,213								
32	3,573	5,220		10,444								
33	3,696	5,400		10,667								
34	3,819	5,580		10,880								
35	3,942	5,760		11,253								
36	4,065	5,940		11,873								
37	4,189	6,120		12,389								
38	4,312	6,300		12,826								
39	4,435	6,480		13,210								

RD5-1873

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
40	64	82	60	49	0.0044	0.0016	**Mon 03/01/11 21:00**	99.17	1194.39	-106.01	-1266.20		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
41	130	79	58	48	0.0039	0.0027	**Mon 03/01/11 22:00**	99.17	1194.86	-93.18	-1113.40		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
42	85	69	57	47	0.0033	0.0031	**Mon 03/01/11 23:00**	99.17	1195.27	-79.88	-954.80		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
43	74	64	56	46	0.0027	0.0021	**Tue 04/01/11 00:00**	99.18	1195.63	-64.94	-776.40		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
44	71	61	54	44	0.0023	0.0019	**Tue 04/01/11 01:00**	99.18	1195.92	-56.27	-672.96		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
45	68	57	53	43	0.0020	0.0018	**Tue 04/01/11 02:00**	99.18	1196.17	-49.07	-586.95		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
46	66	54	52	42	0.0018	0.0017	**Tue 04/01/11 03:00**	99.18	1196.39	-42.98	-514.20		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
47	64	52	51	41	0.0016	0.0016	**Tue 04/01/11 04:00**	99.19	1196.58	-37.75	-451.73		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
48	62	50	49	40	0.0014	0.0016	**Tue 04/01/11 05:00**	99.19	1196.74	-33.20	-397.31		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
49	60	48	48	39	0.0012	0.0015	**Tue 04/01/11 06:00**	99.19	1196.89	-29.18	-349.26		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
50	58	46	47	38	0.0011	0.0015	**Tue 04/01/11 07:00**	99.19	1197.02	-25.59	-306.34	**99.26**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
51	57	45	46	37	0.0009	0.0014	**Tue 04/01/11 08:00**	99.19	1197.13	-22.35	-267.60		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
52	55	43	45	36	0.0008	0.0013	**Tue 04/01/11 09:00**	99.19	1197.23	-19.40	-232.25		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
53	54	42	44	35	0.0007	0.0013	**Tue 04/01/11 10:00**	99.19	1197.32	-16.68	-199.75		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
54	52	41	43	34	0.0006	0.0012	**Tue 04/01/11 11:00**	99.19	1197.39	-14.17	-169.64		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
55	51	40	42	33	0.0005	0.0012	**Tue 04/01/11 12:00**	99.19	1197.46	-11.82	-141.53		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
56	49	39	41	32	0.0004	0.0012	**Tue 04/01/11 13:00**	99.19	1197.51	-9.62	-115.15		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
57	48	38	40	31	0.0003	0.0011	**Tue 04/01/11 14:00**	99.19	1197.55	-7.54	-90.28		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
58	47	37	39	31	0.0002	0.0011	**Tue 04/01/11 15:00**	99.19	1197.59	-5.57	-66.70		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
59	46	36	38	30	0.0002	0.0010	**Tue 04/01/11 16:00**	99.19	1197.61	-3.70	-44.28		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
60	44	35	37	29	0.0001	0.0010	**Tue 04/01/11 17:00**	99.19	1197.63	-1.91	-22.89		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
61	43	34	36	28	0.0000	0.0009	**Tue 04/01/11 18:00**	99.19	1197.64	-0.20	-2.41		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
62	42	33	35	28	-0.0001	0.0009	**Tue 04/01/11 19:00**	99.19	1197.64	1.44	17.22		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
63	41	33	35	27	-0.0001	0.0009	**Tue 04/01/11 20:00**	99.19	1197.63	3.01	36.08		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
64	40	32	34	26	-0.0002	0.0008	**Tue 04/01/11 21:00**	99.19	1197.62	4.53	54.27		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
65	39	31	33	26	-0.0002	0.0008	**Tue 04/01/11 22:00**	99.19	1197.60	6.00	71.80		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
66	38	30	32	25	-0.0003	0.0008	**Tue 04/01/11 23:00**	99.19	1197.57	7.41	88.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
67	37	30	31	24	-0.0004	0.0007	**Wed 05/01/11 00:00**	99.19	1197.54	8.78	105.09		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
68	36	29	31	25	-0.0004	0.0007	**Wed 05/01/11 01:00**	99.19	1197.50	10.10	120.93		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
69	35	28	30	28	-0.0005	0.0007	**Wed 05/01/11 02:00**	99.19	1197.45	11.38	136.27		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
70	34	28	29	242	-0.0005	0.0006	**Wed 05/01/11 03:00**	99.19	1197.40	12.62	151.14		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
71	33	27	29	393	-0.0006	0.0006	**Wed 05/01/11 04:00**	99.19	1197.35	13.83	165.56		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
72	32	27	28	254	-0.0006	0.0006	**Wed 05/01/11 05:00**	99.19	1197.29	15.00	179.55		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
73	31	26	27	227	-0.0007	0.0005	**Wed 05/01/11 06:00**	99.19	1197.22	16.13	193.15		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
74	31	26	27	206	-0.0007	0.0005	**Wed 05/01/11 07:00**	99.19	1197.15	17.24	206.37	**99.28**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
75	30	25	26	194	-0.0008	0.0005	**Wed 05/01/11 08:00**	99.19	1197.07	18.31	219.22		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
76	29	25	25	186	-0.0008	0.0005	**Wed 05/01/11 09:00**	99.19	1196.99	19.36	231.69		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
77	28	24	25	180	-0.0008	0.0004	**Wed 05/01/11 10:00**	99.19	1196.90	20.37	243.83		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
78	28	24	24	179	-0.0009	0.0004	**Wed 05/01/11 11:00**	99.19	1196.81	21.36	255.66		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
79	27	23	24	170	-0.0009	0.0004	**Wed 05/01/11 12:00**	99.18	1196.72	22.33	267.17		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
80	26	23	23	163	-0.0010	0.0004	**Wed 05/01/11 13:00**	99.18	1196.62	23.26	278.38		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
81	26	22	22	157	-0.0010	0.0003	**Wed 05/01/11 14:00**	99.18	1196.51	24.18	289.30		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
82	25	22	22	151	-0.0010	0.0003	**Wed 05/01/11 15:00**	99.18	1196.41	25.07	299.90		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
83	24	27	21	146	-0.0008	0.0003	**Wed 05/01/11 16:00**	99.18	1196.30	20.29	242.72		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
84	25	39	21	141	-0.0001	0.0003	**Wed 05/01/11 17:00**	99.18	1196.21	2.89	34.59		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
85	28	50	22	137	0.0009	0.0004	**Wed 05/01/11 18:00**	99.18	1196.19	-20.46	-244.78		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
86	242	85	22	216	0.0028	0.0040	**Wed 05/01/11 19:00**	99.18	1196.28	-66.29	-793.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
87	393	149	22	334	0.0069	0.0101	**Wed 05/01/11 20:00**	99.19	1196.58	-164.99	-1974.26		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
40	0	0	0	0	0	50	67.20	39.0	2988	1166		50	50	50		7,402	12,814	17,373	20,216	
41	0	0	0	0	0	50	67.20	65.1	2988	1946		50	50	50		7,687	13,281	17,963	20,968	
42	0	0	0	0	0	50	67.21	73.8	2989	2207		50	50	50		7,936	13,589	18,394	21,524	
43	0	0	0	0	0	50	67.21	51.3	2989	1532		50	50	50		8,168	13,853	18,782	22,021	
44	0	0	0	0	0	50	67.21	45.3	2990	1355		50	50	50		8,385	14,107	19,159	22,493	
45	0	0	0	0	0	50	67.21	43.1	2990	1288		50	50	50		8,591	14,352	19,527	22,944	
46	0	0	0	0	0	50	67.22	41.1	2990	1229		50	50	50		8,787	14,588	19,887	23,376	
47	0	0	0	0	0	50	67.22	39.4	2991	1177		50	50	50		8,975	14,817	20,239	23,792	
48	0	0	0	0	0	50	67.22	37.8	2991	1129		50	50	50		9,154	15,039	20,584	24,194	
49	0	0	0	0	0	50	67.22	36.3	2991	1085		50	50	50		9,327	15,255	20,924	24,582	
50	0	0	0	0	0	50	67.22	34.9	2992	1044	**67.19**	50	50	50		9,494	15,465	21,257	24,959	
51	0	0	0	0	0	50	67.22	33.6	2992	1005		50	50	50		9,655	15,669	21,584	25,324	
52	0	0	0	0	0	50	67.22	32.3	2992	967		50	50	50		9,812	15,867	21,906	25,679	
53	0	0	0	0	0	50	67.23	31.1	2992	931		50	50	50		9,963	16,060	22,222	26,023	
54	0	0	0	0	0	50	67.23	30.0	2993	896		50	50	50		10,110	16,248	22,533	26,359	
55	0	0	0	0	0	50	67.23	28.8	2993	862		50	50	50		10,253	16,431	22,840	26,685	
56	0	0	0	0	0	50	67.23	27.7	2993	829		50	50	50		10,393	16,609	23,141	27,002	
57	0	0	0	0	0	50	67.23	26.6	2993	797		50	50	50		10,528	16,783	23,438	27,311	
58	0	0	0	0	0	50	67.23	25.6	2993	766		50	50	50		10,661	16,951	23,730	27,612	
59	0	0	0	0	0	50	67.23	24.6	2994	736		50	50	50		10,789	17,116	24,017	27,905	
60	0	0	0	0	0	50	67.23	23.6	2994	707		50	50	50		10,915	17,275	24,301	28,191	
61	0	0	0	0	0	50	67.23	22.6	2994	678		50	50	50		11,038	17,431	24,580	28,469	
62	0	0	0	0	0	50	67.24	21.7	2994	650		50	50	50		11,158	17,583	24,854	28,741	
63	0	0	0	0	0	50	67.24	20.8	2994	623		50	50	50		11,275	17,730	25,125	29,005	
64	0	0	0	0	0	50	67.24	19.9	2995	597		50	50	50		11,390	17,874	25,392	29,263	
65	0	0	0	0	0	50	67.24	19.1	2995	571		50	50	50		11,501	18,014	25,655	29,515	
66	0	0	0	0	0	50	67.24	18.2	2995	546		50	50	50		11,611	18,150	25,915	29,761	
67	0	0	0	0	0	50	67.24	17.4	2995	522		50	50	50		11,718	18,282	26,171	30,000	
68	0	0	0	0	0	50	67.24	16.7	2995	499		50	50	50		11,822	18,412	26,423	30,234	
69	0	0	0	0	0	50	67.24	15.9	2995	476		50	50	50		11,925	18,537	26,673	30,462	
70	0	0	0	0	0	50	67.24	15.2	2995	454		50	50	50		12,025	18,660	26,918	30,685	
71	0	0	0	0	0	50	67.24	14.4	2995	432		50	50	50		12,123	18,779	27,161	30,902	
72	0	0	0	0	0	50	67.24	13.7	2996	412		50	50	50		12,219	18,896	27,401	31,114	
73	0	0	0	0	0	50	67.24	13.1	2996	391		50	50	50		12,313	19,009	27,637	31,321	
74	0	0	0	0	0	50	67.24	12.4	2996	372	**67.23**	50	50	50		12,405	19,119	27,871	31,524	
75	0	0	0	0	0	50	67.24	11.8	2996	353		50	50	50		12,495	19,227	28,102	31,721	
76	0	0	0	0	0	50	67.24	11.1	2996	334		50	50	51		12,583	19,332	28,330	31,915	
77	0	0	0	0	0	50	67.24	10.5	2996	316		50	50	51		12,669	19,434	28,556	32,103	
78	0	0	0	0	0	50	67.25	10.0	2996	298		50	50	53		12,754	19,533	28,779	32,287	
79	0	0	0	0	0	50	67.25	9.4	2996	281		50	50	59		12,837	19,630	28,999	32,467	
80	0	0	0	0	0	50	67.25	8.8	2996	265		50	50	78		12,918	19,725	29,217	32,643	
81	0	0	0	0	0	50	67.25	8.3	2996	249		50	50	110		12,998	19,817	29,432	32,815	
82	0	0	0	0	0	50	67.25	7.8	2996	233		50	50	146		13,076	19,907	29,646	32,983	
83	0	0	0	0	0	50	67.25	7.3	2996	219		50	50	177		13,173	19,995	29,857	33,168	
84	0	0	0	0	0	50	67.25	7.5	2997	224		50	51	195		13,314	20,087	30,072	33,400	
85	0	0	0	0	0	50	67.25	9.0	2997	271		56	51	209		13,494	20,189	30,297	33,683	
86	0	0	0	0	0	50	67.25	95.7	2997	2868		68	53	221		13,799	21,059	31,291	34,859	
87	0	0	0	0	0	50	67.26	241.8	2997	7247		78	59	229		14,334	22,475	32,830	36,809	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
40	4,559	6,660		13,556								
41	4,682	6,840		14,128								
42	4,805	7,020		14,504								
43	4,928	7,200		14,821								
44	5,052	7,380		15,113								
45	5,175	7,560		15,384								
46	5,298	7,740		15,636								
47	5,422	7,920		15,872								
48	5,545	8,100		16,094								
49	5,668	8,280		16,302								
50	5,792	8,460		16,499								
51	5,915	8,640		16,684								
52	6,038	8,820		16,859								
53	6,162	9,000		17,023								
54	6,285	9,180		17,179								
55	6,408	9,360		17,325								
56	6,532	9,540		17,462								
57	6,655	9,720		17,591								
58	6,778	9,900		17,712								
59	6,902	10,080		17,825								
60	7,025	10,260		17,931								
61	7,148	10,440		18,029								
62	7,272	10,620		18,121								
63	7,395	10,800		18,205								
64	7,519	10,980		18,283								
65	7,642	11,160		18,355								
66	7,765	11,340		18,421								
67	7,889	11,520		18,480								
68	8,012	11,700		18,534								
69	8,135	11,880		18,582								
70	8,259	12,060		18,625								
71	8,382	12,240		18,662								
72	8,505	12,420		18,694								
73	8,629	12,600		18,721								
74	8,752	12,780		18,744								
75	8,875	12,960		18,761								
76	8,999	13,140		18,775								
77	9,122	13,320		18,783								
78	9,245	13,500		18,787								
79	9,369	13,680		18,787								
80	9,492	13,860		18,783								
81	9,615	14,040		18,775								
82	9,739	14,220		18,763								
83	9,862	14,400		18,768								
84	9,985	14,580		18,820								
85	10,108	14,760		18,923								
86	10,232	14,940		19,919								
87	10,355	15,120		21,689								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
88	254	209	22	357	0.0120	0.0103	**Wed 05/01/11 21:00**	99.20	1197.31	-289.07	-3461.06		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
89	227	227	22	362	0.0153	0.0075	**Wed 05/01/11 22:00**	99.22	1198.60	-367.66	-4406.71		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
90	206	210	22	329	0.0153	0.0067	**Wed 05/01/11 23:00**	99.23	1200.23	-368.21	-4419.37		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
91	194	194	21	318	0.0139	0.0061	**Thu 06/01/11 00:00**	99.25	1201.87	-334.02	-4014.55		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
92	186	181	21	317	0.0127	0.0058	**Thu 06/01/11 01:00**	99.26	1203.36	-304.90	-3669.09		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
93	180	171	21	316	0.0117	0.0056	**Thu 06/01/11 02:00**	99.27	1204.72	-281.93	-3396.48		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
94	179	163	21	324	0.0110	0.0055	**Thu 06/01/11 03:00**	99.28	1205.98	-263.67	-3179.86		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
95	170	156	21	342	0.0103	0.0053	**Thu 06/01/11 04:00**	99.29	1207.16	-248.39	-2998.47		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
96	163	150	21	374	0.0098	0.0050	**Thu 06/01/11 05:00**	99.30	1208.27	-234.92	-2838.45		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
97	157	144	21	424	0.0093	0.0048	**Thu 06/01/11 06:00**	99.31	1209.33	-222.60	-2691.97		0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
98	151	138	20	496	0.0088	0.0046	**Thu 06/01/11 07:00**	99.32	1210.32	-211.07	-2554.67	**99.34**	0.5	0.0	8	0	**34**	0.0	0.0	0.0	0.0	0.0	**0**	50
99	146	133	20	595	0.0083	0.0044	**Thu 06/01/11 08:00**	99.33	1211.27	-200.10	-2423.70		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
100	141	128	20	832	0.0079	0.0042	**Thu 06/01/11 09:00**	99.34	1212.17	-189.53	-2297.40		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
101	137	123	20	911	0.0075	0.0041	**Thu 06/01/11 10:00**	99.34	1213.02	-179.30	-2174.94		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
102	216	129	21	1012	0.0075	0.0053	**Thu 06/01/11 11:00**	99.35	1213.82	-180.75	-2193.99		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
103	334	256	21	1130	0.0130	0.0086	**Thu 06/01/11 12:00**	99.37	1214.63	-312.78	-3799.08		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
104	357	411	21	1237	0.0246	0.0109	**Thu 06/01/11 13:00**	99.39	1216.04	-590.48	-7180.52		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
105	362	396	22	1337	0.0303	0.0114	**Thu 06/01/11 14:00**	99.42	1218.70	-727.05	-8860.57		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
106	329	342	22	1367	0.0274	0.0109	**Thu 06/01/11 15:00**	99.45	1221.98	-657.59	-8035.59		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
107	318	307	22	1508	0.0237	0.0102	**Thu 06/01/11 16:00**	99.47	1224.95	-568.83	-6967.86	**99.44**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
108	317	287	22	1592	0.0214	0.0100	**Thu 06/01/11 17:00**	99.49	1227.53	-513.23	-6299.98	**99.45**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
109	316	272	23	1608	0.0199	0.0100	**Thu 06/01/11 18:00**	99.51	1229.85	-477.96	-5878.24	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
110	324	261	23	2010	0.0188	0.0101	**Thu 06/01/11 19:00**	99.53	1232.02	-452.10	-5569.96	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
111	342	252	23	2088	0.0180	0.0105	**Thu 06/01/11 20:00**	99.55	1234.08	-431.36	-5323.35	**99.46**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
112	374	244	24	1941	0.0172	0.0113	**Thu 06/01/11 21:00**	99.57	1236.04	-413.94	-5116.46	**99.49**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
113	424	236	25	1755	0.0166	0.0127	**Thu 06/01/11 22:00**	99.58	1237.93	-398.34	-4931.22	**99.51**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
114	496	229	26	1678	0.0160	0.0146	**Thu 06/01/11 23:00**	99.60	1239.75	-383.66	-4756.46	**99.51**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
115	595	224	28	1617	0.0155	0.0174	**Fri 07/01/11 00:00**	99.61	1241.50	-370.86	-4604.25	**99.52**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
116	832	251	30	1571	0.0163	0.0229	**Fri 07/01/11 01:00**	99.63	1243.19	-391.27	-4864.24	**99.55**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
117	911	258	32	1557	0.0177	0.0281	**Fri 07/01/11 02:00**	99.65	1244.98	-423.64	-5274.31	**99.55**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
118	1012	240	34	1535	0.0172	0.0310	**Fri 07/01/11 03:00**	99.67	1246.93	-412.84	-5147.81	**99.57**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
119	1130	231	36	1529	0.0161	0.0346	**Fri 07/01/11 04:00**	99.68	1248.82	-385.92	-4819.47	**99.58**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
120	1237	256	39	1532	0.0167	0.0381	**Fri 07/01/11 05:00**	99.70	1250.59	-400.65	-5010.50	**99.60**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
121	1337	265	42	1542	0.0180	0.0414	**Fri 07/01/11 06:00**	99.72	1252.44	-432.59	-5417.86	**99.59**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
122	1367	293	44	1555	0.0194	0.0434	**Fri 07/01/11 07:00**	99.74	1254.43	-466.79	-5855.53	**99.60**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
123	1508	406	47	1569	0.0250	0.0461	**Fri 07/01/11 08:00**	99.76	1256.58	-600.71	-7548.37	**99.63**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
124	1592	401	51	1583	0.0293	0.0496	**Fri 07/01/11 09:00**	99.79	1259.35	-702.44	-8846.24		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
125	1608	415	55	1596	0.0296	0.0511	**Fri 07/01/11 10:00**	99.82	1262.60	-709.69	-8960.56	**99.66**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
126	2010	595	58	1606	0.0371	0.0576	**Fri 07/01/11 11:00**	99.86	1265.89	-891.25	-11282.17		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
127	2088	743	61	1611	0.0499	0.0651	**Fri 07/01/11 12:00**	99.91	1270.03	-1198.36	-15219.50	**99.76**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
128	1941	804	64	1609	0.0579	0.0638	**Fri 07/01/11 13:00**	99.96	1275.61	-1390.29	-17734.71		0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
129	1755	762	66	1599	0.0583	0.0583	**Fri 07/01/11 14:00**	100.02	1282.11	-1400.25	-17952.65	**99.90**	0.5	0.0	8	0	**35**	0.0	0.0	0.0	0.0	0.0	**0**	50
130	1678	703	68	1578	0.0541	0.0539	**Fri 07/01/11 15:00**	100.08	1288.68	-1298.36	-16731.59	**99.94**	0.5	0.0	8	0	**35**	0.0	0.0	0.5	0.0	0.0	**1**	13
131	1617	663	70	1547	0.0500	0.0511	**Fri 07/01/11 16:00**	100.13	1294.79	-1201.02	-15550.66		0.5	0.0	8	0	**35**	0.0	0.0	1.0	0.0	0.0	**2**	13
132	1571	635	72	1507	0.0472	0.0476	**Fri 07/01/11 17:00**	100.17	1300.47	-1133.86	-14745.42	**100.04**	1.0	0.0	8	0	**70**	0.0	0.0	1.5	0.0	0.0	**3**	13
133	1557	619	74	1457	0.0427	0.0460	**Fri 07/01/11 18:00**	100.22	1305.84	-1024.41	-13377.21	**100.11**	1.0	0.0	8	0	**70**	0.0	0.0	2.0	0.0	0.0	**4**	13
134	1535	596	76	1401	0.0410	0.0437	**Fri 07/01/11 19:00**	100.26	1310.71	-983.98	-12897.19	**100.15**	0.0	1.0	8	0	**206**	0.0	0.0	2.5	0.0	0.0	**5**	13
135	1529	571	78	1341	0.0287	0.0458	**Fri 07/01/11 20:00**	100.29	1315.40	-689.01	-9063.24	**100.17**	0.0	1.0	8	0	**206**	0.0	0.0	3.0	0.0	0.0	**6**	13

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
88	0	0	0	0	0	50	67.27	246.6	2999	7396		88	78	233		15,085	23,390	33,869	38,476	
89	0	0	0	0	0	50	67.28	180.1	3001	5404		95	110	232		15,904	24,208	34,810	40,113	
90	0	0	0	0	0	50	67.29	160.6	3002	4821		104	146	233		16,659	24,949	35,674	41,608	
91	0	0	0	0	0	50	67.29	147.4	3004	4427		114	177	235		17,357	25,648	36,497	43,005	
92	0	0	0	0	0	50	67.30	139.6	3005	4194		126	195	239		18,008	26,319	37,291	44,327	
93	0	0	0	0	0	50	67.30	133.7	3006	4019		137	203	243		18,624	26,966	38,062	45,589	
94	0	0	0	0	0	50	67.31	130.9	3007	3936		147	204	259		19,210	27,612	38,831	46,822	
95	0	0	0	0	0	50	67.31	126.9	3008	3816		155	200	296		19,771	28,222	39,565	47,994	
96	0	0	0	0	0	50	67.32	120.4	3009	3622		161	195	317		20,310	28,810	40,276	49,120	
97	0	0	0	0	0	50	67.32	115.3	3010	3471		165	193	311		20,827	29,375	40,965	50,203	
98	0	0	0	0	0	50	67.33	110.5	3011	3326	**67.31**	168	197	306		21,325	29,919	41,633	51,244	
99	0	0	0	0	0	50	67.33	105.9	3011	3190		169	199	305		21,803	30,444	42,281	52,247	
100	0	0	0	0	0	50	67.34	101.8	3012	3067		170	202	308		22,262	30,951	42,912	53,213	
101	0	0	0	0	0	50	67.34	98.3	3013	2961		169	201	315		22,704	31,444	43,528	54,148	
102	0	0	0	0	0	50	67.35	128.0	3014	3859		182	216	342		23,169	32,220	44,428	55,389	
103	0	0	0	0	0	50	67.36	206.6	3015	6228		208	256	388		24,092	33,424	45,756	57,516	
104	0	0	0	0	0	50	67.37	262.7	3016	7923		220	282	426		25,572	34,708	47,164	60,280	
105	0	0	0	0	0	50	67.38	273.4	3018	8253		223	282	459		26,999	36,011	48,591	63,010	
106	0	0	0	0	0	50	67.39	262.2	3020	7920		231	285	499		28,231	37,196	49,899	65,427	
107	0	0	0	0	0	50	67.40	244.8	3022	7399	**67.37**	242	291	537		29,338	38,342	51,169	67,680	
108	0	0	0	0	0	50	67.41	239.7	3024	7250	**67.39**	252	300	571		30,370	39,482	52,433	69,852	
109	0	0	0	0	0	50	67.42	238.8	3026	7227	**67.40**	262	312	599		31,351	40,621	53,696	71,971	
110	0	0	0	0	0	50	67.43	241.7	3028	7318	**67.41**	270	328	619		32,290	41,788	54,987	74,078	
111	0	0	0	0	0	50	67.44	251.8	3030	7628	**67.42**	277	349	632		33,197	43,020	56,343	76,217	
112	0	0	0	0	0	50	67.45	271.4	3031	8228	**67.43**	283	375	639		34,075	44,367	57,815	78,442	
113	0	0	0	0	0	50	67.46	303.7	3034	9212	**67.44**	289	406	641		34,926	45,894	59,466	80,820	
114	0	0	0	0	0	50	67.48	351.5	3036	10671		295	450	641		35,751	47,679	61,375	83,430	
115	0	0	0	0	0	50	67.50	418.5	3038	12716	**67.46**	301	504	639		36,557	49,819	63,640	86,376	
116	0	0	0	0	0	50	67.52	550.8	3042	16752		308	540	665		37,460	52,815	66,760	90,275	
117	0	0	0	0	0	50	67.55	674.8	3046	20553	**67.52**	318	560	708		38,389	56,095	70,164	94,484	
118	0	0	0	0	0	50	67.58	744.6	3051	22717		329	580	725		39,254	59,740	73,934	98,994	
119	0	0	0	0	0	50	67.61	829.3	3057	25348	**67.57**	343	596	734		40,084	63,810	78,128	103,894	
120	0	0	0	0	0	50	67.65	915.4	3063	28037		359	607	752		41,007	68,262	82,704	109,269	
121	0	0	0	0	0	50	67.69	994.2	3070	30520	**67.64**	378	614	775		41,960	73,076	87,642	115,035	
122	0	0	0	0	0	50	67.74	1042.8	3077	32090		398	616	801		43,014	77,998	92,690	121,012	
123	0	0	0	0	0	50	67.78	1106.6	3085	34141		420	616	825		44,474	83,428	98,244	127,902	
124	0	0	0	0	0	50	67.83	1190.8	3094	36839	**67.75**	457	640	862		45,918	89,160	104,100	135,078	
125	0	0	0	0	0	50	67.88	1225.9	3103	38038		496	680	898		47,413	94,949	110,014	142,362	
126	0	0	0	0	0	50	67.94	1383.5	3112	43058	**67.81**	519	691	914		49,553	102,187	117,377	151,740	
127	0	0	0	0	0	50	68.00	1563.3	3123	48818		540	692	927		52,229	109,704	125,018	161,933	
128	0	0	0	0	0	50	68.07	1530.8	3135	47986	**67.94**	563	701	938		55,124	116,692	132,131	171,816	
129	0	0	0	0	0	50	68.13	1398.3	3146	43995		582	715	945		57,866	123,011	138,576	180,877	
130	0	0	52	0	0	65	68.18	1293.4	3157	40834	**68.03**	614	732	965		60,395	129,051	144,740	189,446	
131	0	0	104	0	0	117	68.23	1225.8	3167	38820	**68.06**	682	748	1021		62,783	134,872	150,687	197,655	
132	0	0	156	0	0	169	68.28	1142.5	3176	36289		748	764	1073		65,071	140,526	156,592	205,597	
133	0	0	207	0	0	220	68.33	1104.1	3185	35166	**68.12**	810	779	1122		67,300	146,131	162,448	213,431	
134	0	0	257	0	0	270	68.37	1049.3	3194	33509	**68.17**	868	793	1167		69,444	151,657	168,711	221,101	
135	0	0	306	0	0	319	68.42	1100.2	3202	35224	**68.19**	921	806	1208		71,502	157,160	174,953	228,661	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
88	10,479	15,300		23,176								
89	10,602	15,480		24,633								
90	10,725	15,660		25,948								
91	10,849	15,840	1	27,165								
92	10,972	16,020		28,307								
93	11,096	16,200		29,389								
94	11,219	16,380		30,442								
95	11,343	16,560		31,434								
96	11,466	16,740		32,380								
97	11,590	16,920		33,283								
98	11,714	17,100		34,144								
99	11,837	17,280		34,967								
100	11,961	17,460		35,753								
101	12,085	17,640		36,508								
102	12,208	17,820		37,569								
103	12,332	18,000		39,516								
104	12,456	18,180		42,100								
105	12,580	18,360		44,650								
106	12,704	18,540		46,887								
107	12,827	18,720		48,960								
108	12,951	18,900		50,952								
109	13,075	19,080		52,891								
110	13,200	19,260		54,818								
111	13,324	19,440		56,777								
112	13,448	19,620		58,822								
113	13,572	19,800		61,020								
114	13,696	19,980		63,450								
115	13,820	20,160	1	66,216	4,320							
116	13,945	20,340		69,935								
117	14,069	20,520		73,964								
118	14,193	20,700		78,294								
119	14,318	20,880		83,014								
120	14,442	21,060		88,209								
121	14,567	21,240		93,795								
122	14,691	21,420		99,592								
123	14,816	21,600		106,302								
124	14,940	21,780		113,298								
125	15,065	21,960		120,402								
126	15,190	22,140		129,600								
127	15,314	22,320		139,613								
128	15,439	22,500		149,316								
129	15,565	22,680		158,197								
130	15,690	22,913		166,533								
131	15,815	23,333		174,321								
132	16,066	23,940		181,657								
133	16,317	24,731		188,700								
134	17,055	25,703		195,398								
135	17,793	26,853		201,809								

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
136	1532	547	80	1278	0.0268	0.0441	**Fri 07/01/11 21:00**	100.31	1318.69	-642.84	-8477.05	**100.21**	0.0	1.0	8	0	**206**	0.0	0.0	3.5	0.0	0.0	**7**	13
137	1542	522	81	1216	0.0248	0.0428	**Fri 07/01/11 22:00**	100.34	1321.77	-596.19	-7880.29	**100.25**	0.0	1.0	8	0	**206**	0.0	0.5	3.5	0.0	0.0	**8**	13
138	1555	497	83	1190	0.0229	0.0414	**Fri 07/01/11 23:00**	100.36	1324.63	-549.19	-7274.78	**100.28**	0.0	1.0	8	0	**206**	0.0	0.5	3.5	0.5	0.0	**9**	13
139	1569	472	85	1098	0.0209	0.0400	**Sat 08/01/11 00:00**	100.38	1327.26	-502.36	-6667.66	**100.31**	0.0	1.0	8	0	**206**	0.0	1.0	3.5	0.5	0.0	**10**	13
140	1583	447	87	1035	0.0190	0.0387	**Sat 08/01/11 01:00**	100.40	1329.68	-456.31	-6067.43	**100.34**	0.0	1.0	8	0	**206**	0.0	1.0	3.5	1.0	0.0	**11**	13
141	1596	423	89	975	0.0171	0.0374	**Sat 08/01/11 02:00**	100.42	1331.88	-411.45	-5479.97	**100.36**	0.0	1.0	8	0	**206**	0.5	1.0	3.5	1.0	0.0	**12**	13
142	1606	399	90	919	0.0153	0.0360	**Sat 08/01/11 03:00**	100.43	1333.86	-368.08	-4909.71	**100.39**	0.0	1.0	8	0	**207**	0.5	1.0	3.5	1.0	0.5	**13**	13
143	1611	377	92	867	0.0136	0.0345	**Sat 08/01/11 04:00**	100.45	1335.64	-326.61	-4362.32	**100.41**	0.0	1.0	8	0	**207**	0.5	1.5	3.5	1.0	0.5	**14**	13
144	1609	356	93	819	0.0120	0.0329	**Sat 08/01/11 05:00**	100.46	1337.21	-287.27	-3841.36	**100.42**	0.0	1.0	8	0	**207**	0.5	1.5	3.5	1.5	0.5	**15**	13
145	1599	336	95	780	0.0104	0.0310	**Sat 08/01/11 06:00**	100.47	1338.60	-249.95	-3345.86	**100.43**	0.0	1.0	8	0	**207**	1.0	1.5	3.5	1.5	0.5	**16**	13
146	1578	317	96	743	0.0089	0.0288	**Sat 08/01/11 07:00**	100.48	1339.81	-214.69	-2876.45	**100.44**	0.0	1.0	8	0	**207**	1.0	1.5	3.5	1.5	1.0	**17**	13
147	1547	300	97	705	0.0076	0.0263	**Sat 08/01/11 08:00**	100.49	1340.85	-181.62	-2435.31	**100.46**	0.0	1.0	8	0	**207**	1.0	1.5	4.0	1.5	1.0	**18**	13
148	1507	283	98	671	0.0063	0.0237	**Sat 08/01/11 09:00**	100.49	1341.73	-150.72	-2022.32	**100.46**	0.0	1.0	8	0	**207**	1.0	2.0	4.0	1.5	1.0	**19**	13
149	1457	268	99	642	0.0051	0.0207	**Sat 08/01/11 10:00**	100.50	1342.46	-121.90	-1636.48	**100.47**	0.0	1.0	8	0	**207**	1.0	2.0	4.0	2.0	1.0	**20**	13
150	1401	253	99	617	0.0040	0.0175	**Sat 08/01/11 11:00**	100.50	1343.05	-95.03	-1276.26	**100.46**	0.0	1.0	8	0	**208**	1.5	2.0	4.0	2.0	1.0	**21**	13
151	1341	240	100	601	0.0029	0.0141	**Sat 08/01/11 12:00**	100.50	1343.51	-70.15	-942.42	**100.45**	0.0	2.0	8	0	**414**	1.5	2.0	4.0	2.0	1.5	**22**	13
152	1278	228	100	587	-0.0134	0.0168	**Sat 08/01/11 13:00**	100.49	1343.85	322.10	4328.50	**100.45**	0.0	2.0	8	0	**414**	1.5	2.5	4.0	2.0	1.5	**23**	13
153	1216	218	100	654	-0.0142	0.0133	**Sat 08/01/11 14:00**	100.48	1342.29	341.15	4579.23	**100.44**	0.0	2.0	8	0	**414**	1.5	2.5	4.0	2.5	1.5	**24**	13
154	1190	217	100	585	-0.0146	0.0104	**Sat 08/01/11 15:00**	100.46	1340.64	350.32	4696.56	**100.42**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
155	1098	216	100	574	-0.0147	0.0086	**Sat 08/01/11 16:00**	100.45	1338.94	352.14	4714.90	**100.41**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
156	1035	220	100	566	-0.0146	0.0062	**Sat 08/01/11 17:00**	100.43	1337.24	350.27	4684.00	**100.40**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
157	975	230	99	577	-0.0141	0.0044	**Sat 08/01/11 18:00**	100.42	1335.55	338.01	4514.27	**100.38**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
158	919	240	98	1000	-0.0133	0.0026	**Sat 08/01/11 19:00**	100.41	1333.92	320.02	4268.80	**100.37**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
159	867	247	98	1167	-0.0127	0.0010	**Sat 08/01/11 20:00**	100.39	1332.38	304.86	4061.87	**100.36**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
160	819	253	97	983	-0.0122	-0.0005	**Sat 08/01/11 21:00**	100.38	1330.91	293.67	3908.52	**100.35**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
161	780	293	96	1003	-0.0105	-0.0018	**Sat 08/01/11 22:00**	100.37	1329.49	252.87	3361.89	**100.34**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
162	743	288	95	1739	-0.0092	-0.0030	**Sat 08/01/11 23:00**	100.36	1328.28	220.48	2928.57	**100.33**	0.0	2.0	8	0	**413**	1.5	2.5	4.0	2.5	1.5	**24**	13
163	705	290	94	2075	-0.0093	-0.0041	**Sun 09/01/11 00:00**	100.35	1327.22	223.19	2962.27	**100.32**	0.0	2.0	8	0	**412**	1.5	2.5	4.0	2.5	1.5	**24**	13
164	671	283	94	2197	-0.0095	-0.0052	**Sun 09/01/11 01:00**	100.34	1326.15	228.21	3026.37	**100.32**	0.0	2.0	8	0	**412**	1.5	2.5	4.0	2.5	1.5	**24**	13
165	642	274	93	2849	-0.0101	-0.0061	**Sun 09/01/11 02:00**	100.33	1325.05	242.13	3208.36		0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
166	617	266	92	2889	-0.0107	-0.0084	**Sun 09/01/11 03:00**	100.32	1323.89	257.45	3408.36	**100.30**	0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
167	601	260	91	3426	-0.0113	-0.0090	**Sun 09/01/11 04:00**	100.31	1322.65	270.64	3579.58	**100.28**	0.0	2.0	8	0	**412**	1.5	2.5	4.5	2.5	1.5	**25**	13
168	587	333	90	3995	-0.0087	-0.0094	**Sun 09/01/11 05:00**	100.30	1321.36	209.82	2772.50	**100.28**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
169	654	490	89	4549	0.0000	-0.0102	**Sun 09/01/11 06:00**	100.30	1320.35	0.57	7.59	**100.27**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
170	585	533	88	5393	0.0075	-0.0102	**Sun 09/01/11 07:00**	100.31	1320.35	-180.74	-2386.37	**100.27**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
171	574	558	87	6187	0.0101	-0.0114	**Sun 09/01/11 08:00**	100.32	1321.22	-242.30	-3201.37	**100.28**	0.0	2.0	8	0	**412**	2.0	2.5	4.5	2.5	1.5	**26**	13
172	566	580	87	6834	0.0119	-0.0117	**Sun 09/01/11 09:00**	100.33	1322.38	-284.45	-3761.46	**100.28**	0.0	3.0	8	0	**618**	2.0	2.5	4.5	2.5	1.5	**26**	13
173	577	718	88	7388	0.0023	-0.0054	**Sun 09/01/11 10:00**	100.33	1323.74	-54.51	-721.56		0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	1.5	**26**	13
174	1000	1012	88	7772	0.0186	0.0012	**Sun 09/01/11 11:00**	100.35	1324.00	-446.13	-5906.71	**100.34**	0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	1.5	**26**	13
175	1167	1231	88	8001	0.0379	0.0102	**Sun 09/01/11 12:00**	100.39	1326.14	-910.04	-12068.47	**100.39**	0.0	3.0	8	0	**619**	2.0	2.5	4.5	2.5	2.0	**27**	13
176	983	1246	90	8232	0.0466	0.0083	**Sun 09/01/11 13:00**	100.44	1330.52	-1117.62	-14870.17		0.0	4.0	8	0	**826**	2.0	2.5	4.5	2.5	2.0	**27**	13
177	1003	1410	93	8287	0.0375	0.0121	**Sun 09/01/11 14:00**	100.47	1335.91	-901.20	-12039.18	**100.47**	0.0	5.0	8	0	**1034**	2.0	2.5	4.5	2.5	2.0	**27**	13
178	1739	2001	96	7983	0.0501	0.0298	**Sun 09/01/11 15:00**	100.52	1340.26	-1202.64	-16118.54	**100.57**	0.0	5.0	8	0	**1036**	2.0	2.5	4.5	2.5	2.0	**27**	13
179	2075	2780	101	7767	0.1006	0.0459	**Sun 09/01/11 16:00**	100.62	1346.09	-2415.22	-32511.06	**100.75**	0.0	5.0	8	0	**1042**	2.0	2.5	4.5	2.5	2.0	**27**	13
180	2197	3226	105	7401	0.1444	0.0528	**Sun 09/01/11 17:00**	100.77	1357.86	-3466.08	-47064.33	**100.91**	0.0	5.0	8	0	**1053**	2.0	2.5	4.5	2.5	2.0	**27**	13
181	2849	3763	111	6927	0.1775	0.0645	**Sun 09/01/11 18:00**	100.95	1374.87	-4260.72	-58579.27	**101.41**	0.0	5.0	8	0	**1073**	2.0	2.5	4.5	2.5	2.0	**27**	13
182	2889	3844	118	6662	0.1956	0.0751	**Sun 09/01/11 19:00**	101.14	1395.99	-4695.38	-65547.16	**101.43**	0.0	5.0	8	0	**1099**	2.0	2.5	4.5	2.5	2.0	**27**	13
183	3426	3776	126	7467	0.1910	0.0840	**Sun 09/01/11 20:00**	101.33	1419.54	-4584.31	-65076.23	**101.68**	0.0	5.0	8	0	**1128**	2.0	2.5	4.5	2.5	2.0	**27**	13

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
136	0	0	355	0	0	368	68.46	1059.6	3210	34013	**68.22**	970	832	1245		73,471	162,676	181,208	236,147	
137	0	52	355	0	0	421	68.50	1026.0	3218	33020	**68.26**	1020	860	1284		75,350	168,229	187,499	243,578	
138	0	53	356	53	0	474	68.54	992.6	3226	32022	**68.28**	1068	869	1320		77,138	173,828	193,837	250,966	
139	0	105	357	53	0	528	68.58	960.7	3234	31069	**68.32**	1115	878	1356		78,835	179,478	200,227	258,313	
140	0	106	357	106	0	581	68.62	929.2	3241	30118	**68.34**	1159	888	1390		80,443	185,177	206,666	265,621	
141	53	106	358	106	0	635	68.66	897.3	3248	29146	**68.35**	1202	894	1424		81,965	190,922	213,150	272,887	
142	53	106	359	106	53	689	68.70	864.0	3255	28126	**68.41**	1245	913	1457		83,403	196,702	219,671	280,105	
143	53	159	359	106	53	743	68.73	828.2	3262	27015	**68.41**	1286	969	1489		84,761	202,501	226,210	287,262	
144	53	159	360	159	53	797	68.76	788.5	3268	25771	**68.45**	1327	1023	1522		86,043	208,294	232,744	294,337	
145	106	159	360	159	53	851	68.79	743.3	3274	24338	**68.46**	1368	1073	1557		87,253	214,050	239,240	301,302	
146	106	159	361	159	106	905	68.82	691.0	3280	22667	**68.48**	1409	1120	1591		88,395	219,731	245,663	308,126	
147	107	159	409	159	107	954	68.85	631.5	3286	20749	**68.52**	1443	1163	1618		89,474	225,301	251,976	314,775	
148	107	212	409	160	107	1007	68.87	569.2	3290	18728	**68.55**	1483	1201	1651		90,493	230,725	258,142	321,218	
149	107	212	410	212	107	1060	68.89	497.0	3295	16376	**68.56**	1522	1242	1684		91,457	235,971	264,131	327,428	
150	160	212	410	212	107	1114	68.91	419.6	3299	13840	**68.59**	1563	1281	1718		92,369	241,015	269,919	333,384	
151	160	212	410	212	160	1168	68.92	337.8	3302	11154	**68.60**	1603	1318	1752		93,234	245,842	276,231	339,076	
152	160	264	410	212	160	1220	68.94	403.9	3304	13348	**68.61**	1643	1354	1786		94,054	250,442	282,314	344,497	
153	160	264	411	264	160	1272	68.96	320.0	3308	10584	**68.61**	1682	1391	1820		94,841	254,818	288,173	349,659	
154	160	264	411	264	160	1272	68.97	250.1	3310	8279	**68.63**	1672	1427	1804		95,624	259,104	293,940	354,727	
155	160	264	411	264	160	1273	68.97	206.8	3312	6849	**68.64**	1663	1461	1790		96,403	263,057	299,374	359,460	
156	160	264	411	264	160	1273	68.98	150.0	3314	4970	**68.65**	1653	1495	1775		97,194	266,783	304,580	363,977	
157	160	264	411	264	160	1273	68.98	105.1	3315	3485	**68.65**	1642	1529	1760		98,023	270,294	309,571	368,317	
158	160	264	411	264	160	1273	68.99	62.9	3316	2085		1632	1564	1746		98,886	273,603	314,359	372,490	
159	160	264	411	264	160	1274	68.99	23.3	3316	774		1622	1592	1732		99,777	276,723	318,958	376,500	
160	160	264	411	264	160	1273	68.99	-13.0	3316	-430	**68.65**	1612	1626	1718		100,686	279,672	323,386	380,358	
161	160	264	411	264	160	1273	68.99	-44.2	3316	-1465	**68.65**	1602	1660	1705		101,740	282,481	327,674	384,221	
162	160	264	411	264	160	1273	68.98	-71.6	3316	-2375	**68.65**	1593	1695	1693		102,778	285,157	331,828	387,935	
163	160	264	411	264	160	1273	68.98	-98.8	3315	-3276	**68.64**	1583	1730	1681		103,821	287,695	335,844	391,516	
164	160	264	411	264	160	1273	68.97	-124.9	3315	-4139	**68.63**	1574	1765	1670		104,840	290,111	339,738	394,951	
165	160	264	458	264	160	1319	68.97	-147.6	3314	-4890	**68.62**	1612	1800	1707		105,828	292,422	343,526	398,250	
166	160	264	457	264	160	1319	68.96	-200.8	3312	-6651		1604	1786	1726		106,786	294,644	347,226	401,431	
167	160	264	457	264	160	1318	68.95	-215.3	3311	-7127	**68.60**	1595	1773	1753		107,723	296,809	350,868	404,532	
168	212	264	457	264	160	1370	68.94	-226.0	3309	-7479	**68.60**	1639	1759	1811		108,922	298,923	354,458	407,845	
169	212	264	457	264	160	1369	68.93	-244.9	3307	-8098	**68.58**	1630	1745	1822		110,687	301,275	358,287	411,963	
170	212	263	457	263	160	1369	68.92	-245.3	3306	-8108		1622	1732	1837		112,605	303,381	361,870	415,987	
171	212	263	456	263	160	1368	68.91	-273.9	3304	-9048		1613	1719	1868		114,615	305,447	365,413	420,062	
172	212	263	456	263	160	1367	68.90	-280.4	3302	-9257	**68.55**	1605	1707	1914		116,702	307,485	369,667	424,187	
173	212	263	456	263	160	1367	68.89	-129.0	3299	-4255	**68.53**	1597	1697	1935		119,285	309,561	373,959	428,846	
174	212	263	456	263	160	1367	68.89	29.0	3298	957	**68.54**	1610	1715	1946		122,927	313,160	379,775	436,087	
175	212	263	456	263	212	1420	68.90	243.7	3299	8040	**68.54**	1681	1742	2015		127,360	317,360	386,194	444,720	
176	212	263	456	263	212	1420	68.91	199.4	3300	6583		1681	1747	2029		131,846	320,899	392,694	452,745	
177	212	263	457	263	212	1421	68.92	290.2	3302	9581	**68.58**	1678	1804	2033		136,921	324,511	400,010	461,432	
178	212	264	457	264	212	1423	68.95	714.7	3304	23615	**68.61**	1678	1819	2018		144,124	330,772	409,982	474,896	
179	213	264	458	264	213	1426	69.00	1102.1	3310	36478	**68.70**	1710	1850	2037		154,131	338,242	421,185	492,373	
180	213	265	459	265	213	1429	69.05	1267.1	3318	42045	**68.77**	1771	1948	2088		165,743	346,152	432,869	511,895	
181	214	266	461	266	214	1433	69.12	1548.6	3328	51541	**68.86**	1808	1967	2118		179,290	356,409	446,970	535,699	
182	215	267	462	267	215	1438	69.19	1802.3	3340	60199	**68.97**	1827	1958	2129		193,130	366,808	461,305	559,937	
183	215	267	464	267	215	1443	69.28	2016.5	3354	67636	**69.10**	1874	1947	2170		206,723	379,142	477,683	585,865	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
136	18,531	28,176		207,971								
137	19,270	29,691		213,887								
138	20,009	31,398		219,568								
139	20,749	33,298	1	225,015	13,138							
140	21,488	35,391		230,230								
141	22,228	37,678		235,210								
142	22,968	40,159		239,947								
143	23,709	42,833		244,430								
144	24,449	45,700		248,637								
145	25,191	48,763		252,539								
146	25,932	52,022		256,104								
147	26,674	55,455		259,320								
148	27,417	59,080		262,138								
149	28,160	62,895		264,533								
150	28,904	66,905		266,479								
151	30,389	71,108		267,968								
152	31,872	75,499		268,997								
153	33,355	80,077		269,582								
154	34,836	84,657		270,070								
155	36,317	89,239		270,221								
156	37,797	93,822		270,155								
157	39,277	98,406		269,911								
158	40,756	102,991		269,499								
159	42,235	107,575		268,924								
160	43,714	112,160		268,198								
161	45,193	116,744		267,477								
162	46,671	121,328		266,607								
163	48,149	125,911	1	265,606	92,613							
164	49,627	130,492		264,459								
165	51,104	135,241		263,009								
166	52,582	139,988		261,443								
167	54,058	144,733		259,799								
168	55,535	149,664		258,181								
169	57,012	154,593		257,370								
170	58,489	159,520		256,467								
171	59,966	164,444		255,618								
172	62,182	169,366		254,821								
173	64,398	174,287		254,559								
174	66,615	179,207		256,880								
175	68,834	184,318		260,401								
176	71,795	189,431		263,314								
177	75,499	194,547		266,885								
178	79,210	199,669		275,227								
179	82,942	204,802		287,571								
180	86,717	209,947		301,948								
181	90,561	215,106		320,592								
182	94,497	220,282		339,655								
183	98,541	225,477		360,387								

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
184	3995	3701	136	6547	0.1809	0.1008	**Sun 09/01/11 21:00**	101.51	1442.81	-4341.84	-62644.31	**101.89**	0.0	5.0	8	0	**1161**	2.0	2.5	4.5	2.5	2.0	**27**	13
185	4549	3600	148	6009	0.1700	0.1175	**Sun 09/01/11 22:00**	101.68	1465.09	-4079.19	-59763.82	**102.06**	0.0	5.0	8	0	**1194**	2.0	2.5	4.5	2.5	2.0	**27**	13
186	5393	3537	161	5676	0.1598	0.1380	**Sun 09/01/11 23:00**	101.84	1486.25	-3834.28	-56986.89	**102.22**	0.0	5.0	8	0	**1228**	2.0	2.5	4.5	2.5	2.0	**27**	13
187	6187	3483	175	5269	0.1515	0.1616	**Mon 10/01/11 00:00**	102.00	1506.33	-3636.32	-54774.97	**102.38**	0.0	5.0	8	0	**1262**	2.0	2.5	4.5	2.5	2.0	**27**	13
188	6834	3322	190	4963	0.1403	0.1817	**Mon 10/01/11 01:00**	102.14	1525.55	-3367.88	-51378.55	**102.51**	0.0	5.0	8	0	**1296**	2.0	2.5	4.5	2.5	2.0	**27**	13
189	7388	3133	205	4710	0.1251	0.1977	**Mon 10/01/11 02:00**	102.26	1543.50	-3003.50	-46358.94	**102.62**	0.0	5.0	8	0	**1327**	2.5	2.5	4.5	2.5	2.0	**28**	13
190	7772	2948	220	4524	0.1098	0.2079	**Mon 10/01/11 03:00**	102.37	1559.63	-2635.78	-41108.36	**102.70**	0.0	5.0	8	0	**1356**	2.5	2.5	4.5	2.5	2.5	**29**	13
191	8001	2843	235	4475	0.0978	0.2131	**Mon 10/01/11 04:00**	102.47	1573.88	-2346.95	-36938.20	**102.78**	0.0	5.0	8	0	**1383**	2.5	3.0	4.5	2.5	2.5	**30**	13
192	8232	2798	249	4214	0.0906	0.2159	**Mon 10/01/11 05:00**	102.56	1586.65	-2174.47	-34501.14	**102.84**	0.0	5.0	8	0	**1408**	2.5	3.0	4.5	3.0	2.5	**31**	13
193	8287	2716	261	4025	0.0844	0.2162	**Mon 10/01/11 06:00**	102.64	1598.54	-2025.11	-32372.06	**102.93**	0.0	5.0	8	0	**1433**	2.5	3.5	4.5	3.0	2.5	**32**	13
194	7983	2578	273	3844	0.0755	0.2092	**Mon 10/01/11 07:00**	102.72	1609.67	-1810.99	-29150.93		0.0	5.0	8	0	**1455**	2.5	3.5	4.5	3.5	2.5	**33**	13
195	7767	2586	283	3638	0.0696	0.1988	**Mon 10/01/11 08:00**	102.79	1619.66	-1670.48	-27056.19	**103.02**	0.0	5.0	8	0	**1476**	3.0	3.5	4.5	3.5	2.5	**34**	13
196	7401	2489	292	3441	0.0652	0.1878	**Mon 10/01/11 09:00**	102.85	1628.92	-1564.78	-25488.98	**103.08**	0.0	5.0	8	0	**1496**	3.0	3.5	4.5	3.5	3.0	**35**	13
197	6927	2325	303	3264	0.0557	0.1737	**Mon 10/01/11 10:00**	102.91	1637.62	-1335.74	-21874.40	**103.11**	0.0	5.0	8	0	**1513**	3.0	3.5	4.5	3.5	3.0	**35**	13
198	6662	2599	311	3086	0.0577	0.1627	**Mon 10/01/11 11:00**	102.97	1645.08	-1384.60	-22777.86	**103.16**	0.0	5.0	8	0	**1531**	3.0	3.5	4.5	3.5	3.0	**35**	13
199	7467	3070	318	2937	0.0789	0.1685	**Mon 10/01/11 12:00**	103.05	1652.83	-1892.65	-31282.35	**103.28**	0.0	5.0	8	0	**1556**	3.0	3.5	4.5	3.5	3.0	**35**	13
200	6547	2949	324	3761	0.0874	0.1659	**Mon 10/01/11 13:00**	103.13	1663.47	-2096.42	-34873.22	**103.36**	0.0	5.0	8	0	**1585**	3.0	3.5	4.5	3.5	3.0	**35**	13
201	6009	2586	328	4107	0.0706	0.1465	**Mon 10/01/11 14:00**	103.20	1675.30	-1694.27	-28384.12	**103.41**	0.0	5.0	8	0	**1608**	3.0	3.5	4.5	3.5	3.0	**35**	13
202	5676	2346	332	4309	0.0509	0.1348	**Mon 10/01/11 15:00**	103.25	1684.91	-1221.82	-20586.60	**103.43**	0.0	5.0	8	0	**1625**	3.0	3.5	4.5	3.5	3.0	**35**	13
203	5269	2139	335	4996	0.0365	0.1249	**Mon 10/01/11 16:00**	103.29	1691.86	-875.22	-14807.59	**103.45**	0.0	5.0	8	0	**1638**	3.0	4.0	4.5	3.5	3.0	**36**	13
204	4963	1959	338	5388	0.0242	0.1139	**Mon 10/01/11 17:00**	103.32	1696.85	-581.75	-9871.38		0.0	5.0	8	0	**1646**	3.0	4.0	5.0	4.0	3.0	**38**	13
205	4710	1833	340	5797	0.0147	0.1036	**Mon 10/01/11 18:00**	103.33	1700.17	-353.31	-6006.87	**103.46**	0.0	5.0	8	0	**1651**	3.5	4.0	5.0	4.0	3.5	**40**	13
206	4524	1737	341	5998	0.0079	0.0948	**Mon 10/01/11 19:00**	103.34	1702.19	-189.16	-3219.89	**103.52**	0.0	5.0	8	0	**1654**	3.5	4.5	5.0	4.5	3.5	**42**	13
207	4475	1743	342	6247	0.0051	0.0886	**Mon 10/01/11 20:00**	103.34	1703.28	-121.85	-2075.39	**103.46**	0.0	5.0	8	0	**1656**	4.5	4.5	5.0	4.5	4.0	**45**	13
208	4214	1655	343	6698	0.0026	0.0801	**Mon 10/01/11 21:00**	103.35	1703.97	-61.53	-1048.39	**103.44**	0.0	5.0	8	0	**1656**	4.5	4.5	5.0	4.5	4.0	**45**	13
209	4025	1539	343	7511	-0.0035	0.0742	**Mon 10/01/11 22:00**	103.34	1704.33	83.32	1420.10		0.0	5.0	8	0	**1655**	4.5	4.5	5.0	4.5	4.0	**45**	13
210	3844	1435	342	7343	-0.0099	0.0693	**Mon 10/01/11 23:00**	103.33	1703.85	236.97	4037.68	**103.40**	0.0	5.0	8	0	**1652**	4.5	4.5	5.0	4.5	4.0	**45**	13
211	3638	1339	342	7426	-0.0156	0.0642	**Tue 11/01/11 00:00**	103.32	1702.49	373.43	6357.58	**103.37**	0.0	5.0	8	0	**1646**	4.5	4.5	5.0	4.5	4.0	**45**	13
212	3441	1280	340	7444	-0.0198	0.0588	**Tue 11/01/11 01:00**	103.30	1700.36	475.86	8091.29	**103.36**	0.0	5.0	8	0	**1640**	4.5	4.5	5.0	4.5	4.0	**45**	13
213	3264	1249	339	7232	-0.0221	0.0539	**Tue 11/01/11 02:00**	103.27	1697.64	530.83	9011.61	**103.31**	0.0	5.0	8	0	**1632**	4.5	4.5	5.0	4.5	4.0	**45**	13
214	3086	1181	339	6985	-0.0246	0.0492	**Tue 11/01/11 03:00**	103.25	1694.61	590.52	10007.01	**103.27**	0.0	5.0	8	0	**1624**	4.5	4.5	5.0	4.5	4.0	**45**	13
215	2937	1251	340	6658	-0.0241	0.0449	**Tue 11/01/11 04:00**	103.23	1691.25	578.58	9785.17	**103.23**	0.0	5.0	8	0	**1616**	4.5	4.5	5.0	4.5	4.0	**45**	13
216	3761	1664	342	6298	-0.0094	0.0526	**Tue 11/01/11 05:00**	103.22	1687.95	225.41	3804.76	**103.28**	0.0	4.0	8	0	**1396**	4.5	4.5	5.0	4.5	4.0	**45**	13
217	4107	2029	345	5928	0.0267	0.0610	**Tue 11/01/11 06:00**	103.24	1686.67	-640.85	-10809.11	**103.34**	0.0	3.0	8	0	**1188**	4.5	4.5	5.0	4.5	4.0	**45**	13
218	4309	2204	350	5560	0.0549	0.0622	**Tue 11/01/11 07:00**	103.30	1690.32	-1318.62	-22288.91	**103.40**	0.0	2.0	8	0	**989**	4.5	4.5	5.0	4.5	4.0	**45**	13
219	4996	2106	355	5207	0.0687	0.0677	**Tue 11/01/11 08:00**	103.37	1697.84	-1648.38	-27986.74	**103.46**	0.0	1.0	8	0	**795**	4.5	4.5	5.0	4.5	4.0	**45**	13
220	5388	1976	360	4871	0.0730	0.0755	**Tue 11/01/11 09:00**	103.44	1707.26	-1751.87	-29909.07		0.0	0.0	8	0	**602**	4.5	5.0	5.5	5.0	4.5	**49**	0
221	5797	1910	367	4554	0.0781	0.0749	**Tue 11/01/11 10:00**	103.52	1717.32	-1874.13	-32184.86	**103.53**	0.0	0.0	8	0	**628**	5.5	5.5	5.5	5.5	5.5	**55**	0
222	5998	2084	374	4254	0.0792	0.0742	**Tue 11/01/11 11:00**	103.60	1728.13	-1900.63	-32845.42	**103.61**	0.0	0.0	8	0	**655**	5.5	6.0	6.0	6.0	5.5	**58**	0
223	6247	2408	382	3970	0.0914	0.0757	**Tue 11/01/11 12:00**	103.69	1739.13	-2194.65	-38167.96	**103.68**	0.0	0.0	8	0	**687**	6.0	6.0	6.0	6.0	6.0	**60**	0
224	6698	2993	391	3702	0.1149	0.0814	**Tue 11/01/11 13:00**	103.80	1751.90	-2757.97	-48316.76	**103.91**	0.0	0.0	8	0	**728**	7.0	7.0	7.0	7.0	7.0	**70**	0
225	7511	3327	399	3450	0.1376	0.0834	**Tue 11/01/11 14:00**	103.94	1768.03	-3301.31	-58368.08	**103.96**	0.0	0.0	8	0	**779**	7.5	7.5	7.5	7.5	7.5	**75**	0
226	7343	3297	407	3212	0.1417	0.0849	**Tue 11/01/11 15:00**	104.08	1787.46	-3401.40	-60798.77	**104.12**	0.0	0.0	8	0	**832**	8.5	8.5	8.5	8.5	8.5	**85**	0
227	7426	3190	414	2990	0.1334	0.0713	**Tue 11/01/11 16:00**	104.22	1807.63	-3201.59	-57872.96	**104.31**	0.0	0.0	8	0	**884**	9.5	9.5	9.5	9.5	9.5	**95**	0
228	7444	3136	421	2783	0.1248	0.0596	**Tue 11/01/11 17:00**	104.34	1826.75	-2994.81	-54707.79	**104.41**	0.0	0.0	8	0	**933**	10.5	10.5	10.5	10.5	10.5	**105**	0
229	7232	3172	426	2591	0.1204	0.0439	**Tue 11/01/11 18:00**	104.46	1844.76	-2889.57	-53305.59		0.0	0.0	8	0	**982**	11.0	11.0	11.0	11.0	11.0	**110**	0
230	6985	3162	431	2413	0.1173	0.0321	**Tue 11/01/11 19:00**	104.58	1862.24	-2816.35	-52447.21	**104.61**	0.0	0.0	8	0	**1030**	12.0	12.0	12.0	12.0	12.0	**120**	0
231	6658	3040	434	2249	0.1102	0.0112	**Tue 11/01/11 20:00**	104.69	1879.38	-2644.47	-49699.62	**104.70**	0.0	0.0	8	0	**1076**	12.0	12.0	12.0	12.0	12.0	**120**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
184	216	269	466	269	216	1449	69.38	2418.5	3370	81500	**69.24**	1965	1953	2260		220,048	393,523	496,222	613,570	
185	217	270	469	270	217	1457	69.49	2820.8	3389	95588	**69.44**	2055	1953	2352		233,007	409,898	516,875	642,905	
186	219	272	472	272	219	1465	69.63	3312.8	3411	112988	**69.60**	2114	1950	2409		245,739	429,311	540,687	675,050	
187	220	273	475	273	220	1475	69.79	3877.6	3437	133255	**69.80**	2165	2008	2482		258,279	451,583	567,482	709,863	
188	222	275	479	275	222	1486	69.98	4359.7	3467	151148	**69.97**	2209	1999	2565		270,240	476,188	596,730	746,427	
189	278	278	483	278	223	1552	70.17	4744.6	3501	166115	**70.17**	2294	1988	2681		281,517	502,786	628,085	784,303	
190	280	280	487	280	280	1619	70.38	4989.0	3538	176536	**70.36**	2370	1981	2795		292,130	530,764	660,924	822,894	
191	282	336	492	282	282	1687	70.59	5113.6	3578	182955	**70.57**	2436	2006	2907		302,364	559,566	694,682	861,931	
192	284	339	496	339	284	1756	70.81	5181.7	3618	187491	**70.77**	2501	2065	3027		312,438	589,200	729,362	901,638	
193	287	396	500	342	287	1824	71.03	5188.9	3659	189885	**70.96**	2581	2106	3170		322,216	619,033	764,328	941,249	
194	289	399	504	399	289	1893	71.24	5021.8	3701	185845	**71.16**	2650	2121	3310		331,497	647,773	798,280	979,270	
195	347	402	508	402	291	1963	71.43	4771.5	3741	178495	**71.36**	2704	2191	3435		340,807	675,735	831,531	1,016,542	
196	349	405	512	405	349	2033	71.62	4507.3	3779	170335	**71.56**	2766	2322	3560		349,769	702,381	863,535	1,052,149	
197	351	407	515	407	351	2046	71.80	4168.7	3815	159048	**71.78**	2769	2442	3609		358,137	727,318	893,893	1,085,455	
198	354	410	518	410	354	2058	71.96	3904.6	3849	150283	**71.95**	2772	2540	3635		367,494	751,302	923,363	1,118,796	
199	356	412	522	412	356	2070	72.13	4043.7	3880	156910	**72.07**	2780	2636	3648		378,544	778,183	955,820	1,156,727	
200	358	414	525	414	358	2082	72.29	3982.4	3913	155835	**72.26**	2790	2734	3647		389,160	801,751	985,066	1,190,911	
201	359	417	528	417	359	2092	72.44	3516.4	3945	138736	**72.41**	2800	2882	3635		398,469	823,384	1,012,461	1,221,852	
202	361	418	530	418	361	2102	72.57	3236.1	3974	128598	**72.54**	2816	3029	3627		406,914	843,818	1,038,719	1,250,732	
203	363	477	532	420	363	2168	72.70	2997.1	4000	119894	**72.70**	2902	3167	3686		414,613	862,786	1,063,555	1,277,399	
204	364	479	589	479	364	2288	72.81	2734.8	4025	110067	**72.84**	3056	3296	3812		421,667	880,654	1,087,322	1,302,321	
205	423	480	592	480	423	2412	72.92	2487.5	4047	100671	**72.92**	3223	3421	3956		428,266	897,609	1,110,192	1,325,874	
206	425	538	594	538	425	2532	73.01	2275.1	4067	92539	**72.99**	3387	3514	4099		434,520	913,895	1,132,405	1,348,415	
207	540	540	595	540	483	2711	73.10	2126.8	4086	86902	**73.06**	3602	3572	4292		440,796	930,005	1,154,447	1,370,800	
208	541	541	597	541	485	2719	73.18	1923.5	4103	78929		3632	3622	4304		446,754	945,175	1,175,552	1,391,929	
209	543	543	599	543	486	2725	73.25	1781.2	4119	73371	**73.17**	3649	3605	4308		452,296	959,664	1,195,973	1,411,959	
210	544	544	600	544	487	2732	73.32	1663.0	4134	68745	**73.22**	3654	3583	4304		457,461	973,503	1,215,731	1,430,964	
211	545	545	601	545	488	2738	73.39	1539.9	4148	63868	**73.26**	3650	3564	4292		462,281	986,600	1,234,727	1,448,881	
212	546	546	603	546	489	2743	73.45	1412.3	4160	58755		3640	3547	4302		466,887	998,986	1,252,989	1,465,874	
213	547	547	604	547	490	2748	73.50	1293.9	4172	53981	**73.35**	3628	3533	4350		471,383	1,010,738	1,270,589	1,482,121	
214	548	548	605	548	491	2752	73.55	1181.8	4183	49431		3616	3528	4482		475,636	1,021,848	1,287,518	1,497,485	
215	549	549	606	549	491	2756	73.59	1077.9	4192	45189	**73.40**	3604	3592	4687		480,138	1,032,420	1,303,878	1,512,558	
216	550	550	607	550	492	2761	73.65	1261.5	4201	52997		3598	3727	4940		486,127	1,045,961	1,322,421	1,532,088	
217	551	551	608	551	493	2767	73.71	1463.7	4212	61646	**73.51**	3684	3882	5345		493,430	1,060,744	1,341,460	1,554,175	
218	552	552	609	552	494	2772	73.77	1493.7	4224	63089	**73.61**	3924	4038	5893		501,366	1,076,255	1,360,515	1,577,621	
219	553	553	610	553	495	2778	73.84	1625.4	4236	68856	**73.70**	4214	4244	6443		508,947	1,094,240	1,381,347	1,603,187	
220	555	612	669	612	555	3002	73.91	1811.8	4250	76994	**73.81**	4676	4294	7128		516,060	1,113,635	1,402,899	1,629,695	
221	670	670	670	670	670	3351	73.99	1796.7	4265	76621	**73.95**	5199	4371	7822		522,935	1,134,506	1,426,020	1,657,440	
222	672	728	728	728	672	3529	74.06	1780.3	4279	76190	**74.10**	5518	4520	8252		530,436	1,156,100	1,449,962	1,686,536	
223	730	730	730	730	730	3651	74.14	1815.6	4294	77969	**74.27**	5755	4732	8545		539,103	1,178,588	1,474,913	1,717,691	
224	845	845	845	845	845	4226	74.22	1953.7	4309	84194	**74.39**	6438	4981	9231		549,879	1,202,699	1,501,634	1,752,578	
225	904	904	904	904	904	4521	74.30	2001.4	4326	86574	**74.57**	6876	5289	9631		561,858	1,229,740	1,531,466	1,791,598	
226	1022	1022	1022	1022	1022	5109	74.39	2036.6	4342	88436	**74.71**	7539	5584	10225		573,727	1,256,173	1,560,881	1,829,900	
227	1143	1143	1143	1143	1143	5715	74.46	1710.8	4359	74581	**74.81**	8171	5833	10758		585,211	1,282,908	1,590,783	1,868,120	
228	1269	1269	1269	1269	1269	6346	74.52	1429.2	4374	62510	**74.89**	8865	6051	11336		596,501	1,309,708	1,620,926	1,906,210	
229	1336	1336	1336	1336	1336	6678	74.56	1053.6	4386	46207	**74.95**	9282	6307	11624		607,920	1,335,743	1,650,477	1,943,663	
230	1472	1472	1472	1472	1472	7359	74.59	771.2	4394	33891	**74.97**	10048	6658	12257		619,303	1,360,890	1,679,315	1,980,193	
231	1472	1472	1472	1472	1472	7362	74.61	268.7	4401	11826	**74.97**	10130	7004	12203		630,245	1,384,858	1,707,139	2,015,103	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
184	102,699	230,695		382,875								
185	106,977	235,938		406,967								
186	111,376	241,213		433,837								
187	115,899	246,522	1	463,340	120,611							
188	120,542	251,871		494,556								
189	125,299	257,458		526,845								
190	130,160	263,288		559,606								
191	135,115	269,361		592,570								
192	140,162	275,681		625,957								
193	145,295	282,248		659,001								
194	150,508	289,062		690,208								
195	155,795	296,128		720,414								
196	161,154	303,446		748,703								
197	166,575	310,810		774,644								
198	172,061	318,217		800,578								
199	177,637	325,669		831,058								
200	183,315	333,164		857,747								
201	189,077	340,696		881,156								
202	194,901	348,264		902,468								
203	200,770	356,068		921,331								
204	206,668	364,304		938,017								
205	212,584	372,987		952,887								
206	218,510	382,104		966,311								
207	224,442	391,864		978,936								
208	230,378	401,651		990,278								
209	236,309	411,462		1,000,497								
210	242,228	421,297		1,009,667								
211	248,127	431,152	1	1,017,729	184,630							
212	254,003	441,026		1,024,847								
213	259,851	450,918		1,031,202								
214	265,669	460,826		1,036,658								
215	271,459	470,749		1,041,809								
216	276,460	480,689		1,051,399								
217	280,716	490,649		1,063,526								
218	284,260	500,629		1,076,992								
219	287,108	510,630		1,092,557								
220	289,264	521,436		1,108,259								
221	291,514	533,501		1,123,939								
222	293,862	546,206		1,140,330								
223	296,325	559,350		1,158,340								
224	298,935	574,563		1,178,016								
225	301,726	590,838		1,200,760								
226	304,708	609,231		1,220,669								
227	307,874	629,803		1,238,316								
228	311,218	652,648		1,253,562								
229	314,735	676,689		1,266,974								
230	318,425	703,180		1,277,013				Thu	6/01/2011	4,320		
231	322,280	729,682		1,285,421				Fri	7/01/2011	13,138		

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
232	6298	2885	436	2098	0.0995	0.0044	**Tue 11/01/11 21:00**	104.79	1895.57	-2388.38	-45273.39	**104.78**	0.0	0.0	8	0	**1118**	12.0	12.0	12.0	12.0	12.0	**120**	0
233	5928	2726	438	1959	0.0883	-0.0030	**Tue 11/01/11 22:00**	104.88	1910.27	-2119.48	-40487.71	**104.85**	0.0	0.0	8	0	**1157**	11.5	11.5	11.5	11.5	11.5	**115**	0
234	5560	2564	438	1831	0.0774	-0.0027	**Tue 11/01/11 23:00**	104.95	1923.37	-1857.14	-35719.76	**104.90**	0.0	0.0	8	0	**1190**	11.5	11.5	11.5	11.5	11.5	**115**	0
235	5207	2404	438	1713	0.0669	-0.0101	**Wed 12/01/11 00:00**	105.02	1934.90	-1604.49	-31045.37	**104.98**	0.0	0.0	8	0	**1220**	10.0	10.0	10.0	10.0	10.0	**100**	0
236	4871	2246	437	1605	0.0568	0.0048	**Wed 12/01/11 01:00**	105.08	1944.90	-1363.74	-26523.31	**105.00**	0.0	0.0	8	0	**1245**	10.0	10.0	10.0	10.0	10.0	**100**	0
237	4554	2095	435	1505	0.0474	-0.0021	**Wed 12/01/11 02:00**	105.13	1953.42	-1136.80	-22206.52	**105.04**	0.0	0.0	8	0	**1267**	9.0	9.0	9.0	9.0	9.0	**90**	0
238	4254	1950	433	1414	0.0385	0.0052	**Wed 12/01/11 03:00**	105.16	1960.54	-925.11	-18137.24	**105.07**	0.0	0.0	8	0	**1284**	9.0	9.0	9.0	9.0	9.0	**90**	0
239	3970	1813	430	1329	0.0304	-0.0011	**Wed 12/01/11 04:00**	105.19	1966.35	-729.46	-14343.71	**105.09**	0.0	0.0	8	0	**1298**	8.0	8.0	8.0	8.0	8.0	**80**	0
240	3702	1686	427	1251	0.0229	0.0063	**Wed 12/01/11 05:00**	105.22	1970.94	-549.99	-10840.05	**105.10**	0.0	0.0	8	0	**1308**	7.0	7.0	7.0	7.0	7.0	**70**	0
241	3450	1567	423	1180	0.0161	0.0137	**Wed 12/01/11 06:00**	105.23	1974.40	-386.37	-7628.42	**105.11**	0.0	0.0	8	0	**1316**	6.0	6.0	6.0	6.0	6.0	**60**	0
242	3212	1457	419	1113	0.0099	0.0213	**Wed 12/01/11 07:00**	105.24	1976.84	-237.85	-4701.94	**105.11**	0.0	0.0	8	0	**1320**	5.0	5.0	5.0	5.0	5.0	**50**	0
243	2990	1355	414	1052	0.0043	0.0292	**Wed 12/01/11 08:00**	105.25	1978.34	-103.51	-2047.76	**105.11**	0.0	0.0	8	0	**1322**	3.5	4.0	5.0	4.0	3.5	**40**	0
244	2783	1261	409	995	-0.0007	0.0378	**Wed 12/01/11 09:00**	105.25	1978.99	17.71	350.45	**105.10**	0.0	0.0	8	0	**1322**	3.5	4.0	5.0	4.0	3.5	**40**	0
245	2591	1174	404	942	-0.0053	0.0332	**Wed 12/01/11 10:00**	105.24	1978.88	126.87	2510.59	**105.09**	0.0	0.0	8	0	**1319**	3.5	4.0	5.0	4.0	3.5	**40**	0
246	2413	1094	399	894	-0.0094	0.0288	**Wed 12/01/11 11:00**	105.23	1978.08	225.01	4450.83	**105.06**	0.0	1.0	8	0	**1539**	3.5	4.0	5.0	4.0	3.5	**40**	0
247	2249	1021	393	848	-0.0244	0.0299	**Wed 12/01/11 12:00**	105.21	1976.66	584.87	11560.85	**105.05**	0.0	1.0	8	0	**1528**	3.5	4.0	5.0	4.0	3.5	**40**	0
248	2098	953	387	806	-0.0274	0.0260	**Wed 12/01/11 13:00**	105.18	1972.97	658.26	12987.27	**105.01**	0.0	1.0	8	0	**1515**	3.5	4.0	5.0	4.0	3.5	**40**	0
249	1959	890	381	767	-0.0302	0.0223	**Wed 12/01/11 14:00**	105.15	1968.83	723.63	14246.98	**104.98**	0.0	1.0	8	0	**1501**	3.5	4.0	5.0	4.0	3.5	**40**	0
250	1831	833	375	730	-0.0326	0.0190	**Wed 12/01/11 15:00**	105.12	1964.28	781.69	15354.54	**104.94**	0.0	1.0	8	0	**1487**	3.5	4.0	5.0	4.0	3.5	**40**	0
251	1713	780	369	696	-0.0347	0.0158	**Wed 12/01/11 16:00**	105.08	1959.38	833.09	16323.44	**104.90**	0.0	1.0	8	0	**1471**	3.5	4.0	5.0	4.0	3.5	**40**	0
252	1605	731	363	664	-0.0366	0.0129	**Wed 12/01/11 17:00**	105.05	1954.16	878.44	17166.08	**104.87**	0.0	1.0	8	0	**1454**	3.5	4.0	5.0	4.0	3.5	**40**	0
253	1505	686	357	634	-0.0383	0.0102	**Wed 12/01/11 18:00**	105.01	1948.66	918.26	17893.89	**104.83**	0.0	1.0	8	0	**1437**	3.5	4.0	5.0	4.0	3.5	**40**	0
254	1414	645	350	606	-0.0397	0.0076	**Wed 12/01/11 19:00**	104.97	1942.93	953.07	18517.43		0.0	1.0	8	0	**1419**	3.5	4.0	5.0	4.0	3.5	**40**	0
255	1329	607	344	580	-0.0410	0.0052	**Wed 12/01/11 20:00**	104.93	1936.99	983.30	19046.42	**104.73**	0.0	1.0	8	0	**1401**	3.5	4.0	5.0	4.0	3.5	**40**	0
256	1251	572	338	555	-0.0421	0.0030	**Wed 12/01/11 21:00**	104.89	1930.88	1009.37	19489.80	**104.69**	0.0	1.0	8	0	**1383**	3.5	4.0	5.0	4.0	3.5	**40**	0
257	1180	539	331	532	-0.0430	0.0009	**Wed 12/01/11 22:00**	104.84	1924.62	1031.68	19855.80	**104.65**	0.0	1.0	8	0	**1364**	3.5	4.0	5.0	4.0	3.5	**40**	0
258	1113	509	325	510	-0.0438	-0.0011	**Wed 12/01/11 23:00**	104.80	1918.23	1050.55	20151.97		0.0	1.0	8	0	**1345**	3.5	4.0	5.0	4.0	3.5	**40**	0
259	1052	482	319	489	-0.0444	-0.0029	**Thu 13/01/11 00:00**	104.75	1911.74	1066.32	20385.26	**104.56**	0.0	1.0	8	0	**1326**	3.5	4.0	5.0	4.0	3.5	**40**	0
260	995	456	313	470	-0.0450	-0.0047	**Thu 13/01/11 01:00**	104.71	1905.16	1079.28	20562.01	**104.51**	0.0	1.0	8	0	**1306**	3.5	4.0	5.0	4.0	3.5	**40**	0
261	942	433	306	452	-0.0454	-0.0063	**Thu 13/01/11 02:00**	104.66	1898.52	1089.69	20688.03	**104.45**	0.0	1.0	8	0	**1287**	3.5	4.0	5.0	4.0	3.5	**40**	0
262	894	411	300	434	-0.0457	-0.0079	**Thu 13/01/11 03:00**	104.62	1891.83	1097.80	20768.62	**104.42**	0.0	1.0	8	0	**1268**	3.5	4.0	5.0	4.0	3.5	**40**	0
263	848	391	294	418	-0.0460	-0.0094	**Thu 13/01/11 04:00**	104.57	1885.11	1103.84	20808.60	**104.37**	0.0	1.0	8	0	**1248**	3.5	4.0	5.0	4.0	3.5	**40**	0
264	806	372	288	403	-0.0462	-0.0108	**Thu 13/01/11 05:00**	104.53	1878.37	1108.00	20812.37	**104.32**	0.0	1.0	8	0	**1229**	3.5	4.0	5.0	4.0	3.5	**40**	0
265	767	355	282	388	-0.0463	-0.0121	**Thu 13/01/11 06:00**	104.48	1871.61	1110.48	20783.93	**104.28**	0.0	1.0	8	0	**1210**	3.5	4.0	5.0	4.0	3.5	**40**	0
266	730	338	277	374	-0.0463	-0.0134	**Thu 13/01/11 07:00**	104.43	1864.86	1111.44	20726.90	**104.24**	0.0	1.0	8	0	**1191**	3.5	4.0	5.0	4.0	3.5	**40**	0
267	696	323	271	361	-0.0463	-0.0146	**Thu 13/01/11 08:00**	104.39	1858.12	1111.05	20644.58		0.0	1.0	8	0	**1172**	3.5	4.0	5.0	4.0	3.5	**40**	0
268	664	309	265	348	-0.0462	-0.0157	**Thu 13/01/11 09:00**	104.34	1851.39	1109.43	20539.90		0.0	2.0	8	0	**1374**	3.5	4.0	5.0	4.0	3.5	**40**	0
269	634	296	260	336	-0.0581	-0.0119	**Thu 13/01/11 10:00**	104.28	1844.69	1393.89	25712.99	**104.09**	0.0	2.0	8	0	**1351**	3.5	4.0	5.0	4.0	3.5	**40**	0
270	606	284	254	325	-0.0578	-0.0130	**Thu 13/01/11 11:00**	104.22	1836.30	1386.04	25451.90		0.0	2.0	8	0	**1328**	3.5	4.0	5.0	4.0	3.5	**40**	0
271	580	273	249	314	-0.0574	-0.0141	**Thu 13/01/11 12:00**	104.17	1827.98	1377.45	25179.48	**103.96**	0.0	2.0	8	0	**1305**	3.5	4.0	5.0	4.0	3.5	**40**	0
272	555	262	244	304	-0.0570	-0.0152	**Thu 13/01/11 13:00**	104.11	1819.73	1368.20	24897.63	**103.91**	0.0	3.0	8	0	**1502**	3.5	4.5	5.0	4.0	3.5	**41**	0
273	532	252	238	294	-0.0687	-0.0126	**Thu 13/01/11 14:00**	104.04	1811.57	1649.73	29886.00	**103.86**	0.0	3.0	8	0	**1476**	3.5	4.5	5.0	4.5	3.5	**42**	0
274	510	243	233	285	-0.0682	-0.0151	**Thu 13/01/11 15:00**	103.97	1801.75	1635.73	29471.83		0.0	3.0	8	0	**1449**	4.0	4.5	5.0	4.0	3.5	**42**	0
275	489	234	228	276	-0.0676	-0.0162	**Thu 13/01/11 16:00**	103.91	1792.05	1621.42	29056.75	**103.72**	0.0	3.0	8	0	**1423**	4.0	4.5	5.0	4.5	4.0	**44**	0
276	470	226	223	267	-0.0670	-0.0199	**Thu 13/01/11 17:00**	103.84	1782.47	1606.86	28641.87	**103.66**	0.0	3.0	8	0	**1398**	4.5	4.5	5.0	4.5	4.0	**45**	0
277	452	218	218	259	-0.0663	-0.0222	**Thu 13/01/11 18:00**	103.77	1773.01	1592.10	28228.15	**103.60**	0.0	3.0	8	0	**1373**	4.5	4.5	5.0	4.5	4.5	**46**	0
278	434	211	214	251	-0.0657	-0.0245	**Thu 13/01/11 19:00**	103.71	1763.67	1577.19	27816.44	**103.53**	0.0	3.0	8	0	**1349**	4.5	5.0	5.0	5.0	4.5	**48**	0
279	418	204	209	244	-0.0651	-0.0281	**Thu 13/01/11 20:00**	103.64	1754.45	1562.17	27407.51		0.0	3.0	8	0	**1326**	5.0	5.0	5.0	5.0	5.0	**50**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
232	1473	1473	1473	1473	1473	7363	74.61	104.9	4403	4617	**74.95**	10195	7469	12136		640,632	1,407,533	1,733,821	2,048,165	
233	1404	1404	1404	1404	1404	7021	74.61	-71.7	4404	-3158	**74.95**	9903	7954	11714		650,444	1,428,873	1,759,305	2,079,316	
234	1404	1404	1404	1404	1404	7020	74.60	-65.5	4403	-2884	**74.92**	9946	8203	11634		659,675	1,448,890	1,783,588	2,108,565	
235	1210	1210	1210	1210	1210	6049	74.59	-243.1	4403	-10704	**74.91**	9013	8343	10584		668,328	1,467,635	1,806,704	2,135,963	
236	1210	1210	1210	1210	1210	6050	74.60	114.3	4401	5030	**74.87**	9046	8908	10508		676,416	1,485,170	1,828,702	2,161,586	
237	1088	1088	1088	1088	1088	5442	74.60	-50.6	4402	-2226	**74.86**	8463	9218	9823		683,956	1,501,563	1,849,633	2,185,519	
238	1089	1089	1089	1089	1089	5443	74.60	124.4	4401	5476	**74.81**	8479	9748	9745		690,976	1,516,876	1,869,548	2,207,853	
239	971	971	971	971	971	4856	74.60	-25.6	4402	-1128	**74.80**	7896	10244	9074		697,505	1,531,170	1,888,492	2,228,674	
240	856	856	856	856	856	4281	74.61	151.9	4402	6687	**74.77**	7311	10805	8410		703,573	1,544,498	1,906,509	2,248,072	
241	742	742	742	742	742	3709	74.62	329.0	4403	14486	**74.77**	6715	11093	7741		709,213	1,556,918	1,923,643	2,266,131	
242	626	626	626	626	626	3132	74.64	510.7	4406	22501	**74.76**	6099	11736	7058		714,457	1,568,482	1,939,939	2,282,939	
243	447	508	627	508	447	2538	74.67	701.8	4410	30954	**74.78**	5453	11701	6351		719,333	1,579,247	1,955,441	2,298,581	
244	448	509	628	509	448	2541	74.71	907.9	4416	40096	**74.78**	5391	11657	6233		723,872	1,589,267	1,970,198	2,313,139	
245	448	509	628	509	448	2544	74.74	796.3	4424	35228	**74.78**	5318	11263	6109		728,098	1,598,595	1,984,254	2,326,693	
246	449	510	629	510	449	2546	74.77	692.2	4431	30670	**74.78**	5235	11211	5979		732,037	1,607,283	1,998,456	2,339,319	
247	449	510	629	510	449	2548	74.80	716.4	4436	31783	**74.79**	5145	10192	5845		735,710	1,615,380	2,012,028	2,351,090	
248	450	511	630	511	450	2550	74.83	623.0	4442	27675	**74.79**	5049	10145	5709		739,140	1,622,933	2,025,011	2,362,073	
249	450	511	630	511	450	2552	74.85	536.0	4448	23841	**74.81**	4949	9489	5573		742,346	1,629,985	2,037,443	2,372,331	
250	450	511	631	511	450	2553	74.87	455.1	4452	20263	**74.81**	4846	9439	5436		745,344	1,636,576	2,049,361	2,381,920	
251	450	511	631	511	450	2555	74.88	379.8	4456	16924	**74.80**	4743	8794	5302		748,152	1,642,744	2,060,799	2,390,896	
252	451	512	631	512	451	2556	74.90	309.6	4459	13806	**74.82**	4640	8153	5170		750,784	1,648,522	2,071,788	2,399,306	
253	451	512	632	512	451	2556	74.91	244.1	4462	10893	**74.80**	4538	7506	5041		753,255	1,653,941	2,082,357	2,407,196	
254	451	512	632	512	451	2557	74.92	183.0	4464	8167	**74.82**	4439	6843	4916		755,577	1,659,030	2,092,533	2,414,607	
255	451	512	632	512	451	2557	74.92	125.7	4465	5615	**74.82**	4342	6154	4796		757,761	1,663,815	2,102,340	2,421,577	
256	451	512	632	512	451	2558	74.92	72.1	4466	3222	**74.82**	4248	6052	4681		759,820	1,668,320	2,111,800	2,428,140	
257	451	512	632	512	451	2558	74.92	21.8	4467	975	**74.81**	4158	5942	4570		761,761	1,672,567	2,120,934	2,434,328	
258	451	512	632	512	451	2558	74.92	-25.4	4467	-1136		4071	5825	4465		763,595	1,676,574	2,129,761	2,440,169	
259	451	512	632	512	451	2557	74.92	-69.9	4467	-3124	**74.79**	3989	5703	4365		765,329	1,680,361	2,138,298	2,445,690	
260	451	512	632	512	451	2557	74.92	-111.9	4466	-4997		3911	5578	4270		766,972	1,683,943	2,146,562	2,450,915	
261	451	512	632	512	451	2557	74.91	-151.5	4465	-6765	**74.77**	3836	5452	4180		768,529	1,687,335	2,154,567	2,455,865	
262	451	512	631	512	451	2556	74.90	-189.0	4464	-8436		3766	5324	4094		770,009	1,690,552	2,162,326	2,460,561	
263	450	512	631	512	450	2555	74.89	-224.5	4463	-10016	**74.74**	3699	5198	4014		771,415	1,693,605	2,169,853	2,465,020	
264	450	511	631	511	450	2554	74.88	-258.1	4461	-11514		3636	**5073**	**3937**	**6690**	772,754	1,696,507	2,177,159	2,469,261	
265	450	511	631	511	450	2553	74.87	-290.1	4459	-12934	**74.71**	3576	4951	3865		774,030	1,699,266	2,184,255	2,473,297	
266	450	511	631	511	450	2552	74.86	-320.5	4456	-14283		3520	4832	3797		775,249	1,701,894	2,191,151	2,477,143	
267	450	511	630	511	450	2551	74.84	-349.5	4453	-15565		3467	4717	3733		776,413	1,704,399	2,197,856	2,480,812	
268	450	511	630	511	450	2550	74.83	-377.1	4450	-16785		3417	4607	3673		777,526	1,706,789	2,205,170	2,484,315	
269	449	510	630	510	449	2549	74.81	-284.4	4447	-12650	**74.64**	3371	4501	3616		778,593	1,709,071	2,212,292	2,487,664	
270	449	510	629	510	449	2548	74.80	-312.4	4445	-13887		3327	**4400**	3563	**5500**	779,616	1,711,252	2,219,231	2,490,868	
271	449	510	629	510	449	2547	74.79	-339.2	4442	-15069	**74.61**	3286	4304	3513		780,599	1,713,338	2,225,993	2,493,937	
272	449	570	629	510	449	2606	74.77	-364.9	4439	-16200	**74.59**	3307	4212	3525		781,542	1,715,336	2,233,375	2,496,878	
273	449	569	629	569	449	2665	74.76	-303.1	4436	-13445	**74.57**	3330	4125	3541		782,450	1,717,250	2,240,576	2,499,700	
274	509	569	628	509	448	2665	74.74	-361.9	4434	-16046		3297	4043	3499		783,325	1,719,086	2,247,605	2,502,410	
275	509	569	628	569	509	2784	74.73	-387.7	4431	-17179	**74.55**	3385	3965	3580		784,167	1,720,847	2,254,467	2,505,015	
276	569	569	628	569	509	2842	74.71	-477.5	4428	-21143	**74.51**	3413	3891	3602		784,980	1,722,539	2,261,169	2,507,520	
277	568	568	627	568	568	2900	74.69	-533.4	4424	-23597	**74.50**	3444	3822	3626		785,765	1,724,166	2,267,716	2,509,931	
278	568	627	627	627	568	3016	74.66	-588.5	4419	-26005	**74.46**	3533	3756	3709		786,524	1,725,730	2,274,115	2,512,254	
279	626	626	626	626	626	3131	74.63	-674.3	4414	-29766		3624	3694	3794		787,258	1,727,235	2,280,370	2,514,492	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
232	326,288	756,189		1,291,975				Sat	8/01/2011	92,613		
233	330,432	781,464		1,297,852				Sun	9/01/2011	120,611		
234	334,698	806,736		1,301,829				Mon	10/01/2011	184,630		
235	339,069	828,514	1	1,307,449	397,362	397,362		Tue	11/01/2011	397,362		
236	343,532	850,295		1,311,291				Wed	12/01/2011	274,673		
237	348,071	869,887		1,315,633				Thu	13/01/2011	239,561	1,326,908	1,326,908
238	352,672	889,482		1,318,371				Fri		304,173		
239	357,323	906,962		1,321,712				Sat		303,264		
240	362,011	922,373		1,325,698				Sun				
241	366,725	935,727		1,330,404				Mon				
242	371,456	947,001		1,335,938								
243	376,194	956,139		1,342,442								
244	380,931	965,287		1,347,851								
245	385,659	974,445		1,352,248								
246	391,174	983,611		1,355,709								
247	396,648	992,784		1,358,306								
248	402,078	1,001,965		1,360,108								
249	407,458	1,011,153		1,361,178								
250	412,785	1,020,345		1,361,575								
251	418,055	1,029,542		1,361,354								
252	423,266	1,038,742		1,360,564								
253	428,416	1,047,945		1,359,251								
254	433,503	1,057,150		1,357,457								
255	438,524	1,066,357		1,355,220								
256	443,480	1,075,565		1,352,575								
257	448,367	1,084,772		1,349,555								
258	453,187	1,093,980		1,346,189								
259	457,937	1,103,187	1	1,342,504	274,673							
260	462,619	1,112,392		1,338,523								
261	467,231	1,121,596		1,334,269								
262	471,774	1,130,797		1,329,764								
263	476,248	1,139,996		1,325,024								
264	480,653	1,149,192		1,320,069								
265	484,989	1,158,384		1,314,912								
266	489,257	1,167,573		1,309,570								
267	493,457	1,176,758		1,304,054								
268	498,382	1,185,939		1,298,376								
269	503,222	1,195,116		1,292,548								
270	507,979	1,204,290		1,286,578								
271	512,655	1,213,459		1,280,477								
272	518,039	1,222,841		1,274,037								
273	523,326	1,232,435		1,267,266								
274	528,519	1,242,027		1,260,383								
275	533,619	1,252,050		1,252,965								
276	538,629	1,262,282		1,245,238								
277	543,551	1,272,722		1,237,209								
278	548,385	1,283,578		1,228,675								
279	553,136	1,294,850		1,219,643								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
280	403	197	204	236	-0.0645	-0.0316	**Thu 13/01/11 21:00**	103.58	1745.35	1547.08	27002.02	**103.40**	0.0	4.0	8	0	**1521**	5.0	5.5	5.5	5.0	5.0	**52**	0
281	388	191	200	230	-0.0764	-0.0302	**Thu 13/01/11 22:00**	103.50	1736.37	1833.32	31833.23	**103.34**	0.0	4.0	8	0	**1493**	5.0	5.5	5.5	5.5	5.0	**53**	0
282	374	185	195	223	-0.0756	-0.0324	**Thu 13/01/11 23:00**	103.43	1725.77	1815.08	31324.03		0.0	4.0	8	0	**1467**	5.5	5.5	5.5	5.5	5.0	**54**	0
283	361	180	191	217	-0.0749	-0.0346	**Fri 14/01/11 00:00**	103.35	1715.31	1796.99	30824.01	**103.20**	0.0	4.0	8	0	**1441**	5.5	5.5	5.5	5.5	5.5	**55**	0
284	348	174	187	210	-0.0741	-0.0368	**Fri 14/01/11 01:00**	103.28	1705.00	1779.09	30333.44	**103.13**	0.0	4.0	8	0	**1416**	5.5	5.5	6.0	5.5	5.5	**56**	0
285	336	169	183	205	-0.0734	-0.0389	**Fri 14/01/11 02:00**	103.20	1694.83	1761.38	29852.53	**103.06**	0.0	4.0	8	0	**1391**	5.5	6.0	6.0	5.5	5.5	**57**	0
286	325	165	179	199	-0.0727	-0.0410	**Fri 14/01/11 03:00**	103.13	1684.81	1743.91	29381.49	**102.99**	0.0	4.0	8	0	**1367**	5.5	6.0	6.0	6.0	5.5	**58**	0
287	314	160	175	193	-0.0719	-0.0431	**Fri 14/01/11 04:00**	103.06	1674.92	1726.67	28920.44	**102.93**	0.0	4.0	8	0	**1344**	5.5	6.0	6.0	6.0	5.5	**58**	0
288	304	156	171	188	-0.0712	-0.0439	**Fri 14/01/11 05:00**	102.99	1665.17	1709.70	28469.45	**102.87**	0.0	4.0	8	0	**1321**	5.5	6.0	6.0	6.0	5.5	**58**	0
289	294	151	167	183	-0.0705	-0.0446	**Fri 14/01/11 06:00**	102.92	1655.55	1693.01	28028.61	**102.79**	0.0	4.0	8	0	**1299**	5.5	6.0	6.0	6.0	5.5	**58**	0
290	285	147	163	178	-0.0699	-0.0453	**Fri 14/01/11 07:00**	102.85	1646.07	1676.60	27597.99	**102.73**	0.0	4.0	8	0	**1278**	5.5	6.0	6.0	6.0	5.5	**58**	0
291	276	144	159	173	-0.0692	-0.0460	**Fri 14/01/11 08:00**	102.78	1636.71	1660.50	27177.59	**102.67**	0.0	4.0	8	0	**1257**	5.5	6.0	6.0	6.0	5.5	**58**	0
292	267	140	156	169	-0.0685	-0.0466	**Fri 14/01/11 09:00**	102.71	1627.48	1644.72	26767.38	**102.61**	0.0	4.0	8	0	**1237**	5.5	6.0	6.0	6.0	5.5	**58**	0
293	259	137	152	164	-0.0679	-0.0473	**Fri 14/01/11 10:00**	102.64	1618.37	1629.26	26367.36	**102.54**	0.0	4.0	8	0	**1217**	5.5	6.0	6.0	6.0	5.5	**58**	0
294	251	133	149	160	-0.0673	-0.0479	**Fri 14/01/11 11:00**	102.57	1609.38	1614.14	25977.52	**102.48**	0.0	4.0	8	0	**1198**	5.5	6.0	6.0	6.0	5.5	**58**	0
295	244	130	146	156	-0.0666	-0.0485	**Fri 14/01/11 12:00**	102.51	1600.50	1599.36	25597.80	**102.42**	0.0	4.0	8	0	**1180**	5.5	6.0	6.0	6.0	5.5	**58**	0
296	236	127	142	152	-0.0660	-0.0491	**Fri 14/01/11 13:00**	102.44	1591.74	1584.94	25228.14	**102.36**	0.0	4.0	8	0	**1162**	5.5	6.0	6.0	6.0	5.5	**58**	0
297	230	124	139	148	-0.0655	-0.0496	**Fri 14/01/11 14:00**	102.38	1583.10	1570.88	24868.47	**102.30**	0.0	4.0	8	0	**1144**	5.5	6.0	6.0	6.0	5.5	**58**	0
298	223	121	136	145	-0.0649	-0.0502	**Fri 14/01/11 15:00**	102.31	1574.56	1557.18	24518.71	**102.23**	0.0	4.0	8	0	**1127**	5.5	6.0	6.0	6.0	5.5	**58**	0
299	217	118	133	141	-0.0643	-0.0507	**Fri 14/01/11 16:00**	102.25	1566.12	1543.86	24178.80	**102.17**	0.0	4.0	8	0	**1111**	5.5	6.0	6.0	6.0	5.5	**58**	0
300	210	116	130	137	-0.0638	-0.0512	**Fri 14/01/11 17:00**	102.18	1557.79	1530.93	23848.66	**102.12**	0.0	4.0	8	0	**1095**	5.5	6.0	6.0	6.0	5.5	**58**	0
301	205	113	127	134	-0.0633	-0.0517	**Fri 14/01/11 18:00**	102.12	1549.56	1518.38	23528.20		0.0	4.0	8	0	**1079**	5.5	6.0	6.0	6.0	5.5	**58**	0
302	199	110	124	131	-0.0628	-0.0522	**Fri 14/01/11 19:00**	102.06	1541.43	1506.22	23217.33	**101.99**	0.0	4.0	8	0	**1064**	6.0	6.0	6.0	6.0	5.5	**59**	0
303	193	108	121	128	-0.0623	-0.0540	**Fri 14/01/11 20:00**	101.99	1533.39	1494.46	22915.97	**101.93**	0.0	4.0	8	0	**1050**	6.0	6.0	6.0	6.0	5.5	**59**	0
304	188	106	118	124	-0.0618	-0.0545	**Fri 14/01/11 21:00**	101.93	1525.44	1483.11	22624.04	**101.87**	0.0	4.0	8	0	**1036**	6.0	6.0	6.0	6.0	5.5	**59**	0
305	183	103	116	121	-0.0613	-0.0549	**Fri 14/01/11 22:00**	101.87	1517.59	1472.17	22341.45	**101.82**	0.0	4.0	8	0	**1022**	6.0	6.0	6.0	6.0	5.5	**59**	0
306	178	101	113	119	-0.0609	-0.0553	**Fri 14/01/11 23:00**	101.81	1509.81	1461.65	22068.14	**101.76**	0.0	4.0	8	0	**1009**	6.0	6.0	6.0	6.0	5.5	**59**	0
307	173	99	110	116	-0.0605	-0.0558	**Sat 15/01/11 00:00**	101.75	1502.12	1451.55	21804.04	**101.70**	0.0	4.0	8	0	**996**	6.0	6.0	6.0	6.0	5.5	**59**	0
308	169	97	108	113	-0.0601	-0.0562	**Sat 15/01/11 01:00**	101.69	1494.51	1441.88	21549.08	**101.64**	0.0	4.0	8	0	**984**	6.0	6.0	6.0	6.0	5.5	**59**	0
309	164	95	105	110	-0.0597	-0.0566	**Sat 15/01/11 02:00**	101.63	1486.98	1432.65	21303.20	**101.58**	0.0	4.0	8	0	**972**	6.0	6.0	6.0	6.0	5.5	**59**	0
310	160	93	103	108	-0.0593	-0.0569	**Sat 15/01/11 03:00**	101.57	1479.52	1423.86	21066.33	**101.53**	0.0	4.0	8	0	**961**	6.0	6.0	6.0	6.0	6.0	**60**	0
311	156	91	101	105	-0.0590	-0.0586	**Sat 15/01/11 04:00**	101.51	1472.14	1415.52	20838.45	**101.46**	0.0	4.0	8	0	**950**	6.0	6.0	6.0	6.0	6.0	**60**	0
312	152	89	98	103	-0.0587	-0.0590	**Sat 15/01/11 05:00**	101.45	1464.82	1407.65	20619.51	**101.42**	0.0	4.0	8	0	**939**	6.0	6.0	6.0	6.0	6.0	**60**	0
313	148	88	96	100	-0.0583	-0.0593	**Sat 15/01/11 06:00**	101.39	1457.57	1400.24	20409.51	**101.35**	0.0	4.0	8	0	**929**	6.0	6.0	6.0	6.0	6.0	**60**	0
314	145	86	94	98	-0.0581	-0.0596	**Sat 15/01/11 07:00**	101.34	1450.39	1393.31	20208.45	**101.29**	0.0	4.0	8	0	**919**	6.0	6.0	6.0	6.0	6.0	**60**	0
315	141	84	92	96	-0.0578	-0.0600	**Sat 15/01/11 08:00**	101.28	1443.26	1386.88	20016.30	**101.24**	0.0	4.0	8	0	**910**	6.0	6.0	6.0	6.0	6.0	**60**	0
316	137	83	90	93	-0.0575	-0.0603	**Sat 15/01/11 09:00**	101.22	1436.19	1380.95	19833.13	**101.12**	0.0	4.0	8	0	**901**	6.0	6.0	6.0	6.0	6.0	**60**	0
317	134	81	88	91	-0.0573	-0.0605	**Sat 15/01/11 10:00**	101.16	1429.18	1375.54	19658.97		0.0	4.0	8	0	**893**	6.0	6.0	6.5	6.0	6.0	**61**	0
318	131	80	86	89	-0.0571	-0.0621	**Sat 15/01/11 11:00**	101.11	1422.22	1370.67	19493.88		0.0	4.0	8	0	**884**	6.0	6.0	6.5	6.0	6.0	**61**	0
319	128	78	84	87	-0.0569	-0.0624	**Sat 15/01/11 12:00**	101.05	1415.30	1366.35	19337.98		0.0	4.0	8	0	**877**	6.0	6.0	6.5	6.0	6.0	**61**	0
320	124	77	82	85	-0.0568	-0.0627	**Sat 15/01/11 13:00**	100.99	1408.44	1362.60	19191.38	**100.97**	0.0	4.0	8	0	**870**	6.0	6.0	6.5	6.0	6.0	**61**	0
321	121	75	80	83	-0.0566	-0.0629	**Sat 15/01/11 14:00**	100.94	1401.61	1359.45	19054.27	**100.90**	0.0	4.0	8	0	**863**	6.0	6.0	6.5	6.0	6.0	**61**	0
322	119	74	78	81	-0.0565	-0.0631	**Sat 15/01/11 15:00**	100.88	1394.83	1356.93	18926.85	**100.86**	0.0	4.0	8	0	**857**	6.0	6.0	6.5	6.0	6.0	**61**	0
323	116	72	76	80	-0.0565	-0.0634	**Sat 15/01/11 16:00**	100.82	1388.08	1355.07	18809.40		0.0	4.0	8	0	**851**	6.0	6.0	6.5	6.0	6.0	**61**	0
324	113	71	75	78	-0.0564	-0.0636	**Sat 15/01/11 17:00**	100.77	1381.36	1353.90	18702.28	**100.75**	0.0	4.0	8	0	**846**	6.0	6.5	6.5	6.0	6.0	**62**	0
325	110	70	73	76	-0.0564	-0.0651	**Sat 15/01/11 18:00**	100.71	1374.67	1353.48	18605.93	**100.68**	0.0	4.0	8	0	**841**	6.0	6.5	6.5	6.0	6.0	**62**	0
326	108	68	71	74	-0.0564	-0.0653	**Sat 15/01/11 19:00**	100.65	1368.01	1353.86	18520.93	**100.64**	0.0	4.0	8	0	**836**	6.0	6.5	6.5	6.0	6.0	**62**	0
327	105	67	70	73	-0.0565	-0.0654	**Sat 15/01/11 20:00**	100.60	1361.37	1355.11	18448.07	**100.58**	0.0	4.0	8	0	**833**	6.0	6.5	6.5	6.0	6.0	**62**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
280	626	684	684	626	626	3244	74.60	-759.4	4409	-33478	**74.41**	3714	3636	3879		787,968	1,728,684	2,287,268	2,516,652	
281	625	683	683	683	625	3299	74.57	-724.2	4402	-31879	**74.36**	3748	3581	3907		788,655	1,730,081	2,294,016	2,518,736	
282	682	682	682	682	624	3354	74.54	-777.9	4396	-34195	**74.34**	3782	3530	3936		789,322	1,731,428	2,300,619	2,520,750	
283	682	682	682	682	682	3408	74.50	-830.8	4390	-36469	**74.30**	3817	3481	3966		789,969	1,732,727	2,307,081	2,522,696	
284	681	681	738	681	681	3461	74.47	-883.0	4383	-38700	**74.26**	3852	3495	3996		790,596	1,733,981	2,313,408	2,524,577	
285	680	737	737	680	680	3514	74.43	-934.3	4375	-40879	**74.22**	3888	3512	4028		791,206	1,735,192	2,319,604	2,526,398	
286	679	736	736	736	679	3567	74.39	-985.0	4367	-43018	**74.18**	3924	3472	4060		791,798	1,736,363	2,325,674	2,528,161	
287	678	735	735	735	678	3562	74.34	-1035.0	4359	-45118		3904	3555	4035		792,374	1,737,494	2,331,621	2,529,868	
288	677	734	734	734	677	3557	74.30	-1052.9	4351	-45809	**74.08**	3884	3578	4012		792,934	1,738,589	2,337,451	2,531,523	
289	676	733	733	733	676	3552	74.26	-1070.3	4342	-46472		3866	3603	3989		793,480	1,739,648	2,343,166	2,533,127	
290	675	732	732	732	675	3546	74.21	-1087.2	4333	-47106		3847	3687	3967		794,011	1,740,673	2,348,771	2,534,683	
291	674	731	731	731	674	3541	74.16	-1103.5	4324	-47714		3830	3773	3946		794,528	1,741,666	2,354,268	2,536,194	
292	673	730	730	730	673	3536	74.12	-1119.3	4315	-48295	**74.08?**	3813	3858	3925		795,032	1,742,628	2,359,663	2,537,660	
293	672	729	729	729	672	3530	74.07	-1134.7	4305	-48851		3796	3887	3906		795,523	1,743,561	2,364,957	2,539,084	
294	671	727	727	727	671	3524	74.02	-1149.5	4296	-49383	**73.81**	3780	3917	3886		796,003	1,744,465	2,370,155	2,540,468	
295	670	726	726	726	670	3519	73.97	-1164.0	4286	-49892		3764	3948	3868		796,471	1,745,342	2,375,259	2,541,813	
296	669	725	725	725	669	3513	73.93	-1178.0	4277	-50377	**73.71**	3749	3979	3850		796,927	1,746,194	2,380,273	2,543,121	
297	668	724	724	724	668	3507	73.88	-1191.5	4267	-50841		3734	4011	3832		797,373	1,747,020	2,385,199	2,544,394	
298	667	723	723	723	667	3501	73.83	-1204.7	4257	-51284	**73.60**	3720	4044	3815		797,809	1,747,823	2,390,040	2,545,632	
299	666	721	721	721	666	3495	73.77	-1217.5	4247	-51706	**73.54**	3706	4020	3798		798,235	1,748,602	2,394,799	2,546,837	
300	664	720	720	720	664	3489	73.72	-1229.8	4237	-52108	**73.50**	3692	3997	3782		798,651	1,749,360	2,399,479	2,548,010	
301	663	719	719	719	663	3483	73.67	-1241.9	4227	-52490	**73.45**	3678	3975	3766		799,057	1,750,096	2,404,082	2,549,153	
302	718	718	718	718	662	3532	73.62	-1253.5	4216	-52854	**73.39**	3721	3954	3806		799,455	1,750,812	2,408,611	2,550,267	
303	716	716	716	716	661	3526	73.57	-1296.5	4206	-54531		3707	3933	3791		799,844	1,751,508	2,413,068	2,551,352	
304	715	715	715	715	660	3519	73.51	-1307.4	4195	-54852	**73.30**	3694	3913	3776		800,225	1,752,185	2,417,456	2,552,410	
305	714	714	714	714	658	3513	73.46	-1318.0	4185	-55154		3681	3894	3761		800,597	1,752,844	2,421,777	2,553,442	
306	712	712	712	712	657	3506	73.40	-1328.3	4174	-55441	**73.20**	3669	3875	3747		800,962	1,753,486	2,426,033	2,554,448	
307	711	711	711	711	656	3499	73.34	-1338.3	4163	-55710		3656	3857	3732		801,319	1,754,110	2,430,226	2,555,429	
308	709	709	709	709	655	3492	73.29	-1347.9	4152	-55963		3644	3840	3718		801,669	1,754,718	2,434,359	2,556,387	
309	708	708	708	708	653	3485	73.23	-1357.3	4141	-56200	**73.04**	3632	3822	3704		802,011	1,755,310	2,438,434	2,557,321	
310	707	707	707	707	707	3533	73.18	-1366.3	4130	-56422		3675	3806	3745		802,347	1,755,886	2,442,453	2,558,233	
311	705	705	705	705	705	3525	73.12	-1406.8	4118	-57937		3662	3789	3732		802,676	1,756,448	2,446,417	2,559,124	
312	704	704	704	704	704	3518	73.06	-1415.3	4107	-58121	**72.86**	3651	3774	3718		802,998	1,756,996	2,450,329	2,559,993	
313	702	702	702	702	702	3510	73.00	-1423.4	4095	-58291		3639	3758	3705		803,313	1,757,529	2,454,191	2,560,843	
314	701	701	701	701	701	3503	72.94	-1431.3	4083	-58446	**72.74**	3627	3798	3692		803,623	1,758,050	2,458,005	2,561,673	
315	699	699	699	699	699	3495	72.88	-1438.8	4072	-58586	**72.68**	3615	3783	3679		803,926	1,758,557	2,461,773	2,562,483	
316	698	698	698	698	698	3488	72.82	-1446.1	4060	-58713	**72.56**	3604	3768	3666		804,224	1,759,052	2,465,496	2,563,276	
317	696	696	749	696	696	3533	72.76	-1453.2	4048	-58826		3646	3754	3706		804,516	1,759,534	2,469,177	2,564,050	
318	694	694	747	694	694	3525	72.70	-1491.5	4036	-60200		3634	3740	3694		804,802	1,760,005	2,472,817	2,564,807	
319	693	693	746	693	693	3517	72.63	-1497.9	4024	-60277	**72.44**	3623	3726	3681		805,083	1,760,464	2,476,418	2,565,547	
320	691	691	744	691	691	3509	72.57	-1504.0	4012	-60340	**72.39**	3611	3712	3668		805,358	1,760,912	2,479,982	2,566,270	
321	690	690	742	690	690	3501	72.51	-1509.9	4000	-60390		3600	3698	3656		805,629	1,761,349	2,483,512	2,566,977	
322	688	688	740	688	688	3492	72.44	-1515.4	3987	-60425	**72.27**	3588	3739	3643		805,894	1,761,775	2,487,008	2,567,669	
323	686	686	739	686	686	3484	72.38	-1520.7	3975	-60447		3577	3726	3631		806,154	1,762,192	2,490,474	2,568,346	
324	685	737	737	685	685	3528	72.32	-1525.6	3963	-60455	**72.14**	3618	3713	3671		806,409	1,762,598	2,493,910	2,569,008	
325	683	735	735	683	683	3519	72.25	-1561.9	3950	-61697		3607	3699	3658		806,660	1,762,995	2,497,320	2,569,655	
326	681	733	733	681	681	3510	72.19	-1566.1	3938	-61667	**72.03**	3595	3686	3646		806,906	1,763,383	2,500,704	2,570,289	
327	680	731	731	680	680	3502	72.12	-1570.0	3925	-61622		3584	3674	3633		807,148	1,763,761	2,504,066	2,570,909	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
280	558,584	1,306,528		1,210,124								
281	563,935	1,318,405		1,200,331								
282	569,191	1,330,479		1,190,271								
283	574,354	1,342,748	1	1,179,948	239,561							
284	579,427	1,355,209		1,169,369								
285	584,412	1,367,860		1,158,538								
286	589,311	1,380,701		1,147,460								
287	594,127	1,393,524		1,136,344								
288	598,862	1,406,328		1,125,194								
289	603,518	1,419,114		1,114,013								
290	608,098	1,431,881		1,102,802								
291	612,603	1,444,629		1,091,565								
292	617,035	1,457,357		1,080,303								
293	621,397	1,470,065		1,069,019								
294	625,690	1,482,753		1,057,715								
295	629,917	1,495,420		1,046,393								
296	634,079	1,508,067		1,035,054								
297	638,179	1,520,692		1,023,701								
298	642,217	1,533,297		1,012,335								
299	646,197	1,545,880		1,000,957								
300	650,119	1,558,441		989,570								
301	653,986	1,570,980		978,174								
302	657,799	1,583,696		966,571								
303	661,560	1,596,389		954,963								
304	665,271	1,609,058		943,352								
305	668,933	1,621,703		931,739								
306	672,547	1,634,324		920,124								
307	676,116	1,646,920	1	908,509	304,173							
308	679,642	1,659,492		896,895								
309	683,124	1,672,038		885,283								
310	686,566	1,684,756		873,477								
311	689,969	1,697,447		861,676								
312	693,334	1,710,112		849,882								
313	696,662	1,722,750		838,093								
314	699,956	1,735,360		826,312								
315	703,216	1,747,944		814,540								
316	706,444	1,760,500		802,776								
317	709,643	1,773,219		790,831								
318	712,812	1,785,910		778,897								
319	715,954	1,798,571		766,975								
320	719,071	1,811,203		755,067								
321	722,163	1,823,806		743,172								
322	725,233	1,836,378		731,291								
323	728,282	1,848,921		719,425								
324	731,312	1,861,621		707,386								
325	734,325	1,874,290		695,365								
326	737,322	1,886,927		683,361								
327	740,305	1,899,533		671,376								

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
328	103	66	68	71	-0.0566	-0.0656	**Sat 15/01/11 21:00**	100.54	1354.75	1357.33	18388.42	**100.53**	0.0	4.0	8	0	**830**	6.0	6.5	6.5	6.0	6.0	**62**	0
329	100	65	66	69	-0.0567	-0.0657	**Sat 15/01/11 22:00**	100.48	1348.14	1360.66	18343.67	**100.47**	0.0	4.0	8	0	**827**	6.0	6.5	6.5	6.5	6.0	**63**	0
330	98	64	65	68	-0.0569	-0.0671	**Sat 15/01/11 23:00**	100.43	1341.54	1365.36	18316.82		0.0	4.0	8	0	**826**	6.0	6.5	6.5	6.5	6.0	**63**	0
331	96	62	63	66	-0.0572	-0.0672	**Sun 16/01/11 00:00**	100.37	1334.94	1371.99	18315.30	**100.36**	0.0	4.0	8	0	**825**	6.0	6.5	6.5	6.5	6.0	**63**	0
332	93	61	62	65	-0.0575	-0.0673	**Sun 16/01/11 01:00**	100.31	1328.33	1379.31	18321.80	**100.30**	0.0	4.0	8	0	**824**	6.0	6.5	6.5	6.5	6.0	**63**	0
333	91	60	61	63	-0.0578	-0.0673	**Sun 16/01/11 02:00**	100.26	1321.71	1386.65	18327.58	**100.24**	0.0	4.0	8	0	**824**	6.0	6.5	6.5	6.5	6.0	**63**	0
334	89	59	59	62	-0.0581	-0.0674	**Sun 16/01/11 03:00**	100.20	1315.08	1394.03	18332.66	**100.18**	0.0	4.0	8	0	**823**	6.0	6.5	6.5	6.5	6.0	**63**	0
335	87	58	58	61	-0.0584	-0.0674	**Sun 16/01/11 04:00**	100.14	1308.44	1401.44	18337.05	**100.13**	0.0	4.0	8	0	**822**	6.5	6.5	6.5	6.5	6.0	**64**	0
336	85	57	56	59	-0.0587	-0.0688	**Sun 16/01/11 05:00**	100.08	1301.79	1408.89	18340.77	**100.08**	0.0	4.0	8	0	**821**	6.5	6.5	6.5	6.5	6.0	**64**	0
337	83	56	55	58	-0.0590	-0.0689	**Sun 16/01/11 06:00**	100.02	1295.13	1416.37	18343.84	**100.01**	0.0	4.0	8	0	**820**	6.5	6.5	6.5	6.5	6.0	**64**	0
338	81	55	54	57	-0.0593	-0.0689	**Sun 16/01/11 07:00**	99.96	1288.46	1423.89	18346.26	**99.96**	0.0	4.0	8	0	**819**	6.5	6.5	6.5	6.5	6.0	**64**	0
339	80	54	53	56	-0.0596	-0.0690	**Sun 16/01/11 08:00**	99.90	1281.78	1431.45	18348.06	**99.90**	0.0	4.0	8	0	**818**	6.5	6.5	6.5	6.5	6.0	**64**	0
340	78	53	51	54	-0.0600	-0.0690	**Sun 16/01/11 09:00**	99.84	1275.09	1439.05	18349.26		0.0	4.0	8	0	**817**	6.5	6.5	6.5	6.5	6.5	**65**	0
341	76	52	50	53	-0.0603	-0.0704	**Sun 16/01/11 10:00**	99.78	1268.40	1446.70	18349.86	**99.76**	0.0	3.0	8	0	**612**	6.5	6.5	6.5	6.5	6.5	**65**	0
342	74	51	49	52	-0.0444	-0.0759	**Sun 16/01/11 11:00**	99.74	1261.69	1066.18	13451.83	**99.72**	0.0	3.0	8	0	**612**	6.5	6.5	6.5	6.5	6.5	**65**	0
343	73	50	48	51	-0.0446	-0.0760	**Sun 16/01/11 12:00**	99.69	1256.76	1071.10	13461.21	**99.69**	0.0	3.0	8	0	**611**	6.5	6.5	6.5	6.5	6.5	**65**	0
344	71	50	47	50	-0.0448	-0.0760	**Sun 16/01/11 13:00**	99.65	1251.83	1076.03	13470.10	**99.65**	0.0	3.0	8	0	**611**	6.5	6.5	7.0	6.5	6.5	**66**	0
345	69	49	46	49	-0.0450	-0.0774	**Sun 16/01/11 14:00**	99.60	1246.89	1080.97	13478.50	**99.59**	0.0	3.0	8	0	**610**	6.5	6.5	7.0	6.5	6.5	**66**	0
346	68	48	45	48	-0.0452	-0.0774	**Sun 16/01/11 15:00**	99.56	1241.94	1085.92	13486.44	**99.56**	0.0	3.0	8	0	**610**	6.5	6.5	7.0	6.5	6.5	**66**	0
347	66	47	44	47	-0.0455	-0.0775	**Sun 16/01/11 16:00**	99.51	1236.98	1090.87	13493.91	**99.51**	0.0	3.0	8	0	**609**	6.5	7.0	7.0	6.5	6.5	**67**	0
348	65	46	43	46	-0.0457	-0.0788	**Sun 16/01/11 17:00**	99.47	1232.02	1095.84	13500.93	**99.47**	0.0	3.0	8	0	**609**	6.5	7.0	7.0	6.5	6.5	**67**	0
349	63	45	42	45	-0.0459	-0.0789	**Sun 16/01/11 18:00**	99.42	1227.05	1100.81	13507.51	**99.43**	0.0	3.0	8	0	**608**	6.5	7.0	7.0	6.5	6.5	**67**	0
350	62	45	41	44	-0.0461	-0.0789	**Sun 16/01/11 19:00**	99.37	1222.07	1105.80	13513.67	**99.38**	0.0	3.0	8	0	**608**	6.5	7.0	7.0	6.5	6.5	**67**	0
351	61	44	40	43	-0.0463	-0.0790	**Sun 16/01/11 20:00**	99.33	1217.08	1110.80	13519.39	**99.34**	0.0	3.0	8	0	**607**	6.5	7.0	7.0	7.0	6.5	**68**	0
352	59	43	39	42	-0.0465	-0.0803	**Sun 16/01/11 21:00**	99.28	1212.09	1115.81	13524.69	**99.30**	0.0	3.0	8	0	**607**	6.5	7.0	7.0	7.0	6.5	**68**	0
353	58	42	38	41	-0.0467	-0.0803	**Sun 16/01/11 22:00**	99.24	1207.09	1120.84	13529.59	**99.25**	0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
354	57	42	37	40	-0.0301	-0.0860	**Sun 16/01/11 23:00**	99.21	1202.09	722.59	8686.23		0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
355	56	41	36	39	-0.0302	-0.0861	**Mon 17/01/11 00:00**	99.18	1198.87	725.49	8697.75		0.0	2.0	8	0	**404**	6.5	7.0	7.0	7.0	6.5	**68**	0
356	54	40	36	39	-0.0303	-0.0861	**Mon 17/01/11 01:00**	99.14	1195.65	728.39	8708.94		0.0	2.0	8	0	**403**	6.5	7.0	7.0	7.0	6.5	**68**	0
357	53	40	35	38	-0.0305	-0.0862	**Mon 17/01/11 02:00**	99.11	1192.42	731.27	8719.79		0.0	2.0	8	0	**403**	6.5	7.0	7.0	7.0	6.5	**68**	0
358	52	39	34	37	-0.0306	-0.0862	**Mon 17/01/11 03:00**	99.08	1189.18	734.15	8730.31	**99.11**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
359	51	38	33	36	-0.0137	-0.0920	**Mon 17/01/11 04:00**	99.07	1185.94	329.42	3906.66	**99.08**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
360	50	38	32	35	-0.0138	-0.0921	**Mon 17/01/11 05:00**	99.06	1184.49	331.03	3920.96	**99.08**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
361	49	37	32	35	-0.0139	-0.0921	**Mon 17/01/11 06:00**	99.04	1183.03	332.62	3934.97	**99.06**	0.0	1.0	8	0	**201**	6.5	7.0	7.0	7.0	6.5	**68**	0
362	48	36	31	34	-0.0139	-0.0922	**Mon 17/01/11 07:00**	99.03	1181.56	334.19	3948.71		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
363	47	36	30	33	-0.0028	-0.0961	**Mon 17/01/11 08:00**	99.03	1180.09	66.18	780.97		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
364	46	35	30	33	-0.0028	-0.0962	**Mon 17/01/11 09:00**	99.02	1179.80	67.41	795.36		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
365	45	35	29	32	-0.0029	-0.0962	**Mon 17/01/11 10:00**	99.02	1179.51	68.63	809.50		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
366	44	34	28	31	-0.0029	-0.0963	**Mon 17/01/11 11:00**	99.02	1179.21	69.83	823.39		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
367	43	33	28	31	-0.0030	-0.0963	**Mon 17/01/11 12:00**	99.01	1178.90	71.00	837.03		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
368	42	33	27	30	-0.0030	-0.0964	**Mon 17/01/11 13:00**	99.01	1178.59	72.16	850.41		1.0	0.0	8	0	**69**	6.5	7.0	7.0	7.0	6.5	**68**	0
369	41	32	26	29	-0.0031	-0.0964	**Mon 17/01/11 14:00**	99.01	1178.27	73.29	863.56		1.0	0.0	8	0	**69**	6.5	6.5	6.5	6.5	6.5	**65**	0
370	40	32	26	29	-0.0031	-0.0926	**Mon 17/01/11 15:00**	99.00	1177.95	74.41	876.47		1.0	0.0	8	0	**69**	6.0	6.5	6.5	6.5	6.0	**63**	0
371	39	31	25	28	-0.0031	-0.0901	**Mon 17/01/11 16:00**	99.00	1177.62	75.50	889.16		1.0	0.0	8	0	**69**	6.0	6.0	6.5	6.0	6.0	**61**	0
372	39	31	25	28	-0.0032	-0.0875	**Mon 17/01/11 17:00**	99.00	1177.29	76.58	901.63		1.0	0.0	8	0	**69**	6.0	6.0	6.0	6.0	6.0	**60**	0
373	38	30	24	27	-0.0032	-0.0862	**Mon 17/01/11 18:00**	99.00	1176.96	77.65	913.87		1.0	0.0	8	0	**69**	5.5	5.5	5.5	5.5	5.5	**55**	0
374	37	30	23	27	-0.0033	-0.0797	**Mon 17/01/11 19:00**	98.99	1176.62	78.69	925.89		1.0	0.0	8	0	**69**	5.0	5.0	5.0	5.0	5.0	**50**	0
375	36	29	23	26	-0.0033	-0.0730	**Mon 17/01/11 20:00**	98.99	1176.27	79.72	937.69		1.0	0.0	8	0	**69**	4.5	4.5	5.0	4.5	4.5	**46**	0

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
328	678	729	729	678	678	3493	72.06	-1573.5	3912	-61559		3573	3661	3621		807,385	1,764,130	2,507,409	2,571,516	
329	676	728	728	728	676	3535	71.99	-1576.6	3899	-61478	**71.80**	3613	3701	3660		807,618	1,764,491	2,510,734	2,572,109	
330	674	726	726	726	674	3526	71.92	-1610.8	3887	-62608		3601	3689	3647		807,847	1,764,844	2,514,047	2,572,691	
331	673	724	724	724	673	3516	71.86	-1612.7	3874	-62469	**71.71**	3590	3676	3635		808,071	1,765,188	2,517,348	2,573,260	
332	671	722	722	722	671	3507	71.79	-1614.2	3861	-62319		3578	3664	3623		808,292	1,765,525	2,520,639	2,573,816	
333	669	720	720	720	669	3498	71.72	-1615.8	3848	-62168		3567	3651	3610		808,509	1,765,853	2,523,918	2,574,362	
334	667	718	718	718	667	3488	71.65	-1617.2	3835	-62014	**71.52**	3555	3639	3598		808,721	1,766,174	2,527,187	2,574,896	
335	716	716	716	716	666	3529	71.59	-1618.7	3822	-61859		3594	3626	3636		808,930	1,766,488	2,530,445	2,575,419	
336	714	714	714	714	664	3519	71.52	-1651.8	3809	-62909		3582	3666	3624		809,136	1,766,795	2,533,693	2,575,930	
337	712	712	712	712	662	3509	71.45	-1653.1	3795	-62740		3571	3654	3611		809,337	1,767,094	2,536,931	2,576,432	
338	710	710	710	710	660	3499	71.38	-1654.4	3782	-62570	**71.25**	3559	3642	3599		809,536	1,767,387	2,540,159	2,576,923	
339	708	708	708	708	658	3489	71.31	-1655.7	3769	-62399		3548	3629	3586		809,730	1,767,674	2,543,377	2,577,404	
340	706	706	706	706	706	3529	71.24	-1656.9	3756	-62225	**71.11**	3585	3617	3623		809,922	1,767,953	2,546,586	2,577,875	
341	704	704	704	704	704	3519	71.17	-1689.8	3742	-63235		3573	3656	3611		810,110	1,768,227	2,549,053	2,578,336	
342	701	701	701	701	701	3507	71.10	-1822.3	3729	-67947	**70.95**	3561	3644	3597		810,294	1,768,494	2,551,512	2,578,789	
343	699	699	699	699	699	3496	71.02	-1823.5	3714	-67729	**70.87**	3548	3632	3584		810,476	1,768,756	2,553,964	2,579,232	
344	697	697	745	697	697	3533	70.94	-1824.8	3700	-67510		3583	3619	3619		810,654	1,769,011	2,556,408	2,579,665	
345	695	695	743	695	695	3521	70.87	-1857.4	3685	-68448	**70.75**	3570	3607	3605		810,829	1,769,261	2,558,845	2,580,091	
346	692	692	740	692	692	3509	70.79	-1858.6	3670	-68215		3557	3595	3591		811,002	1,769,506	2,561,274	2,580,507	
347	690	738	738	690	690	3545	70.71	-1859.7	3656	-67980	**70.62**	3592	3633	3625		811,171	1,769,745	2,563,696	2,580,916	
348	688	735	735	688	688	3533	70.63	-1892.1	3641	-68887		3578	3620	3611		811,337	1,769,978	2,566,110	2,581,316	
349	685	732	732	685	685	3520	70.55	-1893.1	3626	-68638	**70.45**	3564	3608	3596		811,501	1,770,207	2,568,518	2,581,708	
350	683	730	730	683	683	3508	70.48	-1894.0	3611	-68387		3551	3596	3582		811,662	1,770,430	2,570,919	2,582,092	
351	680	727	727	727	680	3542	70.40	-1894.9	3596	-68134	**70.29**	3584	3583	3615		811,820	1,770,649	2,573,313	2,582,469	
352	678	724	724	724	678	3529	70.32	-1927.1	3581	-69004		3570	3621	3600		811,975	1,770,863	2,575,700	2,582,838	
353	675	722	722	722	675	3516	70.24	-1927.8	3566	-68736	**70.16**	3556	3608	3586		812,128	1,771,072	2,577,357	2,583,200	
354	673	719	719	719	673	3502	70.15	-2065.1	3550	-73316		3541	3594	3570		812,278	1,771,277	2,579,008	2,583,555	
355	670	716	716	716	670	3488	70.06	-2066.1	3534	-73015		3526	3581	3554		812,426	1,771,477	2,580,654	2,583,902	
356	667	713	713	713	667	3474	69.98	-2067.0	3518	-72712		3511	3616	3539		812,571	1,771,673	2,582,295	2,584,243	
357	665	710	710	710	665	3460	69.89	-2067.9	3502	-72408		3495	3602	3523		812,713	1,771,864	2,583,931	2,584,578	
358	662	707	707	707	662	3446	69.80	-2068.7	3485	-72100	**69.76**	3480	3589	3508		812,854	1,772,052	2,584,840	2,584,905	
359	659	704	704	704	659	3430	69.71	-2208.8	3469	-76626	**69.65**	3464	3622	3491		812,992	1,772,235	2,585,745	2,585,227	
360	656	701	701	701	656	3415	69.62	-2210.1	3452	-76286	**69.58**	3448	3608	3474		813,127	1,772,415	2,586,646	2,585,542	
361	653	698	698	698	653	3400	69.53	-2211.3	3434	-75945	**69.49**	3432	3594	3458		813,260	1,772,590	2,587,543	2,585,851	
362	650	694	694	694	650	3384	69.44	-2212.4	3417	-75601	**69.40**	3415	3580	3441		813,392	1,772,762	2,587,961	2,586,154	
363	647	691	691	691	647	3368	69.34	-2307.0	3400	-78436	**69.33**	3398	3613	3423		813,520	1,772,930	2,588,375	2,586,451	
364	644	688	688	688	644	3351	69.24	-2308.4	3382	-78069	**69.22**	3381	3598	3406		813,647	1,773,095	2,588,785	2,586,742	
365	641	684	684	684	641	3335	69.15	-2309.8	3364	-77701	**69.14**	3364	3584	3388		813,772	1,773,256	2,589,192	2,587,028	
366	638	681	681	681	638	3318	69.05	-2311.1	3346	-77329	**69.06**	3347	3568	3371		813,894	1,773,414	2,589,596	2,587,308	
367	635	677	677	677	635	3302	68.96	-2312.3	3328	-76955		3329	3553	3353		814,015	1,773,568	2,589,996	2,587,583	
368	632	674	674	674	632	3285	68.86	-2313.5	3310	-76579		3312	3537	3335		814,133	1,773,719	2,590,393	2,587,853	
369	628	628	628	628	628	3142	68.76	-2314.5	3292	-76199		3168	3521	3191		814,250	1,773,867	2,590,787	2,588,117	
370	583	625	625	625	583	3042	68.67	-2222.9	3274	-72786		3067	3506	3090		814,364	1,774,012	2,591,178	2,588,376	
371	580	580	622	580	580	2943	68.58	-2161.5	3257	-70403		2968	3489	2990		814,477	1,774,154	2,591,566	2,588,631	
372	578	578	578	578	578	2808	68.49	-2100.1	3241	-68056		2912	3473	2934		814,588	1,774,293	2,591,950	2,588,881	
373	533	533	533	533	533	2663	68.41	-2070.0	3224	-66743		2687	3456	2708		814,697	1,774,428	2,592,332	2,589,126	
374	487	487	487	487	487	2437	68.33	-1912.7	3208	-61369		2460	3439	2482		814,804	1,774,562	2,592,711	2,589,366	
375	442	442	486	442	442	2253	68.25	-1752.4	3194	-55969		2276	3422	2297		814,910	1,774,692	2,593,087	2,589,602	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
328	743,278	1,912,106		659,409								
329	746,243	1,924,833		647,277								
330	749,203	1,937,525		635,165								
331	752,160	1,950,184	1	623,075	303,264							
332	755,114	1,962,810		611,007								
333	758,065	1,975,402		598,960								
334	761,013	1,987,959		586,936								
335	763,957	2,000,664		574,754								
336	766,899	2,013,333		562,597								
337	769,837	2,025,967		550,465								
338	772,772	2,038,565		538,358								
339	775,704	2,051,127		526,277								
340	778,632	2,063,831		514,044								
341	780,826	2,076,498		501,838								
342	783,018	2,089,124		489,664								
343	785,208	2,101,710		477,522								
344	787,397	2,114,428		465,237								
345	789,583	2,127,104		452,986								
346	791,768	2,139,738		440,769								
347	793,951	2,152,500		428,415								
348	796,132	2,165,218		416,097								
349	798,311	2,177,892		403,816								
350	800,488	2,190,520		391,572								
351	802,664	2,203,272		379,196								
352	804,837	2,215,978		366,860								
353	806,285	2,228,637		354,563								
354	807,731	2,241,245		342,310								
355	809,177	2,253,802	1	330,100	303,618							
356	810,622	2,266,309		317,934								
357	812,067	2,278,765		305,813								
358	812,788	2,291,169		293,736								
359	813,510	2,303,518		281,708								
360	814,231	2,315,812		269,730								
361	814,952	2,328,051		257,800								
362	815,198	2,340,233		245,921								
363	815,444	2,352,357		234,094								
364	815,690	2,364,422		222,320								
365	815,936	2,376,428		210,600								
366	816,182	2,388,374		198,934								
367	816,428	2,400,261		187,322								
368	816,674	2,412,087		175,765								
369	816,920	2,423,399		164,718								
370	817,166	2,434,350		154,027								
371	817,412	2,444,945		143,686								
372	817,658	2,455,341		133,539								
373	817,904	2,464,928		124,197								
374	818,149	2,473,702		115,664								
375	818,395	2,481,813		107,788								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
376	35	29	22	26	-0.0034	-0.0676	**Mon 17/01/11 21:00**	98.99	1175.92	80.73	949.30		1.0	0.0	8	0	**69**	4.0	4.5	5.0	4.5	4.0	**44**	0
377	35	28	22	25	-0.0034	-0.0648	**Mon 17/01/11 22:00**	98.98	1175.57	81.72	960.70		1.0	0.0	8	0	**69**	4.0	4.0	5.0	4.0	4.0	**42**	0
378	34	28	21	25	-0.0034	-0.0620	**Mon 17/01/11 23:00**	98.98	1175.21	82.70	971.90		1.0	0.0	8	0	**69**	3.5	4.0	5.0	4.0	3.5	**40**	0
379	33	27	21	24	-0.0035	-0.0592	**Tue 18/01/11 00:00**	98.98	1174.85	83.66	982.90		1.0	0.0	8	0	**69**	3.0	4.0	5.0	4.0	3.0	**38**	0
380	33	27	20	24	-0.0035	-0.0562	**Tue 18/01/11 01:00**	98.97	1174.48	84.61	993.71		1.0	0.0	8	0	**69**	3.0	4.0	4.5	4.0	3.0	**37**	0
381	32	27	20	23	-0.0036	-0.0549	**Tue 18/01/11 02:00**	98.97	1174.11	85.54	1004.33		1.0	0.0	8	0	**69**	3.0	3.5	4.5	3.5	3.0	**35**	0
382	31	26	20	23	-0.0036	-0.0520	**Tue 18/01/11 03:00**	98.96	1173.74	86.46	1014.77		1.0	0.0	8	0	**69**	2.5	3.5	4.5	3.5	2.5	**33**	0
383	31	26	19	22	-0.0036	-0.0490	**Tue 18/01/11 04:00**	98.96	1173.36	87.36	1025.03		1.0	0.0	8	0	**69**	2.5	3.5	4.5	3.0	2.5	**32**	0
384	30	25	19	22	-0.0037	-0.0476	**Tue 18/01/11 05:00**	98.96	1172.98	88.25	1035.11		1.0	0.0	8	0	**69**	2.5	3.0	4.5	3.0	2.5	**31**	0
385	29	25	18	21	-0.0037	-0.0461	**Tue 18/01/11 06:00**	98.95	1172.59	89.12	1045.02		1.0	0.0	8	0	**69**	2.5	3.0	4.5	2.5	2.5	**30**	0
386	29	24	18	21	-0.0037	-0.0446	**Tue 18/01/11 07:00**	98.95	1172.20	89.98	1054.75		0.0	0.0	8	0	**0**	2.5	2.5	4.5	2.5	2.5	**29**	0
387	28	24	17	20	0.0021	-0.0454	**Tue 18/01/11 08:00**	98.95	1171.81	-49.58	-580.98		0.0	0.0	8	0	**0**	2.5	2.5	4.5	2.5	2.0	**28**	0
388	28	24	17	20	0.0020	-0.0438	**Tue 18/01/11 09:00**	98.95	1172.02	-48.76	-571.48		0.0	0.0	8	0	**0**	2.0	2.5	4.5	2.5	2.0	**27**	0
389	27	23	17	20	0.0020	-0.0423	**Tue 18/01/11 10:00**	98.96	1172.24	-47.95	-562.14		0.0	0.0	8	0	**0**	2.0	2.5	4.5	2.5	1.5	**26**	0
390	27	23	16	19	0.0020	-0.0407	**Tue 18/01/11 11:00**	98.96	1172.45	-47.16	-552.94		0.0	0.0	8	0	**0**	1.5	2.5	4.5	2.5	1.5	**25**	0
391	26	22	16	19	0.0019	-0.0392	**Tue 18/01/11 12:00**	98.96	1172.65	-46.38	-543.91		0.0	0.0	8	0	**0**	1.5	2.5	4.0	2.5	1.5	**24**	0
392	26	22	16	19	0.0019	-0.0378	**Tue 18/01/11 13:00**	98.96	1172.86	-45.62	-535.03		0.0	0.0	8	0	**0**	1.5	2.0	4.0	2.0	1.5	**22**	0
393	25	22	15	18	0.0019	-0.0347	**Tue 18/01/11 14:00**	98.96	1173.06	-44.87	-526.30		0.0	0.0	8	0	**0**	1.0	2.0	4.0	2.0	1.0	**20**	0
394	25	21	15	18	0.0018	-0.0314	**Tue 18/01/11 15:00**	98.97	1173.25	-44.13	-517.72		0.0	0.0	8	0	**0**	1.0	1.5	4.0	1.5	1.0	**18**	0
395	24	21	14	18	0.0018	-0.0283	**Tue 18/01/11 16:00**	98.97	1173.44	-43.40	-509.28		0.0	0.0	8	0	**0**	1.0	1.5	4.0	1.5	0.5	**17**	0
396	24	21	14	17	0.0018	-0.0266	**Tue 18/01/11 17:00**	98.97	1173.63	-42.69	-500.98		0.0	0.0	8	0	**0**	0.5	1.5	4.0	1.5	0.5	**16**	0
397	23	20	14	17	0.0017	-0.0250	**Tue 18/01/11 18:00**	98.97	1173.82	-41.98	-492.82		0.0	0.0	8	0	**0**	0.5	1.0	4.0	1.0	0.5	**14**	0
398	23	20	14	17	0.0017	-0.0217	**Tue 18/01/11 19:00**	98.97	1174.01	-41.29	-484.80		0.0	0.0	8	0	**0**	0.5	1.0	4.0	1.0	0.0	**13**	0
399	22	20	13	16	0.0017	-0.0201	**Tue 18/01/11 20:00**	98.97	1174.19	-40.62	-476.90		0.0	0.0	8	0	**0**	0.0	1.0	4.0	1.0	0.0	**12**	0
400	22	19	13	16	0.0017	-0.0185	**Tue 18/01/11 21:00**	98.98	1174.36	-39.95	-469.15		0.0	0.0	8	0	**0**	0.0	1.0	4.0	0.5	0.0	**11**	0
401	21	19	13	16	0.0016	-0.0168	**Tue 18/01/11 22:00**	98.98	1174.54	-39.29	-461.53		0.0	0.0	8	0	**0**	0.0	0.5	4.0	0.5	0.0	**10**	0
402	21	19	12	15	0.0016	-0.0152	**Tue 18/01/11 23:00**	98.98	1174.71	-38.65	-454.02		0.0	0.0	8	0	**0**	0.0	0.5	3.5	0.5	0.0	**9**	0
403	20	18	12	15	0.0016	-0.0138	**Wed 19/01/11 00:00**	98.98	1174.88	-38.02	-446.65		0.0	0.0	8	0	**0**	0.0	0.5	3.5	0.0	0.0	**8**	0
404	20	18	12	15	0.0016	-0.0121	**Wed 19/01/11 01:00**	98.98	1175.05	-37.39	-439.41		0.0	0.0	8	0	**0**	0.0	0.0	3.5	0.0	0.0	**7**	0
405	20	18	12	15	0.0015	-0.0105	**Wed 19/01/11 02:00**	98.98	1175.21	-36.78	-432.27		0.0	0.0	8	0	**0**	0.0	0.0	3.0	0.0	0.0	**6**	0
406	19	18	11	14	0.0015	-0.0090	**Wed 19/01/11 03:00**	98.99	1175.37	-36.18	-425.25		0.0	0.0	8	0	**0**	0.0	0.0	2.5	0.0	0.0	**5**	0
407	19	17	11	14	0.0015	-0.0075	**Wed 19/01/11 04:00**	98.99	1175.53	-35.59	-418.35		0.0	0.0	8	0	**0**	0.0	0.0	2.0	0.0	0.0	**4**	0
408	19	17	11	14	0.0015	-0.0059	**Wed 19/01/11 05:00**	98.99	1175.69	-35.01	-411.57		0.0	0.0	8	0	**0**	0.0	0.0	1.5	0.0	0.0	**3**	0
409	18	17	11	13	0.0014	-0.0043	**Wed 19/01/11 06:00**	98.99	1175.84	-34.44	-404.90		0.0	0.0	8	0	**0**	0.0	0.0	1.0	0.0	0.0	**2**	0
410	18	16	10	13	0.0014	-0.0027	**Wed 19/01/11 07:00**	98.99	1175.99	-33.87	-398.35		0.0	0.0	8	0	**0**	0.0	0.0	0.5	0.0	0.0	**1**	0
411	18	16	10	13	0.0014	-0.0011	**Wed 19/01/11 08:00**	98.99	1176.14	-33.32	-391.89		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
412	17	16	10	13	0.0014	-0.0011	**Wed 19/01/11 09:00**	98.99	1176.28	-32.78	-385.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
413	17	16	10	13	0.0013	-0.0011	**Wed 19/01/11 10:00**	98.99	1176.43	-32.24	-379.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
414	17	15	9	12	0.0013	-0.0011	**Wed 19/01/11 11:00**	99.00	1176.57	-31.72	-373.18		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
415	16	15	9	12	0.0013	-0.0011	**Wed 19/01/11 12:00**	99.00	1176.71	-31.20	-367.14		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
416	16	15	9	12	0.0013	-0.0011	**Wed 19/01/11 13:00**	99.00	1176.85	-30.69	-361.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
417	16	15	9	12	0.0013	-0.0012	**Wed 19/01/11 14:00**	99.00	1176.98	-30.19	-355.36		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
418	15	14	9	11	0.0012	-0.0012	**Wed 19/01/11 15:00**	99.00	1177.11	-29.70	-349.62		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
419	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 16:00**	99.00	1177.24	-29.22	-343.96		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
420	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 17:00**	99.00	1177.37	-28.74	-338.41		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
421	15	14	8	11	0.0012	-0.0012	**Wed 19/01/11 18:00**	99.00	1177.50	-28.28	-332.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
422	14	14	8	11	0.0012	-0.0012	**Wed 19/01/11 19:00**	99.01	1177.62	-27.82	-327.58		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
423	14	13	8	10	0.0011	-0.0012	**Wed 19/01/11 20:00**	99.01	1177.74	-27.36	-322.29		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
376	396	440	484	440	396	2156	68.19	-1621.5	3180	-51570		2178	3404	2199		815,013	1,774,819	2,593,460	2,589,833	
377	394	394	482	394	394	2060	68.12	-1555.0	3168	-49260		2081	3387	2102		815,115	1,774,944	2,593,831	2,590,060	
378	348	393	481	393	348	1963	68.06	-1488.4	3156	-46973		1984	3369	2004		815,216	1,775,067	2,594,199	2,590,282	
379	300	392	479	392	300	1864	68.00	-1420.0	3145	-44653		1884	3352	1904		815,314	1,775,187	2,594,565	2,590,501	
380	299	391	435	391	299	1816	67.94	-1349.7	3134	-42296		1835	3334	1855		815,411	1,775,304	2,594,928	2,590,715	
381	299	345	434	345	299	1721	67.89	-1317.6	3123	-41156		1740	3190	1759		815,507	1,775,419	2,595,289	2,590,926	
382	251	344	432	344	251	1621	67.84	-1249.1	3113	-38891		1640	3089	1659		815,601	1,775,532	2,595,647	2,591,132	
383	250	343	431	297	250	1572	67.79	-1176.8	3104	-36526		1590	2989	1609		815,693	1,775,642	2,596,003	2,591,335	
384	249	296	430	296	249	1522	67.74	-1142.0	3095	-35343		1540	2933	1558		815,784	1,775,750	2,596,357	2,591,534	
385	249	296	429	249	249	1471	67.69	-1107.1	3086	-34167		1489	2707	1507		815,873	1,775,856	2,596,709	2,591,729	
386	248	248	428	248	248	1421	67.65	-1071.2	3078	-32969		1438	2480	1456		815,961	1,775,960	2,596,812	2,591,921	
387	248	248	427	248	200	1370	67.60	-1088.9	3070	-33425		1387	2296	1405		816,047	1,776,061	2,596,914	2,592,109	
388	199	247	426	247	199	1319	67.56	-1052.2	3061	-32211		1335	2198	1353		816,132	1,776,161	2,597,013	2,592,293	
389	199	247	425	247	150	1268	67.52	-1015.4	3053	-31003		1283	2101	1301		816,216	1,776,259	2,597,111	2,592,475	
390	150	246	424	246	150	1216	67.48	-977.7	3046	-29777		1232	2003	1249		816,298	1,776,354	2,597,207	2,592,653	
391	150	246	381	246	150	1171	67.44	-939.9	3038	-28558		1186	1903	1203		816,379	1,776,448	2,597,300	2,592,827	
392	149	198	380	198	149	1074	67.40	-907.0	3031	-27491		1089	1854	1106		816,459	1,776,540	2,597,392	2,592,999	
393	100	197	379	197	100	974	67.37	-832.4	3024	-25175		988	1758	1005		816,537	1,776,630	2,597,482	2,593,167	
394	100	149	379	149	100	875	67.33	-754.6	3018	-22774		890	1658	906		816,614	1,776,718	2,597,570	2,593,332	
395	99	149	378	149	50	824	67.31	-678.2	3012	-20429		838	1608	854		816,690	1,776,804	2,597,657	2,593,494	
396	50	148	377	148	50	774	67.28	-639.0	3007	-19216		787	1557	803		816,764	1,776,889	2,597,742	2,593,654	
397	50	99	377	99	50	675	67.25	-599.8	3002	-18008		688	1506	703		816,838	1,776,972	2,597,825	2,593,810	
398	50	99	376	99	0	624	67.23	-521.8	2998	-15642		637	1455	652		816,910	1,777,054	2,597,906	2,593,964	
399	0	99	376	99	0	574	67.21	-482.5	2994	-14444		587	1404	602		816,981	1,777,134	2,597,986	2,594,114	
400	0	99	376	49	0	524	67.19	-443.1	2990	-13251		536	1352	551		817,051	1,777,212	2,598,064	2,594,262	
401	0	49	375	49	0	474	67.18	-403.8	2987	-12060		486	1300	501		817,119	1,777,289	2,598,141	2,594,408	
402	0	49	332	49	0	431	67.16	-364.4	2984	-10873		442	1248	457		817,187	1,777,364	2,598,216	2,594,551	
403	0	49	332	0	0	381	67.15	-330.2	2981	-9842		392	1202	407		817,253	1,777,438	2,598,290	2,594,691	
404	0	0	332	0	0	332	67.14	-290.7	2979	-8660		343	1105	357		817,319	1,777,510	2,598,362	2,594,829	
405	0	0	287	0	0	287	67.13	-251.3	2976	-7479		298	1004	312		817,383	1,777,581	2,598,433	2,594,964	
406	0	0	242	0	0	242	67.12	-216.0	2974	-6424		252	905	266		817,446	1,777,650	2,598,503	2,595,097	
407	0	0	195	0	0	195	67.11	-179.6	2973	-5340		205	853	219		817,509	1,777,719	2,598,571	2,595,227	
408	0	0	147	0	0	147	67.10	-142.3	2971	-4228		157	802	171		817,570	1,777,786	2,598,638	2,595,355	
409	0	0	98	0	0	98	67.10	-104.0	2970	-3090		108	703	122		817,630	1,777,851	2,598,704	2,595,481	
410	0	0	49	0	0	49	67.10	-65.0	2970	-1930		59	652	72		817,689	1,777,916	2,598,768	2,595,605	
411	0	0	0	0	0	50	67.09	-25.5	2969	-757		59	601	72		817,748	1,777,979	2,598,831	2,595,726	
412	0	0	0	0	0	50	67.09	-26.4	2969	-783		59	551	72		817,805	1,778,041	2,598,893	2,595,846	
413	0	0	0	0	0	50	67.09	-26.6	2969	-791		59	500	72		817,861	1,778,101	2,598,954	2,595,963	
414	0	0	0	0	0	50	67.09	-26.9	2969	-799		59	456	71		817,917	1,778,161	2,599,014	2,596,078	
415	0	0	0	0	0	50	67.09	-27.2	2968	-806		59	406	71		817,971	1,778,220	2,599,072	2,596,191	
416	0	0	0	0	0	50	67.09	-27.4	2968	-814		58	356	71		818,025	1,778,277	2,599,129	2,596,302	
417	0	0	0	0	0	50	67.09	-27.7	2968	-821		58	311	70		818,078	1,778,333	2,599,186	2,596,411	
418	0	0	0	0	0	50	67.09	-27.9	2968	-828		58	265	70		818,130	1,778,388	2,599,241	2,596,519	
419	0	0	0	0	0	50	67.09	-28.1	2967	-835		58	218	70		818,181	1,778,443	2,599,295	2,596,624	
420	0	0	0	0	0	50	67.08	-28.4	2967	-842		58	170	69		818,232	1,778,496	2,599,348	2,596,727	
421	0	0	0	0	0	50	67.08	-28.6	2967	-849		58	121	69		818,281	1,778,548	2,599,401	2,596,829	
422	0	0	0	0	0	50	67.08	-28.8	2967	-855		57	71	69		818,330	1,778,599	2,599,452	2,596,929	
423	0	0	0	0	0	50	67.08	-29.0	2967	-862		57	72	68		818,378	1,778,650	2,599,502	2,597,027	

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	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
376	818,641	2,489,576		100,257								
377	818,887	2,496,992		93,067								
378	819,133	2,504,058		86,224								
379	819,378	2,510,768	1	79,733	256,966							
380	819,624	2,517,305		73,411								
381	819,870	2,523,499		67,427								
382	820,115	2,529,336		61,796								
383	820,361	2,534,994		56,341								
384	820,607	2,540,473		51,061								
385	820,853	2,545,770		45,960								
386	820,853	2,550,886		41,035								
387	820,853	2,555,818		36,291								
388	820,853	2,560,567		31,726								
389	820,853	2,565,130		27,344								
390	820,853	2,569,509		23,144								
391	820,853	2,573,725		19,102								
392	820,853	2,577,592		15,406								
393	820,853	2,581,098		12,069								
394	820,853	2,584,249		9,083								
395	820,853	2,587,217		6,277								
396	820,853	2,590,003		3,651								
397	820,853	2,592,431		1,379								
398	820,853	2,594,678		-715								
399	820,853	2,596,745		-2,631								
400	820,853	2,598,632		-4,369								
401	820,853	2,600,338		-5,931								
402	820,853	2,601,889	1	-7,339		92,493						
403	820,853	2,603,261	92,493	-8,570								
404	820,853	2,604,455		-9,626								
405	820,853	2,605,489		-10,525								
406	820,853	2,606,359		-11,262								
407	820,853	2,607,060		-11,833								
408	820,853	2,607,590		-12,235								
409	820,853	2,607,945		-12,464								
410	820,853	2,608,122		-12,517								
411	820,853	2,608,302		-12,576								
412	820,853	2,608,482		-12,637								
413	820,853	2,608,662		-12,699								
414	820,853	2,608,842		-12,764								
415	820,853	2,609,022		-12,831								
416	820,853	2,609,202		-12,900								
417	820,853	2,609,382		-12,971								
418	820,853	2,609,562		-13,044								
419	820,853	2,609,742		-13,118								
420	820,853	2,609,922		-13,195								
421	820,853	2,610,102		-13,273								
422	820,853	2,610,282		-13,353								
423	820,853	2,610,462		-13,435								

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
424	14	13	8	10	0.0011	-0.0012	**Wed 19/01/11 21:00**	99.01	1177.86	-26.92	-317.08		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
425	13	13	7	10	0.0011	-0.0012	**Wed 19/01/11 22:00**	99.01	1177.98	-26.48	-311.97		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
426	13	13	7	10	0.0011	-0.0012	**Wed 19/01/11 23:00**	99.01	1178.10	-26.05	-306.94		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
427	13	12	7	10	0.0011	-0.0012	**Thu 20/01/11 00:00**	99.01	1178.21	-25.63	-302.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
428	13	12	7	10	0.0011	-0.0013	**Thu 20/01/11 01:00**	99.01	1178.32	-25.22	-297.13		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
429	13	12	7	9	0.0010	-0.0013	**Thu 20/01/11 02:00**	99.01	1178.43	-24.81	-292.34		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
430	12	12	7	9	0.0010	-0.0013	**Thu 20/01/11 03:00**	99.01	1178.54	-24.41	-287.63		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
431	12	12	6	9	0.0010	-0.0013	**Thu 20/01/11 04:00**	99.02	1178.65	-24.01	-282.99		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
432	12	12	6	9	0.0010	-0.0013	**Thu 20/01/11 05:00**	99.02	1178.76	-23.62	-278.43		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
433	12	11	6	9	0.0010	-0.0013	**Thu 20/01/11 06:00**	99.02	1178.86	-23.24	-273.95		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
434	11	11	6	9	0.0010	-0.0013	**Thu 20/01/11 07:00**	99.02	1178.96	-22.86	-269.53		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
435	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 08:00**	99.02	1179.06	-22.49	-265.20		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
436	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 09:00**	99.02	1179.16	-22.13	-260.93		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
437	11	11	6	8	0.0009	-0.0013	**Thu 20/01/11 10:00**	99.02	1179.26	-21.77	-256.73		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
438	11	10	6	8	0.0009	-0.0013	**Thu 20/01/11 11:00**	99.02	1179.35	-21.42	-252.60		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
439	10	10	5	8	0.0009	-0.0013	**Thu 20/01/11 12:00**	99.02	1179.45	-21.07	-248.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
440	10	10	5	8	0.0009	-0.0013	**Thu 20/01/11 13:00**	99.02	1179.54	-20.73	-244.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
441	10	10	5	8	0.0008	-0.0013	**Thu 20/01/11 14:00**	99.02	1179.63	-20.40	-240.61		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
442	10	10	5	7	0.0008	-0.0014	**Thu 20/01/11 15:00**	99.03	1179.72	-20.07	-236.75		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
443	10	10	5	7	0.0008	-0.0014	**Thu 20/01/11 16:00**	99.03	1179.81	-19.74	-232.94		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
444	10	9	5	7	0.0008	-0.0014	**Thu 20/01/11 17:00**	99.03	1179.90	-19.42	-229.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
445	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 18:00**	99.03	1179.98	-19.11	-225.50		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
446	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 19:00**	99.03	1180.07	-18.80	-221.88		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
447	9	9	5	7	0.0008	-0.0014	**Thu 20/01/11 20:00**	99.03	1180.15	-18.50	-218.32		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
448	9	9	4	7	0.0008	-0.0014	**Thu 20/01/11 21:00**	99.03	1180.23	-18.20	-214.82		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
449	9	9	4	7	0.0007	-0.0014	**Thu 20/01/11 22:00**	99.03	1180.31	-17.91	-211.38		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
450	9	9	4	7	0.0007	-0.0014	**Thu 20/01/11 23:00**	99.03	1180.39	-17.62	-207.97		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
451	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 00:00**	99.03	1180.47	-17.33	-204.63		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
452	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 01:00**	99.03	1180.54	-17.06	-201.36		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
453	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 02:00**	99.03	1180.62	-16.78	-198.12		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
454	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 03:00**	99.03	1180.69	-16.51	-194.93		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
455	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 04:00**	99.04	1180.76	-16.24	-191.81		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
456	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 05:00**	99.04	1180.83	-15.98	-188.73		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
457	8	8	4	6	0.0007	-0.0014	**Fri 21/01/11 06:00**	99.04	1180.90	-15.73	-185.71		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
458	7	8	4	6	0.0006	-0.0014	**Fri 21/01/11 07:00**	99.04	1180.97	-15.47	-182.74		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
459	7	7	3	6	0.0006	-0.0014	**Fri 21/01/11 08:00**	99.04	1181.04	-15.22	-179.80		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
460	7	7	3	6	0.0006	-0.0014	**Fri 21/01/11 09:00**	99.04	1181.11	-14.98	-176.93		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
461	7	7	3	5	0.0006	-0.0014	**Fri 21/01/11 10:00**	99.04	1181.17	-14.74	-174.09		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
462	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 11:00**	99.04	1181.24	-14.50	-171.30		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
463	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 12:00**	99.04	1181.30	-14.27	-168.55		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
464	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 13:00**	99.04	1181.37	-14.04	-165.84		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
465	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 14:00**	99.04	1181.43	-13.81	-163.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
466	7	7	3	5	0.0006	-0.0015	**Fri 21/01/11 15:00**	99.04	1181.49	-13.59	-160.58		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
467	6	7	3	5	0.0006	-0.0015	**Fri 21/01/11 16:00**	99.04	1181.55	-13.37	-158.01		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
468	6	6	3	5	0.0005	-0.0015	**Fri 21/01/11 17:00**	99.04	1181.61	-13.16	-155.48		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
469	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 18:00**	99.04	1181.66	-12.95	-152.99		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
470	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 19:00**	99.04	1181.72	-12.74	-150.54		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
471	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 20:00**	99.04	1181.78	-12.53	-148.12		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50

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	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
424	0	0	0	0	0	50	67.08	-29.3	2966	-868		57	71	68		818,425	1,778,699	2,599,551	2,597,124	
425	0	0	0	0	0	50	67.08	-29.5	2966	-874		57	71	68		818,471	1,778,747	2,599,600	2,597,219	
426	0	0	0	0	0	50	67.08	-29.7	2966	-880		57	71	68		818,517	1,778,795	2,599,648	2,597,312	
427	0	0	0	0	0	50	67.08	-29.9	2966	-886		57	70	67		818,562	1,778,842	2,599,694	2,597,404	
428	0	0	0	0	0	50	67.07	-30.1	2966	-892		56	70	67		818,606	1,778,888	2,599,740	2,597,494	
429	0	0	0	0	0	50	67.07	-30.3	2965	-897		56	70	67		818,650	1,778,933	2,599,785	2,597,582	
430	0	0	0	0	0	50	67.07	-30.4	2965	-903		56	69	66		818,693	1,778,977	2,599,829	2,597,669	
431	0	0	0	0	0	50	67.07	-30.6	2965	-908		56	69	66		818,735	1,779,020	2,599,873	2,597,755	
432	0	0	0	0	0	50	67.07	-30.8	2965	-913		56	69	66		818,776	1,779,063	2,599,915	2,597,839	
433	0	0	0	0	0	50	67.07	-31.0	2964	-919		56	68	66		818,817	1,779,105	2,599,957	2,597,921	
434	0	0	0	0	0	50	67.07	-31.2	2964	-924		56	68	65		818,857	1,779,146	2,599,998	2,598,003	
435	0	0	0	0	0	50	67.07	-31.3	2964	-929		55	68	65		818,896	1,779,186	2,600,038	2,598,082	
436	0	0	0	0	0	50	67.06	-31.5	2964	-933		55	68	65		818,935	1,779,226	2,600,078	2,598,161	
437	0	0	0	0	0	50	67.06	-31.7	2963	-938		55	67	65		818,973	1,779,264	2,600,117	2,598,238	
438	0	0	0	0	0	50	67.06	-31.8	2963	-943		55	67	65		819,011	1,779,303	2,600,155	2,598,314	
439	0	0	0	0	0	50	67.06	-32.0	2963	-947		55	67	64		819,048	1,779,340	2,600,193	2,598,388	
440	0	0	0	0	0	50	67.06	-32.1	2963	-952		55	67	64		819,084	1,779,377	2,600,230	2,598,461	
441	0	0	0	0	0	50	67.06	-32.3	2962	-956		55	66	64		819,120	1,779,413	2,600,266	2,598,533	
442	0	0	0	0	0	50	67.06	-32.4	2962	-961		55	66	64		819,155	1,779,449	2,600,301	2,598,604	
443	0	0	0	0	0	50	67.06	-32.6	2962	-965		55	66	63		819,190	1,779,484	2,600,336	2,598,674	
444	0	0	0	0	0	50	67.05	-32.7	2962	-969		55	65	63		819,224	1,779,518	2,600,371	2,598,742	
445	0	0	0	0	0	50	67.05	-32.9	2961	-973		54	65	63		819,258	1,779,552	2,600,404	2,598,810	
446	0	0	0	0	0	50	67.05	-33.0	2961	-977		54	65	63		819,291	1,779,585	2,600,438	2,598,876	
447	0	0	0	0	0	50	67.05	-33.1	2961	-981		54	65	63		819,323	1,779,618	2,600,470	2,598,941	
448	0	0	0	0	0	50	67.05	-33.3	2961	-985		54	65	62		819,355	1,779,650	2,600,502	2,599,005	
449	0	0	0	0	0	50	67.05	-33.4	2961	-988		54	64	62		819,387	1,779,681	2,600,534	2,599,068	
450	0	0	0	0	0	50	67.05	-33.5	2960	-992		54	64	62		819,418	1,779,712	2,600,565	2,599,130	
451	0	0	0	0	0	50	67.04	-33.6	2960	-996		54	64	62		819,448	1,779,742	2,600,595	2,599,190	
452	0	0	0	0	0	50	67.04	-33.8	2960	-999		54	64	62		819,478	1,779,772	2,600,625	2,599,250	
453	0	0	0	0	0	50	67.04	-33.9	2959	-1003		54	63	62		819,507	1,779,802	2,600,654	2,599,309	
454	0	0	0	0	0	50	67.04	-34.0	2959	-1006		54	63	61		819,536	1,779,831	2,600,683	2,599,367	
455	0	0	0	0	0	50	67.04	-34.1	2959	-1009		54	63	61		819,565	1,779,859	2,600,711	2,599,424	
456	0	0	0	0	0	50	67.04	-34.2	2959	-1013		53	63	61		819,593	1,779,887	2,600,739	2,599,480	
457	0	0	0	0	0	50	67.04	-34.3	2958	-1016		53	63	61		819,621	1,779,914	2,600,767	2,599,535	
458	0	0	0	0	0	50	67.03	-34.4	2958	-1019		53	62	61		819,648	1,779,941	2,600,794	2,599,589	
459	0	0	0	0	0	50	67.03	-34.5	2958	-1022		53	62	61		819,675	1,779,968	2,600,820	2,599,642	
460	0	0	0	0	0	50	67.03	-34.7	2958	-1025		53	62	60		819,701	1,779,994	2,600,846	2,599,695	
461	0	0	0	0	0	50	67.03	-34.8	2957	-1028		53	62	60		819,727	1,780,019	2,600,872	2,599,746	
462	0	0	0	0	0	50	67.03	-34.9	2957	-1031		53	62	60		819,752	1,780,044	2,600,897	2,599,797	
463	0	0	0	0	0	50	67.03	-35.0	2957	-1034		53	62	60		819,777	1,780,069	2,600,922	2,599,847	
464	0	0	0	0	0	50	67.03	-35.0	2957	-1036		53	61	60		819,802	1,780,094	2,600,946	2,599,896	
465	0	0	0	0	0	50	67.02	-35.1	2956	-1039		53	61	60		819,826	1,780,118	2,600,970	2,599,944	
466	0	0	0	0	0	50	67.02	-35.2	2956	-1042		53	61	60		819,850	1,780,141	2,600,994	2,599,991	
467	0	0	0	0	0	50	67.02	-35.3	2956	-1044		53	61	59		819,874	1,780,164	2,601,017	2,600,038	
468	0	0	0	0	0	50	67.02	-35.4	2956	-1047		53	61	59		819,897	1,780,187	2,601,040	2,600,084	
469	0	0	0	0	0	50	67.02	-35.5	2955	-1049		53	61	59		819,920	1,780,209	2,601,062	2,600,129	
470	0	0	0	0	0	50	67.02	-35.6	2955	-1052		53	60	59		819,942	1,780,231	2,601,084	2,600,174	
471	0	0	0	0	0	50	67.02	-35.7	2955	-1054		53	60	59		819,964	1,780,253	2,601,106	2,600,217	

RD5-1899

	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
424	820,853	2,610,642		-13,518								
425	820,853	2,610,822		-13,603								
426	820,853	2,611,002		-13,690								
427	820,853	2,611,182		-13,778								
428	820,853	2,611,362		-13,868								
429	820,853	2,611,542		-13,960								
430	820,853	2,611,722		-14,053								
431	820,853	2,611,902		-14,147								
432	820,853	2,612,082		-14,243								
433	820,853	2,612,262		-14,341								
434	820,853	2,612,442										
435	820,853	2,612,622										
436	820,853	2,612,802										
437	820,853	2,612,982										
438	820,853	2,613,162										
439	820,853	2,613,342										
440	820,853	2,613,522										
441	820,853	2,613,702										
442	820,853	2,613,882										
443	820,853	2,614,062										
444	820,853	2,614,242										
445	820,853	2,614,422										
446	820,853	2,614,602										
447	820,853	2,614,782										
448	820,853	2,614,962										
449	820,853	2,615,142										
450	820,853	2,615,322										
451	820,853	2,615,502										
452	820,853	2,615,682										
453	820,853	2,615,862										
454	820,853	2,616,042										
455	820,853	2,616,222										
456	820,853	2,616,402										
457	820,853	2,616,582										
458	820,853	2,616,762										
459	820,853	2,616,942										
460	820,853	2,617,122										
461	820,853	2,617,302										
462	820,853	2,617,482										
463	820,853	2,617,662										
464	820,853	2,617,842										
465	820,853	2,618,022										
466	820,853	2,618,202										
467	820,853	2,618,382										
468	820,853	2,618,562										
469	820,853	2,618,742										
470	820,853	2,618,922										
471	820,853	2,619,102										

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
472	6	6	3	6	0.0005	-0.0015	**Fri 21/01/11 21:00**	99.05	1181.83	-12.33	-145.75		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
473	6	6	3	7	0.0005	-0.0015	**Fri 21/01/11 22:00**	99.05	1181.89	-12.13	-143.42		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
474	6	6	3	7	0.0005	-0.0015	**Fri 21/01/11 23:00**	99.05	1181.94	-11.94	-141.13		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
475	6	6	2	7	0.0005	-0.0015	**Sat 22/01/11 00:00**	99.05	1181.99	-11.75	-138.87		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
476	6	6	2	7	0.0005	-0.0015	**Sat 22/01/11 01:00**	99.05	1182.04	-11.56	-136.65		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
477	5	6	2	7	0.0005	-0.0015	**Sat 22/01/11 02:00**	99.05	1182.10	-11.37	-134.46		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
478	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 03:00**	99.05	1182.15	-11.19	-132.31		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
479	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 04:00**	99.05	1182.20	-11.01	-130.19		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
480	5	5	2	8	0.0005	-0.0015	**Sat 22/01/11 05:00**	99.05	1182.24	-10.84	-128.11		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
481	5	5	2	8	0.0004	-0.0015	**Sat 22/01/11 06:00**	99.05	1182.29	-10.66	-126.06		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
482	5	5	3	8	0.0004	-0.0015	**Sat 22/01/11 07:00**	99.05	1182.34	-10.49	-124.04		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
483	5	5	3	9	0.0004	-0.0015	**Sat 22/01/11 08:00**	99.05	1182.38	-10.32	-122.06		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
484	5	5	3	9	0.0004	-0.0015	**Sat 22/01/11 09:00**	99.05	1182.43	-10.16	-120.11		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
485	0	0	3	9	0.0002	-0.0016	**Sat 22/01/11 10:00**	99.05	1182.47	-5.04	-59.57		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
486	0	0	3	9	0.0000	-0.0017	**Sat 22/01/11 11:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
487	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 12:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
488	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 13:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
489	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 14:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
490	0	0	4	10	0.0000	-0.0017	**Sat 22/01/11 15:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
491	0	0	5	10	0.0000	-0.0017	**Sat 22/01/11 16:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
492	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 17:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
493	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 18:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
494	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 19:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
495	0	0	5	11	0.0000	-0.0017	**Sat 22/01/11 20:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
496	0	0	6	11	0.0000	-0.0017	**Sat 22/01/11 21:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
497	0	0	6	12	0.0000	-0.0017	**Sat 22/01/11 22:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
498	0	0	6	12	0.0000	-0.0017	**Sat 22/01/11 23:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
499	0	0	6	12	0.0000	-0.0017	**Sun 23/01/11 00:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
500	0	0	6	12	0.0000	-0.0017	**Sun 23/01/11 01:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
501	0	0	7	13	0.0000	-0.0017	**Sun 23/01/11 02:00**	99.05	1182.50	0.00	0.00		0.0	0.0	8	0	**0**	0.0	0.0	0.0	0.0	0.0	**0**	50
502																								
503																								

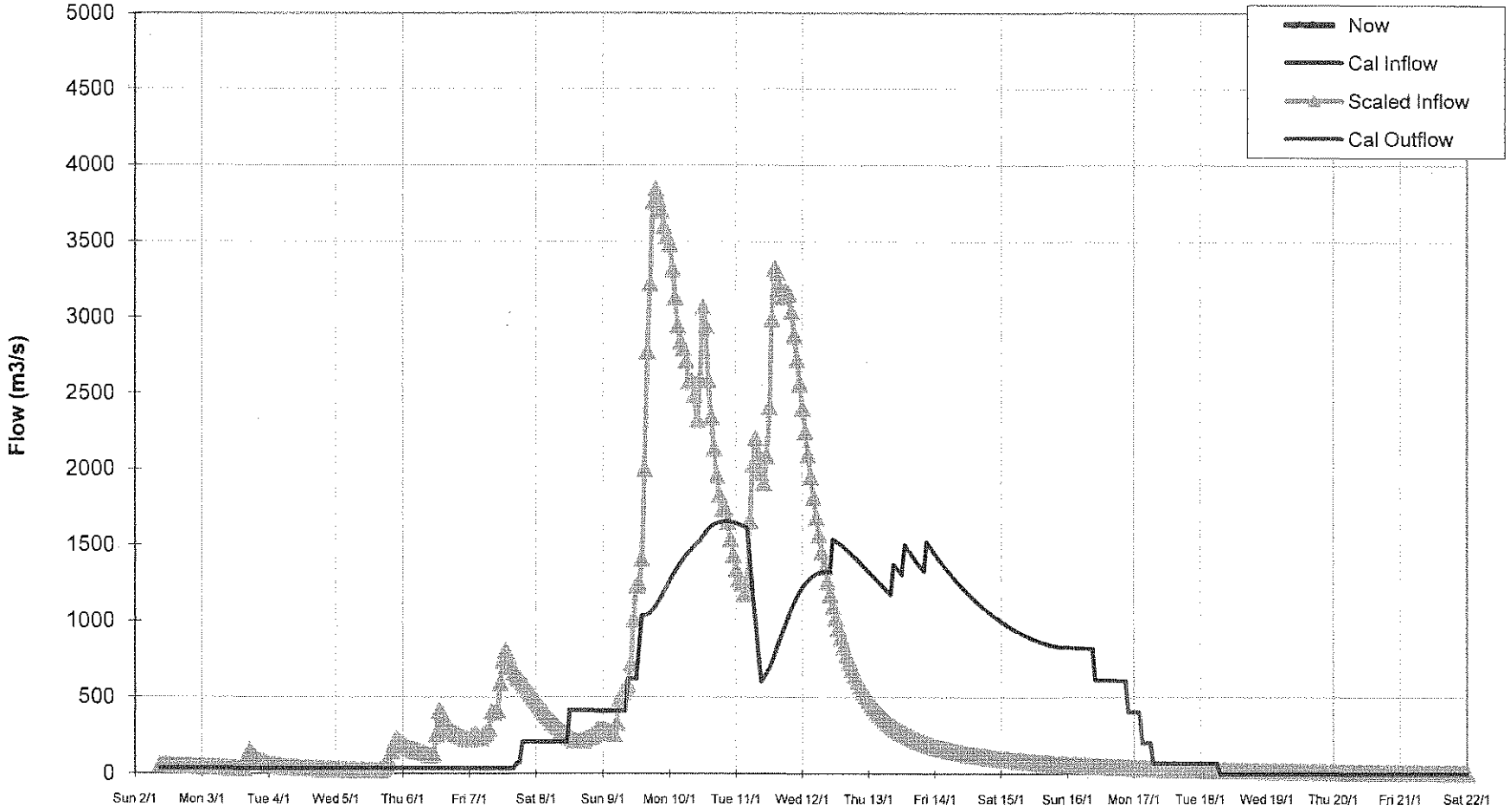
RD5-1901

	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
472	0	0	0	0	0	50	67.01	-35.8	2955	-1057		53	60	59		819,986	1,780,274	2,601,127	2,600,260	
473	0	0	0	0	0	50	67.01	-35.8	2954	-1059		52	60	59		820,007	1,780,295	2,601,148	2,600,303	
474	0	0	0	0	0	50	67.01	-35.9	2954	-1061		52	60	59		820,028	1,780,316	2,601,169	2,600,344	
475	0	0	0	0	0	50	67.01	-36.0	2954	-1063		52	60	59		820,049	1,780,336	2,601,189	2,600,385	
476	0	0	0	0	0	50	67.01	-36.1	2953	-1066		52	60	58		820,069	1,780,356	2,601,209	2,600,426	
477	0	0	0	0	0	50	67.01	-36.2	2953	-1068		52	59	52		820,089	1,780,376	2,601,229	2,600,465	
478	0	0	0	0	0	50	67.00	-36.2	2953	-1070		52	59	52		820,109	1,780,395	2,601,248	2,600,504	
479	0	0	0	0	0	50	67.00	-36.3	2953	-1072		52	59	52		820,128	1,780,414	2,601,267	2,600,543	
480	0	0	0	0	0	50	67.00	-36.4	2952	-1074		52	59	52		820,147	1,780,433	2,601,286	2,600,580	
481	0	0	0	0	0	50	67.00	-36.5	2952	-1076		52	59	52		820,166	1,780,452	2,601,304	2,600,618	
482	0	0	0	0	0	50	67.00	-36.5	2952	-1078		52	59	52		820,184	1,780,470	2,601,322	2,600,654	
483	0	0	0	0	0	50	67.00	-36.6	2952	-1080		52	59	52		820,203	1,780,488	2,601,340	2,600,690	
484	0	0	0	0	0	50	67.00	-36.7	2951	-1082		52	59	52		820,221	1,780,505	2,601,358	2,600,726	
485	0	0	0	0	0	50	66.99	-38.7	2951	-1141		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
486	0	0	0	0	0	50	66.99	-40.7	2951	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
487	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
488	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
489	0	0	0	0	0	50	66.99	-40.7	2950	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
490	0	0	0	0	0	50	66.99	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
491	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
492	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
493	0	0	0	0	0	50	66.98	-40.7	2949	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
494	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
495	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
496	0	0	0	0	0	50	66.98	-40.7	2948	-1200		50	52	50		820,221	1,780,505	2,601,358	2,600,726	
497	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
498	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
499	0	0	0	0	0	50	66.97	-40.7	2947	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
500	0	0	0	0	0	50	66.97	-40.7	2946	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
501	0	0	0	0	0	50	66.97	-40.7	2946	-1200		50	50	50		820,221	1,780,505	2,601,358	2,600,726	
502																				
503																				

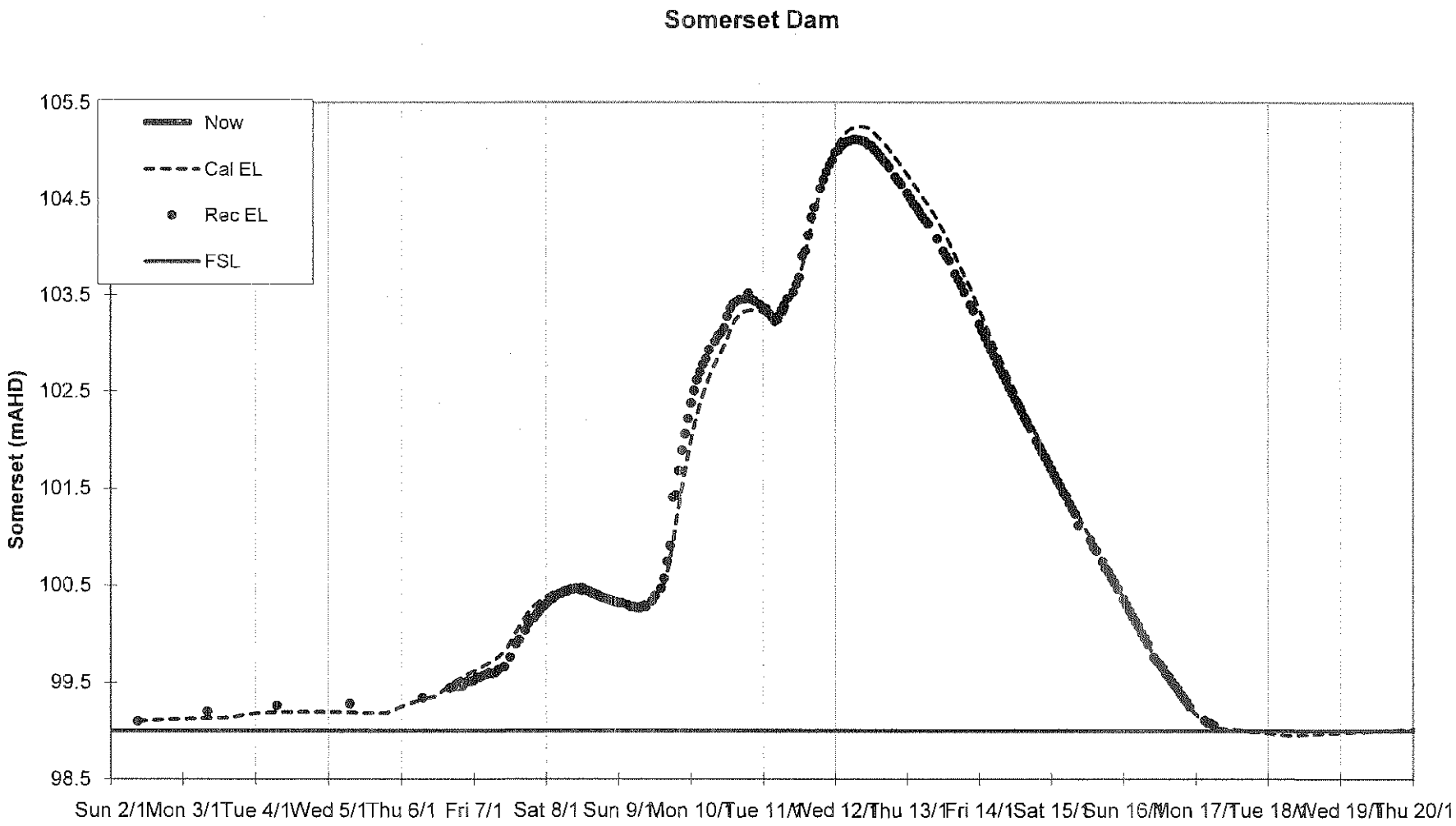
RD5-1902

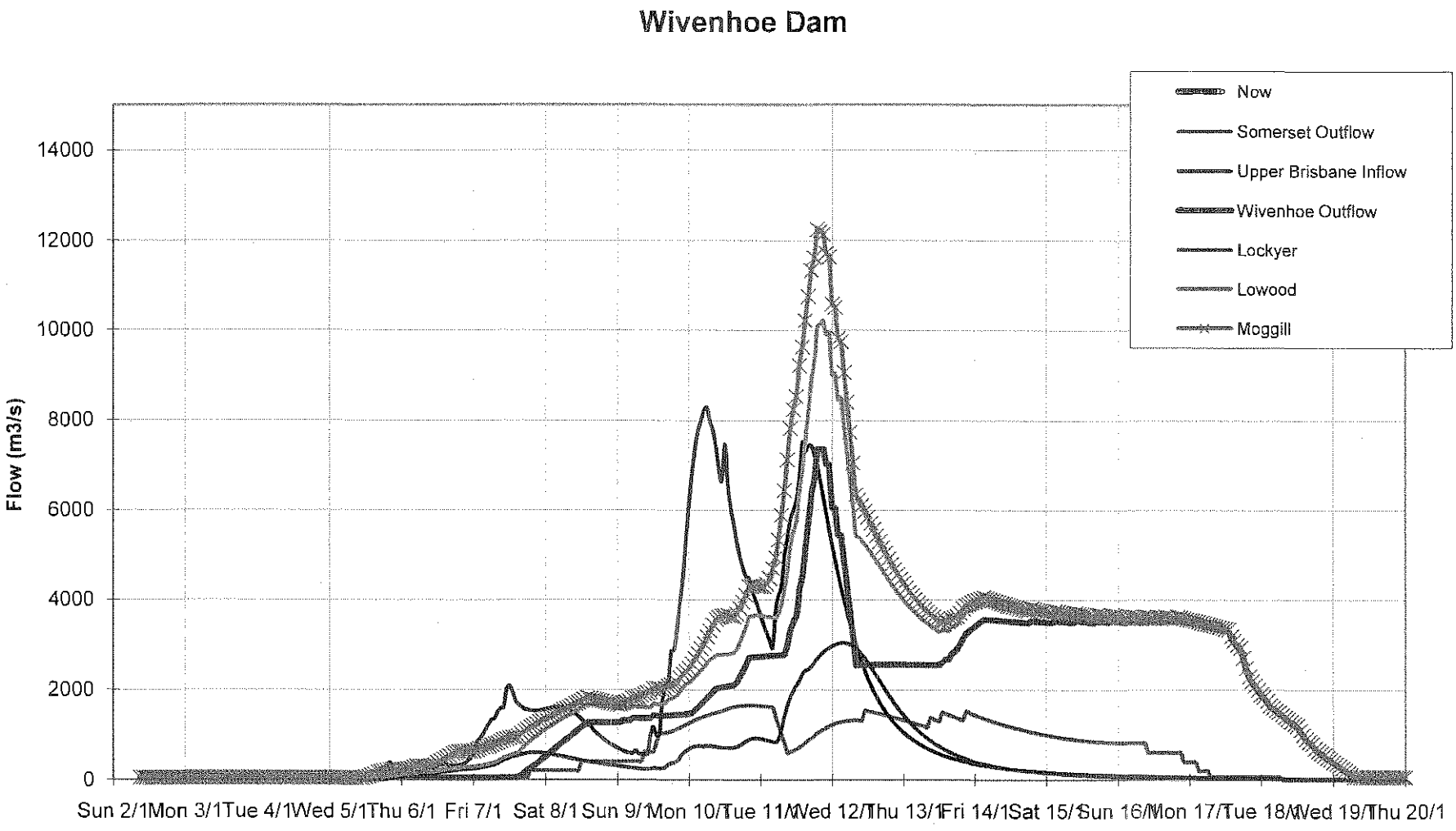
	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
472	820,853	2,619,282										
473	820,853	2,619,462										
474	820,853	2,619,642										
475	820,853	2,619,822										
476	820,853	2,620,002										
477	820,853	2,620,182										
478	820,853	2,620,362										
479	820,853	2,620,542										
480	820,853	2,620,722										
481	820,853	2,620,902										
482	820,853	2,621,082										
483	820,853	2,621,262										
484	820,853	2,621,442										
485	820,853	2,621,622										
486	820,853	2,621,802										
487	820,853	2,621,982										
488	820,853	2,622,162										
489	820,853	2,622,342										
490	820,853	2,622,522										
491	820,853	2,622,702										
492	820,853	2,622,882										
493	820,853	2,623,062										
494	820,853	2,623,242										
495	820,853	2,623,422										
496	820,853	2,623,602										
497	820,853	2,623,782										
498	820,853	2,623,962										
499	820,853	2,624,142										
500	820,853	2,624,322										
501	820,853	2,624,502										
502												
503												

Somerset Dam



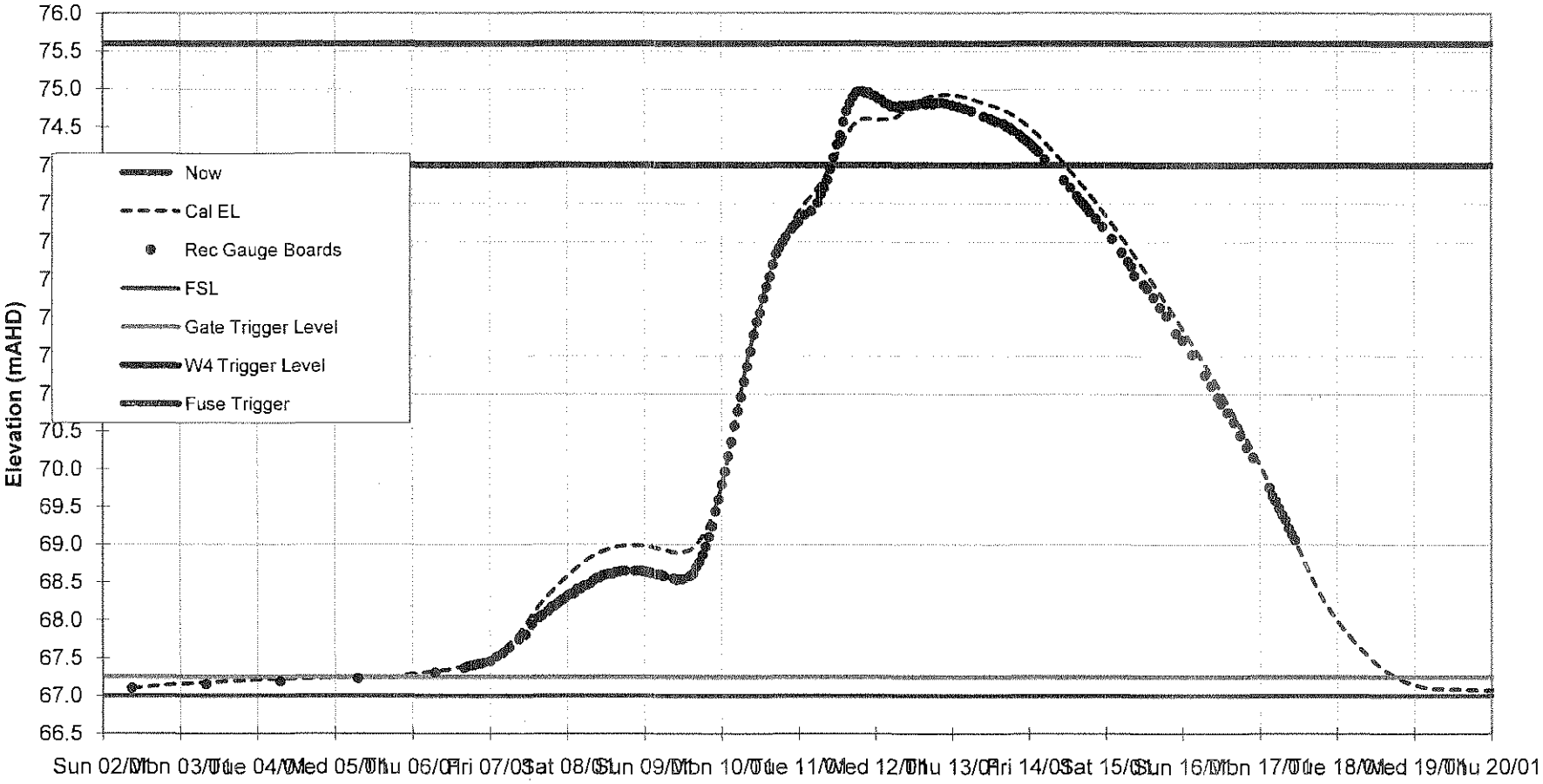
RD5-1904


Somerset Dam
Now
Cal EL
Rec EL
FSL
Somerset (mAHD)
105.5
104.5
103.5
102.5
101.5
100.5
99.5
98.5
Sun 2/1
Mon 3/1
Tue 4/1
Wed 5/1
Thu 6/1
Fri 7/1
Sat 8/1
Sun 9/1
Mon 10/1
Tue 11/1
Wed 12/1
Thu 13/1
Fri 14/1
Sat 15/1
Sun 16/1
Mon 17/1
Tue 18/1
Wed 19/1
Thu 20/1

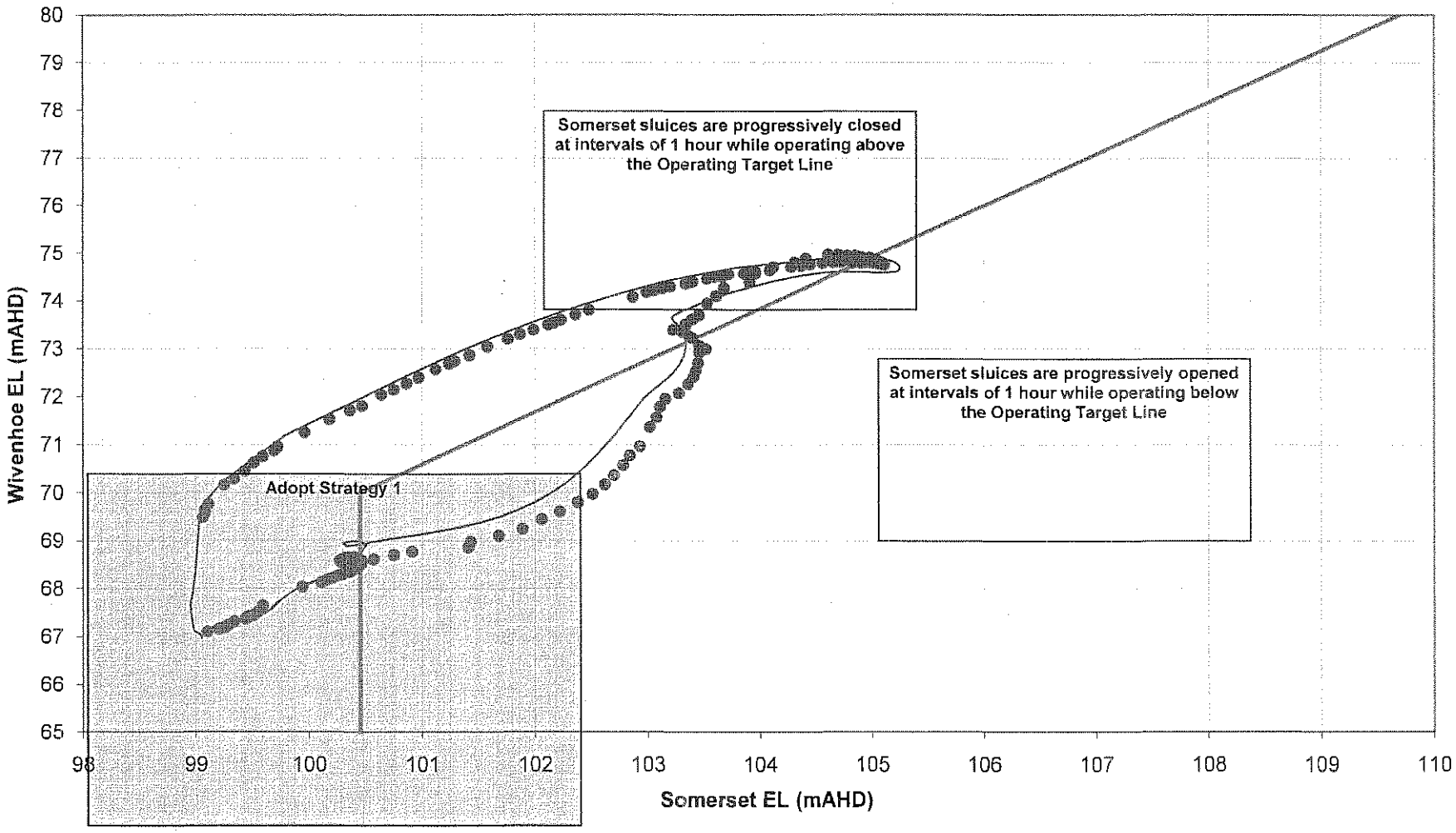

Wivenhoe Dam
Flow (m3/s)
14000
12000
10000
8000
6000
4000
2000
0
Sun 2/1
Mon 3/1
Tue 4/1
Wed 5/1
Thu 6/1
Fri 7/1
Sat 8/1
Sun 9/1
Mon 10/1
Tue 11/1
Wed 12/1
Thu 13/1
Fri 14/1
Sat 15/1
Sun 16/1
Mon 17/1
Tue 18/1
Wed 19/1
Thu 20/1
Now
Somerset Outflow
Upper Brisbane Inflow
Wivenhoe Outflow
Lockyer
Lowood
Moggill

RD5-1906

Wivenhoe Dam



Interaction Diagram



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	WIVENHOE RATING				Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0	38	76	113	149	183	215	246	275	302	327	333	333	333	333	333	333	333
5	63.2	0	39	78	115	151	186	219	250	280	308	335	351	351	351	351	351	351	351
6	63.4	0	40	79	117	154	189	223	255	286	315	342	368	370	370	370	370	370	370
7	63.6	0	40	80	119	156	192	227	260	291	321	349	376	389	389	389	389	389	389
8	63.8	0	41	81	121	159	195	231	264	297	327	356	384	408	408	408	408	408	408
9	64.0	0	41	82	122	161	199	235	269	302	333	363	391	418	428	428	428	428	428
10	64.2	0	42	83	124	164	202	238	273	307	339	370	399	426	448	448	448	448	448
11	64.4	0	42	85	126	166	205	242	278	312	345	376	406	435	462	469	469	469	469
12	64.6	0	43	86	127	168	208	246	282	317	350	383	413	443	471	489	489	489	489
13	64.8	0	44	87	129	170	210	249	286	322	356	389	420	451	480	508	511	511	511
14	65.0	0	44	88	131	173	213	253	290	327	362	395	427	458	488	517	532	532	532
15	65.2	0	45	89	132	175	216	256	294	331	367	401	434	466	497	526	554	554	554
16	65.4	0	45	90	134	177	219	259	298	336	372	407	441	474	505	535	565	576	576
17	65.6	0	46	91	136	179	222	263	302	341	378	413	448	481	513	544	575	599	599
18	65.8	0	46	92	137	181	224	266	306	345	383	419	454	488	521	553	584	615	622
19	66.0	0	47	93	139	184	227	269	310	350	388	425	461	495	529	562	594	625	645
20	66.2	0	47	94	140	186	230	273	314	354	393	431	467	503	537	570	603	635	667
21	66.4	0	48	95	142	188	232	276	318	359	398	436	473	510	545	579	612	645	678
22	66.6	0	48	96	143	190	235	279	322	363	403	442	480	516	552	587	621	655	689
23	66.8	0	49	97	145	192	238	282	325	367	408	447	486	523	560	595	630	665	699
24	67.0	0	49	98	146	194	240	285	329	372	413	453	492	530	567	603	639	675	709
25	67.2	0	49	99	148	196	243	288	333	376	418	458	498	537	574	611	648	684	720
26	67.4	0	50	100	149	198	245	291	336	380	422	464	504	543	582	619	657	693	730
27	67.6	0	50	101	151	200	248	294	340	384	427	469	510	550	589	627	665	702	740
28	67.8	0	51	102	152	202	250	297	343	388	432	474	515	556	596	635	673	712	750
29	68.0	0	51	103	154	204	253	300	347	392	436	479	521	562	603	642	682	721	759
30	68.2	0	52	104	155	206	255	303	350	396	441	484	527	569	610	650	690	729	769
31	68.4	0	52	105	156	207	257	306	354	400	445	489	532	575	616	657	698	738	778
32	68.6	0	53	105	158	209	260	309	357	404	450	494	538	581	623	665	706	747	788
33	68.8	0	53	106	159	211	262	312	360	408	454	499	543	587	630	672	714	755	797
34	69.0	0	54	107	160	213	264	315	364	412	458	504	549	593	636	679	722	764	806
35	69.2	0	54	108	162	215	267	317	367	415	463	509	554	599	643	686	729	772	815
36	69.4	0	54	109	163	217	269	320	370	419	467	514	560	605	649	693	737	780	824

RD5-1909

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																		
2	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
5	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351
6	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
7	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
8	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408
9	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428
10	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448
11	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469	469
12	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
13	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511	511
14	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532	532
15	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
16	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576
17	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599	599
18	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622	622
19	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645
20	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668	668
21	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692	692
22	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716	716
23	733	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740
24	744	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765	765
25	755	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
26	766	802	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815	815
27	777	814	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
28	787	825	863	867	867	867	867	867	867	867	867	867	867	867	867	867	867	867
29	798	837	876	893	893	893	893	893	893	893	893	893	893	893	893	893	893	893
30	808	848	888	919	919	919	919	919	919	919	919	919	919	919	919	919	919	919
31	818	859	899	940	946	946	946	946	946	946	946	946	946	946	946	946	946	946
32	829	870	911	953	973	973	973	973	973	973	973	973	973	973	973	973	973	973
33	838	880	923	965	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
34	848	891	934	977	1022	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028	1028
35	858	901	945	989	1035	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056	1056
36	868	912	956	1001	1047	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084

RD5-1910

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
37	69.6	0	55	110	164	218	271	323	373	423	471	518	565	611	656	700	744	789	833
38	69.8	0	55	111	166	220	273	326	377	427	475	523	570	616	662	707	752	797	842
39	70.0	0	56	112	167	222	276	328	380	430	479	528	575	622	668	714	759	805	850
40	70.2	0	56	112	168	224	278	331	383	434	484	532	580	628	674	721	767	813	859
41	70.4	0	56	113	170	225	280	334	386	437	488	537	586	633	680	727	774	821	867
42	70.6	0	57	114	171	227	282	336	389	441	492	542	591	639	687	734	781	828	876
43	70.8	0	57	115	172	229	284	339	392	445	496	546	596	644	693	741	788	836	884
44	71.0	0	58	116	173	230	286	341	395	448	500	551	601	650	699	747	795	844	892
45	71.2	0	58	117	175	232	289	344	398	452	504	555	605	655	705	754	802	851	900
46	71.4	0	58	117	176	234	291	347	401	455	508	559	610	661	710	760	809	859	908
47	71.6	0	59	118	177	235	293	349	404	458	512	564	615	666	716	766	816	866	916
48	71.8	0	59	119	178	237	295	352	407	462	515	568	620	671	722	773	823	874	924
49	72.0	0	60	120	180	239	297	354	410	465	519	572	625	676	728	779	830	881	932
50	72.2	0	60	121	181	240	299	357	413	469	523	577	629	682	733	785	837	888	940
51	72.4	0	60	121	182	242	301	359	416	472	527	581	634	687	739	791	843	895	948
52	72.6	0	61	122	183	243	303	361	419	475	531	585	639	692	745	797	850	903	956
53	72.8	0	61	123	184	245	305	364	422	478	534	589	643	697	750	803	856	910	963
54	73.0	0	62	124	185	247	307	366	425	482	538	593	648	702	756	809	863	917	971
55	73.2	2	62	124	187	248	309	369	427	485	542	597	653	707	761	815	869	924	978
56	73.4	6	62	125	188	250	311	371	430	488	545	602	657	712	767	821	876	931	986
57	73.6	11	64	126	189	251	313	373	433	491	549	606	662	717	772	827	882	937	993
58	73.8	17	69	127	190	253	315	376	436	495	553	610	666	722	778	833	888	944	1001
59	74.0	23	74	129	191	254	317	378	438	498	556	614	671	727	783	839	895	951	1008
60	74.2	31	80	133	192	256	319	380	441	501	560	618	675	732	788	845	901	958	1015
61	74.4	39	87	139	195	257	321	383	444	504	563	622	679	737	793	850	907	964	1022
62	74.6	47	94	145	200	259	322	385	447	507	567	626	684	741	799	856	913	971	1029
63	74.8	56	103	153	206	262	324	387	449	510	570	629	688	746	804	862	919	978	1036
64	75.0	66	112	161	213	267	326	390	452	513	574	633	692	751	809	867	926	984	1044
65	75.2	76	121	169	220	274	330	392	455	516	577	637	697	756	814	873	932	991	1051
66	75.4	87	131	178	229	281	336	394	457	519	581	641	701	760	819	878	938	997	1057
67	75.6	98	141	188	237	289	343	399	460	522	584	645	705	765	824	884	944	1004	1064
68	75.8	109	152	198	247	298	350	405	463	525	587	649	709	769	829	889	949	1010	1071
69	76.0	121	164	209	257	307	359	412	468	528	591	652	713	774	834	895	955	1016	1078
70	76.2	133	175	220	268	317	368	421	475	532	594	656	718	779	839	900	961	1023	1085
71	76.4	146	187	232	279	327	378	429	483	539	597	660	722	783	844	906	967	1029	1092
72	76.6	159	200	244	290	338	388	439	492	546	603	664	726	788	849	911	973	1035	1098

RD5-1911

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	877	922	967	1013	1060	1107	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112	1112
38	887	932	978	1025	1072	1121	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141	1141
39	896	942	989	1036	1085	1134	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170
40	905	952	1000	1048	1097	1147	1198	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199
41	914	962	1010	1059	1109	1160	1212	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229
42	923	972	1020	1070	1121	1173	1226	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258	1258
43	932	981	1031	1081	1133	1185	1239	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289	1289
44	941	991	1041	1092	1144	1198	1252	1309	1319	1319	1319	1319	1319	1319	1319	1319	1319	1319
45	950	1000	1051	1103	1156	1210	1266	1323	1349	1349	1349	1349	1349	1349	1349	1349	1349	1349
46	959	1009	1061	1114	1167	1222	1279	1337	1380	1380	1380	1380	1380	1380	1380	1380	1380	1380
47	967	1019	1071	1124	1179	1234	1292	1350	1410	1411	1411	1411	1411	1411	1411	1411	1411	1411
48	976	1028	1081	1135	1190	1246	1304	1364	1425	1443	1443	1443	1443	1443	1443	1443	1443	1443
49	984	1037	1091	1145	1201	1258	1317	1377	1439	1474	1474	1474	1474	1474	1474	1474	1474	1474
50	993	1046	1100	1156	1212	1270	1330	1391	1454	1506	1506	1506	1506	1506	1506	1506	1506	1506
51	1001	1055	1110	1166	1223	1282	1342	1404	1468	1533	1538	1538	1538	1538	1538	1538	1538	1538
52	1009	1064	1119	1176	1234	1293	1354	1417	1482	1548	1570	1570	1570	1570	1570	1570	1570	1570
53	1018	1073	1129	1186	1245	1305	1367	1430	1496	1563	1603	1603	1603	1603	1603	1603	1603	1603
54	1026	1081	1138	1196	1255	1316	1379	1443	1509	1577	1636	1636	1636	1636	1636	1636	1636	1636
55	1034	1090	1147	1206	1266	1327	1391	1456	1523	1592	1663	1669	1669	1669	1669	1669	1669	1669
56	1042	1099	1156	1216	1276	1339	1403	1469	1536	1606	1678	1702	1702	1702	1702	1702	1702	1702
57	1050	1107	1166	1225	1287	1350	1414	1481	1550	1620	1693	1736	1736	1736	1736	1736	1736	1736
58	1058	1116	1175	1235	1297	1361	1426	1494	1563	1635	1708	1770	1770	1770	1770	1770	1770	1770
59	1065	1124	1184	1245	1307	1372	1438	1506	1576	1648	1723	1800	1804	1804	1804	1804	1804	1804
60	1073	1132	1192	1254	1317	1382	1449	1518	1589	1662	1738	1815	1838	1838	1838	1838	1838	1838
61	1081	1140	1201	1264	1327	1393	1461	1530	1602	1676	1752	1831	1873	1873	1873	1873	1873	1873
62	1089	1149	1210	1273	1337	1404	1472	1542	1615	1690	1767	1846	1908	1908	1908	1908	1908	1908
63	1096	1157	1219	1282	1347	1414	1483	1554	1628	1703	1781	1861	1943	1943	1943	1943	1943	1943
64	1104	1165	1227	1291	1357	1425	1494	1566	1640	1717	1795	1876	1960	1978	1978	1978	1978	1978
65	1111	1173	1236	1301	1367	1435	1506	1578	1653	1730	1809	1891	1976	2013	2013	2013	2013	2013
66	1119	1181	1245	1310	1377	1446	1517	1590	1665	1743	1823	1906	1992	2049	2049	2049	2049	2049
67	1126	1189	1253	1319	1386	1456	1527	1601	1678	1756	1837	1921	2007	2085	2085	2085	2085	2085
68	1133	1197	1261	1328	1396	1466	1538	1613	1690	1769	1851	1936	2023	2112	2121	2121	2121	2121
69	1141	1205	1270	1337	1405	1476	1549	1624	1702	1782	1865	1950	2038	2129	2158	2158	2158	2158
70	1148	1212	1278	1346	1415	1486	1560	1636	1714	1795	1878	1965	2053	2145	2194	2194	2194	2194
71	1155	1220	1286	1354	1424	1496	1570	1647	1726	1808	1892	1979	2069	2161	2231	2231	2231	2231
72	1162	1228	1295	1363	1434	1506	1581	1658	1738	1820	1905	1993	2084	2177	2268	2268	2268	2268

RD5-1912

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
73	76.8	173	213	257	302	350	399	449	501	554	610	668	730	792	854	916	978	1041	1105
74	77.0	186	226	270	315	362	410	460	511	564	618	674	734	797	859	921	984	1047	1112
75	77.2	200	240	283	328	374	422	471	522	574	627	682	739	801	864	927	990	1054	1118
76	77.4	215	254	297	341	387	435	483	533	584	637	691	747	806	869	932	996	1060	1125
77	77.6	230	269	311	355	400	447	496	545	595	647	700	756	813	873	937	1001	1066	1131
78	77.8	245	283	325	369	414	461	508	557	607	658	711	765	821	880	942	1007	1072	1138
79	78.0	260	299	340	383	428	474	522	570	619	670	722	775	831	888	948	1012	1078	1144

RD5-1913

	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	1170	1235	1303	1372	1443	1516	1591	1669	1750	1833	1919	2007	2099	2193	2289	2306	2306	2306
74	1177	1243	1311	1380	1452	1526	1602	1680	1762	1845	1932	2021	2113	2208	2306	2343	2343	2343
75	1184	1250	1319	1389	1461	1536	1612	1691	1773	1858	1945	2035	2128	2224	2322	2381	2381	2381
76	1191	1258	1327	1398	1470	1545	1622	1702	1785	1870	1958	2049	2143	2239	2339	2419	2419	2419
77	1198	1265	1335	1406	1479	1555	1633	1713	1796	1882	1971	2063	2157	2255	2355	2457	2457	2457
78	1205	1273	1343	1414	1488	1564	1643	1724	1808	1894	1984	2076	2172	2270	2371	2475	2496	2496
79	1211	1280	1351	1423	1497	1574	1653	1735	1819	1907	1997	2090	2186	2285	2387	2492	2535	2535

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	INCREMENTAL			Gate Opening (m of Tangential Travel)														
2	Water EL (m AHD)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
3	53.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	63.0	0.0	3.0	6.1	9.5	12.9	16.5	20.3	24.2	28.2	32.5	36.9	91.8	91.8	91.8	91.8	91.8	91.8
5	63.2	0.0	2.9	6.0	9.3	12.7	16.2	19.9	23.7	27.7	31.8	36.2	84.3	93.7	93.7	93.7	93.7	93.7
6	63.4	0.0	2.9	6.0	9.2	12.5	16.0	19.5	23.3	27.1	31.2	35.4	39.9	95.5	95.5	95.5	95.5	95.5
7	63.6	0.0	2.9	5.9	9.0	12.3	15.7	19.2	22.9	26.6	30.6	34.7	39.0	97.3	97.3	97.3	97.3	97.3
8	63.8	0.0	2.8	5.8	8.9	12.1	15.4	18.9	22.5	26.2	30.0	34.0	38.3	49.5	99.0	99.0	99.0	99.0
9	64.0	0.0	2.8	5.7	8.8	11.9	15.2	18.6	22.1	25.7	29.5	33.4	37.5	41.8	100.8	100.8	100.8	100.8
10	64.2	0.0	2.7	5.6	8.6	11.8	15.0	18.3	21.8	25.3	29.0	32.8	36.8	41.0	69.1	102.5	102.5	102.5
11	64.4	0.0	2.7	5.6	8.5	11.6	14.8	18.0	21.4	24.9	28.5	32.3	36.2	40.3	44.6	104.2	104.2	104.2
12	64.6	0.0	2.7	5.5	8.4	11.4	14.6	17.8	21.1	24.5	28.1	31.7	35.6	39.6	43.7	90.2	105.9	105.9
13	64.8	0.0	2.6	5.4	8.3	11.3	14.4	17.5	20.8	24.2	27.6	31.2	35.0	38.9	43.0	47.3	107.6	107.6
14	65.0	0.0	2.6	5.3	8.2	11.1	14.2	17.3	20.5	23.8	27.2	30.7	34.4	38.2	42.2	46.4	109.2	109.2
15	65.2	0.0	2.6	5.3	8.1	11.0	14.0	17.1	20.2	23.5	26.8	30.3	33.9	37.6	41.5	45.6	54.4	110.9
16	65.4	0.0	2.5	5.2	8.0	10.9	13.8	16.8	19.9	23.1	26.4	29.8	33.4	37.0	40.9	44.9	49.1	112.5
17	65.6	0.0	2.5	5.2	7.9	10.7	13.6	16.6	19.7	22.8	26.1	29.4	32.9	36.5	40.2	44.1	48.2	80.7
18	65.8	0.0	2.5	5.1	7.8	10.6	13.5	16.4	19.4	22.5	25.7	29.0	32.4	35.9	39.6	43.4	47.5	51.7
19	66.0	0.0	2.5	5.1	7.7	10.5	13.3	16.2	19.2	22.2	25.4	28.6	32.0	35.4	39.0	42.8	46.7	50.9
20	66.2	0.0	2.4	5.0	7.6	10.4	13.2	16.0	19.0	22.0	25.1	28.2	31.5	34.9	38.5	42.2	46.0	50.1
21	66.4	0.0	2.4	4.9	7.6	10.3	13.0	15.8	18.7	21.7	24.8	27.9	31.1	34.5	37.9	41.6	45.3	49.3
22	66.6	0.0	2.4	4.9	7.5	10.1	12.9	15.7	18.5	21.5	24.5	27.5	30.7	34.0	37.4	41.0	44.7	48.6
23	66.8	0.0	2.4	4.8	7.4	10.0	12.7	15.5	18.3	21.2	24.2	27.2	30.3	33.6	36.9	40.4	44.1	47.9
24	67.0	0.0	2.3	4.8	7.3	9.9	12.6	15.3	18.1	21.0	23.9	26.9	30.0	33.2	36.5	39.9	43.5	47.2
25	67.2	0.0	2.3	4.8	7.3	9.8	12.5	15.2	17.9	20.7	23.6	26.6	29.6	32.7	36.0	39.4	42.9	46.6
26	67.4	0.0	2.3	4.7	7.2	9.7	12.4	15.0	17.7	20.5	23.4	26.3	29.3	32.4	35.6	38.9	42.4	46.0
27	67.6	0.0	2.3	4.7	7.1	9.6	12.2	14.9	17.5	20.3	23.1	26.0	28.9	32.0	35.1	38.4	41.8	45.4
28	67.8	0.0	2.3	4.6	7.1	9.6	12.1	14.7	17.4	20.1	22.9	25.7	28.6	31.6	34.7	38.0	41.3	44.8
29	68.0	0.0	2.2	4.6	7.0	9.5	12.0	14.6	17.2	19.9	22.6	25.4	28.3	31.3	34.3	37.5	40.8	44.3
30	68.2	0.0	2.2	4.5	6.9	9.4	11.9	14.4	17.0	19.7	22.4	25.2	28.0	30.9	34.0	37.1	40.3	43.7
31	68.4	0.0	2.2	4.5	6.9	9.3	11.8	14.3	16.9	19.5	22.2	24.9	27.7	30.6	33.6	36.7	39.9	43.2
32	68.6	0.0	2.2	4.5	6.8	9.2	11.7	14.2	16.7	19.3	21.9	24.7	27.4	30.3	33.2	36.3	39.4	42.7
33	68.8	0.0	2.2	4.4	6.8	9.1	11.6	14.0	16.6	19.1	21.7	24.4	27.2	30.0	32.9	35.9	39.0	42.3
34	69.0	0.0	2.2	4.4	6.7	9.1	11.5	13.9	16.4	18.9	21.5	24.2	26.9	29.7	32.5	35.5	38.6	41.8
35	69.2	0.0	2.1	4.4	6.6	9.0	11.4	13.8	16.3	18.8	21.3	24.0	26.6	29.4	32.2	35.2	38.2	41.4
36	69.4	0.0	2.1	4.3	6.6	8.9	11.3	13.7	16.1	18.6	21.1	23.7	26.4	29.1	31.9	34.8	37.8	40.9

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	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1																			
2	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8
5	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7
6	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5	95.5
7	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
8	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
9	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8
10	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5	102.5
11	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2	104.2
12	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9	105.9
13	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6
14	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2	109.2
15	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9	110.9
16	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5
17	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1	114.1
18	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7
19	111.5	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2	117.2
20	54.4	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8	118.8
21	53.5	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
22	52.7	84.7	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9	121.9
23	51.9	56.2	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4	123.4
24	51.2	55.3	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9	124.9
25	50.5	54.5	61.8	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4
26	49.8	53.8	58.0	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9	127.9
27	49.1	53.0	57.2	113.1	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3	129.3
28	48.5	52.3	56.4	60.7	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8	130.8
29	47.9	51.7	55.7	59.9	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2	132.2
30	47.3	51.0	55.0	59.1	105.3	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7
31	46.7	50.4	54.3	58.3	62.6	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1	135.1
32	46.2	49.8	53.6	57.6	61.8	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5
33	45.7	49.2	53.0	56.9	61.1	106.3	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9
34	45.2	48.7	52.3	56.2	60.3	64.6	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3	139.3
35	44.7	48.1	51.7	55.6	59.6	63.8	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7
36	44.2	47.6	51.2	54.9	58.9	63.1	117.7	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1	142.1

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
37	69.6	0.0	2.1	4.3	6.5	8.8	11.2	13.6	16.0	18.4	21.0	23.5	26.1	28.8	31.6	34.5	37.4	40.5
38	69.8	0.0	2.1	4.3	6.5	8.8	11.1	13.5	15.8	18.3	20.8	23.3	25.9	28.6	31.3	34.1	37.1	40.1
39	70.0	0.0	2.1	4.2	6.4	8.7	11.0	13.3	15.7	18.1	20.6	23.1	25.7	28.3	31.0	33.8	36.7	39.7
40	70.2	0.0	2.1	4.2	6.4	8.6	10.9	13.2	15.6	18.0	20.4	22.9	25.4	28.0	30.7	33.5	36.3	39.3
41	70.4	0.0	2.0	4.2	6.3	8.6	10.8	13.1	15.5	17.8	20.3	22.7	25.2	27.8	30.5	33.2	36.0	38.9
42	70.6	0.0	2.0	4.1	6.3	8.5	10.7	13.0	15.3	17.7	20.1	22.5	25.0	27.6	30.2	32.9	35.7	38.6
43	70.8	0.0	2.0	4.1	6.2	8.4	10.7	12.9	15.2	17.6	19.9	22.3	24.8	27.3	29.9	32.6	35.4	38.2
44	71.0	0.0	2.0	4.1	6.2	8.4	10.6	12.8	15.1	17.4	19.8	22.2	24.6	27.1	29.7	32.3	35.1	37.9
45	71.2	0.0	2.0	4.0	6.2	8.3	10.5	12.7	15.0	17.3	19.6	22.0	24.4	26.9	29.4	32.0	34.8	37.6
46	71.4	0.0	2.0	4.0	6.1	8.3	10.4	12.6	14.9	17.2	19.5	21.8	24.2	26.7	29.2	31.8	34.5	37.2
47	71.6	0.0	2.0	4.0	6.1	8.2	10.4	12.6	14.8	17.0	19.3	21.6	24.0	26.5	28.9	31.5	34.2	36.9
48	71.8	0.0	1.9	4.0	6.0	8.1	10.3	12.5	14.7	16.9	19.2	21.5	23.8	26.2	28.7	31.3	33.9	36.6
49	72.0	0.0	1.9	3.9	6.0	8.1	10.2	12.4	14.6	16.8	19.0	21.3	23.7	26.0	28.5	31.0	33.6	36.3
50	72.2	0.0	1.9	3.9	6.0	8.0	10.1	12.3	14.5	16.7	18.9	21.2	23.5	25.8	28.3	30.8	33.3	36.0
51	72.4	0.0	1.9	3.9	5.9	8.0	10.1	12.2	14.4	16.5	18.8	21.0	23.3	25.7	28.1	30.5	33.1	35.7
52	72.6	0.0	1.9	3.9	5.9	7.9	10.0	12.1	14.3	16.4	18.6	20.9	23.1	25.5	27.8	30.3	32.8	35.4
53	72.8	0.0	1.9	3.8	5.8	7.9	9.9	12.0	14.2	16.3	18.5	20.7	23.0	25.3	27.6	30.1	32.6	35.2
54	73.0	11.3	1.9	3.8	5.8	7.8	9.9	12.0	14.1	16.2	18.4	20.6	22.8	25.1	27.4	29.9	32.3	34.9
55	73.2	19.0	1.9	3.8	5.8	7.8	9.8	11.9	14.0	16.1	18.2	20.4	22.7	24.9	27.2	29.6	32.1	34.6
56	73.4	24.6	10.9	3.8	5.7	7.7	9.8	11.8	13.9	16.0	18.1	20.3	22.5	24.7	27.1	29.4	31.9	34.4
57	73.6	29.2	20.3	3.7	5.7	7.7	9.7	11.7	13.8	15.9	18.0	20.2	22.3	24.6	26.9	29.2	31.6	34.1
58	73.8	33.1	26.0	12.1	5.7	7.6	9.6	11.7	13.7	15.8	17.9	20.0	22.2	24.4	26.7	29.0	31.4	33.9
59	74.0	36.6	30.6	21.8	5.6	7.6	9.6	11.6	13.6	15.7	17.8	19.9	22.1	24.3	26.5	28.8	31.2	33.7
60	74.2	39.8	34.6	27.6	14.0	7.5	9.5	11.5	13.5	15.6	17.7	19.8	21.9	24.1	26.3	28.6	31.0	33.4
61	74.4	42.7	38.1	32.3	23.7	7.5	9.5	11.5	13.5	15.5	17.6	19.6	21.8	23.9	26.2	28.4	30.8	33.2
62	74.6	45.5	41.3	36.2	29.5	16.6	9.4	11.4	13.4	15.4	17.4	19.5	21.6	23.8	26.0	28.2	30.6	33.0
63	74.8	48.1	44.3	39.8	34.1	25.9	9.4	11.3	13.3	15.3	17.3	19.4	21.5	23.6	25.8	28.1	30.4	32.7
64	75.0	50.6	47.0	43.0	38.1	31.6	20.0	11.3	13.2	15.2	17.2	19.3	21.4	23.5	25.7	27.9	30.2	32.5
65	75.2	52.9	49.6	45.9	41.6	36.2	28.4	11.9	13.2	15.1	17.1	19.2	21.2	23.3	25.5	27.7	30.0	32.3
66	75.4	55.2	52.1	48.7	44.8	40.1	33.9	23.6	13.1	15.0	17.0	19.1	21.1	23.2	25.3	27.5	29.8	32.1
67	75.6	57.3	54.5	51.3	47.7	43.6	38.4	31.2	15.4	15.0	16.9	18.9	21.0	23.1	25.2	27.4	29.6	31.9
68	75.8	59.4	56.7	53.8	50.5	46.8	42.3	36.5	27.3	14.9	16.8	18.8	20.9	22.9	25.0	27.2	29.4	31.7
69	76.0	61.5	58.9	56.1	53.1	49.7	45.7	40.8	34.2	20.1	16.7	18.7	20.7	22.8	24.9	27.0	29.2	31.5
70	76.2	63.4	61.0	58.4	55.6	52.4	48.8	44.6	39.2	31.2	16.6	18.6	20.6	22.7	24.7	26.9	29.1	31.3
71	76.4	65.3	63.0	60.5	57.9	55.0	51.7	48.0	43.4	37.4	26.2	18.5	20.5	22.5	24.6	26.7	28.9	31.1
72	76.6	67.1	64.9	62.6	60.1	57.4	54.5	51.1	47.1	42.2	35.2	20.4	20.4	22.4	24.4	26.5	28.7	30.9

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	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
37	43.7	47.1	50.6	54.3	58.2	62.4	66.7	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5
38	43.3	46.6	50.1	53.7	57.6	61.6	65.9	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8	144.8
39	42.8	46.1	49.5	53.2	57.0	61.0	65.2	141.4	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2	146.2
40	42.4	45.7	49.0	52.6	56.3	60.3	64.5	68.9	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5	147.5
41	42.0	45.2	48.5	52.1	55.8	59.7	63.8	68.1	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8	148.8
42	41.6	44.8	48.1	51.5	55.2	59.0	63.1	67.4	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2	150.2
43	41.2	44.3	47.6	51.0	54.6	58.4	62.4	66.6	99.9	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5	151.5
44	40.8	43.9	47.2	50.5	54.1	57.8	61.8	65.9	70.3	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8	152.8
45	40.5	43.5	46.7	50.1	53.6	57.3	61.2	65.3	69.6	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1	154.1
46	40.1	43.1	46.3	49.6	53.1	56.7	60.6	64.6	68.9	151.5	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4	155.4
47	39.8	42.8	45.9	49.1	52.6	56.2	60.0	64.0	68.2	72.6	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7	156.7
48	39.4	42.4	45.5	48.7	52.1	55.7	59.4	63.4	67.5	71.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9	157.9
49	39.1	42.0	45.1	48.3	51.6	55.1	58.9	62.8	66.9	71.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2	159.2
50	38.8	41.7	44.7	47.9	51.2	54.7	58.3	62.2	66.3	70.5	136.1	160.5	160.5	160.5	160.5	160.5	160.5	160.5	160.5
51	38.5	41.3	44.3	47.4	50.7	54.2	57.8	61.6	65.6	69.9	74.3	161.7	161.7	161.7	161.7	161.7	161.7	161.7	161.7
52	38.2	41.0	44.0	47.0	50.3	53.7	57.3	61.1	65.0	69.2	73.6	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
53	37.9	40.7	43.6	46.7	49.9	53.2	56.8	60.5	64.5	68.6	73.0	164.2	164.2	164.2	164.2	164.2	164.2	164.2	164.2
54	37.6	40.4	43.3	46.3	49.5	52.8	56.3	60.0	63.9	68.0	72.3	134.9	165.5	165.5	165.5	165.5	165.5	165.5	165.5
55	37.3	40.0	42.9	45.9	49.1	52.4	55.8	59.5	63.3	67.4	71.6	76.1	166.7	166.7	166.7	166.7	166.7	166.7	166.7
56	37.0	39.7	42.6	45.6	48.7	51.9	55.4	59.0	62.8	66.8	71.0	75.4	167.9	167.9	167.9	167.9	167.9	167.9	167.9
57	36.7	39.4	42.3	45.2	48.3	51.5	54.9	58.5	62.3	66.2	70.4	74.8	169.2	169.2	169.2	169.2	169.2	169.2	169.2
58	36.5	39.1	41.9	44.9	47.9	51.1	54.5	58.0	61.8	65.7	69.8	74.1	149.8	170.4	170.4	170.4	170.4	170.4	170.4
59	36.2	38.9	41.6	44.5	47.6	50.7	54.1	57.6	61.3	65.1	69.2	73.5	78.0	171.6	171.6	171.6	171.6	171.6	171.6
60	36.0	38.6	41.3	44.2	47.2	50.3	53.7	57.1	60.8	64.6	68.7	72.9	77.4	172.8	172.8	172.8	172.8	172.8	172.8
61	35.7	38.3	41.0	43.9	46.8	50.0	53.2	56.7	60.3	64.1	68.1	72.3	76.7	174.0	174.0	174.0	174.0	174.0	174.0
62	35.5	38.0	40.7	43.6	46.5	49.6	52.8	56.3	59.8	63.6	67.6	71.7	76.1	175.2	175.2	175.2	175.2	175.2	175.2
63	35.2	37.8	40.5	43.2	46.2	49.2	52.5	55.8	59.4	63.1	67.0	71.2	75.5	87.2	176.4	176.4	176.4	176.4	176.4
64	35.0	37.5	40.2	42.9	45.8	48.9	52.1	55.4	58.9	62.6	66.5	70.6	74.9	79.4	177.5	177.5	177.5	177.5	177.5
65	34.7	37.3	39.9	42.6	45.5	48.5	51.7	55.0	58.5	62.2	66.0	70.1	74.3	78.7	178.7	178.7	178.7	178.7	178.7
66	34.5	37.0	39.6	42.4	45.2	48.2	51.3	54.6	58.1	61.7	65.5	69.5	73.7	78.1	179.9	179.9	179.9	179.9	179.9
67	34.3	36.8	39.4	42.1	44.9	47.9	51.0	54.2	57.7	61.3	65.0	69.0	73.2	77.5	136.4	181.0	181.0	181.0	181.0
68	34.1	36.5	39.1	41.8	44.6	47.5	50.6	53.9	57.3	60.8	64.6	68.5	72.6	76.9	81.5	182.2	182.2	182.2	182.2
69	33.9	36.3	38.9	41.5	44.3	47.2	50.3	53.5	56.9	60.4	64.1	68.0	72.1	76.4	80.9	183.3	183.3	183.3	183.3
70	33.7	36.1	38.6	41.3	44.0	46.9	49.9	53.1	56.5	60.0	63.7	67.5	71.6	75.8	80.3	184.5	184.5	184.5	184.5
71	33.5	35.9	38.4	41.0	43.7	46.6	49.6	52.8	56.1	59.6	63.2	67.0	71.1	75.3	79.7	185.6	185.6	185.6	185.6
72	33.2	35.6	38.1	40.7	43.5	46.3	49.3	52.4	55.7	59.2	62.8	66.6	70.6	74.7	79.1	104.2	186.8	186.8	186.8

RD5-1918

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
73	76.8	68.9	66.8	64.6	62.3	59.8	57.0	53.9	50.4	46.2	40.8	32.3	20.3	22.3	24.3	26.4	28.5	30.8
74	77.0	70.7	68.7	66.6	64.4	62.0	59.4	56.6	53.4	49.8	45.3	39.2	27.1	22.1	24.2	26.2	28.4	30.6
75	77.2	72.4	70.4	68.4	66.4	64.1	61.7	59.1	56.2	53.0	49.1	44.3	37.5	23.4	24.0	26.1	28.2	30.4
76	77.4	74.0	72.2	70.3	68.3	66.2	64.0	61.5	58.9	55.9	52.6	48.5	43.4	35.2	23.9	26.0	28.1	30.2
77	77.6	75.7	73.9	72.1	70.2	68.2	66.1	63.8	61.4	58.7	55.7	52.2	48.0	42.4	31.5	25.8	27.9	30.1
78	77.8	77.3	75.5	73.8	72.0	70.1	68.1	66.0	63.7	61.3	58.6	55.5	51.9	47.6	41.5	28.8	27.7	29.9
79	78.0																	

RD5-1919

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
73	33.0	35.4	37.9	40.5	43.2	46.0	49.0	52.1	55.3	58.8	62.4	66.1	70.1	74.2	78.5	83.0	187.9	187.9	187.9
74	32.9	35.2	37.7	40.2	42.9	45.7	48.7	51.7	55.0	58.4	61.9	65.7	69.6	73.7	78.0	82.4	189.0	189.0	189.0
75	32.7	35.0	37.4	40.0	42.7	45.4	48.4	51.4	54.6	58.0	61.5	65.2	69.1	73.2	77.4	81.9	190.2	190.2	190.2
76	32.5	34.8	37.2	39.8	42.4	45.2	48.1	51.1	54.3	57.6	61.1	64.8	68.7	72.7	76.9	81.3	191.3	191.3	191.3
77	32.3	34.6	37.0	39.5	42.1	44.9	47.8	50.8	53.9	57.3	60.7	64.4	68.2	72.2	76.4	80.8	87.4	192.4	192.4
78	32.1	34.4	36.8	39.3	41.9	44.6	47.5	50.5	53.6	56.9	60.4	64.0	67.8	71.7	75.9	80.2	84.7	193.5	193.5
79																			

RD5-1920

	A	B
1	Somerset Dam Actual and Projected Releases	
2	Source: Seqwater FOC	
3	02/01/2011 09:00:00	34
4	02/01/2011 10:00:00	34
5	02/01/2011 11:00:00	34
6	02/01/2011 12:00:00	34
7	02/01/2011 13:00:00	34
8	02/01/2011 14:00:00	34
9	02/01/2011 15:00:00	34
10	02/01/2011 16:00:00	34
11	02/01/2011 17:00:00	34
12	02/01/2011 18:00:00	34
13	02/01/2011 19:00:00	34
14	02/01/2011 20:00:00	34
15	02/01/2011 21:00:00	34
16	02/01/2011 22:00:00	34
17	02/01/2011 23:00:00	34
18	03/01/2011 00:00:00	34
19	03/01/2011 01:00:00	34
20	03/01/2011 02:00:00	34
21	03/01/2011 03:00:00	34
22	03/01/2011 04:00:00	34
23	03/01/2011 05:00:00	34
24	03/01/2011 06:00:00	34
25	03/01/2011 07:00:00	34
26	03/01/2011 08:00:00	34
27	03/01/2011 09:00:00	34
28	03/01/2011 10:00:00	34
29	03/01/2011 11:00:00	34
30	03/01/2011 12:00:00	34
31	03/01/2011 13:00:00	34
32	03/01/2011 14:00:00	34
33	03/01/2011 15:00:00	34
34	03/01/2011 16:00:00	34
35	03/01/2011 17:00:00	34
36	03/01/2011 18:00:00	34
37	03/01/2011 19:00:00	34
38	03/01/2011 20:00:00	34

	A	B
39	03/01/2011 21:00:00	34
40	03/01/2011 22:00:00	34
41	03/01/2011 23:00:00	34
42	04/01/2011 00:00:00	34
43	04/01/2011 01:00:00	34
44	04/01/2011 02:00:00	34
45	04/01/2011 03:00:00	34
46	04/01/2011 04:00:00	34
47	04/01/2011 05:00:00	34
48	04/01/2011 06:00:00	34
49	04/01/2011 07:00:00	34
50	04/01/2011 08:00:00	34
51	04/01/2011 09:00:00	34
52	04/01/2011 10:00:00	34
53	04/01/2011 11:00:00	34
54	04/01/2011 12:00:00	34
55	04/01/2011 13:00:00	34
56	04/01/2011 14:00:00	34
57	04/01/2011 15:00:00	34
58	04/01/2011 16:00:00	34
59	04/01/2011 17:00:00	34
60	04/01/2011 18:00:00	34
61	04/01/2011 19:00:00	34
62	04/01/2011 20:00:00	34
63	04/01/2011 21:00:00	34
64	04/01/2011 22:00:00	34
65	04/01/2011 23:00:00	34
66	05/01/2011 00:00:00	34
67	05/01/2011 01:00:00	34
68	05/01/2011 02:00:00	34
69	05/01/2011 03:00:00	34
70	05/01/2011 04:00:00	34
71	05/01/2011 05:00:00	34
72	05/01/2011 06:00:00	34
73	05/01/2011 07:00:00	34
74	05/01/2011 08:00:00	34
75	05/01/2011 09:00:00	34
76	05/01/2011 10:00:00	34

	A	B
77	05/01/2011 11:00:00	34
78	05/01/2011 12:00:00	34
79	05/01/2011 13:00:00	34
80	05/01/2011 14:00:00	34
81	05/01/2011 15:00:00	34
82	05/01/2011 16:00:00	34
83	05/01/2011 17:00:00	34
84	05/01/2011 18:00:00	34
85	05/01/2011 19:00:00	34
86	05/01/2011 20:00:00	34
87	05/01/2011 21:00:00	34
88	05/01/2011 22:00:00	34
89	05/01/2011 23:00:00	34
90	06/01/2011 00:00:00	34
91	06/01/2011 01:00:00	34
92	06/01/2011 02:00:00	34
93	06/01/2011 03:00:00	34
94	06/01/2011 04:00:00	34
95	06/01/2011 05:00:00	34
96	06/01/2011 06:00:00	34
97	06/01/2011 07:00:00	34
98	06/01/2011 08:00:00	35
99	06/01/2011 09:00:00	35
100	06/01/2011 10:00:00	35
101	06/01/2011 11:00:00	35
102	06/01/2011 12:00:00	35
103	06/01/2011 13:00:00	35
104	06/01/2011 14:00:00	35
105	06/01/2011 15:00:00	35
106	06/01/2011 16:00:00	35
107	06/01/2011 17:00:00	35
108	06/01/2011 18:00:00	35
109	06/01/2011 19:00:00	35
110	06/01/2011 20:00:00	35
111	06/01/2011 21:00:00	35
112	06/01/2011 22:00:00	35
113	06/01/2011 23:00:00	35
114	07/01/2011 00:00:00	35

	A	B
115	07/01/2011 01:00:00	35
116	07/01/2011 02:00:00	35
117	07/01/2011 03:00:00	35
118	07/01/2011 04:00:00	35
119	07/01/2011 05:00:00	35
120	07/01/2011 06:00:00	35
121	07/01/2011 07:00:00	35
122	07/01/2011 08:00:00	35
123	07/01/2011 09:00:00	35
124	07/01/2011 10:00:00	35
125	07/01/2011 11:00:00	35
126	07/01/2011 12:00:00	35
127	07/01/2011 13:00:00	35
128	07/01/2011 14:00:00	35
129	07/01/2011 15:00:00	35
130	07/01/2011 16:00:00	35
131	07/01/2011 17:00:00	70
132	07/01/2011 18:00:00	70
133	07/01/2011 19:00:00	206
134	07/01/2011 20:00:00	206
135	07/01/2011 21:00:00	206
136	07/01/2011 22:00:00	206
137	07/01/2011 23:00:00	206
138	08/01/2011 00:00:00	206
139	08/01/2011 01:00:00	206
140	08/01/2011 02:00:00	206
141	08/01/2011 03:00:00	207
142	08/01/2011 04:00:00	207
143	08/01/2011 05:00:00	207
144	08/01/2011 06:00:00	207
145	08/01/2011 07:00:00	207
146	08/01/2011 08:00:00	207
147	08/01/2011 09:00:00	207
148	08/01/2011 10:00:00	207
149	08/01/2011 11:00:00	208
150	08/01/2011 12:00:00	414
151	08/01/2011 13:00:00	414
152	08/01/2011 14:00:00	414

	A	B
153	08/01/2011 15:00:00	413
154	08/01/2011 16:00:00	413
155	08/01/2011 17:00:00	413
156	08/01/2011 18:00:00	413
157	08/01/2011 19:00:00	413
158	08/01/2011 20:00:00	413
159	08/01/2011 21:00:00	413
160	08/01/2011 22:00:00	413
161	08/01/2011 23:00:00	413
162	09/01/2011 00:00:00	412
163	09/01/2011 01:00:00	412
164	09/01/2011 02:00:00	412
165	09/01/2011 03:00:00	412
166	09/01/2011 04:00:00	412
167	09/01/2011 05:00:00	412
168	09/01/2011 06:00:00	412
169	09/01/2011 07:00:00	412
170	09/01/2011 08:00:00	412
171	09/01/2011 09:00:00	618
172	09/01/2011 10:00:00	619
173	09/01/2011 11:00:00	619
174	09/01/2011 12:00:00	619
175	09/01/2011 13:00:00	826
176	09/01/2011 14:00:00	1034
177	09/01/2011 15:00:00	1036
178	09/01/2011 16:00:00	1042
179	09/01/2011 17:00:00	1053
180	09/01/2011 18:00:00	1073
181	09/01/2011 19:00:00	1099
182	09/01/2011 20:00:00	1128
183	09/01/2011 21:00:00	1161
184	09/01/2011 22:00:00	1194
185	09/01/2011 23:00:00	1228
186	10/01/2011 00:00:00	1262
187	10/01/2011 01:00:00	1296
188	10/01/2011 02:00:00	1327
189	10/01/2011 03:00:00	1356
190	10/01/2011 04:00:00	1383

	A	B
191	10/01/2011 05:00:00	1408
192	10/01/2011 06:00:00	1433
193	10/01/2011 07:00:00	1455
194	10/01/2011 08:00:00	1476
195	10/01/2011 09:00:00	1496
196	10/01/2011 10:00:00	1513
197	10/01/2011 11:00:00	1531
198	10/01/2011 12:00:00	1556
199	10/01/2011 13:00:00	1585
200	10/01/2011 14:00:00	1608
201	10/01/2011 15:00:00	1625
202	10/01/2011 16:00:00	1638
203	10/01/2011 17:00:00	1646
204	10/01/2011 18:00:00	1651
205	10/01/2011 19:00:00	1654
206	10/01/2011 20:00:00	1656
207	10/01/2011 21:00:00	1656
208	10/01/2011 22:00:00	1655
209	10/01/2011 23:00:00	1652
210	11/01/2011 00:00:00	1646
211	11/01/2011 01:00:00	1640
212	11/01/2011 02:00:00	1632
213	11/01/2011 03:00:00	1624
214	11/01/2011 04:00:00	1616
215	11/01/2011 05:00:00	1396
216	11/01/2011 06:00:00	1188
217	11/01/2011 07:00:00	989
218	11/01/2011 08:00:00	795
219	11/01/2011 09:00:00	602
220	11/01/2011 10:00:00	628
221	11/01/2011 11:00:00	655
222	11/01/2011 12:00:00	687
223	11/01/2011 13:00:00	728
224	11/01/2011 14:00:00	779
225	11/01/2011 15:00:00	832
226	11/01/2011 16:00:00	884
227	11/01/2011 17:00:00	933
228	11/01/2011 18:00:00	982

	A	B
229	11/01/2011 19:00:00	1030
230	11/01/2011 20:00:00	1076
231	11/01/2011 21:00:00	1118
232	11/01/2011 22:00:00	1157
233	11/01/2011 23:00:00	1190
234	12/01/2011 00:00:00	1220
235	12/01/2011 01:00:00	1245
236	12/01/2011 02:00:00	1267
237	12/01/2011 03:00:00	1284
238	12/01/2011 04:00:00	1298
239	12/01/2011 05:00:00	1308
240	12/01/2011 06:00:00	1316
241	12/01/2011 07:00:00	1320
242	12/01/2011 08:00:00	1322
243	12/01/2011 09:00:00	1322
244	12/01/2011 10:00:00	1319
245	12/01/2011 11:00:00	1539
246	12/01/2011 12:00:00	1528
247	12/01/2011 13:00:00	1515
248	12/01/2011 14:00:00	1501
249	12/01/2011 15:00:00	1487
250	12/01/2011 16:00:00	1471
251	12/01/2011 17:00:00	1454
252	12/01/2011 18:00:00	1437
253	12/01/2011 19:00:00	1419
254	12/01/2011 20:00:00	1401
255	12/01/2011 21:00:00	1383
256	12/01/2011 22:00:00	1364
257	12/01/2011 23:00:00	1345
258	13/01/2011 00:00:00	1326
259	13/01/2011 01:00:00	1306
260	13/01/2011 02:00:00	1287
261	13/01/2011 03:00:00	1268
262	13/01/2011 04:00:00	1248
263	13/01/2011 05:00:00	1229
264	13/01/2011 06:00:00	1210
265	13/01/2011 07:00:00	1191
266	13/01/2011 08:00:00	1172

	A	B
267	13/01/2011 09:00:00	1374
268	13/01/2011 10:00:00	1351
269	13/01/2011 11:00:00	1328
270	13/01/2011 12:00:00	1305
271	13/01/2011 13:00:00	1502
272	13/01/2011 14:00:00	1476
273	13/01/2011 15:00:00	1449
274	13/01/2011 16:00:00	1423
275	13/01/2011 17:00:00	1398
276	13/01/2011 18:00:00	1373
277	13/01/2011 19:00:00	1349
278	13/01/2011 20:00:00	1326
279	13/01/2011 21:00:00	1521
280	13/01/2011 22:00:00	1493
281	13/01/2011 23:00:00	1467
282	14/01/2011 00:00:00	1441
283	14/01/2011 01:00:00	1416
284	14/01/2011 02:00:00	1391
285	14/01/2011 03:00:00	1367
286	14/01/2011 04:00:00	1344
287	14/01/2011 05:00:00	1321
288	14/01/2011 06:00:00	1299
289	14/01/2011 07:00:00	1278
290	14/01/2011 08:00:00	1257
291	14/01/2011 09:00:00	1237
292	14/01/2011 10:00:00	1217
293	14/01/2011 11:00:00	1198
294	14/01/2011 12:00:00	1180
295	14/01/2011 13:00:00	1162
296	14/01/2011 14:00:00	1144
297	14/01/2011 15:00:00	1127
298	14/01/2011 16:00:00	1111
299	14/01/2011 17:00:00	1095
300	14/01/2011 18:00:00	1079
301	14/01/2011 19:00:00	1064
302	14/01/2011 20:00:00	1050
303	14/01/2011 21:00:00	1036
304	14/01/2011 22:00:00	1022

	A	B
305	14/01/2011 23:00:00	1009
306	15/01/2011 00:00:00	996
307	15/01/2011 01:00:00	984
308	15/01/2011 02:00:00	972
309	15/01/2011 03:00:00	961
310	15/01/2011 04:00:00	950
311	15/01/2011 05:00:00	939
312	15/01/2011 06:00:00	929
313	15/01/2011 07:00:00	919
314	15/01/2011 08:00:00	910
315	15/01/2011 09:00:00	901
316	15/01/2011 10:00:00	893
317	15/01/2011 11:00:00	884
318	15/01/2011 12:00:00	877
319	15/01/2011 13:00:00	870
320	15/01/2011 14:00:00	863
321	15/01/2011 15:00:00	857
322	15/01/2011 16:00:00	851
323	15/01/2011 17:00:00	846
324	15/01/2011 18:00:00	841
325	15/01/2011 19:00:00	836
326	15/01/2011 20:00:00	833
327	15/01/2011 21:00:00	830
328	15/01/2011 22:00:00	827
329	15/01/2011 23:00:00	826
330	16/01/2011 00:00:00	825
331	16/01/2011 01:00:00	824
332	16/01/2011 02:00:00	824
333	16/01/2011 03:00:00	823
334	16/01/2011 04:00:00	822
335	16/01/2011 05:00:00	821
336	16/01/2011 06:00:00	820
337	16/01/2011 07:00:00	819
338	16/01/2011 08:00:00	818
339	16/01/2011 09:00:00	817
340	16/01/2011 10:00:00	612
341	16/01/2011 11:00:00	612
342	16/01/2011 12:00:00	611

	A	B
343	16/01/2011 13:00:00	611
344	16/01/2011 14:00:00	610
345	16/01/2011 15:00:00	610
346	16/01/2011 16:00:00	609
347	16/01/2011 17:00:00	609
348	16/01/2011 18:00:00	608
349	16/01/2011 19:00:00	608
350	16/01/2011 20:00:00	607
351	16/01/2011 21:00:00	607
352	16/01/2011 22:00:00	404
353	16/01/2011 23:00:00	404
354	17/01/2011 00:00:00	404
355	17/01/2011 01:00:00	403
356	17/01/2011 02:00:00	403
357	17/01/2011 03:00:00	201
358	17/01/2011 04:00:00	201
359	17/01/2011 05:00:00	201
360	17/01/2011 06:00:00	201
361	17/01/2011 07:00:00	69
362	17/01/2011 08:00:00	69
363	17/01/2011 09:00:00	69
364	17/01/2011 10:00:00	69
365	17/01/2011 11:00:00	69
366	17/01/2011 12:00:00	69
367	17/01/2011 13:00:00	69
368	17/01/2011 14:00:00	69
369	17/01/2011 15:00:00	69
370	17/01/2011 16:00:00	69
371	17/01/2011 17:00:00	69
372	17/01/2011 18:00:00	69
373	17/01/2011 19:00:00	69
374	17/01/2011 20:00:00	69
375	17/01/2011 21:00:00	69
376	17/01/2011 22:00:00	69
377	17/01/2011 23:00:00	69
378	18/01/2011 00:00:00	69
379	18/01/2011 01:00:00	69
380	18/01/2011 02:00:00	69

	A	B
381	18/01/2011 03:00:00	69
382	18/01/2011 04:00:00	69
383	18/01/2011 05:00:00	69
384	18/01/2011 06:00:00	69
385	18/01/2011 07:00:00	0
386	18/01/2011 08:00:00	0
387	18/01/2011 09:00:00	0
388	18/01/2011 10:00:00	0
389	18/01/2011 11:00:00	0
390	18/01/2011 12:00:00	0
391	18/01/2011 13:00:00	0
392	18/01/2011 14:00:00	0
393	18/01/2011 15:00:00	0
394	18/01/2011 16:00:00	0
395	18/01/2011 17:00:00	0
396	18/01/2011 18:00:00	0
397	18/01/2011 19:00:00	0
398	18/01/2011 20:00:00	0
399	18/01/2011 21:00:00	0
400	18/01/2011 22:00:00	0
401	18/01/2011 23:00:00	0
402	19/01/2011 00:00:00	0
403	19/01/2011 01:00:00	0
404	19/01/2011 02:00:00	0
405	19/01/2011 03:00:00	0
406	19/01/2011 04:00:00	0
407	19/01/2011 05:00:00	0
408	19/01/2011 06:00:00	0
409	19/01/2011 07:00:00	0
410	19/01/2011 08:00:00	0
411	19/01/2011 09:00:00	0
412	19/01/2011 10:00:00	0
413	19/01/2011 11:00:00	0
414	19/01/2011 12:00:00	0
415	19/01/2011 13:00:00	0
416	19/01/2011 14:00:00	0
417	19/01/2011 15:00:00	0
418	19/01/2011 16:00:00	0

	A	B
419	19/01/2011 17:00:00	0
420	19/01/2011 18:00:00	0
421	19/01/2011 19:00:00	0

	A	B
1	Wivenhoe Dam Actual and Projected Releases	
2	Source: Seqwater FOC	
3	02/01/2011 09:00:00	50
4	02/01/2011 10:00:00	50
5	02/01/2011 11:00:00	50
6	02/01/2011 12:00:00	50
7	02/01/2011 13:00:00	50
8	02/01/2011 14:00:00	50
9	02/01/2011 15:00:00	50
10	02/01/2011 16:00:00	50
11	02/01/2011 17:00:00	50
12	02/01/2011 18:00:00	50
13	02/01/2011 19:00:00	50
14	02/01/2011 20:00:00	50
15	02/01/2011 21:00:00	50
16	02/01/2011 22:00:00	50
17	02/01/2011 23:00:00	50
18	03/01/2011 00:00:00	50
19	03/01/2011 01:00:00	50
20	03/01/2011 02:00:00	50
21	03/01/2011 03:00:00	50
22	03/01/2011 04:00:00	50
23	03/01/2011 05:00:00	50
24	03/01/2011 06:00:00	50
25	03/01/2011 07:00:00	50
26	03/01/2011 08:00:00	50
27	03/01/2011 09:00:00	50
28	03/01/2011 10:00:00	50
29	03/01/2011 11:00:00	50
30	03/01/2011 12:00:00	50
31	03/01/2011 13:00:00	50
32	03/01/2011 14:00:00	50
33	03/01/2011 15:00:00	50
34	03/01/2011 16:00:00	50
35	03/01/2011 17:00:00	50
36	03/01/2011 18:00:00	50
37	03/01/2011 19:00:00	50
38	03/01/2011 20:00:00	50

	A	B
39	03/01/2011 21:00:00	50
40	03/01/2011 22:00:00	50
41	03/01/2011 23:00:00	50
42	04/01/2011 00:00:00	50
43	04/01/2011 01:00:00	50
44	04/01/2011 02:00:00	50
45	04/01/2011 03:00:00	50
46	04/01/2011 04:00:00	50
47	04/01/2011 05:00:00	50
48	04/01/2011 06:00:00	50
49	04/01/2011 07:00:00	50
50	04/01/2011 08:00:00	50
51	04/01/2011 09:00:00	50
52	04/01/2011 10:00:00	50
53	04/01/2011 11:00:00	50
54	04/01/2011 12:00:00	50
55	04/01/2011 13:00:00	50
56	04/01/2011 14:00:00	50
57	04/01/2011 15:00:00	50
58	04/01/2011 16:00:00	50
59	04/01/2011 17:00:00	50
60	04/01/2011 18:00:00	50
61	04/01/2011 19:00:00	50
62	04/01/2011 20:00:00	50
63	04/01/2011 21:00:00	50
64	04/01/2011 22:00:00	50
65	04/01/2011 23:00:00	50
66	05/01/2011 00:00:00	50
67	05/01/2011 01:00:00	50
68	05/01/2011 02:00:00	50
69	05/01/2011 03:00:00	50
70	05/01/2011 04:00:00	50
71	05/01/2011 05:00:00	50
72	05/01/2011 06:00:00	50
73	05/01/2011 07:00:00	50
74	05/01/2011 08:00:00	50
75	05/01/2011 09:00:00	50
76	05/01/2011 10:00:00	50

	A	B
77	05/01/2011 11:00:00	50
78	05/01/2011 12:00:00	50
79	05/01/2011 13:00:00	50
80	05/01/2011 14:00:00	50
81	05/01/2011 15:00:00	50
82	05/01/2011 16:00:00	50
83	05/01/2011 17:00:00	50
84	05/01/2011 18:00:00	50
85	05/01/2011 19:00:00	50
86	05/01/2011 20:00:00	50
87	05/01/2011 21:00:00	50
88	05/01/2011 22:00:00	50
89	05/01/2011 23:00:00	50
90	06/01/2011 00:00:00	50
91	06/01/2011 01:00:00	50
92	06/01/2011 02:00:00	50
93	06/01/2011 03:00:00	50
94	06/01/2011 04:00:00	50
95	06/01/2011 05:00:00	50
96	06/01/2011 06:00:00	50
97	06/01/2011 07:00:00	50
98	06/01/2011 08:00:00	50
99	06/01/2011 09:00:00	50
100	06/01/2011 10:00:00	50
101	06/01/2011 11:00:00	50
102	06/01/2011 12:00:00	50
103	06/01/2011 13:00:00	50
104	06/01/2011 14:00:00	50
105	06/01/2011 15:00:00	50
106	06/01/2011 16:00:00	50
107	06/01/2011 17:00:00	50
108	06/01/2011 18:00:00	50
109	06/01/2011 19:00:00	50
110	06/01/2011 20:00:00	50
111	06/01/2011 21:00:00	50
112	06/01/2011 22:00:00	50
113	06/01/2011 23:00:00	50
114	07/01/2011 00:00:00	50

	A	B
115	07/01/2011 01:00:00	50
116	07/01/2011 02:00:00	50
117	07/01/2011 03:00:00	50
118	07/01/2011 04:00:00	50
119	07/01/2011 05:00:00	50
120	07/01/2011 06:00:00	50
121	07/01/2011 07:00:00	50
122	07/01/2011 08:00:00	50
123	07/01/2011 09:00:00	50
124	07/01/2011 10:00:00	50
125	07/01/2011 11:00:00	50
126	07/01/2011 12:00:00	50
127	07/01/2011 13:00:00	50
128	07/01/2011 14:00:00	50
129	07/01/2011 15:00:00	65
130	07/01/2011 16:00:00	117
131	07/01/2011 17:00:00	169
132	07/01/2011 18:00:00	220
133	07/01/2011 19:00:00	270
134	07/01/2011 20:00:00	319
135	07/01/2011 21:00:00	368
136	07/01/2011 22:00:00	421
137	07/01/2011 23:00:00	474
138	08/01/2011 00:00:00	528
139	08/01/2011 01:00:00	581
140	08/01/2011 02:00:00	635
141	08/01/2011 03:00:00	689
142	08/01/2011 04:00:00	743
143	08/01/2011 05:00:00	797
144	08/01/2011 06:00:00	851
145	08/01/2011 07:00:00	905
146	08/01/2011 08:00:00	954
147	08/01/2011 09:00:00	1007
148	08/01/2011 10:00:00	1060
149	08/01/2011 11:00:00	1114
150	08/01/2011 12:00:00	1168
151	08/01/2011 13:00:00	1220
152	08/01/2011 14:00:00	1272

	A	B
153	08/01/2011 15:00:00	1272
154	08/01/2011 16:00:00	1273
155	08/01/2011 17:00:00	1273
156	08/01/2011 18:00:00	1273
157	08/01/2011 19:00:00	1273
158	08/01/2011 20:00:00	1274
159	08/01/2011 21:00:00	1273
160	08/01/2011 22:00:00	1273
161	08/01/2011 23:00:00	1273
162	09/01/2011 00:00:00	1273
163	09/01/2011 01:00:00	1273
164	09/01/2011 02:00:00	1319
165	09/01/2011 03:00:00	1319
166	09/01/2011 04:00:00	1318
167	09/01/2011 05:00:00	1370
168	09/01/2011 06:00:00	1369
169	09/01/2011 07:00:00	1369
170	09/01/2011 08:00:00	1368
171	09/01/2011 09:00:00	1367
172	09/01/2011 10:00:00	1367
173	09/01/2011 11:00:00	1367
174	09/01/2011 12:00:00	1420
175	09/01/2011 13:00:00	1420
176	09/01/2011 14:00:00	1421
177	09/01/2011 15:00:00	1423
178	09/01/2011 16:00:00	1426
179	09/01/2011 17:00:00	1429
180	09/01/2011 18:00:00	1433
181	09/01/2011 19:00:00	1438
182	09/01/2011 20:00:00	1443
183	09/01/2011 21:00:00	1449
184	09/01/2011 22:00:00	1457
185	09/01/2011 23:00:00	1465
186	10/01/2011 00:00:00	1475
187	10/01/2011 01:00:00	1486
188	10/01/2011 02:00:00	1552
189	10/01/2011 03:00:00	1619
190	10/01/2011 04:00:00	1687

	A	B
191	10/01/2011 05:00:00	1756
192	10/01/2011 06:00:00	1824
193	10/01/2011 07:00:00	1893
194	10/01/2011 08:00:00	1963
195	10/01/2011 09:00:00	2033
196	10/01/2011 10:00:00	2046
197	10/01/2011 11:00:00	2058
198	10/01/2011 12:00:00	2070
199	10/01/2011 13:00:00	2082
200	10/01/2011 14:00:00	2092
201	10/01/2011 15:00:00	2102
202	10/01/2011 16:00:00	2168
203	10/01/2011 17:00:00	2288
204	10/01/2011 18:00:00	2412
205	10/01/2011 19:00:00	2532
206	10/01/2011 20:00:00	2711
207	10/01/2011 21:00:00	2719
208	10/01/2011 22:00:00	2725
209	10/01/2011 23:00:00	2732
210	11/01/2011 00:00:00	2738
211	11/01/2011 01:00:00	2743
212	11/01/2011 02:00:00	2748
213	11/01/2011 03:00:00	2752
214	11/01/2011 04:00:00	2756
215	11/01/2011 05:00:00	2761
216	11/01/2011 06:00:00	2767
217	11/01/2011 07:00:00	2772
218	11/01/2011 08:00:00	2778
219	11/01/2011 09:00:00	3002
220	11/01/2011 10:00:00	3351
221	11/01/2011 11:00:00	3529
222	11/01/2011 12:00:00	3651
223	11/01/2011 13:00:00	4226
224	11/01/2011 14:00:00	4521
225	11/01/2011 15:00:00	5109
226	11/01/2011 16:00:00	5715
227	11/01/2011 17:00:00	6346
228	11/01/2011 18:00:00	6678

	A	B
229	11/01/2011 19:00:00	7359
230	11/01/2011 20:00:00	7362
231	11/01/2011 21:00:00	7363
232	11/01/2011 22:00:00	7021
233	11/01/2011 23:00:00	7020
234	12/01/2011 00:00:00	6049
235	12/01/2011 01:00:00	6050
236	12/01/2011 02:00:00	5442
237	12/01/2011 03:00:00	5443
238	12/01/2011 04:00:00	4856
239	12/01/2011 05:00:00	4281
240	12/01/2011 06:00:00	3709
241	12/01/2011 07:00:00	3132
242	12/01/2011 08:00:00	2538
243	12/01/2011 09:00:00	2541
244	12/01/2011 10:00:00	2544
245	12/01/2011 11:00:00	2546
246	12/01/2011 12:00:00	2548
247	12/01/2011 13:00:00	2550
248	12/01/2011 14:00:00	2552
249	12/01/2011 15:00:00	2553
250	12/01/2011 16:00:00	2555
251	12/01/2011 17:00:00	2556
252	12/01/2011 18:00:00	2556
253	12/01/2011 19:00:00	2557
254	12/01/2011 20:00:00	2557
255	12/01/2011 21:00:00	2558
256	12/01/2011 22:00:00	2558
257	12/01/2011 23:00:00	2558
258	13/01/2011 00:00:00	2557
259	13/01/2011 01:00:00	2557
260	13/01/2011 02:00:00	2557
261	13/01/2011 03:00:00	2556
262	13/01/2011 04:00:00	2555
263	13/01/2011 05:00:00	2554
264	13/01/2011 06:00:00	2553
265	13/01/2011 07:00:00	2552
266	13/01/2011 08:00:00	2551

	A	B
267	13/01/2011 09:00:00	2550
268	13/01/2011 10:00:00	2549
269	13/01/2011 11:00:00	2548
270	13/01/2011 12:00:00	2547
271	13/01/2011 13:00:00	2606
272	13/01/2011 14:00:00	2665
273	13/01/2011 15:00:00	2665
274	13/01/2011 16:00:00	2784
275	13/01/2011 17:00:00	2842
276	13/01/2011 18:00:00	2900
277	13/01/2011 19:00:00	3016
278	13/01/2011 20:00:00	3131
279	13/01/2011 21:00:00	3244
280	13/01/2011 22:00:00	3299
281	13/01/2011 23:00:00	3354
282	14/01/2011 00:00:00	3408
283	14/01/2011 01:00:00	3461
284	14/01/2011 02:00:00	3514
285	14/01/2011 03:00:00	3567
286	14/01/2011 04:00:00	3562
287	14/01/2011 05:00:00	3557
288	14/01/2011 06:00:00	3552
289	14/01/2011 07:00:00	3546
290	14/01/2011 08:00:00	3541
291	14/01/2011 09:00:00	3536
292	14/01/2011 10:00:00	3530
293	14/01/2011 11:00:00	3524
294	14/01/2011 12:00:00	3519
295	14/01/2011 13:00:00	3513
296	14/01/2011 14:00:00	3507
297	14/01/2011 15:00:00	3501
298	14/01/2011 16:00:00	3495
299	14/01/2011 17:00:00	3489
300	14/01/2011 18:00:00	3483
301	14/01/2011 19:00:00	3532
302	14/01/2011 20:00:00	3526
303	14/01/2011 21:00:00	3519
304	14/01/2011 22:00:00	3513

	A	B
305	14/01/2011 23:00:00	3506
306	15/01/2011 00:00:00	3499
307	15/01/2011 01:00:00	3492
308	15/01/2011 02:00:00	3485
309	15/01/2011 03:00:00	3533
310	15/01/2011 04:00:00	3525
311	15/01/2011 05:00:00	3518
312	15/01/2011 06:00:00	3510
313	15/01/2011 07:00:00	3503
314	15/01/2011 08:00:00	3495
315	15/01/2011 09:00:00	3488
316	15/01/2011 10:00:00	3533
317	15/01/2011 11:00:00	3525
318	15/01/2011 12:00:00	3517
319	15/01/2011 13:00:00	3509
320	15/01/2011 14:00:00	3501
321	15/01/2011 15:00:00	3492
322	15/01/2011 16:00:00	3484
323	15/01/2011 17:00:00	3528
324	15/01/2011 18:00:00	3519
325	15/01/2011 19:00:00	3510
326	15/01/2011 20:00:00	3502
327	15/01/2011 21:00:00	3493
328	15/01/2011 22:00:00	3535
329	15/01/2011 23:00:00	3526
330	16/01/2011 00:00:00	3516
331	16/01/2011 01:00:00	3507
332	16/01/2011 02:00:00	3498
333	16/01/2011 03:00:00	3488
334	16/01/2011 04:00:00	3529
335	16/01/2011 05:00:00	3519
336	16/01/2011 06:00:00	3509
337	16/01/2011 07:00:00	3499
338	16/01/2011 08:00:00	3489
339	16/01/2011 09:00:00	3529
340	16/01/2011 10:00:00	3519
341	16/01/2011 11:00:00	3507
342	16/01/2011 12:00:00	3496

	A	B
343	16/01/2011 13:00:00	3533
344	16/01/2011 14:00:00	3521
345	16/01/2011 15:00:00	3509
346	16/01/2011 16:00:00	3545
347	16/01/2011 17:00:00	3533
348	16/01/2011 18:00:00	3520
349	16/01/2011 19:00:00	3508
350	16/01/2011 20:00:00	3542
351	16/01/2011 21:00:00	3529
352	16/01/2011 22:00:00	3516
353	16/01/2011 23:00:00	3502
354	17/01/2011 00:00:00	3488
355	17/01/2011 01:00:00	3474
356	17/01/2011 02:00:00	3460
357	17/01/2011 03:00:00	3446
358	17/01/2011 04:00:00	3430
359	17/01/2011 05:00:00	3415
360	17/01/2011 06:00:00	3400
361	17/01/2011 07:00:00	3384
362	17/01/2011 08:00:00	3368
363	17/01/2011 09:00:00	3351
364	17/01/2011 10:00:00	3335
365	17/01/2011 11:00:00	3318
366	17/01/2011 12:00:00	3302
367	17/01/2011 13:00:00	3285
368	17/01/2011 14:00:00	3142
369	17/01/2011 15:00:00	3042
370	17/01/2011 16:00:00	2943
371	17/01/2011 17:00:00	2888
372	17/01/2011 18:00:00	2663
373	17/01/2011 19:00:00	2437
374	17/01/2011 20:00:00	2253
375	17/01/2011 21:00:00	2156
376	17/01/2011 22:00:00	2060
377	17/01/2011 23:00:00	1963
378	18/01/2011 00:00:00	1864
379	18/01/2011 01:00:00	1816
380	18/01/2011 02:00:00	1721

	A	B
381	18/01/2011 03:00:00	1621
382	18/01/2011 04:00:00	1572
383	18/01/2011 05:00:00	1522
384	18/01/2011 06:00:00	1471
385	18/01/2011 07:00:00	1421
386	18/01/2011 08:00:00	1370
387	18/01/2011 09:00:00	1319
388	18/01/2011 10:00:00	1268
389	18/01/2011 11:00:00	1216
390	18/01/2011 12:00:00	1171
391	18/01/2011 13:00:00	1074
392	18/01/2011 14:00:00	974
393	18/01/2011 15:00:00	875
394	18/01/2011 16:00:00	824
395	18/01/2011 17:00:00	774
396	18/01/2011 18:00:00	675
397	18/01/2011 19:00:00	624
398	18/01/2011 20:00:00	574
399	18/01/2011 21:00:00	524
400	18/01/2011 22:00:00	474
401	18/01/2011 23:00:00	431
402	19/01/2011 00:00:00	381
403	19/01/2011 01:00:00	332
404	19/01/2011 02:00:00	287
405	19/01/2011 03:00:00	242
406	19/01/2011 04:00:00	195
407	19/01/2011 05:00:00	147
408	19/01/2011 06:00:00	98
409	19/01/2011 07:00:00	49
410	19/01/2011 08:00:00	50
411	19/01/2011 09:00:00	50
412	19/01/2011 10:00:00	50
413	19/01/2011 11:00:00	50
414	19/01/2011 12:00:00	50
415	19/01/2011 13:00:00	50
416	19/01/2011 14:00:00	50
417	19/01/2011 15:00:00	50
418	19/01/2011 16:00:00	50

	A	B
419	19/01/2011 17:00:00	50
420	19/01/2011 18:00:00	50
421	19/01/2011 19:00:00	50

From: Ken Morris <Ken.Morris@[redacted]
Sent: Monday, January 17, 2011 1:46 PM
To: Rob Drury <rdrury@[redacted]
Cc: Flood_Information_Centre@[redacted]
Subject: Re: Re releases

Rob
I have spoken to our Geotech person re bank slippage. There has been bank slips at some locations already though not at Coro Drive. His opinion is that any slow down in the gate closing would help. We are also concerned about the King tide on Friday morning so we would prefer that the closure of the gates finishes ou Thursday morning to ensure no Wivenhoe flows aggravate tidal flooding.

You have other information re other Council requests and rainfall outlook, so your decision is the final one.

cheers
ken

Ken Morris
Principal Engineer, Water & Environment
phone [redacted]
fax [redacted]

>>> "Rob Drury" <rdrury@[redacted] 17/01/2011 13:02 >>>
Ken,

Just confirming we intend to start closing Wivenhoe this afternoon and finalising Wednesday morning.

If you can provide any comments re the drawdown in terms of your discussions with the FOC and any discussions internally re Coro Drive and predicted tide levels that we would be good.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E
[redacted] <mailto [redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www.seqwater.com.au <http://www [redacted]

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QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 1:48 PM
To: Duty Seq <dutyseq@[redacted]
Subject: Fw: Re releases

----- Original Message -----
From: Ken Morris <Ken.Morris@[redacted]
To: Rob Drury
Cc: Flood_Information_Centre@[redacted] <Flood_Information_Centre@[redacted]
Sent: Mon Jan 17 13:46:19 2011
Subject: Re: Re releases

Rob
I have spoken to our Geotech person re bank slippage. There has been bank slips at some locations already though not at Coro Drive. His opinion is that any slow down in the gate closing would help. We are also concerned about the King tide on Friday morning so we would prefer that the closnre of the gates finishes on Thursday morning to ensure no Wivenhoe flows aggravate tidal flooding.

You have other information re other Council requests and rainfall outlook, so your decision is the final one.

cheers
ken

Ken Morris
Principal Engineer, Water & Environment
phone [redacted]
fax [redacted]
Ken.Morris@[redacted]

>>> "Rob Drury" <rdrury@[redacted] 17/01/2011 13:02 >>>
Ken,

Just confirming we intend to start closing Wivenhoe this afternoon and finalising Wednesday morning.

If you can provide any comments re the drawdown in terms of your discussions with the FOC and any discussions internally re Coro Drive and predicted tide levels that we would be good.

Rob

Robert Drury

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority trading as Seqwater

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] E
rdrury@[redacted] <mailto:rdrury@[redacted]

Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306

Website | www[redacted] <http://www.seqwater.com.au/>

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From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 2:16 PM
To: Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted] Rob Drury [redacted]
Subject: FW: OPS_Directive_Wivenhoe #49.doc

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 17 January 2011 1:47 PM
To: adagan@[redacted] Doug Grigg (dgrigg@[redacted] 'druryrj@hotmail.com'; gkeegan@[redacted] Graham Francis (gfrancis@[redacted]
Subject: OPS_Directive_Wivenhoe #49.doc

Please find attached a copy of Wivenhoe Directive #49

SEQWATER FLOOD OPERATIONS CENTRE

Fax No. (07) [redacted]
Answering Machine: ([redacted]
General: (07) [redacted]
1

FACSIMILE MESSAGE

Senior Flood Operations Engineer	Senior Flood Operations Engineer	Flood Operations Engineer	Flood Operations Engineer
John Ruffini	Rob Ayre	Terry Malone	John Tibaldi
(W) [redacted]	(W) [redacted]	(W) [redacted]	(W) [redacted]
(H) (07) [redacted]	(H) [redacted]	(H) (07) [redacted]	(H) [redacted]
(M) [redacted]	(M) [redacted]	(M) [redacted]	(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 17/01/201
	Directive No: 49
	Time: 13:45

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 14:00 on 17/01/2011

- Close Gate 4 from 7.0 metres to 6.5 metres at 14:00 on 17/01/2011.
- Close Gate 2 from 7.0 metres to 6.5 metres at 14:20 on 17/01/2011
- Close Gate 3 from 7.0 metres to 6.5 metres at 14:40 on 17/01/2011
- Close Gate 5 from 6.5 metres to 6.0 metres at 15:00 on 17/01/2011

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Ruffini
Duty Engineer

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 2:34 PM
To: Rob Drury <[redacted] Peter Allen <[redacted]
Subject: rainfall files
Attach: WivenhoeDamHW-Intensity.jpg; Emu-Accumulated.jpg; Emu-Intensity.jpg; MtGlorious-accumulated.jpg; MtGlorious-intensity.jpg; Savages-Accumulated.jpg; Savages-Intensity.jpg; WivenhoeDamHW-Cumulative.jpg; Rainfall Comparison QPF-Actual.xls

---

Peter/Rob,

Some rainfall files to help illustrate what happened during the event.

Note that this event is unusual in that the peak intensities occurred later in the event and that the intense bursts moved in a non-typical manner.

The QPF's were generally below what was recorded. The QPF's area good general guide but are not capable of providing guidance about the smaller scale local intense rainfall that occurred.

The rainfall radar imagery did not reflect the very intense rainfall that fell. BoM have acknowledge this and are investigating.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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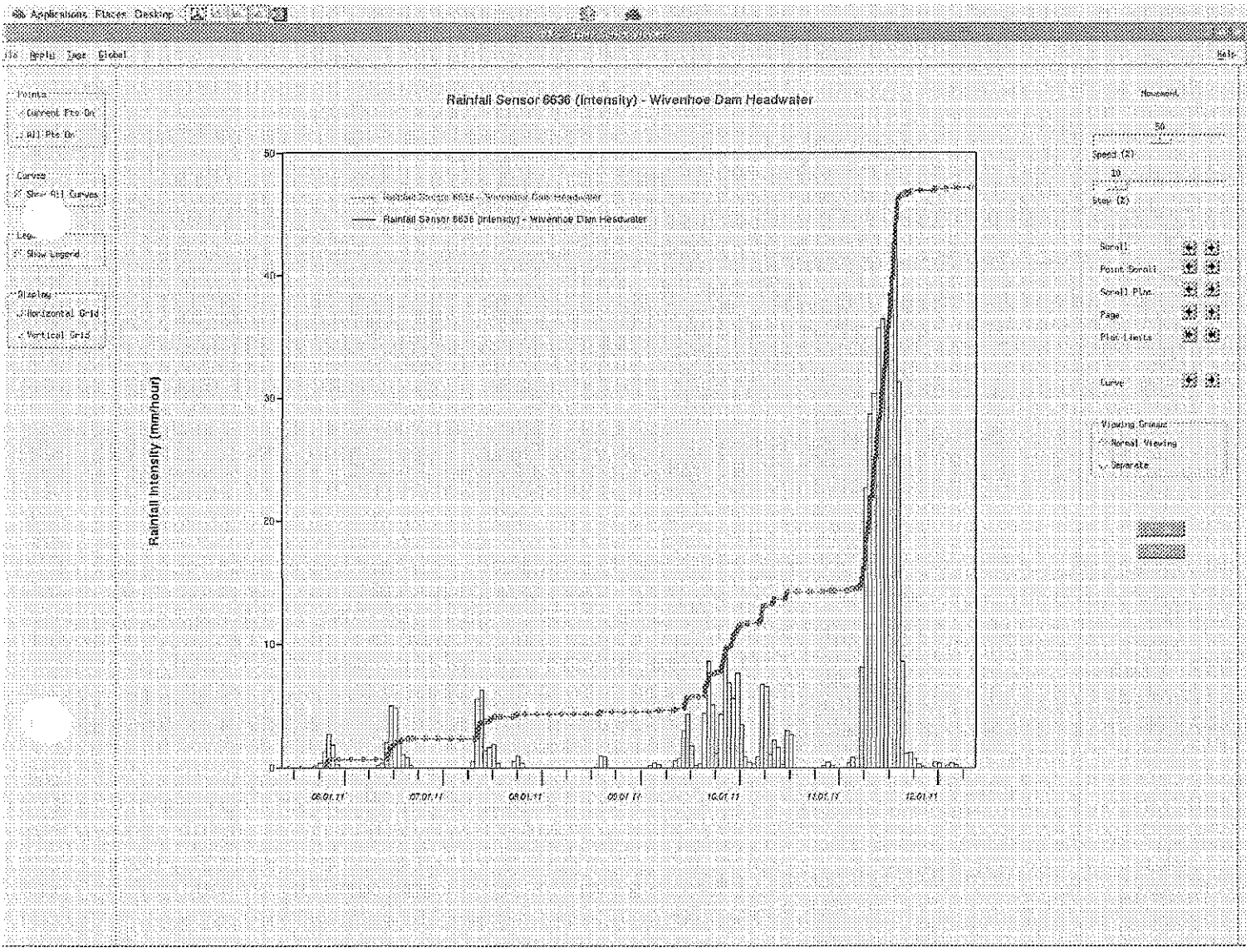
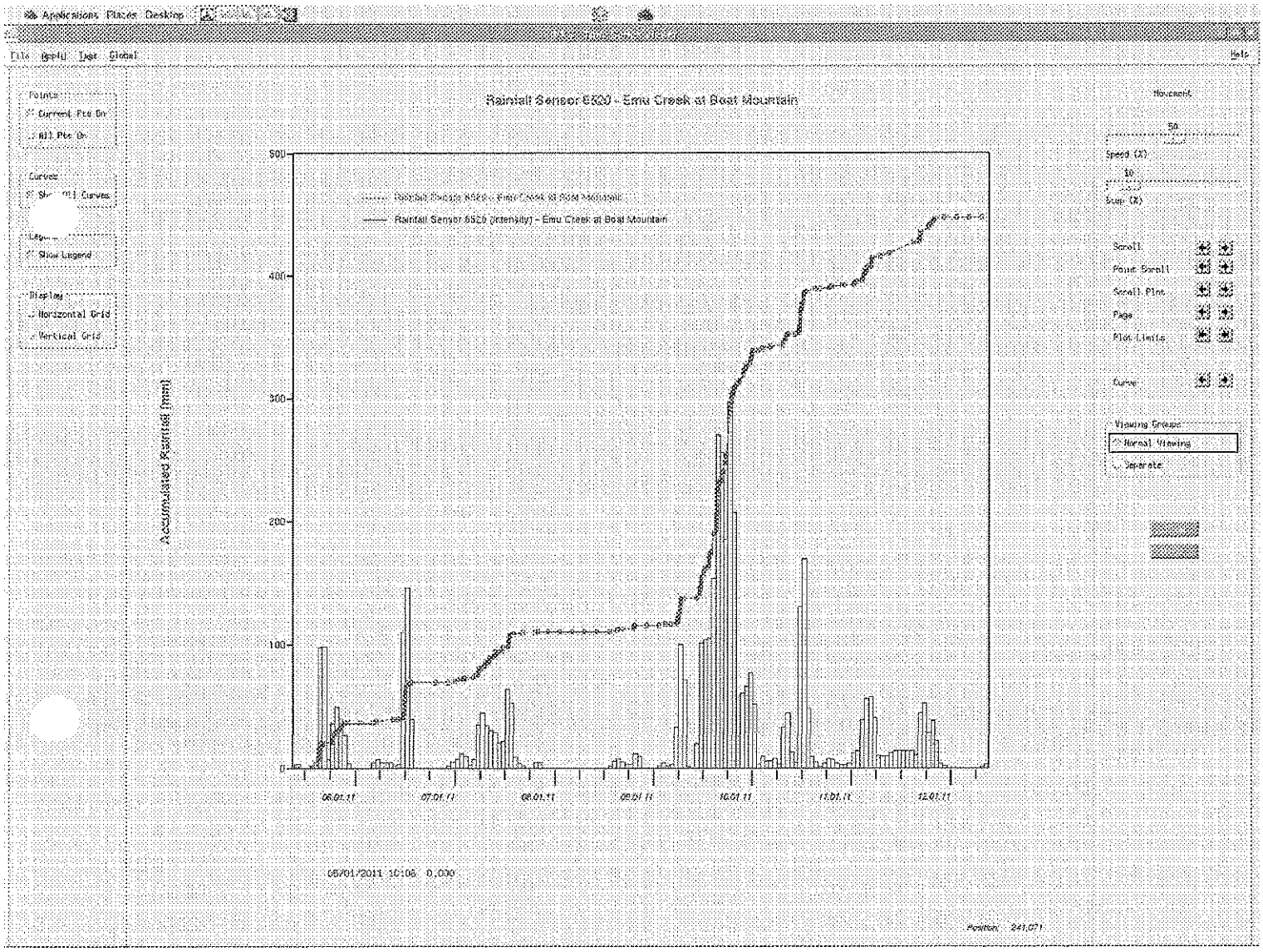
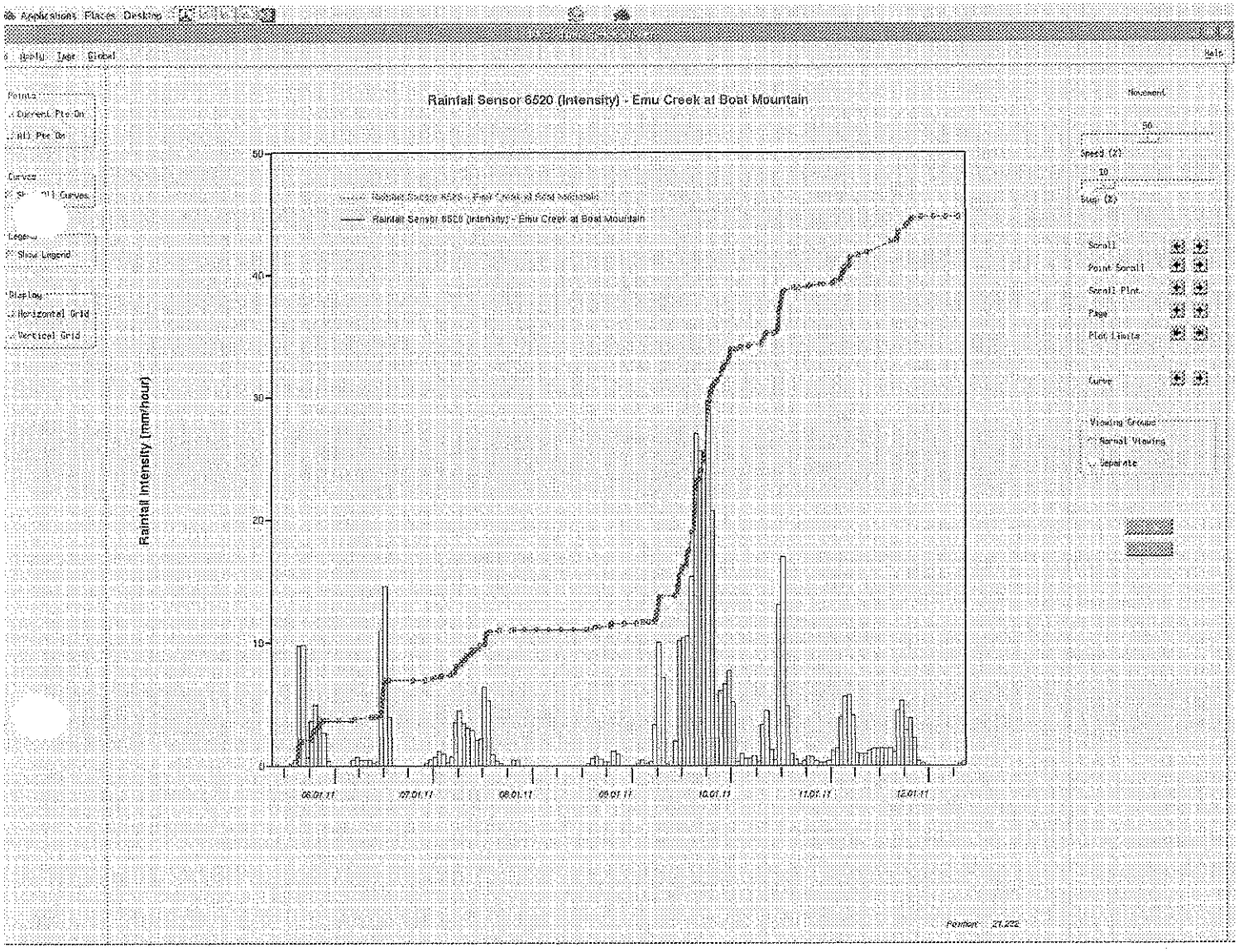
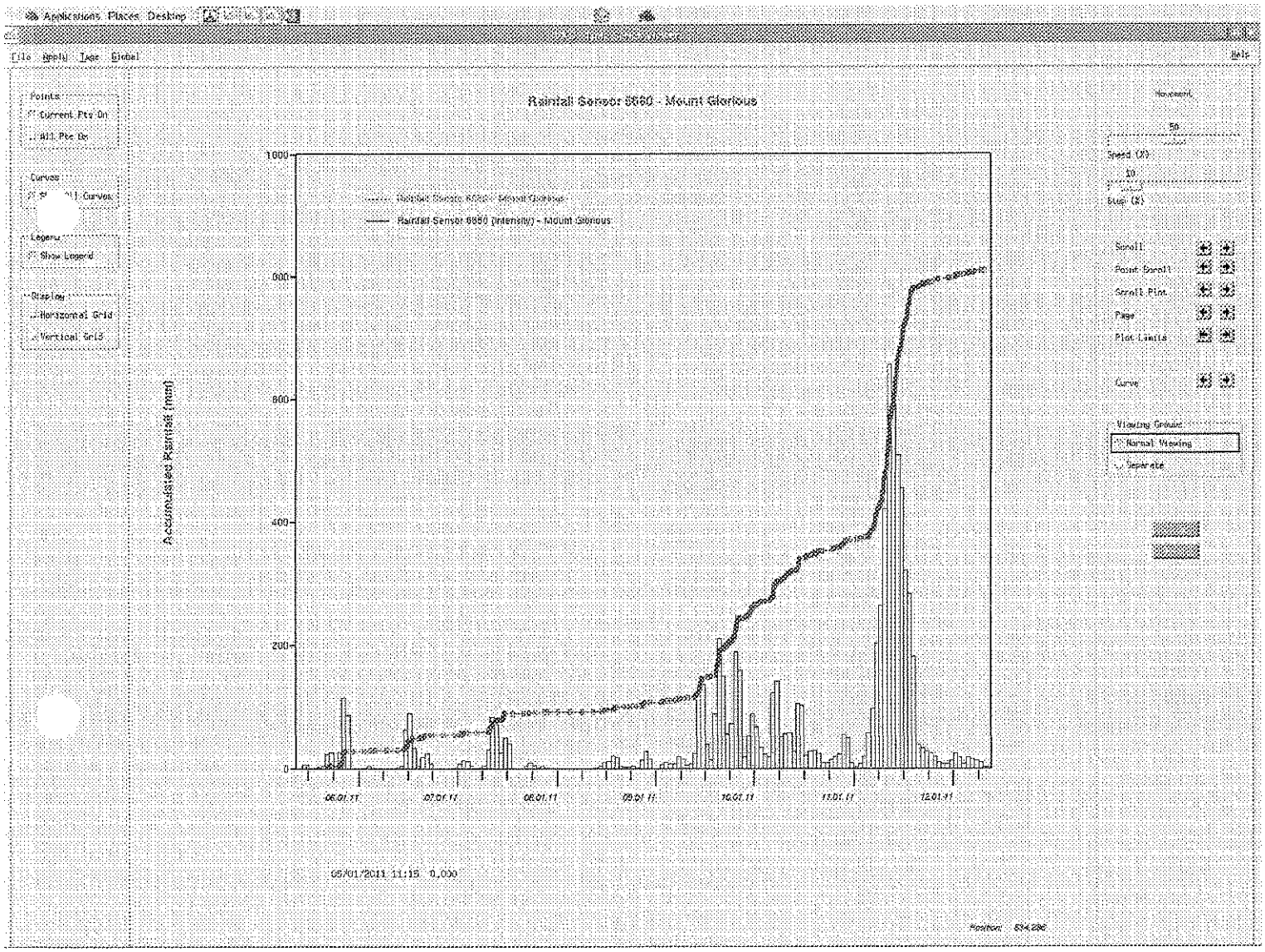

Applications Places Desktop
Rainfall Sensor 6636 (Intensity) - Wivenhoe Dam Headwater
Rainfall Intensity (mm/hour)
50
40
30
20
10
0
Rainfall Sensor 6636 (Intensity) - Wivenhoe Dam Headwater
Points
Current Pts On
All Pts On
Curves
Show All Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Newest
Speed (%)
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Grouping
Normal Viewing
Separate

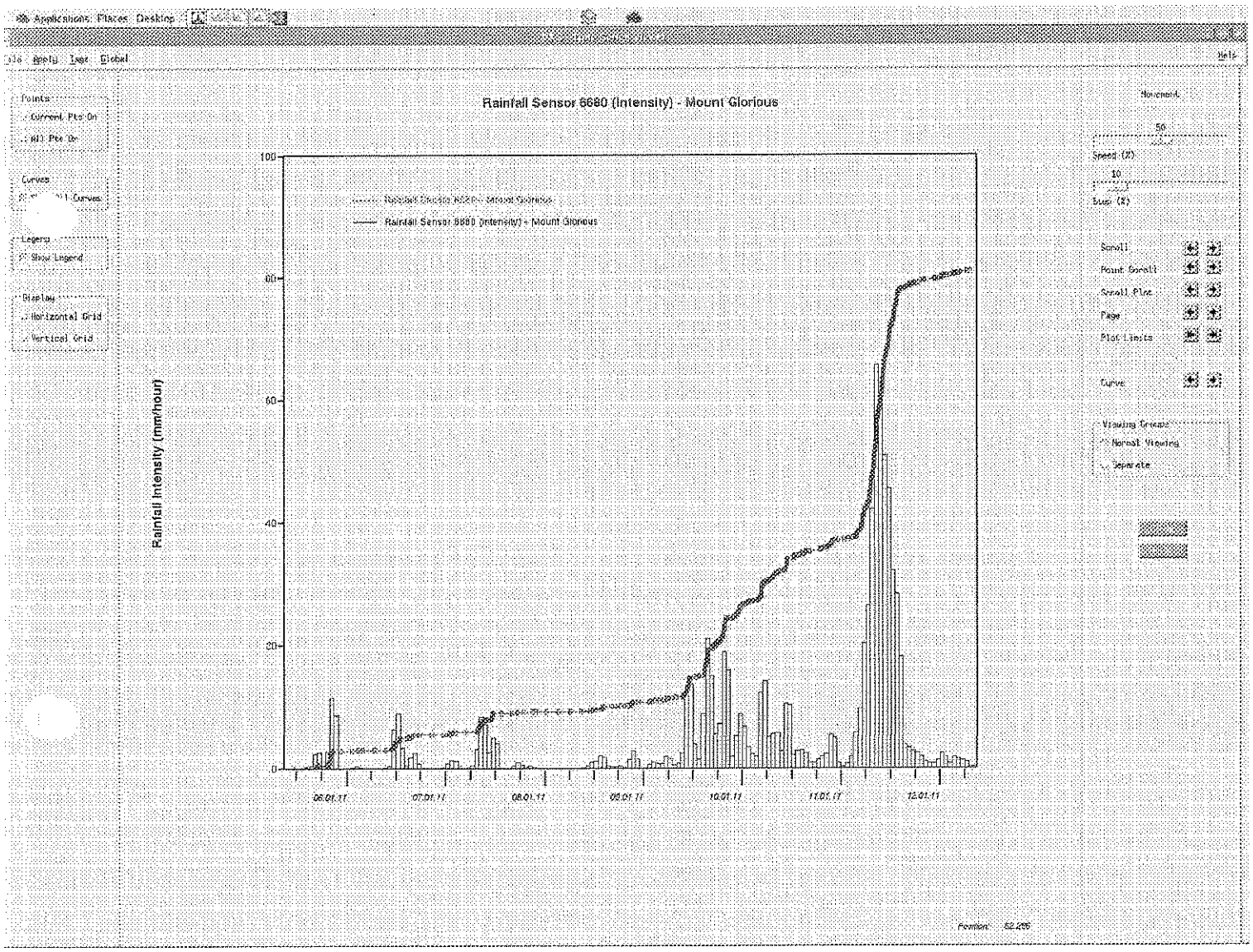
RD5-1952


Applications Places Desktop
File Graph Tool Global
Help
Points
Current Pts On
All Pts On
Curves
Show All Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Rainfall Sensor 6520 - Emu Creek at Boat Mountain
Rainfall Sensor 6520 (intensity) - Emu Creek at Boat Mountain
Accumulated Rainfall [mm]
500
400
300
200
100
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
05/01/2011 10:06 0.000
Movement
50
Speed (%)
10
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate
Position 241,071

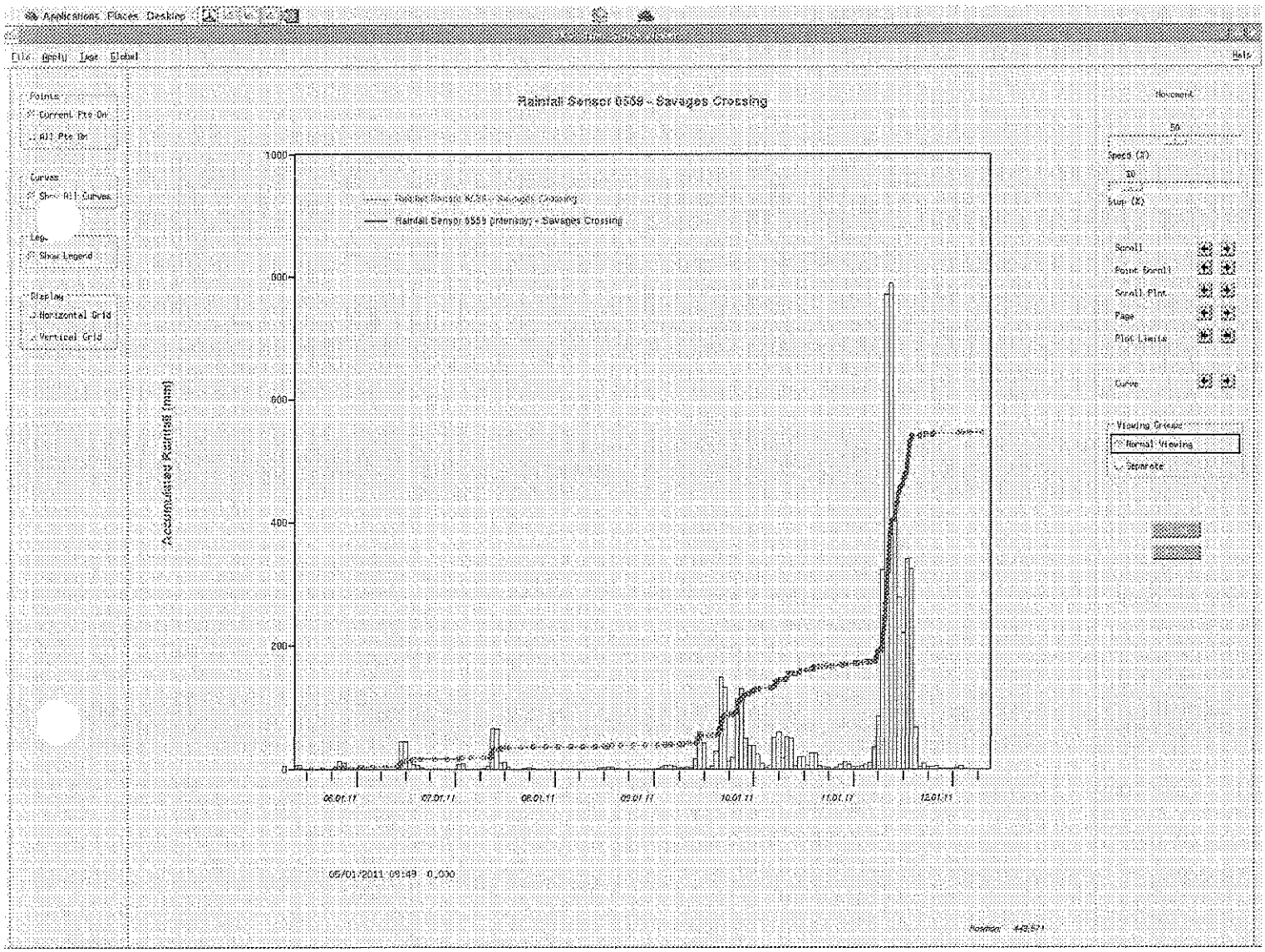

Applications Places Desktop
Help
Rainfall Sensor 6520 (Intensity) - Emu Creek at Boat Mountain
Rainfall Sensor 6520 (Intensity) - Emu Creek at Boat Mountain
Rainfall intensity (mm/hour)
50
40
30
20
10
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
Show Legend
Horizontal Grid
Vertical Grid
Movement
Speed (%)
Zoom (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate


Applications Places Desktop
File Apply Page Global
Help
Points
Current Pts On
All Pts On
Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Rainfall Sensor 6860 - Mount Glorious
Rainfall Sensor 6860 (Intensity) - Mount Glorious
Accumulated Rainfall (mm)
1000
800
600
400
200
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
05/01/2011 11:15 0.000
Movement
50
Speed (%)
10
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Ground
Normal Viewing
Separate
Position 634,286

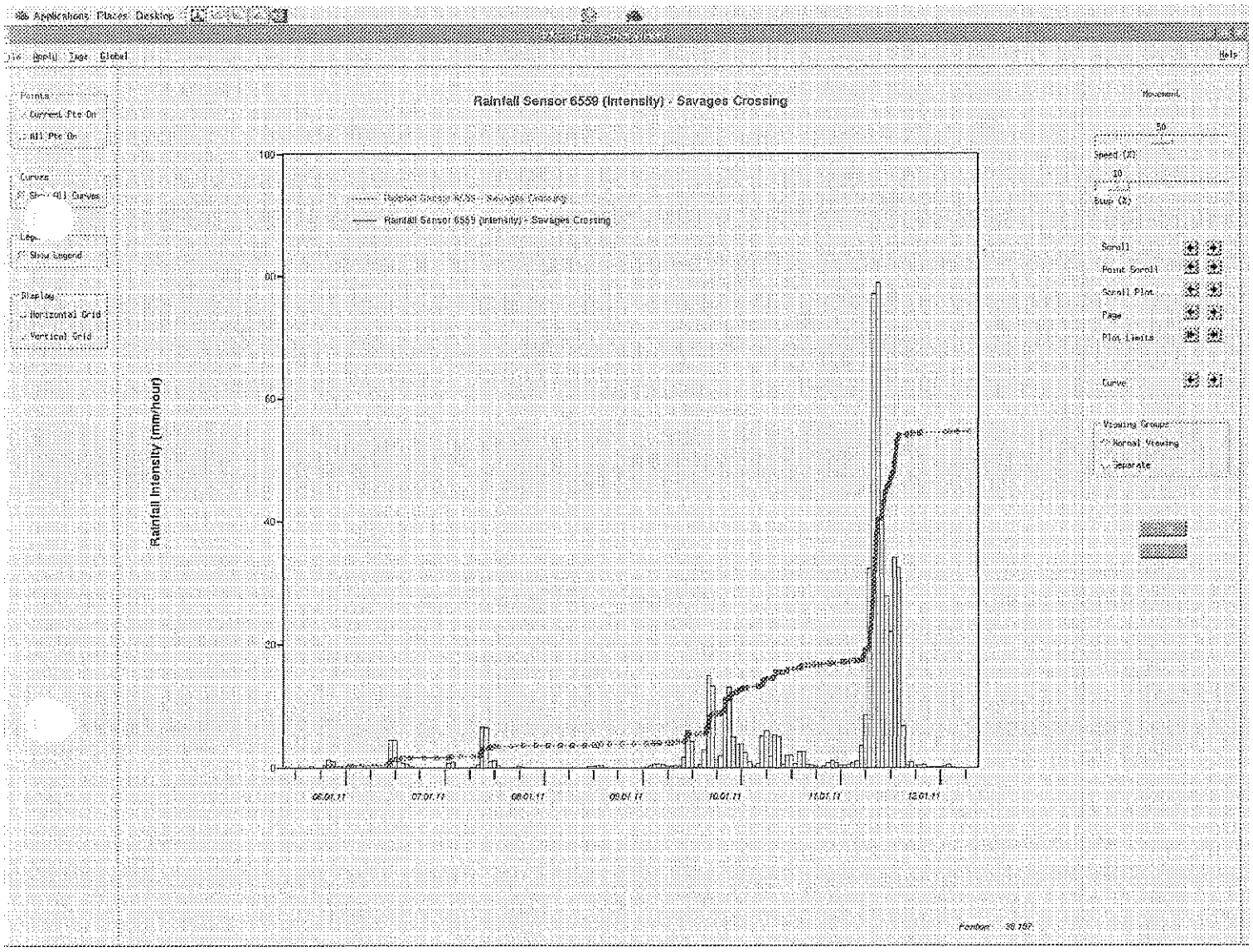
RD5-1955


Rainfall Sensor 6680 (Intensity) - Mount Glorious
Rainfall Intensity (mm/hour)
Rainfall Sensor 6680 (Intensity) - Mount Glorious
100
80
60
40
20
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
Points
Current Plot On
All Plot On
Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Movement
Speed (%)
Zoom (%)
Scroll
Mount Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate
Help

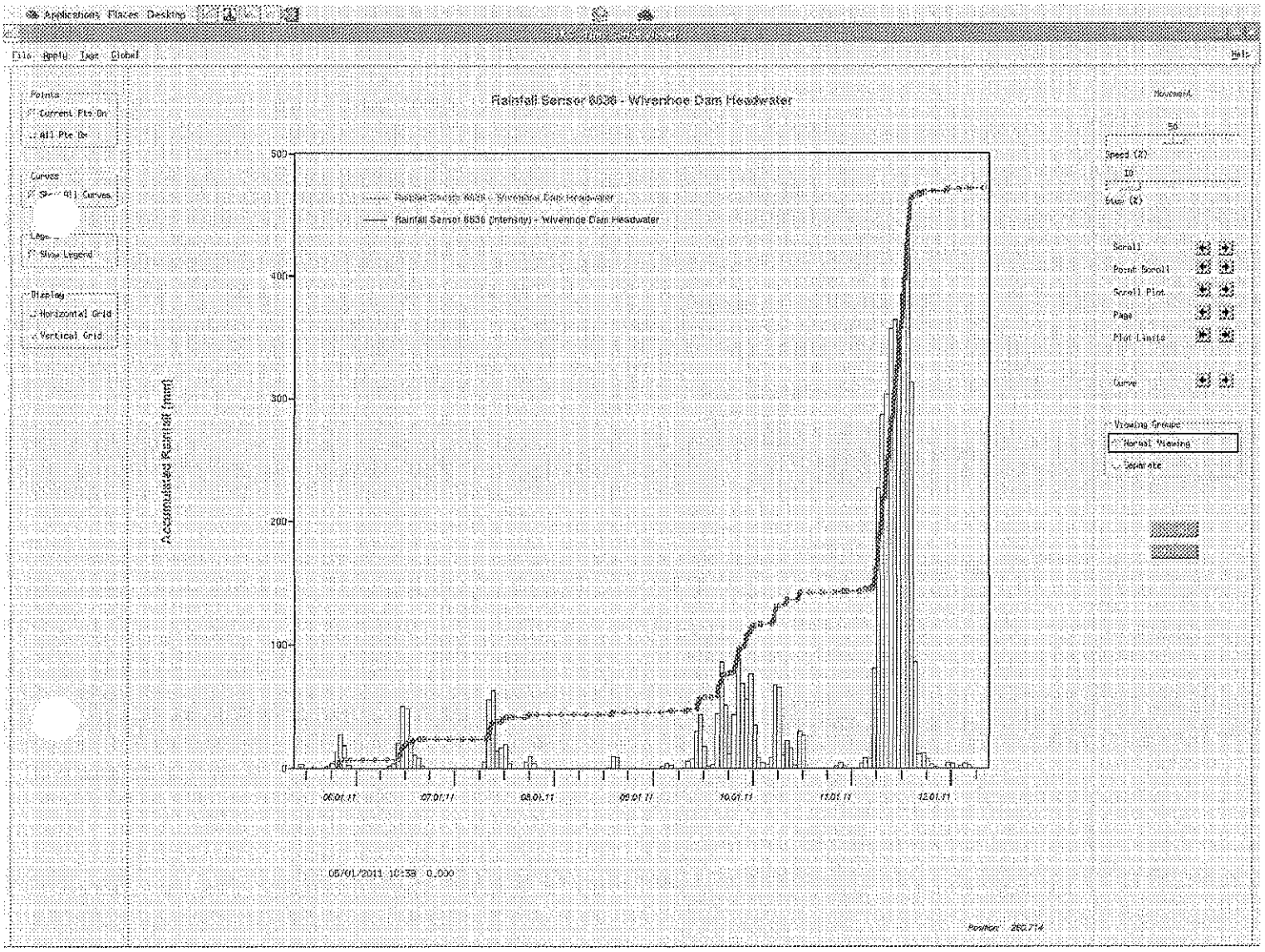
RD5-1956


Applications Places Desktop
File Apply Load Global
Help
Points
Current Pts On
All Pts On
Curves
Show All Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Rainfall Sensor 0559 - Savages Crossing
Rainfall Sensor 0559 (Intensity) - Savages Crossing
Accumulated Rainfall (mm)
1000
800
600
400
200
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
05/01/2011 09:49 0.000
Movement
Speed (%)
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate

RD5-1957


Applications Places Desktop
Apply Page Global
Help
Points
Current Pts On
All Pts On
Curves
Show All Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Rainfall Sensor 6559 (Intensity) - Savages Crossing
Rainfall Intensity (mm/hour)
100
80
60
40
20
0
06.01.11
07.01.11
08.01.11
09.01.11
10.01.11
11.01.11
12.01.11
Movement
50
Speed (%)
10
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate

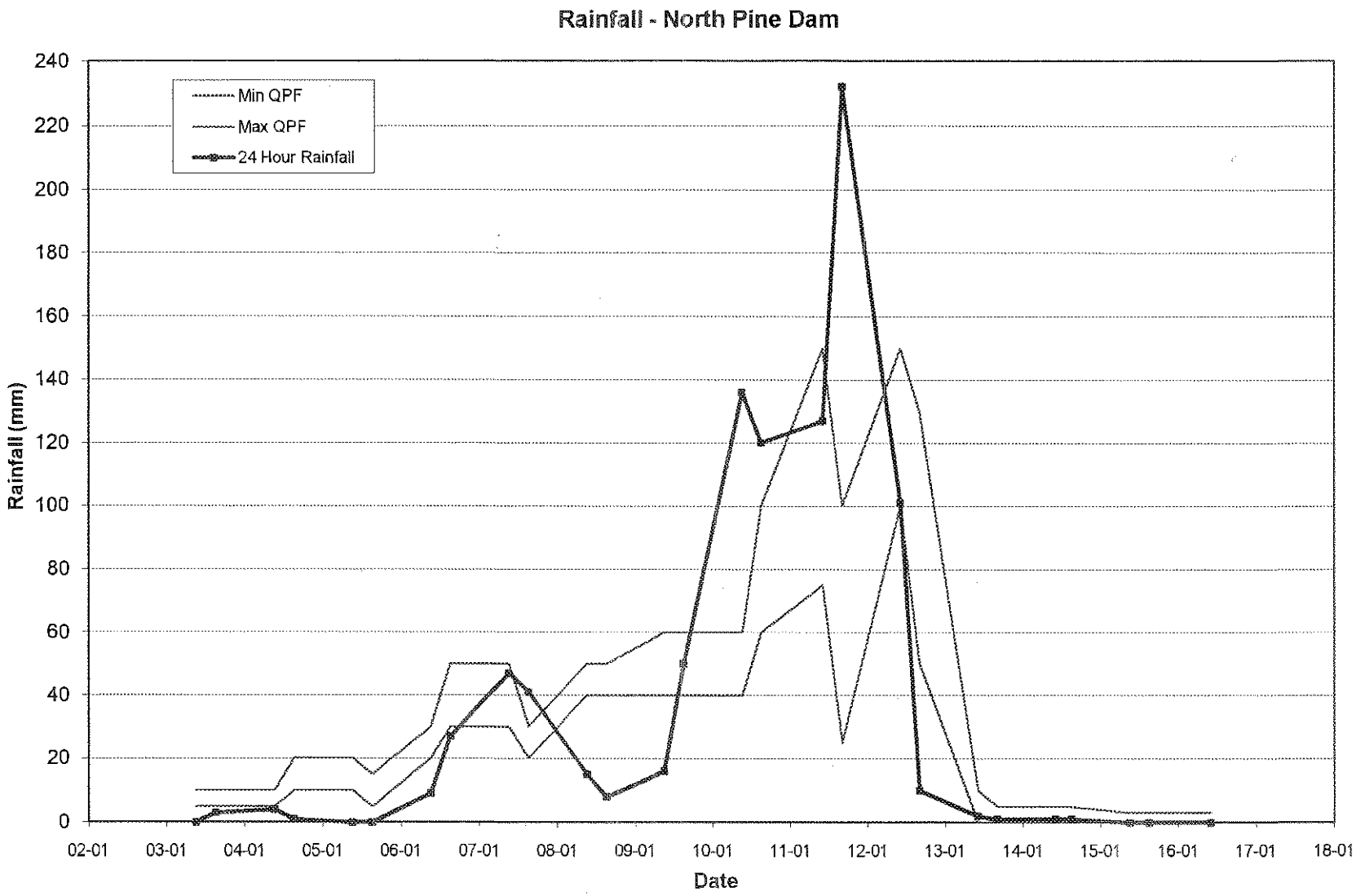
RD5-1958


Applications Places Desktop
File Apply Tree Global
Help
Points
Current Pts On
All Pts On
Curves
Show All Curves
Legend
Show Legend
Display
Horizontal Grid
Vertical Grid
Rainfall Sensor 8636 - Wivenhoe Dam Headwater
Rainfall Sensor 8636 (Intensity) - Wivenhoe Dam Headwater
Accumulated Rainfall [mm]
500
400
300
200
100
0
06/01/11
07/01/11
08/01/11
09/01/11
10/01/11
11/01/11
12/01/11
06/01/2011 10:59 0.000
Movement
Speed (%)
Step (%)
Scroll
Point Scroll
Scroll Plot
Page
Plot Limits
Curve
Viewing Groups
Normal Viewing
Separate
Position: 260.714

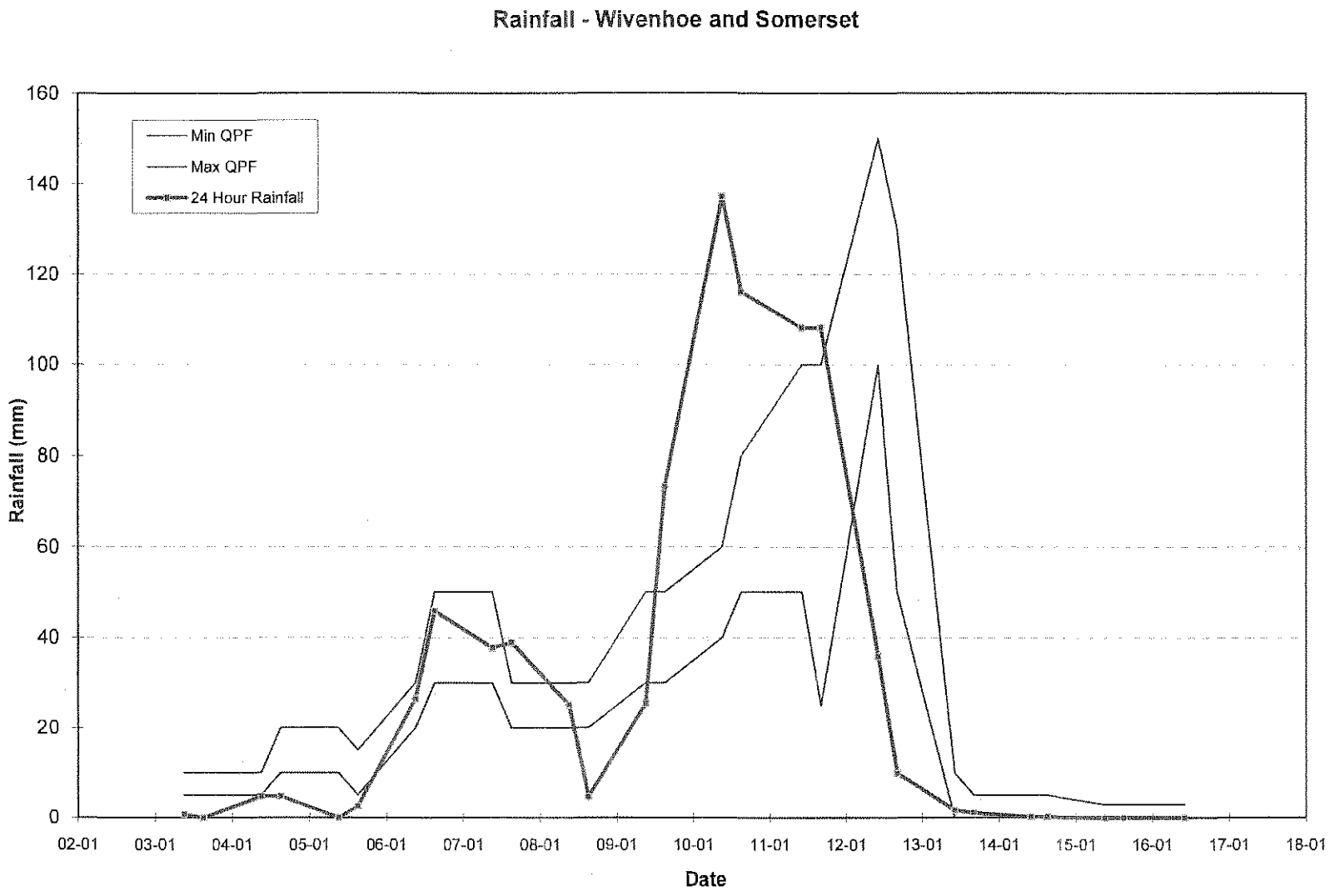
RD5-1959

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Date / Time	Somerset & Wivenhoe		North Pine		Average Recorded Rainfall (24 hours)							
2			QPF (24 hours)		QPF (24 hours)		Somerset	Upp Bris	Mid Bris	**Som & Bris Avge**	Low Bris	North Pine	Lockyer	Bremer
3							1330	7000	1000	**9330**				
4		Date / Time	Min QPF	Max QPF	Min QPF	Max QPF				**24 Hour Rainfall**		**24 Hour Rainfall**		
5	24 hours to	Mon, 03-01-2011, 9:00	5	10	5	10	0	1	0	**1**	0	0	1	0
6	24 hours to	Mon, 03-01-2011, 15:00	5	10	5	10	0	0	0	**0**	0	3	3	0
7	24 hours to	Tue, 04-01-2011, 9:00	5	10	5	10	10	4	3	**5**	1	4	3	2
8	24 hours to	Tue, 04-01-2011, 15:00	10	20	10	20	10	4	3	**5**	1	1	2	2
9	24 hours to	Wed, 05-01-2011, 9:00	10	20	10	20	0	0	0	**0**	0	0	5	2
10	24 hours to	Wed, 05-01-2011, 15:00	5	15	5	15	2	3	0	**3**	0	0	5	2
11	24 hours to	Thu, 06-01-2011, 9:00	20	30	20	30	19	29	18	**26**	20	9	30	28
12	24 hours to	Thu, 06-01-2011, 15:00	30	50	30	50	32	50	35	**46**	35	27	49	48
13	24 hours to	Fri, 07-01-2011, 9:00	30	50	30	50	38	38	36	**38**	35	47	27	31
14	24 hours to	Fri, 07-01-2011, 15:00	20	30	20	30	49	36	46	**39**	26	41	21	23
15	24 hours to	Sat, 08-01-2011, 9:00	20	30	40	50	28	24	29	**25**	10	15	15	12
16	24 hours to	Sat, 08-01-2011, 15:00	20	30	40	50	8	4	5	**5**	5	8	2	2
17	24 hours to	Sun, 09-01-2011, 9:00	30	50	40	60	53	22	13	**25**	9	16	5	3
18	24 hours to	Sun, 09-01-2011, 15:00	30	50	40	60	115	68	54	**73**	25	50	22	18
19	24 hours to	Mon, 10-01-2011, 9:00	40	60	40	60	210	124	132	**137**	90	136	66	45
20	24 hours to	Mon, 10-01-2011, 15:00	50	80	60	100	173	103	132	**116**	81	120	74	58
21	24 hours to	Tue, 11-01-2011, 10:00	50	100	75	150	103	104	144	**108**	73	127	102	75
22	24 hours to	Tue, 11-01-2011, 16:00	25	100	25	100	165	86	188	**108**	141	232	144	115
23	24 hours to	Wed, 12-01-2011, 10:00	100	150	100	150	117	13	88	**36**	74	101	77	70
24	24 hours to	Wed, 12-01-2011, 16:00	50	130	50	130	29	6	12	**10**	5	10	9	8
25	24 hours to	Thu, 13-01-2011, 10:00	0	10	0	10	5	1	2	**2**	0	2	2	1
26	24 hours to	Thu, 13-01-2011, 16:00	0	5	0	5	2	1	1	**1**	0	1	2	1
27	24 hours to	Fri, 14-01-2011, 10:00	0	5	0	5	1	0	1	**0**	0	1	0	0
28	24 hours to	Fri, 14-01-2011, 15:00	0	5	0	5	1	0	1	**0**	0	1	0	0
29	24 hours to	Sat, 15-01-2011, 9:00	0	3	0	3	0	0	0	**0**	0	0	0	0
30	24 hours to	Sat, 15-01-2011, 15:00	0	3	0	3	0	0	0	**0**	0	0	0	0
31	24 hours to	Sun, 16-01-2011, 10:00	0	3	0	3	0	0	0	**0**	0	0	0	0
32														

RD5-1960

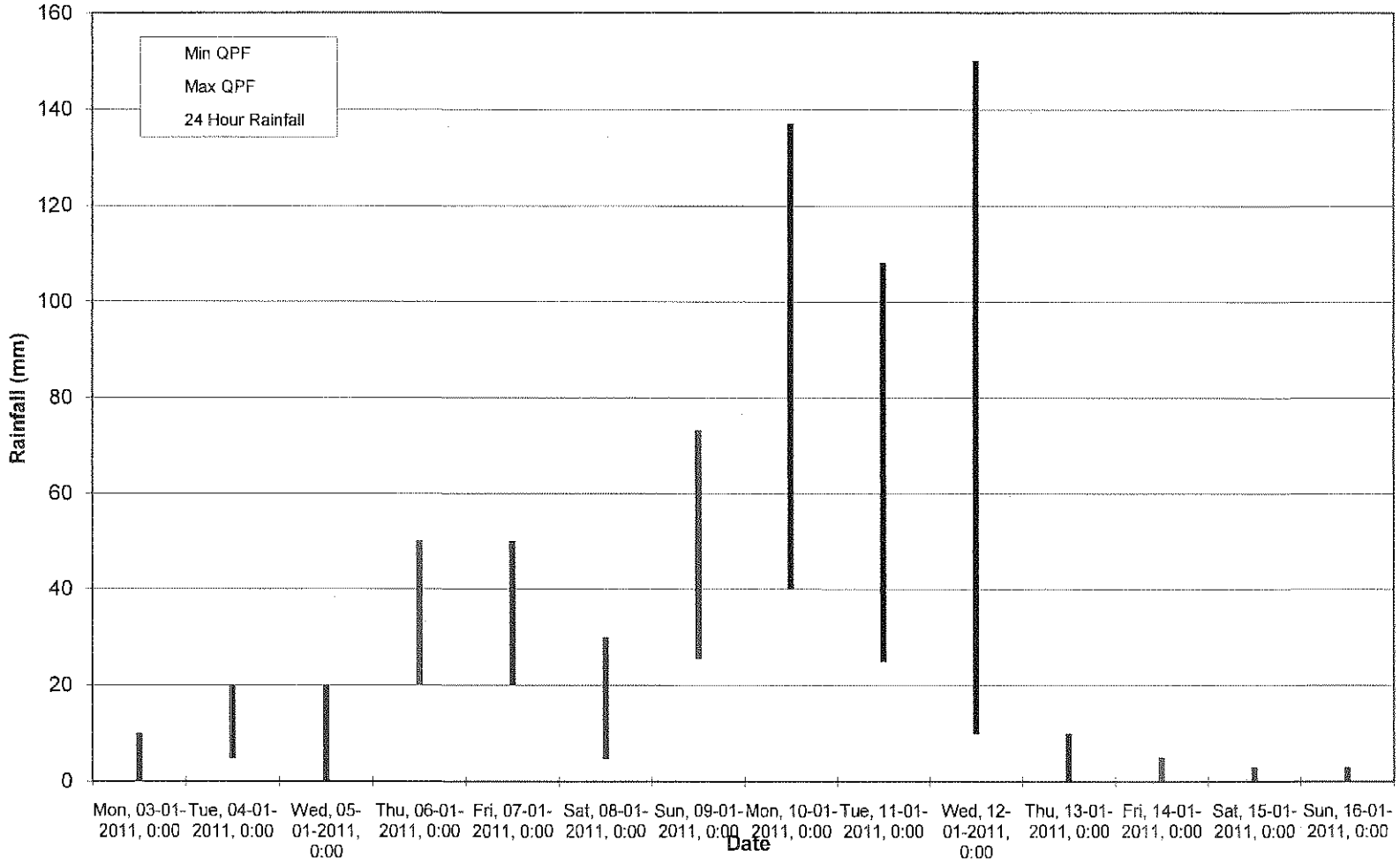

Rainfall - North Pine Dam
Min QPF
Max QPF
24 Hour Rainfall
Rainfall (mm)
240
220
200
180
160
140
120
100
80
60
40
20
0
02-01
03-01
04-01
05-01
06-01
07-01
08-01
09-01
10-01
11-01
12-01
13-01
14-01
15-01
16-01
17-01
18-01
Date

RD5-1961


Rainfall - Wivenhoe and Somerset
Min QPF
Max QPF
24 Hour Rainfall
Rainfall (mm)
160
140
120
100
80
60
40
20
0
02-01
03-01
04-01
05-01
06-01
07-01
08-01
09-01
10-01
11-01
12-01
13-01
14-01
15-01
16-01
17-01
18-01
Date

RD5-1962

Rainfall - Wivenhoe and Somerset



From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 3:55 PM
To: Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted] Rob Drury [redacted]
Subject: OPS_Directive_Wivenhoe #51.doc

Please find attached the latest a Wivenhoe Directive#51

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 17/01/201**
	Directive No: 51
	Time: 15:50

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 16:00 on 17/01/2011

- Close Gate 1 from 6.5 metres to 6.0 metres at 16:00 on 17/01/2011
- Close Gate 3 from 6.5 metres to 6.0 metres at 16:20 on 17/01/2011.
- Close Gate 5 from 6.0 metres to 5.5 metres at 16:40 on 17/01/2011
- Close Gate 1 from 6.0 metres to 5.5 metres at 17:00 on 17/01/2011
- Close Gate 4 from 6.0 metres to 5.5 metres at 17:20 on 17/01/2011
- Close Gate 2 from 6.0 metres to 5.5 metres at 17:40 on 17/01/2011
- Close Gate 3 from 6.0 metres to 5.5 metres at 18:00 on 17/01/2011

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Ruffini
Duty Engineer

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 4:37 PM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
<Chris.Lavin@[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

The FOC initiated closing of the gates at Wivenhoe at 2pm this afternoon.

They will have advised you of this.

Any issues let us know.
Give them a call to discuss the closing sequence if you want.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 4pm Somerset was 99.02m and 380,700ML at 100.2% and discharging through cone valves. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 4pm Wivenhoe Dam was 68.66 m AHD at 1,352,706ML and 116.1% and dropping. The closing sequence started at 2pm today and releases will be slowly decreased through gate closures over the next few days to reach FSL around Thursday morning.

Discussions with BCC indicated they would prefer a Thursday closure to increase release time and minimize possible impacts re slumping along Coronation Drive. They also would like closure no later than Thursday prior to predicted high tides late this week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 4pm North Pine Dam was 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

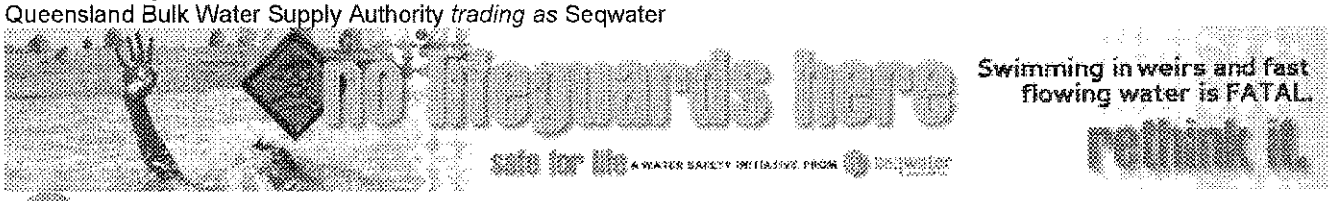
Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Rob

Robert Drury
Dam Operations Manager

Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 4:41 PM
To: Duty Seq <dutyseq@[redacted]
Subject: RE: rainfall files

Don't mean to be pushy but is this close?

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 4pm Somerset was 99.02m and 380,700ML at 100.2% and discharging through cone valves. All sluices are shut.

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At 4pm Wivenhoe Dam was 68.66 m AHD at 1,352,706ML and 116.1% and dropping. The closing sequence started at 2pm today and releases will be slowly decreased through gate closures over the next few days to reach FSL around Thursday morning.

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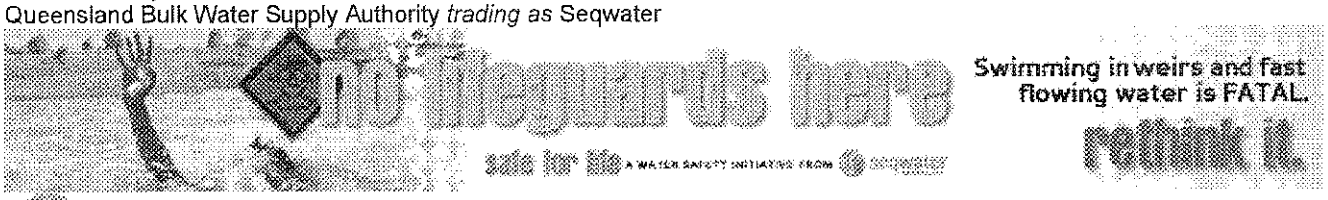
At 4pm North Pine Dam was 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer [mailto:dutyseq@[redacted]
Sent: Monday, 17 January 2011 2:34 PM
To: Rob Drury; Peter Allen
Subject: rainfall files

Peter/Rob,

Some rainfall files to help illustrate what happened during the event.

Note that this event is unusual in that the peak intensities occurred later in the event and that the intense bursts moved in a non-typical manner.

The QPF's were generally below what was recorded. The QPF's area good general guide but are not capable of providing guidance about the smaller scale local intense rainfall that occurred.

The rainfall radar imagery did not reflect the very intense rainfall that fell. BoM have acknowledge this and are investigating.

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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For more information regarding this service, please contact your service provider.

From: Duty Seq <dutyseq@[redacted]

Sent: Monday, January 17, 2011 4:56 PM

To: Duty Seq <dutyseq@[redacted] Arminda Roberts (private) [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] Paul Bird (Private) [redacted] Peter Allen [redacted] Rob Drury [redacted] Rob D (Private) [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] Tony Jacobs (private) [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin [redacted] Craig Logan [redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] Flood Information Centre <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John.Ruffini [redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Situation Report 1700 Monday 16 January 2011

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

At 16:00 Somerset Dam was 99.02 mAHD and steady. The last sluice gate was closed at 7:00 17/01/2011 and one regulator was opened the base-flow into the Dam. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011.

At 16:00 Wivenhoe Dam was 68.66 mAHD and continuing to fall. The releases from Wivenhoe Dam are currently about 2946 m3/s. Releases will be steadily reduced before final closure on Thursday morning. The Dam will be near full supply and releases will be made through the regulator to account for ongoing base-flow.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the automatic recorder currently being reported on the BoM website is currently incorrect and has been since early Tuesday 11 2011.

North Pine

At 09:00 North Pine Dam was 39.5 mAHD. All gates are closed. No further gate operations are expected unless additional rainfall falls.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils. Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water over the next few days.

John Ruffini
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Monday, January 17, 2011 5:02 PM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted]
Arminda Roberts <aroberts@[redacted] Tara King <tking@[redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
'Scott.Denner@[redacted] Mike Foster <mfoster@[redacted]
Cc: 'seqwgm[redacted] 'Seqwater.comm[redacted] David Roberts
<droberts@[redacted]
Subject: RE: Technical Report W60
Attach: Technical_Situation_Report_W60.docx

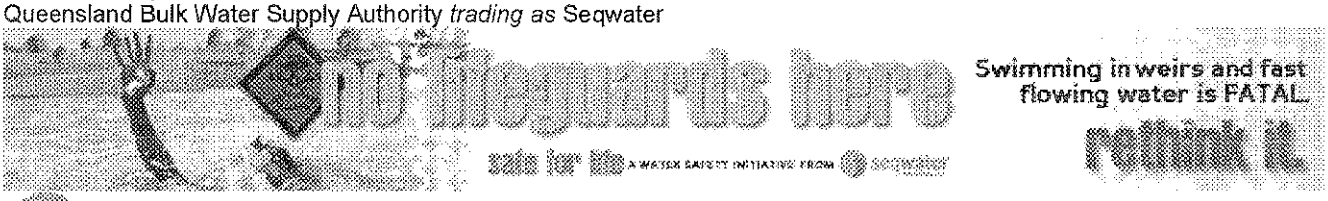
Attached Technical Report W60.

Somerset is almost at FSL using a cone valve and closing of gates at Wivenhoe started at 2pm today and will be fully closed early Thursday morning.

Discussions with BCC highlighted some concerns re bank slumping along Coronation drive. Although not quantified, they requested a close down Thursday instead of Wednesday as previously planned to give more time. They also requested a close down no later than Thursday to avoid any issues with predicted high tides towards the weekend. This can be achieved and a close down Thursday morning is now planned.

North Pine closed.

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W60	Date of TSR release	17.1.2011	Time of TSR release	4pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Draw Wivenhoe Dam down to FSL by around Thursday morning.	
Strategy	• Somerset just using valves to reach FSL • Drain Wivenhoe to FSL by Thursday	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 4pm Somerset was 99.02m and 380,700ML at 100.2% and discharging through cone valves. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 4pm Wivenhoe Dam was 68.66 m AHD at 1,352,706ML and 116.1% and dropping. The closing sequence started at 2pm today and releases will be slowly decreased through gate closures over the next few days to reach FSL around Thursday morning. The releases from Wivenhoe Dam are currently about 2946 m3/

Discussions with BCC indicated they would prefer a Thursday closure to increase release time and minimize possible impacts re slumping along Coronation Drive. They also would like closure no later than Thursday prior to predicted high tides late this week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

At 4pm North Pine Dam was 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water over the next few days.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A minor release is being made from Hinze Dam through the emergency gates. The Lake Level is dropping and the gate will be closed Tuesday. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	18.1.2011	Time	9am	or Event	

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 5:53 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Subject: OPS_Directive_Wivenhoe #52.doc

Please find attached Wivenhoe Directive #52

SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	**Date: 17/01/201**
	Directive No: 52
	Time: 17:50

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 18:30 on 17/01/2011

- Close Gate 5 from 5.5 metres to 5.0 metres at 18:30 on 17/01/2011
- Close Gate 1 from 5.5 metres to 5.0 metres at 19:00 on 17/01/2011.
- Close Gate 4 from 5.5 metres to 5.0 metres at 19:30 on 17/01/2011
- Close Gate 2 from 5.5 metres to 5.0 metres at 20:00 on 17/01/2011
- Close Gate 3 from 5.5 metres to 5.0 metres at 20:30 on 17/01/2011
- Close Gate 5 from 5.0 metres to 4.5 metres at 21:00 on 17/01/2011
- Close Gate 1 from 5.0 metres to 4.5 metres at 21:30 on 17/01/2011
- Close Gate 2 from 5.0 metres to 4.5 metres at 22:00 on 17/01/2011
- Close Gate 4 from 5.0 metres to 4.5 metres at 22:30 on 17/01/2011
- Close Gate 5 from 4.5 metres to 4.0 metres at 22:00 on 17/01/2011

Please advise the Flood Operations Centre by fax once you have completed these operations.

John Ruffini
Duty Engineer

----------Safe Stamp----------
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

From: Duty Engineer <dutyseq@[redacted]
Sent: Monday, January 17, 2011 9:27 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #53

Please find attached Directive #53.

Note that up to 2am there will be 2 gates movements per hour. After that, there will be 1 gate movement per hour.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 1:06 AM
To: John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryr[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Cc: Peter Borrows <pborrows@[redacted]
Subject: Revised Wivenhoe Release Strategy

As advised by John Granzien ([redacted] water levels are Lowood are falling too quickly (about 0.2 metres per hour) for the water supply pumps to be repositioned safely and without difficulty. The last repositioning resulted in the truck becoming bogged. Water supply reserves in some areas has fallen to 30%

I have taken the decision to hold the Wivenhoe release at its current level of about 2,000m3/s, maintaining the water level at Lowood thereby assisting pumping until 0900 Tuesday when the situation will be discussed with the water supply guys and the Wivenhoe release strategy reviewed.

The consequences of this action are that water supply in the area will be secured until then but Fernvale and Mt Crosby bridges will remain under for at least an additional 12 hours.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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Your Anti-virus Service scanned this email. It is safe from known viruses.
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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 1:08 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted] Rob Drury <rdrury@[redacted]
Subject: Wivenhoe Directive #54
Attach: OPS_Directive_Wivenhoe #54.doc

Please find attached Wivenhoe Directive #54

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date: 18/01/2011 Directive No: 54 Time: 00:45

This transmission comprises of this page and 0 other pages.

Message:

Please cease all gate operations as at 00:45 on 18/01/2011 until further notice.

The last gate operation undertaken from the previous directive (#53) should be as follows:

- Close Gate 1 from 4.0 metres to 3.5 metres at 00:30 on 18/01/2011

This directive supersedes all previous directives.

Please advise the Flood Operations Centre by fax once you have completed these operations.

Terry Malone
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 5:19 AM
To: John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted]
Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted]
Subject: Fernvale Bridge

Water is hard up against the underside of the bridge girders at 0515 Tue. Current release rate 2,054 m3/s.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 5:40 AM
To: John.Ruffini[redacted] John Tibaldi <[redacted]
Rob.ayre@[redacted] Terry Malone <[redacted] Agg
Dagan <adagan@[redacted] Doug Grigg [redacted]
druryrj[redacted] Graham Keegan <[redacted] Graham
Francis <[redacted] Jayam Tennakoon
<[redacted] Matthew O'Reilly <moreilly@[redacted]
Rob Drury <rdrury@[redacted]
Cc: Andy Bickerton <[redacted]au>; Deb Chandler
[redacted] Mailbox [redacted]
Subject: Fernvale Bridge (update)

Water is hard up against the underside of the bridge girders at 0515 Tue. Current release rate 2,054 m3/s.

However, there is still water over the approaches on the Fernvale side

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 18, 2011 6:17 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell [redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] [redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.[redacted]au>; David Pokarier <david.pokarier@[redacted] John West [redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan[redacted] Neville Ablitt <nablitt([redacted]; John.Ruffini[redacted] John Tibaldi <[redacted] Rob.[redacted]au; Terry Malone <tmalone@[redacted] Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@seqwater.com.au>; Murray Dunstan <mdunstan([redacted]>; Rob Gorian <rgorian([redacted]>; Agg Dagan <[redacted] Doug Grigg <dgrigg([redacted]>; Graham Keegan [redacted]; Graham Francis <[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <[redacted]

Subject: Situation Report 0615 Tuesday 18 Janaury 2011

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

At 16:00 Monday Somerset Dam was 99.02 mAHD and steady. The last sluice gate was closed at 07:00 17/01/2011 and one regulator remains open managing the base-flow into the Dam. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011.

At 06:00 Tuesday Wivenhoe Dam was 67.82 mAHD and continuing to fall slowly. Releases were held constant overnight at about 2,050 m3/s to assist water supply pumping at Lowood. Following discussions with water supply operators, it has been decided to resume closing gates at 09:00 Tuesday before final closure on Thursday morning. The Dam will be near full supply and releases will be made through the regulator to account for ongoing base-flow.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

At 09:00 North Pine Dam was 39.5 mAHD. All gates are closed. No further gate operations are expected unless additional rainfall falls.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils. Councils have been informed of the current release strategy.

At 05:00, the Wivenhoe Dam operator reported that the Fernvale Bridge was out of water but water remained over the approaches from Fernvale. He also advised that there were power lines on the bridge and that Energex was advised.

The remaining bridges below Wivenhoe Dam will progressively come out of water over the next few days.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Tuesday, January 18, 2011 6:50 AM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' [redacted]
Peter Borrows <pborrows@[redacted] Paul Bird <pbird@[redacted]
Arminda Roberts <aroberts@[redacted] Tara King <tking@[redacted]
Jim Pruss <jpruss@[redacted] 'Peter.[redacted]
'Scott.Denner@[redacted] Mike Foster <mfoster@[redacted]
Cc: 'seqwgm@i[redacted]eqwater.comms[redacted] David Roberts
<droberts@[redacted]
Subject: RE: Technical Report W61
Attach: Technical_Situation_Report_W61.docx

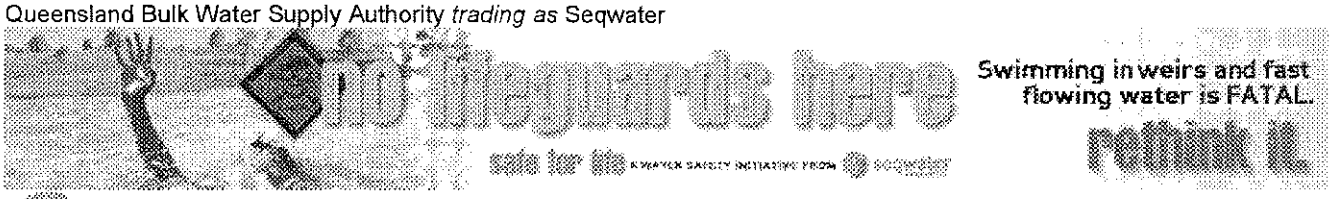
Attached Report W61.

Still aiming for final closure Thursday morning.

Releases slowed over night to assist water supply pumping at Lowood but recommencing this morning.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W61	Date of TSR release	18.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Draw Wivenhoe Dam down to FSL by around Thursday morning.	
Strategy	• Somerset just using valves for releases • Drain Wivenhoe to FSL by Thursday	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6am Somerset was 98.98m and 379,016ML at 99.8% and discharging through one cone valve. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 6am Wivenhoe Dam was 67.82 m AHD at 1,255,638ML and 107.8% and dropping.

Releases were held constant overnight at about 2,050 m3/s to assist water supply pumping at Lowood. Following discussions with water supply operators, it has been decided to resume closing gates at 09:00 Tuesday before final closure on Thursday morning. The Dam will be near full supply and releases will be made through the regulator to account for ongoing base-flow.

Discussions with BCC indicated they would prefer a Thursday closure to increase release time and minimize possible impacts re slumping along Coronation Drive. They also would like closure no later than Thursday prior to predicted high tides late this week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

North Pine Dam is still around 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water over the next few days.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A minor release is being made from Hinze Dam through the emergency gates. The Lake Level is dropping and the gate will be closed today. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	19.1.2011	Time	9am	or Event	

From: Rob Drury [redacted]
Sent: Tuesday, January 18, 2011 6:51 AM
To: Rob Drury <rdrury@[redacted] 'Tony Jacobs' [redacted]
'Tony Trace' <TTrace@[redacted] 'Lavin, Chris'
[redacted]
Cc: 'Tone and Lee Jacobs' [redacted]
Subject: RE: Update

The FOC initiated closing of the gates at Wivenhoe at 2pm this afternoon aiming at final closure Thursday morning..

Any issues let us know.

Give them a call to discuss the closing sequence if you want.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6am Somerset was 98.98m and 379,016ML at 99.8% and discharging through one cone valve. All sluices are shut.

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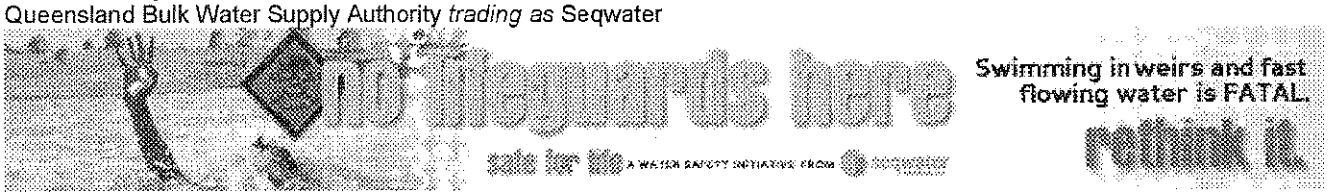
Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Paul Bird [redacted]
Sent: Tuesday, January 18, 2011 7:39 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update for Review

Rob, for review please

As at 9.00am on Tuesday 18 January, the following applies:

SOMERSET DAM:
The dam is at 99.8% capacity and discharging through one cone valve. All sluice gates are closed.

WIVENHOE DAM:
Wivenhoe Dam is at 107.8% and dropping. Discharge has been constant overnight at around 176,000 megalitres a day. The gate closure sequence commenced on the morning of Tuesday 18 January and gates are expected to be closed Thursday, prior to predicted high tides late this week.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

Inundation of bridges below Wivenhoe will progressively cease over coming days.

NORTH PINE DAM:
All gates are closed.

LESLIE HARRISON DAM:
No releases.

HINZE DAM:
A minor release is being made from Hinze Dam through the emergency gates. The Lake Level is dropping and the gate will be closed today. There is no public access to the spillway.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

RECREATION UPDATE

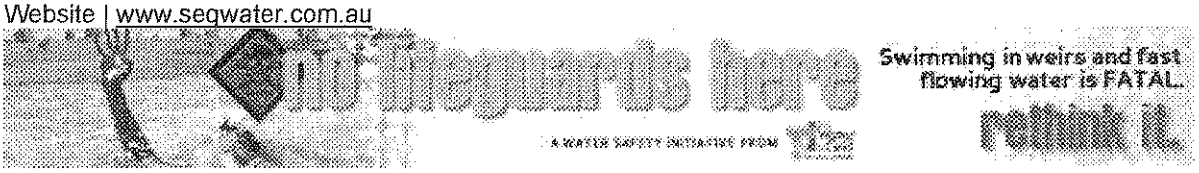
Seqwater recreation areas may need to remain closed until the sites can be properly inspected and public safety can be assessed. All recreation sites at Lake Somerset and Lake Wivenhoe (including the Spillway Lookout recreation area at Lake Wivenhoe) will remain closed until further notice. Visitors are advised to avoid travelling to Seqwater sites during the flood situation, even if roads are open.

This information will be updated on Wednesday 19 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]au
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Rob Drury [redacted]
Sent: Tuesday, January 18, 2011 7:45 AM
To: Paul Bird [redacted]
Subject: Re: Update for Review

Fine

From: Paul Bird
To: Rob Drury
Sent: Tue Jan 18 07:39:17 2011
Subject: Update for Review

Rob, for review please

As at 9.00am on Tuesday 18 January, the following applies:

SOMERSET DAM:
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WIVENHOE DAM:
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NORTH PINE DAM:
All gates are closed.

LESLIE HARRISON DAM:
No releases.

HINZE DAM:
A minor release is being made from Hinze Dam through the emergency gates. The Lake Level is dropping and the gate will be closed today. There is no public access to the spillway.

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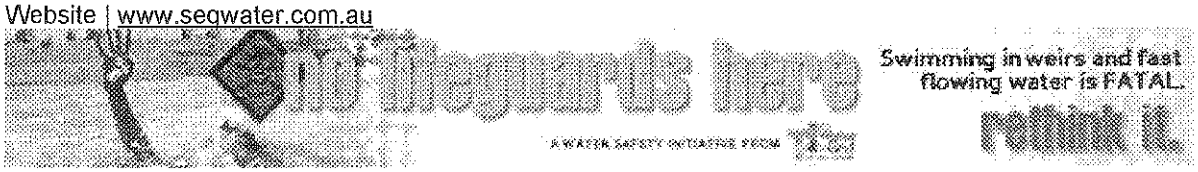
This information will be updated on Wednesday 19 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au



From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 8:20 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryr[redacted]; Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted] Rob Drury <rdrury@[redacted] flood.qld@[redacted] John.Ruffin[redacted] John Tibaldi [redacted] Rob.ayre[redacted] Terry Malone [redacted]
Subject: Wivenhoe Dam Directive # 55 at 8:30 on Tuesday 18 January 2011
Attach: OPS_Directive_Wivenhoe #55.doc

Please find attached Directive # 55 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone[redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	18/01/2011
	Directive No:	55
	Time:	08:45

This transmission comprises of this page and 0 other pages.

Message:

Please re-commence gate operations as at 09:00 on 18/01/2011.

- Close Gate 4 from 4.5 metres to 4.0 metres at 09:00 on 18/01/2011
- Close Gate 2 from 4.5 metres to 4.0 metres at 09:30 on 18/01/2011
- Close Gate 5 from 3.5 metres to 3.0 metres at 10:00 on 18/01/2011
- Close Gate 1 from 3.5 metres to 3.0 metres at 10:30 on 18/01/2011
- Close Gate 3 from 5.0 metres to 4.5 metres at 11:00 on 18/01/2011
- Close Gate 4 from 4.0 metres to 3.5 metres at 11:30 on 18/01/2011
- Close Gate 2 from 4.0 metres to 3.5 metres at 12:00 on 18/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

Please continue to report levels at hourly intervals.

Rob Ayre
Duty Engineer

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From: Dan Spiller [redacted]
Sent: Tuesday, January 18, 2011 9:27 AM
To: 'Bradley John' [redacted] 'Martin.PeterJ[redacted]
'Dunn.KerryG[redacted] 'Tim.Watts[redacted]
'lance.mccallum[redacted] 'Geoff.Stead[redacted]
Cc: Barry Dennien [redacted]
'Madgwick.Darren'[redacted] 'Best Debbie'
[redacted] Rob Drury
[redacted] Mike Foster <mfoster@[redacted]
Subject: Update on releases
Attach: Technical_Situation_Report_W61.docx

Current Technical Situation Report for information.

Somerset Dam is at 99.8% of capacity and Wivenhoe Dam at 107.8%.

Seqwater advises that releases from Wivenhoe Dam were held constant overnight at about 2,050 cubic metres per second to assist water supply pumping at Lowood. Gate closure will resume at 09:00 Tuesday before final closure on Thursday morning. The dam will be near full supply and releases will be made through the regulator to account for ongoing base-flow.

The strategy was developed in consultation with BCC, which indicated that it would prefer a Thursday closure to increase release time and minimize possible impacts in relation to slumping along Coronation Drive. BCC also advises operators that they also would like closure no later than Thursday prior to predicted high tides late this week.

Please call me on [redacted] if you require any further information.

Regards,
Daniel Spiller

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TECHNICAL SITUATION REPORT

TSR Number	W61	Date of TSR release	18.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Draw Wivenhoe Dam down to FSL by around Thursday morning.	
Strategy	• Somerset just using valves for releases • Drain Wivenhoe to FSL by Thursday	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Minimal
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

There has been no significant rainfall in the last 24 hours and no significant rainfall is expected in the next twenty-four hours. Mostly fine conditions are expected over the weekend, but showers will return early next week.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6am Somerset was 98.98m and 379,016ML at 99.8% and discharging through one cone valve. All sluices are shut.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 6am Wivenhoe Dam was 67.82 m AHD at 1,255,638ML and 107.8% and dropping.

Releases were held constant overnight at about 2,050 m3/s to assist water supply pumping at Lowood. Following discussions with water supply operators, it has been decided to resume closing gates at 09:00 Tuesday before final closure on Thursday morning. The Dam will be near full supply and releases will be made through the regulator to account for ongoing base-flow.

Discussions with BCC indicated they would prefer a Thursday closure to increase release time and minimize possible impacts re slumping along Coronation Drive. They also would like closure no later than Thursday prior to predicted high tides late this week.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

North Pine peaked at 41.11 mAHD at 14:00 on 11 January 2011 with peak release of 2,800 m3/s. The event has a volume of around 200,000 ML

North Pine Dam is still around 39.54mAHD and 213,024ML and 99.4% and all gates were closed. The current level is expected to increase to stay around this level. This could be higher if further rainfall occurs.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water over the next few days.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
A minor release is being made from Hinze Dam through the emergency gates. The Lake Level is dropping and the gate will be closed today. There is no public access to the spillway.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths af inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	19.1.2011	Time	9am	or Event	

From: Rachel Lerch [redacted]
Sent: Tuesday, January 18, 2011 10:08 AM
To: Disaster [redacted] 'Wendy_fry [redacted] 'Emqserops02@dcs.qld.gov.au'; 'Blac1kev [redacted] 'Peter Dennis' [redacted] 'peta.miller [redacted] 'Beth.moloney [redacted] Peter.cavendish [redacted] 'Shayne.kimlin [redacted]; 'Peter-John.Zaune [redacted] [redacted]; 'Susan_hertrich [redacted]'; Cr Graeme Lehmann <glehmann [redacted]; Bob Bain <BBain [redacted] Tony Jacobs < [redacted] au>; Steve Brennan [redacted] 'Pitman. [redacted] [redacted] Andy Bickerton <ABickerton [redacted]>; 'David.Caughley [redacted] 'CraigX.Smith [redacted] 'Peter. [redacted] gov.au'; [redacted]'; 'Qastoogoolawah.oic [redacted] 'Tom.parsonage [redacted]'; Rob Drury <rdrury [redacted] 'michaellukritz [redacted] u'; 'glendolan [redacted] 'russellcross@ [redacted] [redacted] au'; 'Wendy.fry@ [redacted] 'Annabelle.johnstone@ [redacted] 'gough. [redacted] 'Tanwan. [redacted] 'Douglas. [redacted] 'tristan_berrell [redacted] 'richardperry [redacted]'; 'garychalmers [redacted] 'QAS Springfield OIC' <QASSpringfield.C [redacted]; 'Peter Dennis' <Peter.Denni [redacted]
Cc: Kerri-Lee Jones < [redacted] gov.au>
Subject: LDMG Meeting Tuesday 18th January 2.30pm
Attach: 2011-01-17 - Minutes of Meeting.doc; 2011-01-18 - Agenda.doc

---

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Tuesday (18th January 2011) at the Esk Administration Building. The DRAFT minutes from Monday's meeting are attached. Agenda for today also attached.

If you are unable to attend in person teleconference is available. You will need to dial [redacted] and enter a passcode which [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch

PA to the Manager Corporate & Community Services
Somerset Regional Council
a | PO Box 117, ESK QLD 4312
p | [redacted]
f | [redacted]
e | [redacted]
w | www.somerset.qld.gov.au

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Monday 17th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

MINUTES

- **Attendance:**

Cr Graeme Lehmann (SRC), Bob Bain (SRC), Tony Jacobs (SRC), Andrew Johnson (SRC), Wayne Wendt (MP), Paul Quinlin (QUU), Margareta (EMQ), Jan (QAS), Jacque Munn (QPS- Lowood), Gary Madigan (Energex), Wendy Fry (Esk Hospital), Rusty Kraut (QFS), Beth Maloney (NT Government), David (Ipswich DCC), Marty Cameron (QPS- Kilcoy), Kaye Healing (QFS), Peter Zauner (QFS), Karlene Tresize (QPS), Margaret Burn & Annabelle Johnson (DCS), Matthew Pinder (SES), S/Sgt Robbie Goodger (QPS), Tracey Dale (DDC).

Apologies:
Shayne Neumann

- **Amendment to Minutes**
  - Rapid Damage Assessments- 30 total completed in Lowood.
  - Outside of township approximately 200+ completed
  - Poole Road completed 15/1/11. QFRS still showing presence.
- **Action Items Update from Meeting of Sunday 16th January**
  - Action Item 1- Report provided. 12 houses affected at Toogoolawah. Waiting on confirmation of numbers at Kilcoy, the work has been completed.
  - Action Item 2- Water has been restored to Minden
  - Action Item 3- still currently seeking information on whether Banks Creek Road community has been resupplied.
  - Action Item 6- Request for assistance RFA sent. 1 Telstra tower back online, only 2 out of 3 out now.
  - Action Item 7- Offer of communications officer from LGAQ accepted.
  - Action Item 8- Completed.
  - Action Item 9- Broadcast over radio done. May need a circular from Energex. Was advertised in QT. Information session / BBQ at Fernvale tomorrow. **ACTION 1- Graham & Bob to advise of information session and BBQ. Council will advertise over radio and advise evacuation centres.**
  - **ACTION 2- Energex to provide flyers regarding re-entering homes and electrical requirements to Fernvale and Lowood.**

- Action Item 10- Still having problems getting SIT REPS from agencies. Nothing from DCS, Police also slow (regional offices are getting their reports in, but being held up in the Ipswich office). **ACTION 3- IMT to collate requests so that effort isn't duplicated.**
- Action Item 11- QSES & QFS currently covering areas that weren't covered under RDA. **ACTION 4- Do a doorknock of areas not covered by RDA. Assess how many of the additional SES from NSW are required after doorknock is complete.**
- Action Item 12- Approximately 2000 being fed at Fernvale. Because power has been restored to most of Fernvale have decided to scale back cooking facility and signs have been placed in the centre to this effect.
- Action Item 13- RFA submitted. Additional information has been requested.
- Action Item 14- Margaret Burn (DCS) advised that a Lifeline counsellor has been at Fernvale. 2 were also sent today. Reviewing today whether further assistance of this type required at Fernvale.
- Action Item 15- Draft media releases prepared and submitted to Council for approval. Tie in with QUU releases.
- Action Item 16- From tonight onwards SES will have a presence at Lowood Evac. Centre
- Action Item 17- Semi-permanent housing options have been raised as an issue. Couple of housing tams conducting assessments on housing situations.
- Action Item 18- Confirmed that doctor's surgery in Fernvale ahs a nurse in attendance during the day. Doctor attends surgery a couple of times a week. Single ambulance officer and vehicle there today. St John's Ambos offered to set up there tomorrow. Medical team from Ipswich today at Fernvale and visiting Wivenhoe Pocket again to administer tetanus injections.

- **Rapid Damage Assessments:**
  - QFRS and SES currently working through information. QFRS conducting normal emergency and emergency assistance with RDAs. Returning to normal processes. Will assist with clean outs as requested. In process of doing mapping displaying where has been inundated. Fernvale Command Centre closed from 4.30pm. Normal operations commenced. 4 units in Lowood tomorrow.
  - RDAs info collated. Doorknock to ensure all areas are reached that may not have been covered by RDAs to ensure no one has been missed
  - Haven't had opportunity to collate information as far as specific addresses and streets that have been done. 99.9% of clean outs done. First phase of wash down complete. External clean up to commence (e.g. carting of rubbish).
  - **ACTION 5- S/Sgt Robbie Goodger needs stats relating to total numbers of houses / businesses inundated and how many have been cleared.**
  - Fernvale was mainly housing, Esk had some businesses also, others are mostly regional housing. Not many businesses inundated.

- **Road Access:**
  - Black Duck range – clearance from Main Roads to send crews and start work tomorrow. Temporary diversion around slip. Not sure of end date yet. Will try and open as soon as possible.
  - From tomorrow further engineers will be sent through to assess our road networks to ensure that there are no safety hazards that have been missed.
  - Main Roads have lifted the Mary Smokes Creek Road limit to 42.5. Bridge reconstruction commencing at Hebener's Bridge. Hopefully open mid next week.

  - ROAD CLOSURES & RESTRICTIONS
  - CROSSDALE
    - Tooloorum Rd – Toolurum Bridge closed
    - Woodgate Rd
  - FERNVALE
    - Brisbane Valley Hwy closed between Wivenhoe-Somerset & south of the Brisbane River bridge
    - Wivenhoe-Somerset Road – Titmarsh Bridge, Bryden
  - GREGORS CREEK
    - Gregors Creek Rd at Alf Williams bridge (5k from BV Hwy)
  - JIMNA
    - Kilcoy-Murgon Road is closed at Jimna due to a landslip.
  - ESK
    - Esk-Crows Nest Rd - Taylors Bridge & Anduramba
  - KILCOY
    - D'Aguilar Hwy – Blackbutt Range section (extensive damaged, closed until further notice)
    - McCauleys Ln – Jenkinsons Bridge
    - Monsildale Rd
    - Neurum Rd – from Westvale Rd to quarry
    - Sandy Creek Rd – Hubners Bridge
    - Ten Mile Road
  - LOWOOD
    - Brightview Rd
    - Forest Hill-Fernvale Rd – East of Lowood
  - MINDEN/MARBURG
    - Strasburgs Rd – closed at top end
    - Zabels Road North (bridge damaged near Rienke Rd)
  - MURRUMBA
    - Esk-Kilcoy Rd – at Murrumba
  - REDBANK CREEK
    - Esk Hampton Road is closed due to a roadslip at the top of the range.
    - Esk-Hampton Road is closed at Redbank Creek crossing number 3 due to extensive bridge and pavement damage (2.5k's Hampton side of O'Grady Rd) beyond Esk Forrest Road
  - SOMERSET

    - Esk-Kilcoy Road – at Shaws Gully (1km north spit) & Miers Gully (near Nofz Lane) closed from spit to Brockhurst.
- SPLIT YARD CREEK
    - Wivenhoe-Somerset Road at Split Yard Creek
- TOOGOOLAWAH
    - Ivory Creek Road (approx 6km north)

- **ROADS OPEN**
  Note: Most roads are in poor condition with large potholes, extensive payment damage and undermining, with some roads are reduced to single lane traffic only.

- Forest Hill-Fernvale Road – West of Lowood (Lyons Bridge)
- Warrego Highway - Open with restrictions, please follow detour/directional signage
- Brisbane Valley Highway - Open between the Warrego Highway and Fernvale and again Esk and D'Aguilar Hwy (stop-go at Harlin Bridge)
- D'Aguilar Hwy - open to one lane for vehicles up to 4.5 tonne at Mary Smokes Creek, Royston. Local traffic to Moore & Linville only.
- Lowood-Minden Rd
- Gatton-Esk Rd – (no load limits)
- Fernvale Rd
- Glamorgan Vale Rd
- Marburg Rd.
- Watson Rd open at Coominya Connection Rd
- West Rd near Mahons Rd
- Patrick Estate Rd – Pointings Bridge

  Many smaller roads within the Region are open to local traffic.

- **Water Supply**
    - Everyone should have water supply. Some locations still have broken mains. Boil water notice in place for Minden, Fernvale and Lowood.
    - Sewerage: plant functioning in Kilcoy. Major pump station is not functioning at all. Will pump out tomorrow so can access and get up and running. Clean up down stream of pump station after that.
    - Toogoolawah ok.
    - Esk- treatment plant not operating at this stage. Getting equipment in to pump station. Down stream clean ups required after that.
    - Lowood- same situation as Esk. Pump sourced to get sewerage going into treatment process. No power to site so not complete treatment. Downstream site clean up required.
    - Fernvale- flown operators and electricians onto site because no road access. Assessment being undertaken. Major pump station being cleaned out so can get functioning as soon as possible.
- **Resupply Needs**
    - North of Linville have supplies for 8-10 days without further assistance. Reassess end of week. Dependent on weather. Approximately 40% in battlepacks at Esk deposited at Toogoolawah plus water in case they

are needed. More roads becoming available. Daily more and more access available to people.
    - Only outstanding is Banks Creek. England Creek have supplies and should be accessible by road by Wednesday. People in Villeneuve can now get through to Woodford.
    - **ACTION 6- Release advice that single bunk beds are available at Fernvale free of charge.**
    - Diesel and petrol now available at Esk station.
    - Fernvale Centre: 200 care parcels from Muslim Community, general care packages rather than substantive food packages. **ACTION 7- Distribute Muslim Community packages across the region and share them out with the ration packs.**
- **Communications**
    - Received advice Mt Stradbroke base station has been restored. Congestion issues being resolved.
    - Lowood and Ironbark still have issues.
- **Power Outages**
    - Supply to Fernvale township returned using generators. Supply still off around river and Wivenhoe Pocket. Sections still isolated due to inaccessibility.
    - Toogoolawah, Linville and Moore- work today, some supply restored yesterday. Hopeful that most returned this afternoon.
    - Major focus getting lines across river repaired to get Mains supply back to Fernvale and remove generators.
    - Release from dam may be an issue that needs to be addressed as a long term issue and potentially raising the height. Crossing upgrade Fernvale-Lowood.
- **Waste**
    - Kilcoy region wheelie bins commencing tomorrow with assistance from Council.
    - Nothing currently in place for debris.
    - No wheelie bin at Esk, Council in discussions with contractor.
    - Fernvale and Lowood- carrying out and will continue. Zahnow's ok for town.
    - Flood debris- **ACTION 7- call ADF who will have resources to assist with clean up.**
    - **ACTION 8- Make enquiries of neighbours to see if Ipswich or other contractors can assist. Will need to speak with Council regarding contractual issues if this is possible. Tracey Dale (DDC) advised that Moreton Bay may be able to provide support, contact them.**
- **Other Business**
    - Hospital happy to do vaccinations at 10am tomorrow if volunteers, etc. would like to utilise this service. Just need to know approximate numbers.
    - DDC received number of applications for requests for assistance. Will not be addressed by DDC until looked at by LDMG.
    - **ACTION 9- LDMG- if find have excess resources contact Ipswich. May be able to redeploy to Ipswich. Peter Zauner to find out where they are going back to.** Will take a bit of time to get actual

numbers. Rusty and Bill getting administrative assistance so can document and get info to DDMG. Admin starting tomorrow.

- **ACTION 10- Currently no capacity for vector control. Request this be raised through the system.**
- Verbal ok for fires at present, then ring and log a job in with Fire Com. Only burn vegetation, not rubbish (e.g. damaged furniture, etc). **ACTION 11- Notification to go out advising not to burn household flood debris. Mayor to make note of in press release.**
- **ACTION 12- Establish coordination centre now that evacuation centres are being shut down. Single point of access for information, insurance info, etc.**
- Tony spoke to CEO. Looking at 2 centres, one in Fernvale, Lowood and one in Esk, Toogoolawah. Looking for suitable venues, talk to welfare groups to see if they can help manage them. Amount of goods to large for highly visible area. Education material in offices, VICs, directing on how to get to centres for supplies.
- DCS planning services to be in the region for some time. Would like to stay at Fernvale Futures. Ok given to this.

Next Meeting: 2.30pm Tuesday 18th January 2011.

Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Tuesday 18th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

AGENDA

	Item	*Report from*
1.	Open meeting & welcome	
	• Attendance	
	• Apologies*	
2.	Review of previous minutes	
3.	Business arising from previous minutes –	
4.	General business –	
5.	• Rapid Damage Assessments	
	• Road Access	
	• Water	
	• Resupply Needs	
	• Communications	
	• Restoration of Power	
	• Waste	
6.	Other Business	
7.	Next Meeting	
8.	Close of meeting	

From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 12:07 PM
To: Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryrj([redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury [redacted] flood.qld@[redacted] John.Ruffini([redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted]
Subject: Wivenhoe Directive #56 at 12:15 on Tuesday 18 January 2011
Attach: OPS_Directive_Wivenhoe #56.doc

Please find attached a copy of Directive #56 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	18/01/2011
	Directive No:	56
	Time:	12:15

This transmission comprises of this page and 0 other pages.

Message:

Please re-commence gate operations as at 12:30 on 18/01/2011.

- Close Gate 5 from 3.0 metres to 2.5 metres at 12:30 on 18/01/2011
- Close Gate 1 from 3.0 metres to 2.5 metres at 13:00 on 18/01/2011
- Close Gate 4 from 3.5 metres to 3.0 metres at 14:00 on 18/01/2011
- Close Gate 2 from 3.5 metres to 3.0 metres at 14:30 on 18/01/2011
- Close Gate 4 from 3.0 metres to 2.5 metres at 15:00 on 18/01/2011
- Close Gate 2 from 3.0 metres to 2.5 metres at 15:30 on 18/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

Please continue to report levels at hourly intervals.

Rob Ayre
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 3:03 PM
To: flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] druryrj[redacted] Graham Keegan [redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive #57 at 15:15 on Tuesday 18 January 2011

Please find attached a copy of Directive # 57 for your action.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 18, 2011 3:36 PM

To: John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Peter Borrows <pborrows@[redacted]

Subject: Revised Flood Operations Strategy - Lowood Pump Station at 15:30 on Tuesday 18 January 2011

Rob/Peter

Revised shutdown sequence applied at 15:00 on Tuesday 18 January 2011 to accommodate a 12 hour hold at current gate settings (Release is 1,450 cumecs)) This will equate to a volume of 62,640 ML resulting in a lake level of around EL 66.85 mAHD by 03:00 on Wednesday 19 January 2011.

If release is then ramped down using 45 minute gate closure intervals the volume released is estimated to be 52,630 ML resulting in a lake level of EL 66.40 mAHD or 94.6% of capacity at 06:00 on Thursday 20 January 2011. This assumes no further runoff from rainfall and that Somerset regulator continues until Thursday morning as well leaving, Somerset dam at EL98.75 mAHD or 97.3%

The closedown sequence could be modified, but I am concerned we get bank slumping if we push too much harder.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Ruffini John [redacted]
Sent: Tuesday, January 18, 2011 5:03 PM
To: Peter Borrows <pborrows@[redacted] Rob Drury <rdrury@[redacted]
Cc: Williams Christine [redacted]
Subject: FW: Release/inflow information

Peter/Rob,

Please find attached an Email from Dan Spiller to Owen Droop.

Can you advise how you wish me to respond.

Cheers

John Ruffini
Director Water Planning Sciences

Phone: [redacted]
Email: [redacted]
Website: www.derm.qld.gov.au

Department of Environment and Resource Management
Environment and Resource Sciences
BLOCK A Ground Floor
41 Boggo Road
Dutton park QLD 4102

From: Dan Spiller [mailto:Daniel.Spil[redacted]
Sent: Monday, 17 January 2011 10:59 AM
To: 'Owen Droop'; Dennien Barry [redacted]
Cc: Sutherland Neil; Ruffini John
Subject: RE: Release/inflow information

Owen,

Good idea and happy to help. As a starting point, I think it would be worth a chat with John Ruffini. From my layman perspective, beyond background information about the Operational Procedures and the operators, I think that some of the issues worth exploring are:

- the nature of the rainfall received (local, intense, rapid peaks, and consistently more than the BoM forecast - as it has acknowledged itself)
- the impact of the Lockyer and Bremer flows (note that there is no reference to this in the comments in the Australian)
- there is a lack of understanding about the fuse plugs, and particularly that they return dam levels to FSL through uncontrolled flows and would render the compartment useless for the remainder of the wet season.

Will call later today - thanks for your offer of help during the week.

Dan

From: Owen Droop [mailto[redacted]
Sent: Monday, January 17, 2011 7:46 AM
To: Dan Spiller; Barry Dennien
Cc: Sutherland Neil

Subject: Release/inflow information

Dan, Barry,

Given a couple of the articles in the Australian and now Courier Mail I am going to write up a paper/response to the "this was avoidable/someones fault" game being played. I believe it is important for the profession and the integrity of the flood management system in place (and those that are charged with operating it) that this opinion by engineers with little or no hydrology background or understanding does not gain traction or be seen as an "engineering community" belief.

I am obtaining design operational and construction information but would appreciate any real time operational information from this (and other?) events.

Appreciate any advice you can provide.

Kinds regards,

Owen Droop Director/Principal Water Resource Engineer**B.E.(Civil)(Hons)/B.Nat.Res. RPEQ, MIEAust**www.access.gs | Download vCard

BRISBANE	KAWANA	ROBINA	CAIRNS
20 /115 Wickham Street	1/6 Innovation Parkway	5/232 Robina Town Centre Dr.	43-47/20-32 Lake Street
PO Box 694	PO Box 318	PO Box 4116	PO Box 5985

[redacted]

GILBERT SUTHERLAND

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+----------+

Think B4U Print

1 ream of paper = 6% of a tree and 5.4kg CO2 in the atmosphere

3 sheets of A4 paper = 1 litre of water

+----------+

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From: Duty Engineer <dutyseq@[redacted]

Sent: Tuesday, January 18, 2011 5:40 PM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] Mike Foster [redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] 'Tony Jacobs (private)' [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone [redacted] Brett Schultz [redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian [redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan [redacted] Graham Francis [redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan [redacted] Don Carroll [redacted] Evan Caswell [redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Situation Report at 18:00 on Tuesday 18 January 2011

Rainfall

Severe thunderstorms are passing over Wivenhoe, Somerset and North Pine Dams this afternoon. To 17:00 falls of 20 to 30 mm where recorded at isolated locations including Mt Pechey and Kluvers Lookout.

A severe thunderstorm warning remains in place for the Stanley River Valley near Kilcoy.

Somerset/Wivenhoe

At 16:00 Tuesday Somerset Dam was 98.95 mAHD and steady. The last sluice gate was closed at 07:00 17/01/2011 and one regulator remains open managing the base-flow into the Dam. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011.

At 16:00 Tuesday Wivenhoe Dam was 66.31 mAHD and continuing to fall slowly. Releases were held constant since 15:00 at about 1,450 m3/s to assist water supply pumping at Lowood. The shutdown sequence is scheduled to re-commence at 03:00 on Wednesday 19 January 2011 morning before final closure on Thursday morning. The Dam will be lowered to 66.5 mAHD (95% capacity) and releases will be made through the regulator to account for ongoing base-flow.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

At 09:00 North Pine Dam was 39.56 mAHD and rising slowly. All gates are closed. No further gate operations are expected unless additional rainfall falls. This situation will be closely monitored whilst storms remain in the vicinity.

North Pine peaked at 41.11 mAHD at 14:00 on Tuesday 11 January 2011 with a peak release of 2,800 m3/s. The flood event volume is estimated to be around 200,000 ML.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils. Councils have been informed of the current release strategy.

The remaining bridges below Wivenhoe Dam will progressively come out of water over the next few days.

Regards

Rob Ayre

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 8:42 PM
To: flood.qld@bom.gov.au; John.Ruffin[redacted] John Tibaldi <[redacted] Rob Drury <rdrury@[redacted] Terry Malone <tmalone@seqwater.com.au>; Agg Dagan <[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <[redacted] Graham Francis <[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive #58
Attach: OPS_Directive_Wivenhoe #58.doc

Please find attached a copy of Directive # 58 for your action.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) (07) 3120 0195
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	18/01/2011
	Directive No:	58
	Time:	20:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 20:45 on 18/01/2011.

- Close Gate 4 from 3.0 metres to 2.5 metres at 20:45 on 18/01/2011
- Close Gate 2 from 3.5 metres to 2.5 metres at 21:15 on 18/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 9:38 PM
To: flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive #59
Attach: OPS_Directive_Wivenhoe #59.doc

Please find attached a copy of Directive # 59 for your action.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	18/01/2011
	Directive No:	59
	Time:	21:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 21:30 on 18/01/2011.

- Close Gate 5 from 2.5 metres to 2.0 metres at 22:00 on 18/01/2011
- Close Gate 1 from 2.5 metres to 2.0 metres at 22:30 on 18/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]
Sent: Tuesday, January 18, 2011 10:42 PM
To: flood.qld@[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] druryr[redacted]raham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive #60
Attach: OPS_Directive_Wivenhoe #60.doc

Please find attached a copy of Directive # 60 for your action.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	18/01/2011
	Directive No:	60
	Time:	22:30

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 23:00 on 18/01/2011.

- Close Gate 5 from 2.0 metres to 1.5 metres at 23:00 on 18/01/2011
- Close Gate 1 from 2.0 metres to 1.5 metres at 23:30 on 18/01/2011
- Close Gate 3 from 4.5 metres to 4.0 metres at 00:00 on 19/01/2011
- Close Gate 4 from 2.5 metres to 2.0 metres at 00:30 on 19/01/2011
- Close Gate 2 from 2.5 metres to 2.0 metres at 01:00 on 19/01/2011
- Close Gate 5 from 1.5 metres to 1.0 metres at 01:30 on 19/01/2011
- Close Gate 1 from 1.5 metres to 1.0 metres at 02:00 on 19/01/2011
- Close Gate 4 from 2.0 metres to 1.5 metres at 02:30 on 19/01/2011
- Close Gate 2 from 2.0 metres to 1.5 metres at 03:00 on 19/01/2011
- Close Gate 5 from 1.0 metres to 0.5 metres at 03:30 on 19/01/2011
- Close Gate 1 from 1.0 metres to 0.5 metres at 04:00 on 19/01/2011
- Close Gate 4 from 1.5 metres to 1.0 metres at 04:30 on 19/01/2011
- Close Gate 2 from 1.5 metres to 1.0 metres at 05:00 on 19/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 19, 2011 5:28 AM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster <mfoster@[redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] 'Tony Jacobs (private)' [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Cc: Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Tony Trace <ttrace@[redacted]

Subject: FOC Situation Report at 06:00 on Wednesday 19 January 2011

Rainfall

Severe thunderstorms passed over the Wivenhoe, Somerset and North Pine dam catchments yesterday afternoon and evening. Falls of 20mm to 30mm where recorded at isolated locations.

North Pine

A decision was made at 1900 yesterday to drain the dam down to 39.40m AHD overnight to cater for the inflow resulting from yesterday's storms and ensure that Youngs Crossing remains open during the day today. All gates were closed at 0500 today and a fish recovery operation also commenced at this time. Youngs Crossing will be reopened by the MBRC at around 0700. The dam level will rise slowly during the day and further releases may be required again tonight with more rainfall forecast. The current lake level is 39.42m AHD.

Somerset Dam

All regulators were closed at 2000 yesterday. The dam level is currently 98.95m AHD and rising slowly. Further regulator releases will take place today and again over the next few days to maintain the dam at the full supply level. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011; all sluice gates were closed on Monday 17 January 2011.

Wivenhoe Dam

The Lowood temporary pump station was relocated at 2100 yesterday. This relocation removed the need to continue high flow releases from the dam to ensure treated water supplies to Lowood are maintained. Discussions with BCC last night also concluded that tidal variations are primarily back to normal patterns and having a greater impact on the foundation conditions of Coronation Drive than the tapering of releases from the dam. Accordingly the radial gate close down sequence recommenced at 21:45 last night and all gates will be closed by 1600 today. The dam level when the last gate is closed will be around 66.90m AHD and a fish recovery operation will continue through most of the day during the close down sequence. Releases will continue through the regulator cone valve and possibly the Mini-Hydro (depending on when it can be re-started) to account for ongoing base-flow once all radial gates are closed.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres. It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils. Councils have been informed of the current release strategy. A summary of the bridge status along the Brisbane River between Wivenhoe Dam and Moggill is as follows, with the exact timing of water coming clear of bridges depending on how the radial gate close down sequence progresses during the day:

- Water is clear of Fernvale Bridge and Mt Crosby Weir Bridge.
- Water should be clear of Burtons Bridge, Kholo Bridge and Savages Crossing tonight.
- Water should be clear of Colleges Crossing tomorrow.
- It is not yet certain when water will be clear of Twin Bridges as this will depend on base flow draining requirements and a decision will be made on this later today. The earliest that Twin Bridges would be clear of water is late this afternoon.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 19, 2011 5:29 AM
To: Duty Seq <dutyseq@[redacted] flood.qld@[redacted] John.Ruffini[redacted] John Tibaldi <jtibaldi@[redacted] Rob Drury <rdrury@[redacted] Terry Malone <tmalone@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]
Subject: Wivenhoe Dam Directive #61
Attach: OPS_Directive_Wivenhoe #61.doc

Please find attached a copy of Directive # 61 for your action.

John Tibaldi
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Rufffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	19/01/2011
	Directive No:	61
	Time:	05:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 05:30 on 19/01/2011.

- Close Gate 5 from 0.5 metres to fully closed at 05:30 on 19/01/2011
- Close Gate 1 from 0.5 metres to fully closed at 06:00 on 19/01/2011
- Close Gate 4 from 1.0 metres to 0.5 metres at 06:30 on 19/01/2011
- Close Gate 2 from 1.0 metres to 0.5 metres at 07:00 on 19/01/2011
- Close Gate 3 from 4.0 metres to 3.5 metres at 07:30 on 19/01/2011
- Close Gate 4 from 0.5 metres to fully closed at 08:00 on 19/01/2011
- Close Gate 2 from 0.5 metres to fully closed at 08:30 on 19/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

John Tibaldi
Duty Engineer

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From: Rob Drury [redacted]
Sent: Wednesday, January 19, 2011 6:11 AM
To: Peter Borrows <pborrows@[redacted]
Subject: wording for tehcnical report

Peter,
I have sent my proposed wording for the Technical Report below based on where we are at to cover off on reduced levels at end of event and closing times, fairly broad due to circumstances.

Are you happy with this?

I have indicated we are ending at below FSL for reasons relating to Lowood rather than anything else.

Do these sound okay and do we need to explain to WGM this morning on where we may end up more than this report although at this stage it is variable?

Words

t 6am Wivenhoe Dam was 66.92 m AHD at 1,156,707ML and 99.3%.

The closing sequence had been adjusted late yesterday to account for issues at Lowood WTP maintain water levels by just holding a release rate to ensure water was available at the temporary Lowood pump station. This extension also meant higher releases for longer so the final level for Wivenhoe will be between 95% and 100% however there will be some increase again due to base flows.

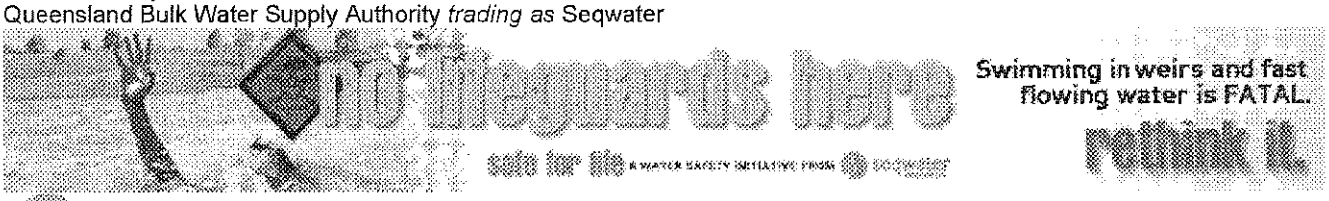
The Lowood temporary pump station was relocated at 2100 yesterday. This relocation removed the need to maintain constant releases from the dam to ensure treated water supplies to Lowood were maintained.

Discussions with BCC last night also concluded that tidal variations are primarily back to normal patterns and having a greater impact on the foundation conditions of Coronation Drive than the tapering of releases from the dam.

Hence, the radial gate close down sequence recommenced at 21:45 last night and all gates will be closed this afternoon depending on the final closing sequence as there was no need to extend until Thursday morning.

The dam level when the last gate is closed will be between 66.5m AHD (95.5%) and 66.9m AHD (99.1%) (this is depending on final closure and a fish recovery operation will continue through most of the day during the close down sequence. Releases will continue through the regulator cone valve and possibly the Mini-Hydro (depending on when it can be re-started) to account for ongoing base-flow once all radial gates are closed

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

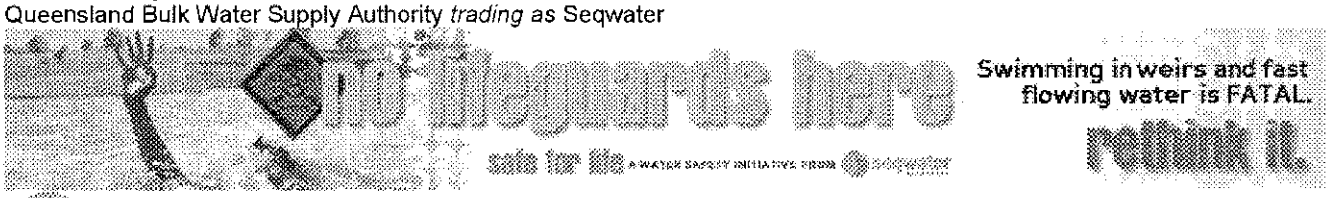
From: Rob Drury [redacted]
Sent: Wednesday, January 19, 2011 7:09 AM
To: Rob Drury <rdrury@[redacted] 'Dan Spiller' <Daniel.Spiller@[redacted]>; Peter Borrows <[redacted] Paul Bird <[redacted] Jim Pruss <[redacted] 'Peter.[redacted] Mike Foster <mfoster@[redacted]
Cc: 'seqwgm[redacted] David Roberts <droberts@[redacted]
Subject: RE: Technical Report W62
Attach: Technical_Situation_Report_W62.docx

Attached report W62.

Main changes are related to holding a higher release rate for some hours over night due to Lowood water access issues. Also we intend to close down today sometime rather than tomorrow morning partly for same reason and also as BCC no longer has concerns re Coro Drive.
This also means final level for Wivenhoe may be between 95% and 99%, with some ongoing base flows that may bring it back up slightly.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Tuesday, 18 January 2011 6:50 AM
To: Rob Drury; 'Dan Spiller'; Peter Borrows; Paul Bird; Arminda Roberts; Tara King; Jim Pruss; 'Peter.[redacted] 'Scott.Denner[redacted]; Mike Foster
Cc: 'seqwgm[redacted] 'Seqwater.comms[redacted] David Roberts
Subject: RE: Technical Report W61

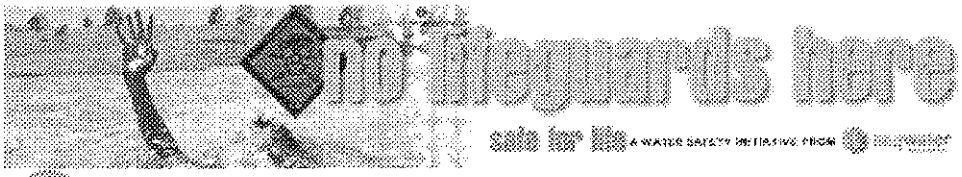
Attached Report W61.

Still aiming for final closure Thursday morning.

Releases slowed over night to assist water supply pumping at Lowood but recommencing this morning.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



Swimming in weirs and fast flowing water is FATAL.

rethink it.

seqwater
WATER FOR LIFE

Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W62	Date of TSR release	19.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Close all gates on Wivenhoe Dam by this afternoon.	
Strategy	• Somerset closed down. • Continue closing releases at Wivenhoe.	
Key considerations	Storage levels:	Above FSL
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Some storms overnight
	Lockyer/Bremer:	Monitoring
	Brisbane River:	Impact as below.

Rainfall

Severe thunderstorms passed over the Wivenhoe, Somerset and North Pine dam catchments yesterday afternoon and evening. Falls of 20mm to 30mm where recorded at isolated locations, however not causing any real inflows except at North Pine Dam..

.

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6.30am Somerset was 99.00m and 379,849ML at 100.0% and all regulators closed at 2000 yesterday. No releases being made

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of7,450 m3/s.

At 6am Wivenhoe Dam was 66.92 m AHD at 1,156,707ML and 99.3%.

The closing sequence had been adjusted late yesterday afternoon to account for issues at Lowood WTP to maintain water levels by holding a release rate to ensure water was available at the temporary Lowood pump station rather than dropping the rate as planned. This extension also meant higher releases for longer so the final level for Wivenhoe will be between 95% and 99% however there will be some increase again due to base flows.

The Lowood temporary pump station was relocated at 2100 last night. This relocation meant they could access water.

Discussions with BCC last night also concluded that tidal variations are primarily back to normal patterns and having a greater impact on the foundation conditions of Coronation Drive than the tapering of releases from the dam.

Hence, the radial gate close down sequence recommenced at 21:45 last night and all gates will be closed this afternoon depending on the final closing sequence as there was no need to extend until Thursday morning.

The dam level when the last gate is closed is expected to be between 66.5m AHD (95.5%) and 66.9m AHD (99.1%) (this is depending on final closure sequence, rate of dam level decrease and not dropping too quickly) and a fish recovery operation will continue through the day during the close down sequence depending on access issues. Releases will continue through the regulator cone valve and possibly the Mini-Hydro (depending on when it can be re-started) to account for ongoing base-flow once all radial gates are closed

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

A decision was made at 1900 yesterday to drain the dam down to 39.40m AHD overnight to cater for the inflow resulting from yesterday's storms and ensure that Youngs Crossing remains open during the day today. All gates were closed at 0500 today and a fish recovery operation also commenced at this time. Youngs Crossing will be reopened by the MBRC at around 0700. The dam level will rise slowly during the day and further releases may be required again tonight with more rainfall forecast.

The current lake level is 39.42m AHD at 210,467ML and 98.2%.

Strategy

The Flood Operations Centre is continuing to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments and is maintaining close contact with warning agencies and local councils.

Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
Closed.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	19.1.2011	Time		or Event	Gate closure

From: Paul Bird [redacted]
Sent: Wednesday, January 19, 2011 7:14 AM
To: Rob Drury <rdrury@[redacted]
Subject: Update for review

Rob,

For review please

As at 8.00am on Wednesday 19 January, the following applies:

SOMERSET DAM:
The dam is at 100.00% capacity. While the sluice gates are closed, further cone valve releases will take place today and again over the next few days to maintain the dam at the full supply level and offset inflows from overnight storms.

WIVENHOE DAM:
Wivenhoe Dam is at 99.3% and dropping. The gates are expected to be closed by late on the afternoon of Wednesday 19 January, however discharges through the cone valve will continue to offset inflows.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

Inundation of bridges below Wivenhoe is as follows:

- Water is clear of Fernvale Bridge and Mt Crosby Weir Bridge.
- Water should be clear of Burtons Bridge, Kholo Bridge and Savages Crossing tonight.
- Water should be clear of Colleges Crossing tomorrow.
- The earliest that Twin Bridges would be clear of water is late this afternoon.

NORTH PINE DAM:
A decision was made at late yesterday to make an overnight release to cater for the inflow resulting from yesterday's storms and ensure that Youngs Crossing remains open during the day today. All gates were closed at 5.00am this morning.

The dam level will rise slowly during the day and further releases may be required again tonight with more rainfall forecast.

LESLIE HARRISON DAM:
No releases.

HINZE DAM:
The gates closed this morning.

For detailed information on river levels, road and crossing closures and other potential impacts, always contact your local council.

This information will be updated on Thursday 20 January.

Paul Bird
Senior Communications Advisor
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

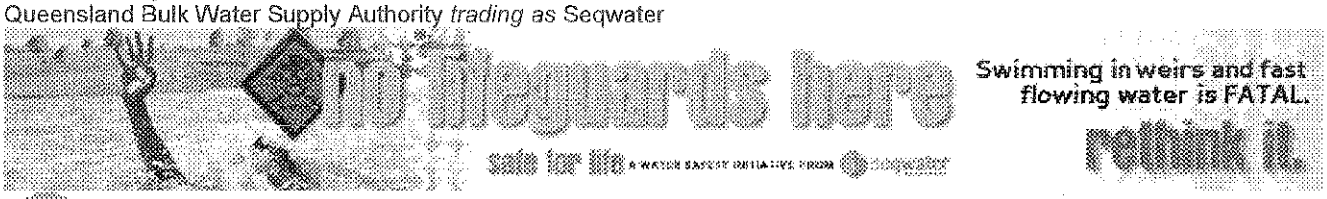
P [redacted] M [redacted] E [redacted]
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury [redacted]
Sent: Wednesday, January 19, 2011 7:20 AM
To: Paul Bird <pbird@[redacted]
Subject: RE: Update for review

Paul,
Would rather keep it general. Not sure of bridge times really so can we leave as basic.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
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WIVENHOE DAM:
Wivenhoe Dam is at 99.3% and dropping. The gates are expected to be closed by the afternoon of Wednesday 19 January, however discharges through the cone valve will continue.

The Flood Operations Centre is continuing to monitor inflows and water levels through the Brisbane and Pine catchments and reviewing operating strategy.

The Centre is also maintaining close contact with warning agencies and local councils.

Bridges below Wivenhoe will come clear of water today and tomorrow.

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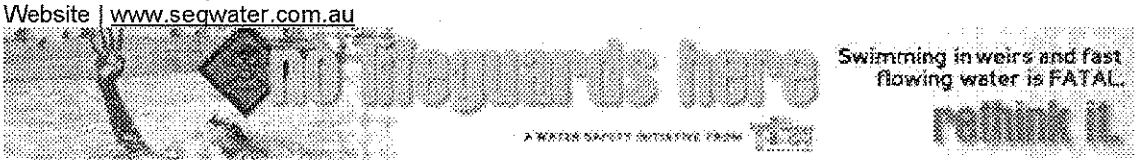

From: Paul Bird [redacted]
Sent: Wednesday, January 19, 2011 7:22 AM
To: Rob Drury <rdrury@[redacted]
Subject: RE: Update for review

No worries,

Thanks mate.

Paul

From: Rob Drury
Sent: Wednesday, 19 January 2011 07:20
To: Paul Bird
Subject: RE: Update for review

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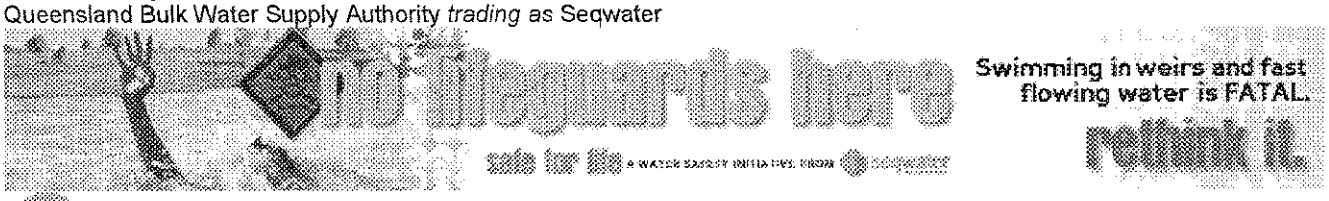
Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading* as Seqwater



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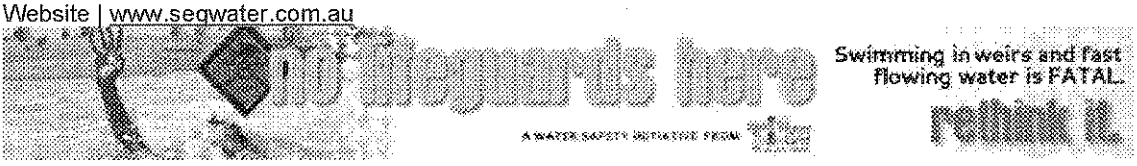

From: Dan Spiller [redacted]
Sent: Wednesday, January 19, 2011 7:52 AM
To: 'Bradley John' [redacted] 'Martin. [redacted]
'Dunn. [redacted] 'Tim. [redacted]
'Geoff. [redacted]
Cc: Barry Dennien [redacted]
'Madgwick. [redacted] 'Best Debbie'
[redacted] Rob Drury
<rdrury@[redacted]
Subject: Update on release strategy
Attach: Technical_Situation_Report_W62.docx

All,

Current Technical Situation Report attached for information.

Seqwater has advised that Somerset Dam is at 100% of capacity with no further releases being made.

Wivenhoe Dam is at 99.3%, with all gates to be closed this afternoon. Seqwater advises that the dam level when the last gate is closed is expected to be between 66.5m AHD (95.5%) and 66.9m AHD (99.1%), depending on final closure. Releases will continue through the regulator cone valve and possibly the Mini-Hydro (depending on when it can be re-started) to account for ongoing base-flow once all radial gates are closed

The temporary Lowood pump station was relocated last night, meaning that it is no longer a constraint on the closure sequence.

The strategy was developed in consultation with BCC.

Regards,
Daniel Spiller

This email, together with any attachments, is intended for the named recipient(s) only; and may contain privileged and confidential information. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If received in error, you are asked to inform the sender as quickly as possible and delete this email and any copies of this from your computer system network. If not an intended recipient of this email, you must not copy, distribute or take any action(s) that relies on it; any form of disclosure, modification, distribution and/or publication of this email is also prohibited.
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TECHNICAL SITUATION REPORT

TSR Number	W62	Date of TSR release	19.1.2011	Time of TSR release	6am

Seqwater status of inflows and dam operations

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Current objectives	• Close all gates on Wivenhoe Dam by this afternoon.	
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	Brisbane River:	Impact as below.

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Severe thunderstorms passed over the Wivenhoe, Somerset and North Pine dam catchments yesterday afternoon and evening. Falls of 20mm to 30mm where recorded at isolated locations, however not causing any real inflows except at North Pine Dam..

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Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
Closed.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisbaneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	19.1.2011	Time		or Event	Gate closure

From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 19, 2011 8:16 AM
To: Agg Dagan <adagan@[redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon [redacted] Matthew O'Reilly [redacted] Rob Drury [redacted]
Subject: Wivenhoe Directive #62
Attach: OPS_Directive_Wivenhoe #62.doc

Please find attached Wivenhoe Directive #62

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

Important information: This email and any attached information is intended only for the addressee and may contain confidential and/or privileged information. If you are not the addressee, you are notified that any transmission, distribution, or other use of this information is strictly prohibited. The confidentiality attached to this email is not waived, lost or destroyed by reasons of mistaken delivery to you. If you have received this email in error please contact the sender immediately and delete the material from your email system. QLD Bulk Water Supply Authority ABN75450239876 (Trading as Seqwater).

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SEQWATER FLOOD OPERATIONS CENTRE

FACSIMILE MESSAGE

Senior Flood Operations Engineer
John Ruffini
(W) [redacted]
(H) [redacted]
(M) [redacted]

Senior Flood Operations Engineer
Rob Ayre
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Operations Engineer
Terry Malone
(W) [redacted]
(H) (07) [redacted]
(M) [redacted]

Flood Operations Engineer
John Tibaldi
(W) [redacted]
(H) [redacted]
(M) [redacted]

Flood Event - Operations Directive

TO: Wivenhoe Dam Operators	Date:	19/01/2011
	Directive No:	62
	Time:	08:15

This transmission comprises of this page and 0 other pages.

Message:

Please undertake the following gate operations commencing at 09:00 on 19/01/2011:

Time between successive gate movements is 30 minutes.

- Close Gate 3 from 3.5 metres to 3.0 metres at 09:00 on 19/01/2011
- Close Gate 3 from 3.0 metres to 2.5 metres at 09:30 on 19/01/2011
- Close Gate 3 from 2.5 metres to 2.0 metres at 10:00 on 19/01/2011
- Close Gate 3 from 2.0 metres to 1.5 metres at 10:30 on 19/01/2011
- Close Gate 3 from 1.5 metres to 1.0 metres at 11:00 on 19/01/2011
- Close Gate 3 from 1.0 metres to 0.5 metres at 11:30 on 19/01/2011
- Close Gate 3 from 0.5 metres to fully closed at 12:00 on 19/01/2011

Please advise the Flood Operations Centre by fax/email once you have completed these operations.

Terry Malone
Duty Engineer

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From: Rachel Lerch [redacted]
Sent: Wednesday, January 19, 2011 11:08 AM
To: Disaster [redacted] 'Wendy_fry [redacted]
'Emqserops02@ [redacted] 'Blac1kev [redacted] 'Peter Dennis'
[redacted] 'peta.miller [redacted]
'Beth.moloney [redacted] 'Peter.cavendish [redacted]
'Shayne.kimlin@ [redacted]; 'Peter-John.Zauner [redacted]
'Trezise. [redacted] 'Susan_hertrich [redacted]; Cr Graeme
Lehmann [redacted] Bob Bain
[redacted] 'Tony Jacobs [redacted]
Steve Brennan [redacted]
'Pitman. [redacted] 'Goodger. [redacted] Andy
Bickerton [redacted] 'David.Caughle [redacted]';
'CraigX.Smith [redacted]; 'Peter.Varley [redacted];
'Richard.lahs [redacted]; 'Qastoogoolawah.oic [redacted]
'Tom.parson [redacted]u'; Rob Drury <rdrury@ [redacted]
'michaellukri [redacted]u'; 'glendola [redacted]
'russellcross([redacted] 'Mark.Kelly [redacted]
'Wendy.fry@ [redacted] 'Annabelle.johnstone [redacted];
'gough. [redacted] 'Tanwan. [redacted]
'Douglas. [redacted] 'tristan_berrell [redacted]
'richardperry@energex.com.au'; 'garychalmers [redacted] 'QAS Springfield
OIC' [redacted] 'Peter Dennis'
[redacted] 'aegginton [redacted]
Cc: Kerri-Lee Jones [redacted]
Subject: LDMG meeting 19th January 2010- 2.30pm
Attach: 2011-01-18 - Minutes of Meeting.doc; 2011-01-19 - Agenda.doc

---

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Wednesday (19th January 2011) at the Esk Administration Building. The minutes from Tuesday's meeting are attached. Agenda for today also attached.

If you are unable to attend in person teleconference is available. You will need to dia [redacted] and enter a passcode which is [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards
Rachel Lerch

PA to the Manager Corporate & Community Services
Somerset Regional Council
a | PO Box 117, ESK QLD 4312
p | [redacted]
f | [redacted]
e | [redacted]au
w | www.somerset.qld.gov.au

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Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Tuesday 18th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

MINUTES

- **Attendance:**

  Cr Graeme Lehmann (SRC), Cr Bruce Pearce, Bob Bain (SRC), Tony Jacobs (SRC), Andrew Johnson (SRC), Naomi Toy (GCCC- Somerset IMT), Margareta Burton (EMQ), Jan (QAS), Gary Madigan (Energex), Russell Cross (Energex), Wendy Fry (Esk Hospital), Rusty Kraut (QFS), Beth Maloney (NT Government), Kaye Healing (QFS), Peter Zauner (QFS), Karlene Tresize (QPS), Margaret Burn & Annabelle Johnson (DCS), Matthew Pinder (SES), Tracey Dale (Ipswich DDC), Anita Egginton (Red Cross), Tony Price (QBuild).

  Apologies:
  Wayne Wendt, Shayne Neumann

  Marty Tanwan (QPS): Marty advises that the command centre is now closed at Kilcoy and the police have returned to their core business. The main request outstanding for the area is the property "Avoca Vale" owner Valmae Burnett (83 years) of 1116 Mount Stanley Road, Linville. There need to be a helicopter food and fuel drop.

- **Action Items Update from Meeting of Sunday 16th January**
  - Action Item 3- progressing Banks Creek Road community resupply
  - Action Item 12- Fernvale evacuation centre scaled down last night. Now only providing meals to emergency workers.
  - Action Item 18- QAS and St John's Ambulance inspected the Fernvale site and advise that the facilities there are adequate.
  - Action is taking place to get the 50 NSW SES up here to assist.
- **Rapid Damage Assessments:**
  - QFRS RDAs given to Tony. Largely contain information from Fernvale & Prenzlau areas. Only assessed if water was over level of powerpoints or switch board in house. If less than that, was not assessed as there was no issue with electricity.
  - No further requests to QFRS for Somerset hose outs at the present time. Only other agency doing house outs is DERM.
  - People who have self cleaned would not be recorded.
  - 49 NSW SES, approx. 20 SA SES and 30 SES from other Local Government areas are throughout the region. North Coominya, South

Linville. Spoke to Bill Doorley, Redbank Creek and Buaraba being looked after by Rural Fire.

- Attempting to capture data, will be street stats, not specific to each individual address.
- Trying to look for areas that haven't been addressed and collating the information.
- IMT 249 requests. Some information relating to water inundation e.g. house, yard, whether they have received food or fuel resupply, has been captured when calls have been received.
- QFRS % of work complete = 95%. 7 still outstanding in Lowood, will be completed this afternoon. These requests relate to hose outs.
- Mayor Graeme Lehmann thanked QFS and QFRS for the great work the fire service has done, commendable that much work has been done in a short period of time. Well done to the local fire service also.

- **Road Access report by Andrew Johnson:**
  - Basically unchanged since yesterday.
  - Blackbutt Range, geotechnical engineering resources tomorrow. Very fragile up there, not sure how quickly will be restored.
  - Bridge Brisbane Valley Highway- Main Roads structural engineers assessing tomorrow. Depends also on Energex lines as they are down. **ACTION 1- Look at traffic control to secure over night to ensure people are not going through.**
  - Additional engineering resources are across the region assisting
  - Working with school buses on alternate routes.
  - Mayor Graeme Lehmann thanked the crews and contractors for getting the roads open so quickly.
  - A section of Esk-Hampton Road- surface looks ok but nothing underneath. **ACTION 2- QFRS to talk to Crows Nest fire service and Toowoomba Council about putting signage where we cannot access.**
  - **ACTION 3- Plan for temporary 4 wheel drive access in that area.**

  - **ROAD CLOSURES & RESTRICTIONS**

ROAD DETAILS	STATUS
State Controlled Roads (Main Roads)	
Brisbane Valley Highway closed at Brisbane River at Fernvale	Bridge is out of water, however cannot be reopened until Energex clears fallen line. Thursday approx
Esk Hampton Road closed at Redbank Creek (bridge 3)	Bridge lost, closed for some time. Also a large section undermined.
Forest Hill Fernvale Road closed between Fernvale & Lowood	NOW OPEN
Wivenhoe Somerset Road entire road closed	Structural & Pavement Damage

Esk Kilcoy Road closed between "The spit" & Brokhurst Road also closed between Mt Beppo Road & Murrumba Road	Structural Damage – awaiting assessment
D'Aguilar Hwy – Closed at Blackbutt Range	Land Slide. Engineering Assessment in action. Temp works to start Tuesday.
Kilcoy Murgon Road closed at Jimna Range	Landslip – engineering assessment required.
Shire Roads	
Neurum Road closed between Villenueve Quarry & Westvale Roads	Pavement Failure
Mary Smokes Creek Road closed between Sandy Creek Road & D'Aguilar highway	Pavement Failure
Sandy Creek Road closed at Huebners Bridge	Bridge lost. Temporary crossing under construction. Should be open by mid week.
McAuleys Lane closed at Jenkinson Bridge	Bridge Damaged. Temporary repairs under construction. Should be open by mid week.
Monsildale Road closed due to slips.	Engineering Assessment required.
Ten Mile Road closed due to slips.	Engineering Assessment required.
Gregors Creek Road closed at Brisbane River	Bridge Lost. Will be closed for some time.
Esk Crows Nest Road closed at Eskdale Ivory Creek Road	Structure damaged
Ivory Creek Road closed at Ivory Creek	
Patrick Estate Road – Open with Extreme Care	
Minden Village – Zabels Road North	
Tooloorum Road closed at Bridge	Bridge Damaged
Strassburgs Road	

Glenmaurie road at Maronghi Creek	
Mount Byron Road	

- **ROADS OPEN AS AT 17 JANUARY 2011 PM – 2.27pm**
- Gatton-Esk Road
- Brisbane Valley Highway Blacksoil to Fernvale
- Brisbane Valley Highway Esk to Toogoolawah to D'Aguilar Highway
- D'Aguilar Highway east of Kilcoy
- D'Aguilar Highway west of Kilcoy
- Forest-Hill Fernvale Road east of Lowood
- Lowood-Minden Road – 1 LANE ONLY AT MINDEN
- Marburg Road
- Claus Road
- Clarendon Road
- Atkinson Dam Road
- Willaura Drive
- Coominya Connection Road – drive with care, large hump in road
- Brisbane Valley Highway at Paddy Gully
- Pointings Bridge, Patrick Estate Road
- Patrick Estate Road
- West Road
- To Esk from Lowood able to travel through Patrick Estate Road, Coominya Connection Road onto Brisbane Valley Highway to Esk.
- Forest Hill-Fernvale Road – section between Fernvale and Lowood

- **Water Supply**
  - Minden no longer an issue, has water.
  - SEQ water- closing sequence commenced yesterday. Held discharge at 2,000 cumec overnight and recommended closing sequence this morning. Fully closed by Thursday.
  - England Creek, Banks Creek and Burtons should be able to access Thursday morning. Council officer to ensure bridge is passable.
  - Boil alert still current.
- **Resupply Needs to Action**
  - Continuing requests for food resupply.
  - Should be ok til Friday. Assess continuing needs this Thursday. Take off list those who have access.
  - Few minor requests still for medical supplies.
  - Fuel an issue, stocks low. ADF to get some on site.
  - **ACTION 4- Based on length of time, cut off estimate as to how much food packs needed. Put in RFA for resupply.**
- **Communications**
  - Still phones out eastern side of dam
  - Donations from Optus, 200 mobile phones with $1,000 credit to be used within 6 months. Have been given to SES for distribution and QFS have retained 15-20 to distributed as required.

    - Mayor Graeme Lehmann thanked Optus for this great gesture.
- **Power Outages**
    - Starting to get backbone of network back functioning
    - Line over river near bridge needs to be assessed
    - Wivenhoe Pocket and England Creek haven't been able to get in there / no access.
    - Keen to get mains across bridge up, hopefully tomorrow.
    - **ACTION 5- Need some traffic control. Bridge is closed, signs are up. Council will ensure traffic controllers available.**
    - Moore, Linville, Harlin mostly done in high voltage areas. Will get to low voltage areas after that.
    - Looking at getting flyers together and to Council.
    - Leaving Form 3s with people to get electricians in, then lodge Form 2 to Energex back. Information relating to availability of electrical contractors to be handed out with the Form 3s.
    - Few storm cells going through that may hold up progress.
    - Mayor Graeme Lehmann thanked Energex for the great work they have done in the field.
    - Fernvale on generator until lines over river have been restored.
- **Waste**
    - Ipswich Waste Services doing Southern part, Clearaway to North as far down as Toogoolawah, Wanless not yet commenced, maybe tomorrow. Domestic collection pretty good.
    - Action Item 7B- Bulk collection organisation progressing. ADF strike teams in area. One is looking at isolated communities, the others were engineers assisting with the clean up. They can assist with bulk collection, mapping and planning at present. Tomorrow or next day to start. **ACTION 6- Press release to be prepared advising timeframes and to get rubbish out on street as may be over in a days (instead of weeks).**
- **Other Business**
    - Margaret (DCS) advised that there is a need for counselling, demand increasing. Offer of assistance coming from other organisations. Lifeline collating.
    - Action Item 13- Lowood evacuation centre, Red Cross visited with 3 staff yesterday. 31 people stayed overnight. 3 men and 2 families will require assistance for housing. More in depth info taken so Red Cross can assist Department of Housing. 3 owners, waiting for home clean out and return to liveable state. 1 family, 2 single men waiting to see if structurally ok.
    - 1 gentleman without home, no family, no vehicle, caravan gone.
    - 1 family having problems getting rental accommodation.
    - Tomorrow night last night for people at evacuation centre in Lowood.
    - Department Housing have recovery centres at Fernvale, Lowood and Esk. Wivenhoe Pocket, Toogoolawah, Coominya as required. Number of agencies making referrals as required.
    - Personal hardship grants given total 383, $170,000 in total.
    - Transition to recovery coordination points. Lowood info only. **ACTION 7- Talk to DOCS about presence and other agencies that can**

provide information. Advertise where this can be available from and when.

- Fernvale Futures Centre- greater presence of agencies there. Major source of information. SES moving out of Fernvale Centre by Friday.
- **ACTION 8- Margaret to send info sending out to disaster@somerset.qld.gov.au so all on same page.**
- Discuss what can establish at Lowood, Kilcoy and Esk.
- May need outreach services as some people may not be able to get to the information places. **ACTION 9- Beth to send list of where outreach services required.**
- Graham has been speaking to ABC, River 949, and local Toogoolawah station. Sending out press releases also. SIT REPS and Minutes have been the basis of the information being released.
- Esk SES quarters filmed for Channel 9. Comment made based only on SES activities.
- EHO talking to GCCC to get vector control work done. **ACTION 10- Press release, tip out water from pot plants, etc. if possible.**
- **ACTION 11- Advise public of availability of free single beds. Graeme to announce over radio, some still available at Fernvale school.**
- **ACTION 12- Press release to advise not to burn household rubbish, vegetation only.**
- GCCC have provided some food packages. Offer of hospital space if storage is an issue at SES quarters.
- Keep letting hospital known when choppers landing at hospital, just so they know to expect them.

Next Meeting: 2.30pm Thursday 20th January 2011.

Somerset
REGIONAL COUNCIL

Local Disaster Management Group Meeting

Wednesday 19th January 2011
2.30pm
Somerset Regional Council Office Meeting Room

AGENDA

Item	*Report from*
1. Open meeting & welcome • Attendance • Apologies*	
2. Review of previous minutes	
3. Business arising from previous minutes –	
4. General business –	
5. • Rapid Damage Assessments • Road Access • Water • Resupply Needs • Communications • Restoration of Power • Waste • Vector Control • Transition to Recovery Coordination Points & Services • Re-Housing	
6. Other Business	
7. Next Meeting	
8. Close of meeting	

From: Duty Engineer <dutyseq@[redacted]
Sent: Wednesday, January 19, 2011 11:43 AM
To: [redacted] John Tibaldi [redacted] Terry Malone [redacted] Ken.Price@[redacted] kim.hang@[redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt [redacted] Agg Dagan [redacted] Doug Grigg [redacted] Graham Keegan <gkeegan@[redacted] Graham Francis [redacted] Jayam Tennakoon [redacted] Matthew O'Reilly <moreilly@[redacted] Rob Drury <rdrury@[redacted] Brett Schultz [redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane [redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted]
Subject: Flood Operations

The event will be closed off at 1200 today when the centre gate at Wivenhoe will be closed.

At this time operational control will revert back to Seqwater. Sometime this afternoon, releases through the centre gate will re-commence to manage continuing inflows and to get the dam to 95% (66.5m AHD). The gate must be used as the regulator is inoperable at this time.

This arrangement has been agreed with the Dam Regulator (discussion between JT and PA). Dam operators will be available to return to site upon FOC instruction.

Given the QPF, the FOC will be staffed overnight by John Ruffini and Lou van Blerk.

North Pine Dam will be closely monitored and, if any heavy rainfall eventuates, gate operations may be required at short notice.

Terry Malone

Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Rob Drury [redacted]
Sent: Wednesday, January 19, 2011 1:00 PM
To: Peter Borrows <pborrows@[redacted]
Cc: Arnou Pruden <apruden@[redacted]
Subject: FYI

Arnou,
Can you run past Peter of he is there.

Peter,
My words for the last Technical Report for this event.

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6.30am Somerset was 99.00m and 379,849ML at 100.0% and all regulators closed at 2000 yesterday. No releases being made

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 12pm Wivenhoe Dam was 66.89m AHD at 1,153,508ML and 99.0%.

The flood event has been closed off with the shutting of the gates for flood purposes.

Operational control has reverted back to Seqwater. Inspections and fish recovery will be carried out after closure. Releases will then be recommenced. This will be done through either a minor gate opening or the cone valve. At this stage it appears that one gate at a minor opening will be used to manage operational releases as the downstream water level may still be too high for a valve release.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] | M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 19, 2011 1:57 PM

To: 'Arminda Roberts (private)' [redacted] David Roberts [redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird <pbird@[redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury <rdrury@[redacted] 'Rob D (Private)' [redacted] Rohan Thorogood <rthorogood@[redacted] [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] [redacted] Al Navaruk <Albert.Navruk@[redacted] Bill Stephens [redacted] David Pokarier <david.pokarier@[redacted] John West <jwest@[redacted] Louw Van Blerk [redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] [redacted] John Tibaldi [redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson [redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan [redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly [redacted]

Subject: Situation Report 1400 Wednesday 19 January 2011

Rainfall

No significant rainfall has been recorded in Wivenhoe, Somerset and North Pine dam catchments since 0900 Wednesday. The forecast rainfall indicates that falls between 15 to 25mm with isolated heavier falls to 50mm are expected in the next 24 hours.

North Pine

A decision was made at 1900 Tuesday to drain the dam down to 39.40m AHD overnight to cater for the inflow resulting from Tuesday's storms and ensure that Youngs Crossing remains open during the day Wednesday. All gates were closed at 0500 Wednesday and a fish recovery operation also commenced at this time. Youngs Crossing was expected to be reopened by the MBRC at around 0700. The dam level will rise slowly during the day and further releases may be required again tonight with more rainfall forecast. The lake level was 39.43m AHD at 0700.

Somerset Dam

All regulators were closed at 2000 Tuesday. The dam level was 99.00 m AHD at 0700 Wednesday and rising slowly. Further regulator releases may take place over the next few days to maintain the dam at the full supply level. Somerset Dam peaked at 105.11 mAHD at 18:00 on Wednesday 12 January 2011; all sluice gates were closed on Monday 17 January 2011.

Wivenhoe Dam

All gates were closed at Wivenhoe at 1200 Wednesday, with the dam level at 66.89m AHD at 1300. Following fish recovery and inspections, minor ongoing releases will be made for through the centre gate to account for ongoing small inflows. It is intended to drain down to 95%, approximately 66.5 m AHD.

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on Tuesday 11 January 2011 with a corresponding discharge of 7,450 m3/s. The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

Strategy

A summary of the bridge status along the Brisbane River between Wivenhoe Dam and Moggill is as follows, with the exact timing of water coming clear of bridges depending on how the radial gate close down sequence progresses during the day:

- Water is clear of Fernvale Bridge and Mt Crosby Weir Bridge.
- Water should be clear of Burtons Bridge, Kholo Bridge and Savages Crossing tonight.
- Water should be clear of Colleges Crossing tomorrow.
- It is not yet certain when water will be clear of Twin Bridges as this will depend on base flow draining requirements and a decision will be made on this later Thursday.

The Flood Operations Centre is now closed and control of the dams has reverted to normal Seqwater operations. However, the FOC will continue to monitor rainfalls and water levels throughout the Brisbane and Pine River catchments.

Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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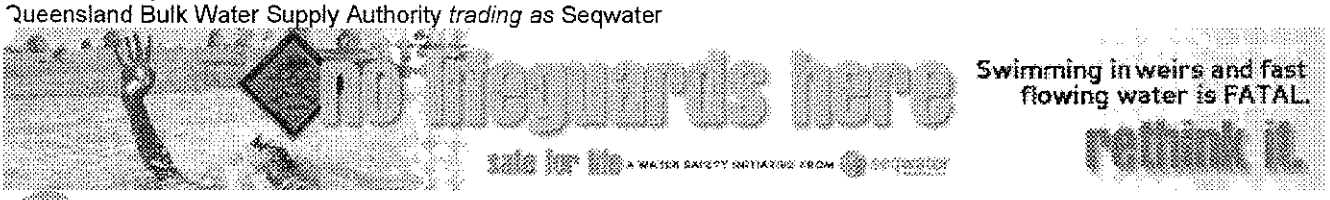
From: Rob Drury [redacted]
Sent: Wednesday, January 19, 2011 1:50 PM
To: Rob Drury [redacted] 'Dan Spiller' [redacted] Peter Borrows [redacted] Paul Bird <pbird@[redacted] Jim Pruss <jpruss@[redacted] '[redacted] Mike Foster [redacted]
Cc: 'seqwgm[redacted] David Roberts <droberts@[redacted]
Subject: RE: Technical Report W63
Attach: Technical_Situation_Report_W63.docx

Report W63

Rob

Robert Drury
Dam Operations Manager
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



seqwater
WATER FOR LIFE
Ph (07) [redacted] | Fax (07) [redacted] M [redacted] | E [redacted]
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia
PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

TECHNICAL SITUATION REPORT

TSR Number	W63	Date of TSR release	19.1.2011	Time of TSR release	1pm

Seqwater status of inflows and dam operations

Current status but could change based on inflows or rainfall.

Current objectives	• Monitor ongoing rainfall and inflows.	
Strategy	• Somerset closed down. • Wivenhoe closed all gates at 12pm and inspections carried out. A gate opening will then be used for ongoing releases.	
Key considerations	Storage levels:	
	Inflows:	Total event inflows expected around 2,600,000ML.
	Rainfall:	Some storms overnight
	Lockyer/Bremer:	Monitoring
	Brisbane River:	

Somerset/Wivenhoe

Somerset Dam peaked at 105.11 mAHD at 06:00 on 12 January 2011.

At 6.30am Somerset was 99.00m and 379,849ML at 100.0% and all regulators closed at 2000 yesterday. No releases being made

Wivenhoe Dam peaked at 74.97 mAHD at 19:00 on 11 January 2011 with a corresponding discharge of 7,450 m3/s.

At 12pm Wivenhoe Dam was 66.89m AHD at 1,153,508ML and 99.0%.

Gates were closed at 12pm for Inspections and fish recovery. Further releases were then recommenced at 1.30pm for operational reasons, water supply issues downstream and maintenance of flows.

This will be done through minor gate openings.

The combined flood event volume in Somerset and Wivenhoe Dams is estimated to be in excess of 2.6 million megalitres.

It should be noted that the Seqwater water level gauge currently being reported on the BoM website is currently slightly under reading by about 50mm.

North Pine

North Pine will be closely monitored and if any heavy rainfall eventuates, further gate operations may be required.

Strategy

Councils have been informed of the current release strategy. The bridges below Wivenhoe Dam will progressively come out of water.

Leslie Harrison Dam:
Gates closed.

Hinze Dam:
Closed.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager
[redacted]	[redacted]

BoM assessment

(consisting of references to latest Flood Warning for the BrisboneRiver and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld@[redacted]

Brisbane City Council(BCC) assessment

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	[redacted]

Ipswich City Council (ICC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	[redacted]

Somerset Regional Council (SRC) assessment (if required)

(to include predicted local inundation areas and depths of inundation based on the information)

Council has been advised of the current strategy.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	[redacted]

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date		Time		or Event	Change in Strategy

From: Duty Engineer <dutyseq@[redacted]

Sent: Wednesday, January 19, 2011 1:45 PM

To: 'Arminda Roberts (private)' [redacted] David Roberts <droberts@[redacted] flood.qld@[redacted] Mike Foster [redacted] Paul Bird [redacted] 'Paul Bird (Private)' [redacted] Peter Allen [redacted] Rob Drury [redacted] 'Rob D (Private)' [redacted] Rohan Thorogood [redacted] 'Tony Jacobs (private)' [redacted] Andy Bickerton [redacted] Deb Chandler [redacted] Mailbox [redacted] Tony Trace <ttrace@[redacted] Chris Lavin <Chris.Lavin@[redacted] Craig Logan <Craig.Logan@[redacted] Don Carroll <don.carroll@[redacted] Evan Caswell <Evan.Caswell@[redacted] 'Flood Information Centre' <Flood_Information_Centre@[redacted] James Charalambous <James.Charalambous@[redacted] Ken Morris <Ken.Morris@[redacted] Robert McGlinn <Robert.McGlinn@[redacted] Santina Pennisi <Santina.Pennisi@[redacted] Ken.Price@[redacted] Al Navaruk [redacted] Bill Stephens <Bill.Stephens@[redacted] David Pokarier [redacted] John West <jwest@[redacted] Louw Van Blerk <lvanblerk@[redacted] Mark Tan <mtan@[redacted] Neville Ablitt <nablitt@[redacted] John Tibaldi <jtibaldi@[redacted] Rob.ayre@[redacted] Terry Malone <tmalone@[redacted] Brett Schultz <bschultz@[redacted] Glenn Patterson <gpatterson@[redacted] Malcolm Lane <mlane@[redacted] Murray Dunstan <mdunstan@[redacted] Rob Gorian <rgorian@[redacted] Agg Dagan <adagan@[redacted] Doug Grigg <dgrigg@[redacted] Graham Keegan <gkeegan@[redacted] Graham Francis <gfrancis@[redacted] Jayam Tennakoon <jtennakoon@[redacted] Matthew O'Reilly <moreilly@[redacted]

Subject: Situation Report 1345 Wednesday 2011

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North Pine

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Terry Malone
Duty Engineer
Flood Operations Centre

Phone: [redacted]

Fax: [redacted]

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From: Disaster [redacted]
Sent: Wednesday, January 19, 2011 2:40 PM
To: Rachel Lerch [redacted] 'Wendy_fry[redacted] 'Emqserops02@dcs.qld.gov.au'; 'Blac1kev@[redacted] 'Peter Dennis' [redacted] 'peta.miller[redacted] 'Beth.moloney@nt.gov.au'; 'Peter.cavendish[redacted] 'Shayne.kimlin@derm.qld.gov.au'; 'Peter-John.Zaun[redacted] 'Trezise.[redacted] 'Susan_hertric[redacted]'; Cr Graeme Lehmann [redacted] Bob Bain [redacted] Tony Jacobs [redacted] Steve Brennan [redacted] 'Pitman.[redacted] Andy Bickerton [redacted] 'David.Caughley[redacted] 'CraigX.Smith[redacted] Peter.Varley[redacted] 'Richard.lahse[redacted] Qastoogoolawah.oi[redacted] 'Tom.parsona[redacted] Rob Drury <rdrury@[redacted] 'michaellukrit[redacted] 'glendola[redacted] 'russellcross[redacted] 'Mark.Kelly[redacted] 'Wendy.fry[redacted] 'Annabelle.johnstone[redacted]'; 'gough.[redacted] 'Tanwan.[redacted] 'Dougla[redacted] 'tristan_berrell[redacted] 'richardperry[redacted] 'garychalmers@[redacted]; 'QAS Springfield OIC' [redacted] 'aegginton@[redacted]
Cc: Kerri-Lee Jones [redacted] Vim Balachandran [redacted]
Subject: RE: LDMG meeting 19th January 2010- 2.30pm
Attach: Somerset LDMG SITREP 9 - 19 January 2011 1400hrs.DOC

Hello all,

Please find attached a copy of SITREP 9.

Regards,

Somerset LDMG

From: Rachel Lerch
Sent: Wednesday, 19 January 2011 11:07 AM
To: Disaster; 'Wendy_fry[redacted] 'Emqserops02[redacted]; 'Blac1kev[redacted] 'Peter Dennis'; 'peta.miller[redacted] 'Beth.molone[redacted] 'Peter.cavendish[redacted] 'Shayne.kimlin[redacted] Peter-John.Zauner[redacted]; 'Trezise.ka[redacted] 'Susan_hertric[redacted]; Cr Graeme Lehmann; Bob Bain; Tony Jacobs; Steve Brennan; 'Pitman.[redacted] 'Goodger.[redacted] Andy Bickerton; 'David.Caughley[redacted] 'CraigX.Smith[redacted] 'Peter.Varley[redacted] 'Richard.lahse@[redacted] Qastoogoolawah.oic[redacted] 'Tom.parsonage[redacted] 'rdrury@[redacted] 'michaellukritz[redacted] 'glendolar[redacted] 'russellcross[redacted] Mark.Kell[redacted] 'Wendy.fry[redacted] 'Annabelle.johnstone[redacted] 'gough.[redacted] 'Tanwan.[redacted] 'Douglas.[redacted] 'tristan_berrell@[redacted] rdperr[redacted] 'garychalmers[redacted] 'QAS Springfield OIC'; 'Peter Dennis'; 'aegginton@[redacted]
Cc: Kerri-Lee Jones
Subject: LDMG meeting 19th January 2010- 2.30pm

Hello all

Just a note to confirm the LDMG Meeting for 2.30pm Wednesday (19th January 2011) at the Esk Administration Building. The minutes from Tuesday's meeting are attached. Agenda for today also attached.

If you are unable to attend in person teleconference is available. You will need to dial [redacted] and enter a passcode which is [redacted]

If you are unable to attend or are sending a proxy please advise.

Regards

Rachel Lerch

PA to the Manager Corporate & Community Services
Somerset Regional Council
a | PO Box 117, ESK QLD 4312
p | [redacted]
f | [redacted]
e | [redacted]au
w | www.somerset.qld.gov.au

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Queensland Government
Department of Emergency Services
Emergency Management Queensland

Situation Report

To:	From:
Disaster District Coordinators Ipswich Disaster District, CC: Eddie Bennet EMQ Regional Director SER	**Tony Jacobs** Local Disaster Coordinator Somerset Regional Council Local Disaster Management Group

Date	Time	Sitrep No.
19 Jan 2011	**1000hrs**	**9**

1. WEATHER

Local observations:	Weather Warnings (applicable to Somerset Region): The following Weather warning was issued at 8:18 am Tuesday, 19 January 2011. *"Minor flooding is falling fast at Mt Crosby and levels will drop below minor this morning. Elsewhere in the catchment, river levels are now below minor flood heights."* Weather Forecast: A few showers and a thunderstorm or two, particularly during the afternoon and evening. Moderate falls with thunderstorms. Light to moderate mostly SE to NE winds. River Conditions: Lockyer Ck at Glenore Grove # 4.6m steady 06:10 AM WED 19/01/11 Lockyer Ck at Pine Range Rd * 5.98m steady 07:10 AM WED 19/01/11 Brisbane R at Savages Crossing * 7.53m falling 07:10 AM WED 19/01/11
Any difference from official weather reports:	Not at this time.

2. TRANSPORT

(If roads, airstrips etc closed, include estimated time of opening)

Road:

Road Closures & Restrictions
(131940.qld.gov.au & SRC as at 12:00 18/01/2011)

ROAD DETAILS	STATUS
State Controlled Roads (Main Roads)	
Brisbane Valley Highway closed at Brisbane River at Fernvale	Bridge has surfaced. Energex wires in vicinity & engineering assessment required before opening.
Esk Hampton Road closed at Redbank Creek (bridge 3)	Bridge lost, closed for some time.
Forest Hill Fernvale Road closed between Fernvale & Lowood	Expected to open by Wednesday
Somerset Wivenhoe Road entire road closed	Structural & Pavement Damage. Roadtek crew assisting with opening
Esk Kilcoy Road closed between "The spit" & Brokhurst Road also closed between Mt Beppo Road & Murrumba Road	Structural Damage – awaiting assessment
D'Aguilar Hwy – Closed at Blackbutt Range	Land Slide. Engineering Assessment in action. Plant established Tuesday. Work to start Wednesday.
Kilcoy Murgon Road closed at Jimna Range	Landslips being cleared. Expect to open to light traffic early next week.
Shire Roads	
Neurum Road closed between Villenueve Quarry & Westvale Roads	Pavement Failure
Mary Smokes Creek Road closed between Sandy Creek Road & D'Aguilar highway	Temporary Pavement Repairs progressing.
Sandy Creek Road closed at Huebners Bridge	Bridge lost. Temporary crossing under construction. Should be open by mid week.
McAuleys Lane closed at Jenkinson Bridge	Bridge Damaged. Temporary repairs under construction. Should be open by mid week.
Monsildale Road closed due to slips.	Engineering Assessment required.
Ten Mile Road closed due to slips.	Engineering Assessment required.
Gregors Creek Road closed at Brisbane River	Bridge Lost. Will be closed for some time.
Esk Crows Nest Road closed at Eskdale Ivory Creek Road	Structure damaged
Ivory Creek Road closed at Ivory Creek	
Patrick Estate Road – Open with Extreme Care	
Minden Village – Zabels Road North	
Tooloorum Road closed at Bridge	Bridge Damaged
Strassburgs Road	
Glenmaurie road at Maronghi Creek	Bridge Lost. Will be closed for some time.
Mount Byron Road	

ROADS OPEN AS AT 17 JANUARY 2011 PM – 2.27pm
Gatton-Esk Road
Brisbane Valley Highway Blacksoil to Fernvale
Brisbane Valley Highway Coominya to Toogoolawah to D'Aguilar Highway
D'Aguilar Highway east of Kilcoy

	D'Aguilar Highway west of Kilcoy Forest-Hill Fernvale Road to Warrego Highway Lowood-Minden Road – 1 LANE ONLY AT MINDEN Marburg Road Claus Road Clarendon Road Atkinson Dam Road Willaura Drive Coominya Connection Road – drive with care, large hump in road Brisbane Valley Highway at Paddy Gully Pointings Bridge, Patrick Estate Road Patrick Estate Road West Road To Esk from Lowood able to travel through Patrick Estate Road, Coominya Connection Road onto Brisbane Valley Highway to Esk. Forest Hill-Fernvale Road – section between Fernvale and Lowood Esk – Hampton Road past #3 bridge – trying to get an assessment undertaken. Closures remain unchanged from yesterday. Currently working with existing school bus operators regarding school transport for next week. The following update is provided from the Fernvale Incident Management Team. • Burtons Bridge – E Summervilles Road and Savages Crossing – Banks Creek Road are still underwater (approximate 1m) as of this morning. Will monitor and respond/advise as soon as it is clear. • BVH at Geoff Fischer Bridge is still closed – Energex working to relocate fallen powerlines alongside with Council cleaning debris and carrying out road repairs. Anticipate opening sometime Thursday, 20th January.
(k	• N/A
Aviation:	• Nil issues known, small private strips only
Marine:	N/A
Other:	Nil issues known

3. COMMUNICATIONS

(If communications out, include estimated time of reconnection)

Telephone Network:	No SITREP has been received from Telstra since 16/01/11 Landline services: • Voice services to Lowood & Minden were restored approx 1pm 16/01/11 (Lowood's primary fibre optic transmission link is broken approx 1.5k south, and the backup link via the Minden exchange failed when the exchange battery backup was depleted as mains power still is not available. Telstra technicians installed backup generator to restore services to both Minden & Lowood) • Voices services from the Jimna exchange are down (suspected transmission fault, however Telstra not able to reach due to 'Red Zone no-go status') • All other exchanges are operational, however some localised faults do exist

	for outlying areas with damaged infrastructure • Mains power has been restored to all exchanges except for Moore, Mt Stanley and Minden are running on generators.
Mobile Telephone Network:	• Telstra reports the Mt Stradbroke mobile base station was also restored at 1pm (as tower links via the Minden exchange). After the tower became operational, congestion issues within the surrounding areas were largely resolved. • Other known Telstra mobile base stations experiencing issues (that may affect surrounding areas): ➢ Lowood (no service due to power outage) ➢ Ironbark (GSM mobile coverage only) • Vodafone reports are no significant site outages (as at 17:30 14/01/2011 - vodafone.com.au) however local issues may still be present. • Optus has no listings of mobile network outages/issues within the Somerset region (as at 11:00 17/01/2011 – optus.com.au) however local issues may still be present.
.adio (2-way):	• Repeater now set up for both VHF and UHF and is operational next to Telstra tower. This will assist with communications to QFRS and SES crews. Allowing access to talk to Fernvale and Lowood bases. • Permission given by LDMG today for locks to be cut at the Telstra tower repeater site to enable access for QFRS Repeater to be temporarily placed. New locks supplied and installed.
Broadcast Radio / TV:	• Nil issues known

4. POWER

(If power out, include estimated time of reconnection)

Auxiliary:	
Mains:	Mains Power Outages (Source: Energex 12:26 19/01/11) Approximately 35 ENERGEX crews and contractors are continuing work in the area on repairs to the network where access to sites is available. **Fernvale** Fernvale township has been approximately 95% restored by connection of 2 x 1000KVA 11kV generators (Aspera Crt & Fernvale Town) and 2 x 500KVA LV generators (Woolworths). The main 11kV line from Wivenhoe substation to Fernvale has been damaged at the river near Fernvale Bridge and is currently in accessible for repair work. ENERGEX anticipates that repair works will be complete today and the generators disconnected. Some sections of 11kV network around England Creek are damaged. 8 transformers are isolated near the gravel plant (primarily feeding irrigation loads) and we are looking at building a new line to restore power over the next 3 to 4 days. Wivenhoe Pocket are currently out of service due to flood damage and inaccessibility to enable repairs. Access has been obtained and we expect restoration by COB Thursday. **Moore, Linville, Harlin** Supply has been restored to the majority of ENERGEX's high voltage network in this area. ENERGEX crews are progressively restoring the remaining sections of network as access becomes available. Having difficulty in gaining access past Crossing no1(near Gerry Ryans property) on Linville Mt Stanley Road. ENERGEX are aware of the faults having assessed by helicopter and is looking at access via other means.

	Kipper Creek Restoration expected to be completed by tonight. **O'Reillys Weir** A number of transformers are isolated, consisting mainly of irrigation loads. Access is by foot and expect restoration to progress aver the next 2 to 3 days. **Borallon** A number of customers are isolated and there is significant damage to ENERGEX assets. ENERGEX has made contact with many of the residents and dispatched generators by helicopter to those impacted. Currently scoping the repair works by helicopter. **Reconnection Process for Flood Damaged Homes & Businesses** For properties that have been affected by the flooding, ENERGEX cannot restore power until we have conducted an initial safety assessment. If the flooding has affected the electrical wiring and fittings in the house, an electrician must complete a more comprehensive inspection and may need to do some electrical work to repair or disconnect any faulty wiring. In some cases it may be necessary for the electrician to clean or replace some of the electrical equipment in the home, including the main switchboard. ENERGEX and Electrical Contractors are working together to ensure supply to a customer premise can be restored as quickly as possible. A process has been established to ensure Electrical Contractors and ENERGEX conduct appropriate safety checks at a premise before it is reenergised. ENERGEX is coordinating with the Master Electrician Association so that electricians will be in the areas where the ENERGEX crews have repaired the distribution network. If you have any questions about restoring supply to your premise you can contact the Master Electrician Association on 1300 889 198 or choose your own Electrical Contractor. When repairs have been completed by an Electrical Contractor and they have issued you with a certificate of test which certifies that the installation is electrically safe, the Electrical Contractor will contact ENERGEX to arrange for reconnection of the mains supply. Brochures explaining this process will be made available to Regional Councils and Community Centres today.

5. DAMAGE REPORTS

Buildings:	• Strike Teams x 3 deployed to Fernvale and Lowood ➢ – 1 team to Fernvale and 2 teams to Lowood today. ➢ 23 appliances and 68 fire fighters. ➢ 6 x RFS volunteers in Fernvale IMT. ➢ Information provided by crews to date indicate a total of 472 were inundated • Number of businesses have been impacted in Esk (approximately 14) and Lowood (approximately 4) • Kilcoy Report from QFRS Kilcoy – the entire town and outskirts are OK. Very little flood inundation recorded. 2 x bridges knocked out. Clean out of primary school. Crews drafted water from Old Aged home to prevent water entering. No further requests for assistance have been passed to QFRS in this area.Extensive damage to number of domestic properties from Minden to Lowood, Patrick Estate, Coominya, Esk, Toogoolawah, Wivenhoe Pocket and Kilcoy. Also damage to house rural properties. • Monday 17th of January there will be a strike team of 6 persons from DERM attending Fervale with 4 light attack appliances and 2 Tractors. They will be utilised for accessing bushland to properties still cut off. • Monday 17h of January – 2 x strike teams of 5 appliances each. 1 to Fernvale and 1 to Lowood to continue clean out/wash out and community

	presence. • 8 x Rural Volunteer brigades have been supplying clean out/wash out in Esk area. • Wivenhoe Pocket RFB advised 400 persons in the area requesting food drop and water. This has been passed to LDMG. It has been advised that the area is accessible and people are able to make access to collect supplies. Nil further required QFRS. • Wivenhoe Pocket RFB advises 50 houses hosed and cleaned – nil further requests for assistance received. Nil RDA has been done in the area. • Coominya RFB advises they have been assisting with 3 x house wash outs today and they will continue tomorrow. They are working closely with Lowood QFRS crews. • Biarra RFB advises nil RDA carried out in their area. Infrastructure damage only. They have concern for 2 properties – 1890 Esk Crowsnest Rd and 1780 Crowsnest Rd. These owners are elderly with a disabled person at one of the properties. This was handed to LDMG at 1725 16.1.11. • Inspected 226 Patrick Estates Rd following report from Ipswich DDC that an Army helicopter came across persons in need of assistance. Lowood QFRS strike teams in area attended to review and confirm nil issues on site.

Services:	The following update was provided by QUU on the 19 January 2011 at 1155:
	
	Operations & Assessment
	
	<u>Issues & Critical Incidents</u>
	Somerset
	• Lowood - 1 sewerage pump stations non operational
	• Fernvale - 2 sewerage pump stations non operational
	SEQwater
	• Lowood Water Treatment Plant is offline again. Update to be provided by SEQ Water.
	
	<u>Status of Systems:</u>
	Somerset
	• All WRP operational
	  ○ Esk STP 90% operational using diesel pumps
	  ○ Lowood STP 90% operational using diesel pumps
	• Three SPS not operating
	
	<u>Actions / intentions:</u>
	Somerset
	• Tankers have been arranged for pump stations.
	• Electrical equipment being dried out and failed equipment being replaced to recommission pump stations.
	• Esk STP and PS - Diesel pump used to pump from wet well to head of plant. Some treatment achieved. Normal operation should be achieved by end of week. Site clean up needs to be assessed for outflow of raw sewage into creek

- Lowood STP and PS's - Diesel pump used to pump from wet well to head of plant. Some treatment achieved. Normal operation should be achieved by end of week. NO7 Pump Station Lowood SP467 Lindemans Road not operational (overflows into gravity sewer system).

SEQwater

- QUU water tankers delivering water to Lowood treatment plant balancing tank and reservoir.

Overall Assessment:
Somerset

- All recovery focussing on recommissioning sewerage pump stations

AUTHORISED BY:

- Guy Mowat

Damage / Status Report

AREAS AFFECTED:
Somerset

- Esk
- Lowood
- Fernvale
- Kilcoy

Impact Area & Scale:

- Lowood, Fernvale and Kilcoy sewer reticulation

Safety Concerns:

Fatigue Management – Crews are being rotated.
Currently the incident team located in Ipswich are working on a shift change after seven hours. Two teams have been organised to alternate throughout the Recovery period. Ipswich outside staff are working their scheduled hour shifts.
Electrical and mechanical staff now on their normal rosters

- Flood waters
- Debris
- Working in wastewater overflow. Field staff informed of safety requirements.
- Personnel must be clear from receiving sewerage pump stations prior to placing stations online.

Communication Issues:

Coordination of procurement activities between the EMT and SDW Recovery Team.

Emergency Services Involved

- Police, Energex and SES.

Electricity ISSUES:

- Somerset – Energex advised that a transformer at Winnya and Mt Kilcoy rd will be offline for 4 hours (between 10am-2pm today). Paul Quinlan was advised of the outage.

Water Supply ISSUES:

- Water back to normal as at 0300 19/01/11

Pump Station ISSUES:
Four SPS have been flooded. Initial assessment completed.

Water reclamation plant ISSUES:
Somerset

- Esk WRP inlet pump station currently being repaired. Portable diesel pump now operating. Power is available, checking over main switchboard
- Lowood WRP inlet station currently being repaired. Portable diesel pump now operating.
- Fernvale WRP not accessible. Staff flown in by helicopter have investigated. WRP is capable of stage 1 sewerage treatment. Balance of systems to be checked in time.

Control Room ISSUES

- New Radtel base installed for the Esk Sewerage Treatment

OTHER WD Infrastructure ISSUES
Somerset

- Esk WRP inlet pump station currently being repaired. Portable diesel pump now operating. Power is available, checking over main switchboard
- Lowood WRP inlet station currently being repaired. Portable diesel pump now operating.
- Fernvale WRP not accessible. Staff flown in by helicopter have investigated. WRP is capable of stage 1 sewerage treatment. Balance of systems to be checked in time.

Equipment & Resources:
Additional resources have been sourced and a further six QUU Employees are currently working in the Lowood and Fernvale area.

Site and Incident Team status

- SDW Recovery Team activated in Bell Street with rosters until Monday 24 Jan

Regulatory or Media Issues

- Nil.

Customer Impacts

- Nil.

Any Other issues

An Incident Room Roster has been developed – please refer to embedded document.

The following update was provided by QUU on the 19 January 2011 at 0650

Somerset

Water:

- Fernvale is being supplied by Lowood Treatment Plant.
- Extra crews have been arranged on standby as a contingency plan for the water supply to the affected Lockyer Valley and Somerset areas.

Wastewater:

- Esk/Lowood Sewerage pumping station 90% operational - diesel pumps being used.
- Fernvale WRP access still flooded, plant is ok. Staff to be airlifted in to access. Still not operational. Repair recommendations being made. Not accessible.
- Esk WRP expected to be operational by Saturday 22 January. Inlet pump station being repaired – portable diesel pump being used.
- 10 sewerage pump stations down due to power outages and flooding.
- Lowood pumping station – diesel pump used. SP57 and SP467 not operational.
- Toogoolawah WRP fully operational.
- Esk WRP some treatment achieved and expected to be operational by 22/1/11.
- Kilcoy – Hope St pumping station is now operational.
- Four sewerage pumping stations are not operating.
- All WRPs are operational.
- Tankers being arranged for sewerage pumping stations. Electricals being dried out and failed equipment being replaced.

	Wastewater Infrastructure: • Verbal advise with confirmation to follow has been received by QUU of the public health issue regarding raw sewerage discharges into the Brisbane River due to non-functioning Sewerage Treatment Plants. Advice received that no public health threat as releases are in areas of non habitation and final release is in Brisbane River which dilutes the effects of the sewage. • Advice received from Somerset Council plumbing section that a media release regarding the need for servicing and checking on-site residential sewerage facilities is being composed. Residents with issues will be asked to contact service engineers. General advice received that on site residential sewage treatment plants are an enclosed system and are generally not effected by flood water. • Advice received from Somerset plumbing that septic tanks are an enclosed system and are generally not effected by flood water unless they have popped up out of the ground. Any cases of elevated tanks will be referred to council plumbing. • Fernvale STP – QUU still no access but are setup to move in as soon as allowed. • Lowood and Esk STP and pump stations - It is estimated that these will be back to full functionality on Wednesday, however QUU are trying to source additional equipment to have them functioning to a limited degree to reduce environmental harm by Monday 17/01/11. With this, there will no longer be raw sewage flowing into the waterways. • All sewerage spills are being reported through QUU and where relevant are being forwarded on to DERM Gas Pipeline: • Washouts along the pipeline within the Somerset Regional Council have been reported and Transmission Operations Technicians are attending to repairs. (received 18 January 2011 at 10:57am) Council Services: • Moderate flooding through Esk council office with damage to carpets, furniture and other items • Major damage to the Esk Library and Arts Centre with majority books destroyed. Road Infrastructure: • 600 man hours of work required to check all bridges, culverts, slope stability, pavement issues and all shire roads.
Environmental:	• Extensive damage to the environment has occurred, will not be able to fully assess until the water level subside.

6. POPULATION

Deceased:	• 1 x confirmed at Marburg. • There are no unconfirmed deceased. Cam Co Brett Hunt [redacted] confirmed no outstanding deaths.
Injured:	• We believe there have been numerous injuries that have been treated in Lowood and Esk, unable to establish exact numbers

Missing:	• Nil confirmed, believe some may have been reported to QPS. There are a lot of incidents were people are unable to contact friends or relatives however, does not necessarily mean they are miss due to poor communications within the Region
Homeless:	• Numerous residents have been evacuated from their homes.

7. EVACUATIONS

Numbers:	• Approximately 60 evacuees staying within evacuation centres • Approximately 150 are temporarily accommodated within the community • Feeding approx 100 people within the centres • DOC has made 135 emergency assistance payments totalling $105,230
Origin:	• Throughout the entire Region, mostly from the area were they are being housed
Destinations:	• Lowood, Esk,
acuation Centres:	**FERNVALE** **Evacuation Centre:** **Fernvale State School Hall** Current status: CLOSED **Supply Centre:** **Fernvale State School Hall** Contact Person: David Raine (Principle) – [redacted] Current status: OPEN 8am – 6pm daily (closed on Sunday) Week commencing 24 January 2011 - OPEN: 8am – 5pm Monday to Friday ONLY Expecting centre to be operational and manned by volunteers for approximately two (2) weeks Donations: ALL DONATIONS welcome at this centre **Community Recovery Centre:** **Fernvale Futures Complex** - [redacted] Contact Person: Vim Balachandran (Council personnel) [redacted] Current status: OPEN General Amenities: Power: Restored - limited via generator Water: Town water supply (not drinkable), adequate bottled water supplies. Fuel: Restored with $30 limit Food: Woolworths open and trading Phone: Restored **LOWOOD** **Evacuation Centre:** **Lowood High School Hall** Contact Person: Scott Aurisch (Council personnel) [redacted] Current status: centre will be closing on Thursday Residents: Approx. 32 people in evacuation centre at present (17/01/11) Extras: Approx. 20 people for lunch / dinner Amenities: Power/Phone: Restored Water: Town water supply (not drinkable), adequate bottled water supplies Fuel: Restored Food: Restored Issues: Approx. 5 families / individuals need URGENT assistance with seeking permanent housing as a priority. Request Department of Housing attend evac centre asap. Some security issues present as a result of one family who are residing there. Family home note damaged just without power

and water. Security presence requested overnight.

Donations: Referring to Fernvale State School Hall
Request community be advised via media that donations are not being accepted at Lowood State School Hall please forward to Fernvale State School Hall .

Security has been provided for this Centre.

ESK

Evacuation Centre: **Esk State School Hall**
Contact Person: Cathy Gannon – Ph: [redacted]
756 (various rostered on)
Current status: OPEN
Support from Apex,Lions Club, RSL, Freemasons general community and volunteers
Residents: Approx. 5 SES night of 17/01/11 (unsure of continuing status)
Extras: Provision of meals to flood affected residents / emergency service personnel
25 Caravan Park Residents – 2 meals a day (lunch and dinner)
2 x Police – 3 meals a day
15 x Disaster Management personnel – 1 meal per day (lunch)
7 x Fire Service personnel – 1 meal per day (Lunch)
Amenities: Power/Phone: Restored
Water: Town water supply (not drinkable), adequate bottled water supplies.
Fuel: Restored
Food: Restored

Issues: Fed 60+ people last night – unexpected numbers
Running low on food supplies if current numbers are maintained or increased
Request community advised via media that Centrelink are currently at Esk Evac, will be back tomorrow.

Donations: Accepting donated goods

TOOGOOLAWAH

Evacuation Centre: **Toogoolawah Town Hall**
Contact Person: Launa – Phone [redacted]
Current status: CLOSED

COOMINYA

Evacuation Centre: **Coominya Town Hall**
Contact Person: Carol Pilch, President Hall Committee – [redacted] (no support)
Current status: CLOSED / unless required in emergency

KILCOY

Evacuation Centre: **Memorial Hall, Kilcoy**
Contact Person: Scott Poole – Council Liason Officer – [redacted]
Current status: CLOSED

Emergency Management Centre: Kilcoy Fire Service
Contact Person: [redacted]

Transport Logistics:	• A military helicopter is being tasked to resupply isolated homesteads in the Moore, Linville, Avocavale and Mt Stanley areas

8. INDUSTRY

Council:	• All normal council activities are suspended whilst they attend to disaster response Waste/Rubbish Pickup: • Wheelie bin pick-ups have resumed in Kilcoy and surrounding areas by Cleanaway. • Cleanaway also collected wheelie bins in Linville, Moore, Colinton by a negotiated contract. • A meeting is to be held tomorrow with Wanless regarding continuation of servicing in the Esk and surrounding areas, in the mean time Ipswich waste services have been contracted to provide a full service run for the Esk and surrounding areas excluding Linville, Colinton and Moore this week. • Expectation for Wanless to resume normal servicing by next Monday (excluding flooded areas). • The Fernvale, Lowood and surrounding areas will receive a kerbside cleanup by Zanos contractors. Rob Boucher has been tasked to organise kerbside collection for the rest of the region. • Residents are asked to leave their bin out until it is collected. • In rural areas, bins should be placed as close as possible to the bitumen so that the garbage truck does not have to enter upon the road shoulder to collect the bin. • Household goods damaged as a result of the flood should be placed on the footpath in urban areas and clear of the road in rural areas. • A process is in place to collect these goods and transfer them to the Esk Landfill site. • Residents who have the capacity to transport their goods are encouraged to dump same at the Esk Landfill at *no charge.* Other Council Information: • Council Environmental Health Officers have conducted food premise inspections in Toogoolawah, Fernvale and Esk. Council EHO's report no issues in Toogoolawah and due to power issues and flood damage will continue inspections in the Fernvale and Esk areas. • Council EHO's have conducted inspections on the Fernvale evacuation centre and the Esk evacuation centre and will continue assessments.
Government Offices:	• Nil within the Region, Emergency Services are operating effectively
Schools:	• Nil issues known
Hospitals:	• Esk Hospital is open and has received supplies of essential medical goods
Private Enterprise:	Stores/Shops: • Most shops/outlets are receiving irregular delivery of some supplies from distributors (due to closure of distribution warehouses or limited access to heavy vehicles from warehouse to site) • Local shopping outlets open (but with limited fresh foods) include: - IGA Lowood (receiving delivery of groceries Mon) - Woolworths Fernvale - IGA Toogoolawah (receiving delivery of groceries Mon)

	- IGA Kilcoy, Bakeries and service stations are self stocking. Bakeries have bread for the weekend, with more flour expected on Monday. 2 loaves per family maximum. Fuel (as at 17/01/11 12:00): • No reported fuel issues
Department of Communities	Department of Communities have advised the following (19/1/11 at 11.28): Community Recovery Centres established at Fernvale Futures Complex with an outpost centre at the Lowood State High School with the following agencies present: • Department of Communities • Australian Red Cross • Lifeline • Queensland Health • Centrelink • Referrals are being made to other agencies and services as required Mobile Community Recovery teams are operating today at Esk. Will relocate the Lowood State High School operations to the Lowood Neighbourhood Hub as of Thursday 20 January to allow the school to prepare for the new school year. Will open an outpost centre in Esk in the coming days. Waiting for confirmation of the address.

9. LOCAL ARRANGEMENTS

Changes In Contacts:	• Local Disaster Coordinator is Tony Jacobs [redacted]
Problems Encountered:	• Communication within and external to the local government area
Staff / Resources Deployment:	LDMG IMT Operating at Somerset Council. SES **SOMERSET REGION SES UNIT** **SES ACTIVITIES CONDUCTED ON THE 17 JAN 2011** The following activities were being undertaken by the Somerset Region SES Unit who is being significantly supported by SES units from other areas – both within the state (Gold Coast, Logan, Scenic Rim and Moreton Bay); interstate (SA and NSW) and internationally (NZ).

SES presence in the following areas to assist with clean up and/or resupply: • Lowood; • Fernvale; • Lockyer Waters; • Brightview; • Clarendon; • Patrick Estate; • Coominya; • Atkinson Dam; • Minden Village; • Fernvale; • England Creek; • Mt Tarampa; and • Tarampa.	Information Received that Rural Fires had a presence: • Wivenhoe Pocket; • Prenzlau; • Lowood; • Fernvale; Rural Fires / QFRS have conducted numerous checks/ functions the above areas and other areas not mentioned. This information was the only information available to SES at the time of undertaking our planning.

The following are approximate numbers of SES personnel or personnel assisting SES on:

Lowood Area	70 SES Volunteers 40 Volunteers
Fernvale Area	37 SES Volunteers
Esk Area	20 SES Volunteers
Kilcoy Area	6 SES Volunteers
Toogoolawah Area	10 SES Volunteers

SES also attended to a number of requests for assistance received through phone in or the 132 500 number. These were attended to by diverting crews assisting with clean up and/or resupply.
SES provided overnight presence in the Lowood Evacuation Centre.
SES is confident that the majority of the southern end of the Somerset Region has received necessary attention that falls within the scope of the core business of the SES, as such we are scaling back all activities in that end of the Region and will return to providing a presence through requests for assistance only. There will be a small presence today completing checks on the Wanora and Vernor Area.

PROPOSED ACTICVITIES ON THE 18 JAN 2011
Planning meeting was held for SES on the 17/01/2011.

The following areas are proposed to have a SES presence to assist with clean up and/or resupply:

- Esk and district;
- Somerset Dam and district; and
- Bryden and district

Currently we have an estimated 100 SES volunteers from interstate and locally to assist.

In making our decisions on the areas to target we relied on information from Rural Fires that they had dealt with communities North of Linville and that they are were dealing with the two outlying communities of Redbank and Buaraba.

ISSUES GOING FORWARD
SES due to fatigue and volunteers returning to work are unable to supply overnight

	presence at the Lowood Evacuation Centre. The SES teams that are coming into the area are based in Brisbane and attend for the day only. Perhaps this matter should be referred to the Red Cross.
Police update	**Esk:** Sitrep for Esk Policing Division 1600hrs 18/01/2011 To 0800hrs 19/01/2011 is as follows: **Police Resources** 2 Esk police 2 police from Ipswich Police currently in Brisbane Valley area 24/7 plus callouts **Calls for Service re Flood Disaster** Police IMS Job 2011 refers. Large tree down on corner of Cedar Road and Dunlop Road, Mount Hallen. Police, Energex and council attended. Police IMS Job 4002 refers. Welfare check person at 1481 Atkinson Dam Road. POI at this address by name of Leanne. Police attended all ok and has communications. Police IMS Job 4030 refers. Traffic crash on Highland Street. Car into ditch. Occupant of vehicle decamped prior to police arrival. Police conducting further inquiries to locate driver. **Evacuation Centre** 25 Emergency workers eating for breakfast 50 Emergency workers eating for lunch 25 Caravan evacuees eating for lunch 10 Emergency workers eating for dinner 25 Caravan evacuees eating for dinner **Liaisons/Callouts from other Emergency Services** Nil **Ipswich:** Operational Hours for Ipswich District DDC are as follows: **Wednesday 19 January 2011.** 0700 hrs to 1700 hrs Inspector Mervyn Adamson (Deputy DDC) Sen.Sgt. Tracey Dale **DDC – On call** 1700 hrs to 0700 hrs Thursday 20/01/2011. Inspector David Preston [redacted] for urgent matters requiring attention of DDC. **Thursday 20 January 2011.**

	0700 hrs to 1700 hrs Inspector Mervyn Adamson (Deputy DDC) Sen.Sgt. Robbie Goodger **DDC – On call** 1700 hrs to 0700 hrs Friday 21/01/2011. Inspector David Preston [redacted] for urgent matters requiring attention of DDC.

10. ONGOING ACTIVITIES

(Include brief details of current operations; politician visits, etc)

- Somerset LDMG continue to monitor and respond to issues as they occur, whilst planning for upcoming operations
- The LDMG is continuing to plan for the recovery phase, with restoration already underway to critical infrastructure were access can be gained.
- Resupply of outlying and isolated properties is ongoing.
- The Somerset SES have been responding to requests for assistance from residence.

11. PROJECTED OPERATIONS

(Major problems next 24/48 hours. Anticipated resource requirements, including food re-supply)

- Rapid damage assessments, road checks and cleaning being performed by QFRS & SES – reports received late afternoon 18/01/11. (SES are continuing with assessments (19/1/11)
- Public health issues regarding town sewerage being discharged into the Brisbane River until the STP's are brough back online at Fernvale, Esk and Lowood
- LDC and the IMT will continue with the prioritising and coordination of areas and residence in relation to resupply
- Continue planning and execution of recovery operations.
- Preparation and release of community recovery newsletter – Issue #1

12. GENERAL OVERVIEW OF THE SITUATION

- The Somerset Regional Council Local Disaster Management Group is Active, as a result of the devastation within the Region.
- The LDMG had a meeting 17/01/11 at 1430 were a number of issues were raised these have been taken away by the appropriate personnel for further action. A further meeting will be conducted at 1430 today Monday 18/1/11.
- Some pockets of the Region that are down stream of the dams have been isolated due to the ongoing release of water from Somerset and Wivenhoe dams. It is estimated that the road will be accessible by Thursday Morning
- Evacuation centres are being staffed and run by a mixture of local organisations including; council, SES, RFS, church groups, hospital auxiliary and QPS, and the Red Cross.
- Main issue is the need for a complete assessment of all critical infrastructure, roads, bridges, slope stability; as well as a complete survey of all effected residents to determine what on going assistance will be required. Security has been provided at Lowood Evacuation Centre.
- Still collating information from SES and QFRS.
- Resupply continues to be the other main issue. Exacerbated by the poor communications.

Author	Date	Time:	**Local Disaster Coordinator** Tony Jacobs	Date	Time:

Richard Webber Planning Coordinator	19/01/11	1400 hrs	LDC Somerset LDMG	18/01/11	1400 hrs
Signature			**Signature**		