QUEENSLAND FLOODS
COMMISSION OF INQUIRY

STATEMENT OF JOHN NEVILLE BRADLEY

I, **JOHN NEVILLE BRADLEY**, of c/- 400 George Street Brisbane in the State of Queensland, Director-General, Department of Environment and Resource Management, solemnly and sincerely affirm and declare:

Requirement from Queensland Floods Commission of Inquiry

1. I have seen a copy of a letter dated 25 March 2011 from the Commissioner, Queensland Floods Commission of Inquiry to me requiring a sworn statement which is attachment **JNB-01** and which details the topics my statement should cover. I have seen a copy of a letter dated 30 March 2011 from the Executive Director, Queensland Floods Commission of Inquiry to Crown Law which is attachment **JNB-02** and which clarifies the requirements of item 12 of the first letter. I have seen a copy of a second letter dated 30 March 2011 from the Executive Director, Queensland Floods Commission of Inquiry to Crown Law which is attachment **JNB-03** and which advises of an extension of time for providing my statement.

Role

2. I am the Director-General of the Queensland Government Department of Environment and Resource Management (DERM).

3. I have held the position of Director-General of DERM from 26 March 2009 being the day the department was established. I was initially appointed as acting Director-General and formally appointed on 31 July 2009. The department was formed by an amalgamation of the former Department of Natural Resources and Water and the former Environmental Protection Agency.

4. As Director-General, I have overall responsibility for DERM's initiatives, budget and staff. The department employs approximately 5600 people in 89 offices and administers approximately 65 pieces of legislation.

5. Before joining DERM, I was the Chief Executive Officer of the Queensland Water Commission (QWC). Prior to that, I was an Executive Director in the Queensland Government Office of the Coordinator General. Prior to working in the Coordinator General's office I was the Executive Director of Western Australia's Electricity Reform Implementation Unit. Prior to my work in Western Australia, I held senior roles in Queensland's Energy and Treasury portfolios.

6. I was on leave from 25 December 2011 to the afternoon of Tuesday 11 January 2011 (when I returned from leave early). Debbie Best, Deputy Director-General Water and Ecosystem Outcomes, DERM was acting Director-General during this period and I was in regular contact with her.

7. **Item 1: My knowledge in relation to seasonal forecasts received from the Bureau of Meteorology from 1 September 2010 to 31 March 2011 and any action taken by me in response**

8. General seasonal outlook and weather forecast information from the Commonwealth Bureau of Meteorology (BoM) is publicly available and most regularly accessed via the BoM website. The monitoring of the published information from the BoM was ongoing during this period by myself and senior staff of the Department.

9. On 12 October 2010, I received a briefing from Mr Jim Davidson of BoM at the State Disaster Management Group meeting. The briefing addressed:
   (a) 2010 rainfall Australia-wide;
   (b) the record rainfall across Australia during September;
   (c) rainfall totals for the week of 14 October, and observations on the Southern Oscillation Index (SOI), including sea surface temperature anomalies for September 2010;
   (d) the rainfall outlook for October to December 2010;
   (e) the rainfall outlook for November 2010 to January 2011 (chance of exceeding the median rainfall);
   (f) the outlook for tropical cyclones in the Australian forecast region for 2010 to 2011;
   (g) historical data on Queensland tropical cyclones from 1959 to 2010; and
   (h) the La Nina effect generally.

10. In general terms, BoM's briefing indicated confidence in an active cyclone season, above average rains and potential flooding.

11. The BOM briefing provided further impetus to a number of activities which were underway at the time involving DERM and myself, including for instance:
   (a) Interagency discussion in relation to South East Queensland dam releases and public commentary on flooding risk;
   (b) Discussions with the resources sector in relation to their preparation for the 2010/11 wet season; and
   (c) Summer season preparation within DERM.

12. I met with relevant officers in relation to flood preparedness on Friday 15 October 2010. Staff involved included representatives of the SEQ Water Grid Manager and DERM's Office of Water Supply Regulator.

13. On 20 October 2010, I requested via email that staff of the Office of Water Supply Regulator and SEQ Water Grid manager work together to prepare the briefing note which Minister Robertson signed on 25 October 2010 to:
   (a) the Chair of the SEQ Water Grid Manager requesting advice regarding the operating level of key South East Queensland Dams (This letter is referred to below as **JNB-10**); and
   (b) to DERM requiring it to take steps to reinforce compliance obligations with other dam owners in relation to flood preparedness.

14. The weather outlook was discussed with the DERM Executive Management group (EMG). On 25 October 2010, I advised EMG that a number of reasonably likely weather events were coming for the 2010/2011 summer involving cyclones, storms and flooding and that the Premier had asked each agency to review its preparedness for those events. Relevant EMG members were tasked with:
    (a) preparing an updated DERM Disaster Management Plan;
    (b) ensuring that appropriate senior staff were rostered or placed 'on call' over the 2010/2011 Christmas and New Year period and throughout the school holidays; and
    (c) preparing an overview of preparedness for four identified 'Summer Issues' (mine discharges; parks; flows downstream of Wivenhoe; and dam safety generally). A copy of the relevant section of the minutes is attachment **JNB-04.**

15. DERM's preparedness for Summer Issues was reviewed at the DERM EMG meeting on 22 November 2010. A copy of the relevant section of the minutes is attachment **JNB-05.** A copy of the EMG Summer Issues Brief was attached and marked **DERM-07** in the Queensland Government's submission of 11 March 2011 to the Commission of Inquiry.

16. In addition to the discussion of these matters at the Executive Management Group, I received ongoing updates in relation to key preparatory activities by DERM. I convened a Situation Report meeting on Thursday 23 December 2010 to review each aspect of readiness by DERM and related agencies. The meeting was attended by staff responsible for Environmental and Natural Resource Regulation, Regional Service Delivery including mine readiness, the Office of the Water Supply Regulator and the SEQ Water Grid Manager. In this meeting those staff provided an update on current status and risks, incident management readiness and resource availability.

17. I also received regular weather forecast reports following the establishment of the State Disaster Management Group on 24 December 2010. These weather forecasts were included in the format of the State Disaster Coordination Centre Situation Reports, which were generally provided on a daily basis or more frequently as required.

18. As a participant in the State Disaster Management Group, I received briefings on weather forecasts from the Bureau of Meteorology. These reports were provided in an integrated manner with the update on hydrology from the BoM and the update on SEQ Water Grid operations including dam releases from the SEQ Water Grid Manager.

19. In late January, at my request, DERM's Acting Director of the Queensland Climate Change Centre of Excellence liaised closely with BoM in relation to the outlook for South East Queensland. Specific attention was given at that time to the potential for the region to be impacted by Ex-Tropical Cyclone Anthony and this was the subject of email advice on 27 January 2011[1].

[1] Email included in log of communications in response to Items 12 and 13 (JNB-29)

20. I also participated in a personal briefing from Mr Jim Davidson of BoM along with the Honourable Stephen Robertson MP, the Minister for Natural Resources Mines and Energy and Minister for Trade and Peter Borrows, the Chief Executive of Seqwater on 11 February 2011. This briefing informed consideration of the Seqwater recommendation to reduce the operating level of Wivenhoe Dam to 75% of its Full Supply Level. I acknowledged this BOM information in a letter to Seqwater dated 11 February 2011 (see attachment **JNB-18**) in which I agreed to facilitate the implementation of Seqwater's recommendation.

Item 2: My role in relation to the Full Supply Level of Wivenhoe and Somerset Dams ('the dams')

21. As the Director-General of DERM, I am the chief executive under the *Water Supply (Safety and Reliability) Act 2008* ('Water Supply Act') and the *Water Act 2000* ('Water Act').

22. Section 371 of the Water Supply Act provides that I, as the chief executive, may approve by gazette notice a flood mitigation manual prepared and submitted for approval by the owner of a dam.

23. Section 372(1) of the Water Supply Act provides that I, as the chief executive, "may require the owner of a dam, by notice, to amend the flood mitigation manual for the dam". Section 372(3) of the Water Supply Act provides that "If the owner complies with the requirement, the chief executive must, by gazette notice, approve the manual as amended."

24. The flood mitigation manuals for Wivenhoe Dam and Somerset Dam and for North Pine Dam define the 'Full Supply Level' for those dams. There is one manual for the operation of both Wivenhoe and Somerset Dams in which Full Supply Level for Wivenhoe Dam is described as 67 metres and Fully Supply Level for Somerset Dam is described as 99 metres. The manual for the operation of North Pine Dam describes Full Supply Level as 39.6 metres.

25. I have delegated my powers in relation to flood mitigation manuals in sections 371 to 373 of the Water Supply Act to senior officers of DERM within the Office of the Water Supply Regulator. The current instrument of delegation is the *Water Supply (Chief Executive) Delegation (No. 1) 2010* and is attachment **JNB-06**.

26. The current flood mitigation manual for Wivenhoe and Somerset Dams titled the *Manual of Operational Procedures for Flood Mitigation and Wivenhoe Dam and Somerset Dam* was approved by gazette on 22 January 2010 by the Director, Dam Safety, Office of the Water Supply Regulator as my authorised delegate under the then *Water Supply (Chief Executive) Delegation (No. 1) 2009* which is attachment **JNB-07**.

27. The current flood mitigation manual for North Pine Dam titled the *Manual of Operational Operation Procedures for Flood Mitigation for North Pine Dam* was approved by gazette on 17 December 2010 by the Director, Dam Safety, Office of the Water Supply Regulator as my authorised delegate under the current *Water Supply (Chief Executive) Delegation (No. 1) 2010.*

28. The 'Full Supply Level' and 'Full Supply Volume' of Wivenhoe Dam are described as 67 metres and 1 165 200 megalitres respectively in Attachment 5, Table 1 of the Moreton Resource Operations Plan (Moreton ROP) dated December 2009.

29. The 'Full Supply Level' and 'Full Supply Volume' of Somerset Dam are described as 99 metres and 379 850 megalitres respectively in Attachment 5, Table 3 of the Moreton ROP dated December 2009.

30. The 'Full Supply Level' and 'Full Supply Volume' of North Pine Dam are described as 39.6 metres and 215 000 megalitres respectively in Attachment 5, Table 3 of the Moreton ROP dated December 2009.

31. Section 95 of the Water Act provides that the chief executive "may prepare a resource operations plan [ROP] to implement a water resource plan [WRP] for any water in the plan area" after preparing a "draft resource operations plan".

32. A draft Moreton ROP was prepared by the previous Director-General or delegate of the then Department of Natural Resource and Water and released on or about 13 January 2009.

33. Debbie Best, Deputy-Director-General DERM, my delegate under the *Water Act (No. 1) Delegation 2009* (attachment **JNB-08**), prepared the final Moreton ROP under section 103(2) of the Water Act. The Moreton ROP was approved by the Governor-in-Council on 4 December 2009 and gazetted on 7 December 2009.

34. On or about 22 October 2010, I approved the contents of a briefing note to (including draft correspondence from) the Honourable Stephen Robertson MP, then Minister for Natural Resources, Mines and Energy and Minister for Trade.

35. That brief was approved by the Minister on 25 October 2010 and is attachment **JNB-09**. On approval of that briefing note, I am aware that the Minister sent a letter dated 25 October 2010 to the Chair, SEQ Water Grid Manager noting, among other things, current water security issues and seeking "urgent advice about whether this water security provides an opportunity to reduce the volume of water stored in key dams as a means of reducing the severity, frequency and duration of flooding in downstream areas". A copy of this letter is attached and marked **JNB-10**.

36. I understood, as a result of the above briefing note and letter, the Minister had initiated a review of the storage levels in south east Queensland dams including Wivenhoe Dam, North Pine Dam and Leslie Harrison Dam by the SEQ Water Grid Manager and associated statutory water entities including the South East Queensland Bulk Water Authority *trading as* Seqwater ("Seqwater"). Seqwater is the owner and operator of 23 referable dams in Queensland including Wivenhoe Dam, Somerset Dam, North Pine Dam and the Leslie Harrison Dam.

37. By letter dated 24 December 2010, the Chair of the SEQ Water Grid Manager provided a reply to the Minister's letter of 25 October 2010. A copy of that reply

is attached and marked **JNB-11**. I first saw the actual letter around 15 January 2011 when I was emailed a copy.

38. In summary, my understanding of that reply is that the urgent review undertaken by the SEQ Water Grid Manager and associated water entities resulted in:
    (a) the Minister being advised that releasing water to below Full Supply Level may provide some benefits in terms of reduced community and operational impacts during minor inflow events;
    (b) the Minister being advised that a pre-emptive release of the scale of at least 250,000 ML was not recommended based on information then currently available. The potential water security impacts were considered to be more significant than the negligible benefits;
    (c) the Minister being advised that the SEQ Water Grid Manager had no objection to minor releases from Wivenhoe and Somerset Dams to 95% of Full Supply Level and from North Pine Dam to 97% of Full Supply Level; and
    (d) SEQ Water Grid Manager and Queensland Water Commission determined that those minor releases would have no impact on water security.

39. Prior to receipt of SEQ Water Grid Manager's final response to the Minister, I had a telephone conversation in early December with Dan Spiller, Director of Operations of the SEQ Water Grid Manager where I sought to establish the SEQ Water Grid Manager's progress in replying to the Minister's request. In that conversation Mr Spiller indicated that Seqwater's current analysis indicated that pre-emptive releases were unlikely to be a recommended strategy. Mr Spiller informed me that the SEQ Water Grid Manager had been waiting for further input from Seqwater which was required before the SEQ Water Grid Manager's advice could be formalised. However, he emphasised that the outstanding information was being sought urgently.

40. If the Full Supply Level for any of the dams was to be changed on a permanent basis this would need to be done under both the Water Act and the Water Supply Act. The Water Supply Act details the process by which the flood mitigation manuals could be varied to change the Full Supply Level. The Water Act details the process by which the Moreton ROP could be varied to change the Full Supply Level. Also clause 2.8 of the flood mitigation manuals would allow a Senior Flood Operations Engineer to change the Full Supply Level on a temporary emergency basis during a declared flood event after consultation (or reasonable attempts at consultation) with the Chairperson of Seqwater and myself (or my delegate(s) if I could not be located) as the Chief Executive of DERM.

Item 3: My role in relation dam operations at Wivenhoe, Somerset and North Pine Dams

41. I do not have any role in the day to day operations at Wivenhoe, Somerset and North Pine Dams.

42. As described above, I have a power under the Water Supply Act to approve the flood mitigation manuals prepared and submitted by Seqwater for the above dams. I have delegated those powers to senior officers in the Office of the Water Supply Regulator within DERM.

43. As chief executive, my delegates and I also have a role under clause 2.8 "Reasonable Discretion" of the flood mitigation manual for Wivenhoe and Somerset Dams to "authorise any departures from the Manual" by the Senior Flood Operations Engineer who has diseretion under that clause "to depart from the procedures set out in this Manual to meet the flood mitigation objectives ... if in the opinion of the Senior Flood Operations Engineer, it is necessary".

44. An identical "reasonable discretion" is provided in clause 2.8 of the flood operations for North Pine Dam.

45. I understand that clause 2.8 has not been exercised in the past.

46. I understand that clause 2.8 was exercised on 18 January 2011 when Seqwater sought an approval from DERM to depart from the procedures to allow the temporary drawing down of the Wivenhoe reservoir to 95% of the Full Supply Level storage capacity. This variation was necessary to enable a constant flow for the Lowood Water Treatment Plant off-take in order to stabilise emergency pumps and to allow a slower reduetion in the flow volume in the Brisbane River to minimise bank slumping. The approval was given verbally by my delegate, Mr Robert (Bob) Reilly, and confirmed by email which is attachment **DERM-12** to the Queensland Government's submission of 11 March 2011 to the Commission of Inquiry.

Item 4: When, how and why the Full Supply Level which existed for the dams at the time of the January 2011 flood event was determined

47. My answers to the above items also apply to this item.

48. It is my understanding that there have not been any changes to the Full Supply Levels since the Wivenhoe, Somerset and North Pine Dams were first constructed.

49. I am aware that a review of the Full Supply Level of Wivenhoe and Somerset Dams was undertaken in a report dated March 2007 and prepared for the Queensland Water Commission and the Department of Natural Resources and Water by the then constituted SEQWater. A copy of that report was attached and marked **DERM-16** in the Queensland Government's submission of 11 March 2011 to the Commission of Inquiry. That report recommended leaving the Full Supply Level of Somerset unchanged but giving eonsideration to increasing the Full Supply Level of Wivenhoe Dam by 2 metres. This increase would be effected by simply changing the definition of Fully Supply Level in the flood mitigation manuals and the Moreton ROP from 67 metres to 69 metres rather than by doing any works to the dam. This would increase the water supply capacity of the dam while consequently reducing the flood mitigation capacity of the dam. This recommendation was not implemented at that stage and the Full Supply Level of Wivenhoe Dam was not changed. Some emails from Debbie Best to me in mid-February 2011 are attachment **JNB-11A** regarding the postponement of consideration of this matter as part of a QWC Project Reference Group until the Commission of Inquiry had considered the matter.

50. I understand that Mr Peter Allen, Director, Dam Safety, Office of the Water Supply Regulator of DERM (and my authorised delegate for the purposes of flood mitigation manuals under the Water Supply Act) will provide a statement on these issues in greater detail. I also expect that officers from Seqwater – as the owner and operator of the dams – will be in a position to answer this topic in detail.

Items 5-11:
My account of all discussions, correspondence, meetings or briefings I participated in from 1 September 2010 to 30 March 2011 regarding possible alteration of the Full Supply Level of the Dams.
All notes made of all discussions or meetings regarding changes to the level of the Dams between 1 September 2010 and 30 March 2011.
Any decision by me regarding the level of the Dams.
Any written record regarding any decision made by me regarding the level of the Dams.
How (in terms of regulatory or legislative changes, directives to operators etc), and why the amount of water in the dams decreased in February 2011.
Details, including verbatim accounts where possible, of all discussions, correspondence, meetings or briefings regarding decreasing the dams' levels in January and February 2011.
Details, including verbatim accounts where possible, of all discussions, correspondence, meetings or briefings regarding releasing water from the dams to decrease their level in December 2010 or January 2011 (but without altering the Full Supply Level).

51. During the period concerned, I am aware of consideration being given by Government or operational entities to altering the operating level of Wivenhoe, Somerset or North Pine Dams in four primary contexts:
    (a) The Minister's request to the SEQ Water Grid Manager for advice on 25 October 2010. This was primarily addressed under Item 2.
    (b) The decision on 18 January 2011 to undertake the temporary draw down of the Wivenhoe reservoir to 95% of the Full Supply Level in order to enable a constant flow for the Lowood Water Treatment Plant off-take in order to stabilise emergency pumps. This has been discussed under Item 3.
    (c) Seqwater's preliminary Review titled *January 2011 Flood Event* prepared on or about 16 January 2011, which included initial estimates of the potential mitigation effect if dam levels had been lower prior to the Flood Event. This preliminary Review was a separate piece of advice to the formal *January 2011 Flood Event Report on the Operation of Somerset Dam and Wivenhoe Dam* dated 2 March 2011, which is required under the Flood Operations Manual and which I have previously forwarded to the Commission. This will be primarily addressed under this section.
    (d) The implementation of a reduction of the Wivenhoe Storage to 75% of the Full Supply Level, which saw releases commence on 20 February 2011. This will be primarily addressed under this section.

52. The *January 2011 Flood Event* preliminary review by Seqwater is attachment **JNB-12**. That report provided an assessment of the relative benefit of drawdown below full supply level prior to the January 2011 Flood Event. It also provided,

for scenarios based on the January 2011 Event, Seqwater's estimation of the Peak Height and Peak Capacity which would have been reached during the event if the Dam had been drawn down to specified scenarios.

53. Minister Robertson wrote to Seqwater on 20 January 2011 (**JNB-13A**). The letter noted that the Premier had announced the formation of a Commission of Inquiry and it would produce an Interim Report before the next wet season. Nevertheless, the Minister requested Seqwater to:
    (a) complete its Report required under the Flood Mitigation Manual as a matter of priority and urgency;
    (b) prepare a contingency protocol to respond to forecasts of significant inflows if they occurred during the interim; and
    (c) address improvements to the Dam Release protocol.

54. I met with Seqwater on a number of occasions to discuss their assessment of these issues including:

(a) *On Tuesday 25 January 2011, with DERM staff and QWC representatives.*

My recollection is that at this meeting Seqwater explained the likely timing of its response to the Minister in relation to the requested advice. Seqwater indicated that it was preparing to undertake urgent modelling analysis regarding options to reduce the Wivenhoe Dam operating level. The meeting also discussed the contribution by the SEQ Water Grid Manager and QWC to analyse the water security consequences of any potential reduction in the dam operating level.

(b) *On Tuesday 1 February 2011 via teleconference, with DERM staff and QWC representatives*

My recollection is that at this very brief meeting Seqwater provided an update on the likely timing of its modelling analysis.

(c) *Friday 4 February 2011, with DERM staff and QWC representatives*

My recollection is that at this meeting Seqwater provided an overview of its approach to the analysis and preliminary results. It indicated that it expected to finish its assessment by the following Tuesday. There was a detailed discussion about Seqwater's proposed approach that the alteration to the operating level would be authorised under the provisions of the ROP, rather than the Flood mitigation manual. The Contingency Protocol was also discussed at this meeting.

(d) *Tuesday, 8 February 2011, via teleconference with DERM staff;*

My recollection is that this meeting primarily discussed the potential regulatory process under an interim program in accordance with the ROP.

(e) *Tuesday, 8 February 2011, with Minister Robertson and his staff;*

My recollection is that at this meeting Seqwater spoke to the Minister about its preliminary modelling (as provided to the Department under the letter of 7 February 2011 referred to below). It was indicated that a significant reduction in the operating level (of 25% or more) would provide substantial flood mitigation benefit, if it could be sustained for a temporary period without unacceptable water security risk.

(f) *Wednesday 9 February 2011 with DERM staff;*

At this meeting Seqwater gave an indication of the likely sequence required to give effect to its recommendation to reduce the operating level, if that recommendation were to be made by the Board and accepted. It discussed issues related to the amendment to the ROP, the approval of an Interim Program and associated issues.

55. I also provided updates on the likely timing of the receipt of Seqwater's assessment of these matters to Minister Robertson and staff verbally including on:
    - Tuesday 25 January 2011;
    - Thursday 10 February 2011; and
    - Friday 11 February 2011.

56. Prior to making its final recommendation in its correspondence to me of 10 February 2011, Seqwater provided the following correspondence:
    (a) letter dated 27 January 2011 (**JNB-13**) responding to the letter from the Minister dated 20 January 2011 (**JNB-13A**) and confirming the outcome of the meeting of 25 January 2011 referred to above. In this letter, Seqwater stated that it would seek to undertake further modelling to provide an indicative assessment of the benefits or otherwise of undertaking a pre-release strategy to pre-emptively reduce the Full Supply Level (FSL) of Wivenhoe Dam.
    (b) letter dated 4 February 2011 (**JNB-14**) with further update;
    (c) draft contingency protocol, by letter dated 7 February 2011 to me (**JNB-15**); and
    (d) correspondence dated 7 February 2011 to me enclosing a summary of Seqwater's scenario analysis titled "*Impact of Reducing the Full Supply Level of Wivenhoe Dam on Flood Discharges*" (**JNB-16**).

57. On 10 February 2011 Seqwater wrote to me (a copy of this letter is attachment **JNB-17**) advising that Seqwater recommended that Wivenhoe Dam's storage level be temporarily reduced to 75% of Full Supply Level in order to temporarily increase its flood mitigation capacity. Seqwater premised this recommendation on the following factors:
    (a) Advice from SEQ Water Grid Manager ("Grid Manager") to Seqwater that the Grid Manager had no objection from a water security perspective to Wivenhoe Dam being drawn down to 75% of Full Supply Level and that such a draw down, if temporary, would be unlikely to impact the Grid Manager's obligations;
    (b) Modelling by Seqwater of various potential flood events which confirmed that a reduction in Wivenhoe Dam's storage level to 75% of Full Supply Level would provide appreciable flood mitigation measures; and

(c) The extreme nature of the January 2011 event.

58. On Friday 11 February 2011, I met with Minister Robertson, Peter Borrows of Seqwater and Jim Davidson of the Bureau of Meteorology. The primary purpose of this meeting was the briefing by BoM. A copy of the briefing is attachment **JNB-16A.**

59. I responded to Seqwater's letter by way of letter dated 11 February 2011 (a copy of this letter is attachment **JNB-18**).

60. Minister Robertson and Seqwater's Peter Borrows announced the recommendation of Seqwater to reduce the operating level to 75% on Sunday 13 February 2011 at a media conference.

61. Queensland Bulk Water Authority *trading as* Seqwater ("Seqwater") is the holder of the Resource Operation Licences (ROLs) for the Central Brisbane River and Stanley River Water Supply Schemes (covering Wivenhoe and Somerset dams). The severe flooding experienced in the Brisbane River system in January 2011 and the ongoing *La Nina* weather patterns resulted in Seqwater, the holder of the ROLs, seeking to and submitting a revised Interim Program for the operation of Wivenhoe Dam.

62. The Moreton Resource Operations Plan 2009 (Moreton ROP) was amended to allow the holder of a ROL with an Interim Program, approved under section 13 of the Moreton ROP, to submit a revised Interim Program for the chief executive's consideration. The amendment to the Moreton ROP was approved at a special Governor-in-Council meeting and subsequently gazetted on Monday 14 February 2011 (a copy of the gazette notice is attachment **JNB-19**).

63. The amendment to the Moreton ROP inserted a new section 6A as follows:
"(6A) Despite anything in subsections 2, 3 or 4, a resource operations licence holder with an approved interim program may submit to the chief executive a revised program for consideration under subsection 7."

64. I received on or about 14 February 2011, a copy of a letter of that date from Karen Waldman the Chief Executive Officer of Queensland Water Commission to Peter Borrows, the Chief Executive Officer of Seqwater enclosing a draft report titled Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam (a copy of the letter and draft report is attachment **JNB-20**). I am shown as a 'cc' at the foot of the letter.

65. On 17 February 2011 Seqwater submitted a Revised Interim Program (a copy of the Revised Interim Program together with the letter submitting it is attachment **JNB-21**) for the operation of Wivenhoe Dam.

66. The Revised Interim Program included the following relevant wording:
"Seqwater will, between 20 February and 31 March 2011 ("2011 Summer Season") and subject to the operational constraints specified below, make the following releases from infrastructure –

(a) the volume necessary to initially reduce Wivenhoe Dam to the Interim Supply Security Level; and
(b) volumes necessary to reduce back to the Interim Supply Security Level, where inflows occur during the 2011 Summer Season that take the Wivenhoe Dam level to between the Interim Supply Security Level and the Full Supply Level.

The releases specified in (a) and (b) will only be made where releases can be undertaken at a rate such that Burtons Bridge remains trafficable.

If, after releases specified in (a) or (b) have commenced, a flood event is declared, the dam will be operated in accordance with the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam. Once the flood event has ended and the dam level is brought back to the Full Supply Level, the releases specified in (a) and (b) will be recommenced.

For the purpose of the above, "Interim Supply Security Level" means 64.0 m AHD."

67. The operations in accordance with the relevant part of the Revised Interim Program involved Seqwater releasing waters from Wivenhoe Dam (additional to usual requirements for downstream demand or minimum flows) on a temporary basis (from the period commencing 20 February 2011 until 31 March 2011) to achieve a storage level of 75% of the Full Supply Level. Furthermore, as necessary during the term of the Relevant Part of the Revised Interim Program, when a storage level of 75% of the Full Supply Level is achieved and there are any subsequent in-flows into the storages of the Dams which then increase the storage level above 75% of the Full Supply Level Seqwater was to recommence the release of waters to regain a storage level of 75% of Full Supply Level and to maintain that storage level of 75% of the Full Supply Level until the end of the Relevant Part of the Revised Interim Program. If there was a Flood Event Seqwater was to follow procedures in the Flood Mitigation Manual.

68. I, as Chief Executive under the Water Act, approved the Revised Interim Program pursuant to section 13 of the Moreton Resource Operations Plan 2009 (as amended) on 17 February 2011. A copy of the briefing note showing the approval is attachment **JNB-22** and my letter to Seqwater approving the Revised Interim Plan is attachment **JNB-23**.

69. The State also agreed to provide two indemnities to Seqwater:
(a) an indemnity for Seqwater's operations under the Relevant Part of the Revised Interim Program to provide a similar protection to section 374 of the *Water Supply (Safety and Reliability) Act 2008*; and
(b) an indemnity for Seqwater's operations under the Relevant Part of the Revised Interim Program to provide a similar protection to Seqwater's current insurance policies.

These indemnities were provided by way of Deeds of Indemnity between the parties. The Treasurer's in-principle agreement to the provision of the indemnities was obtained and I signed the Deeds on behalf of the State on 17 February 2011.

70. The Revised Interim Plan does not alter the Full Supply Level for Wivenhoe Dam. It merely permits Seqwater to hold water to a storage level of 75% of Full Supply Level and to maintain that storage level at 75% of the Full Supply Level until 31

March 2011. Seqwater commenced releases from Wivenhoe Dam on 20 February 2011.

71. On 30 March 2011, Seqwater confirmed in writing that it would not propose any extension of the Interim Supply Security Level of 75% of FSL (see attachment **JNB-24**).

72. On 31 March 2011, Seqwater wrote to me advising that it had not been able to complete detailed modelling work to better quantify the assessed benefits of operating Wivenhoe Dam at a different FSL. Seqwater indicated that while it had intended to complete this task by 31 March, it had been delayed due to the need to finalise an agreed approach with Brisbane City Council and other urgent priorities relating to its preparation for the Commission of Inquiry (see attachment **JNB-25**).

73. In relation to Items 10 and 11, in addition to the matters outlined above, I received and participated in other communications related to dam releases, for instance in the form of :
    (a) Technical Situation Reports on Dam Releases, such as those related to a proposed release of 30,000 ML commencing on 13 December 2011 (as per TSR W1) and 17 December 2011 (TSR W5);
    (b) Emails from the SEQ Water Grid Manager in relation to these events and associated material such as draft press releases, advertising and fact sheets from SEQ Water Grid Manager;
    (c) Various meetings related to dam releases including for instance:
        - Meeting with Office of Water Supply Regulator and SEQ Water Grid Manager on the Dam Release Protocol and other aspects of flood preparedness on 15 October 2010;
        - Meeting with DERM and SEQ Water Grid Manager regarding Summer Issues Preparedness Situation Report on 23 December 2010;
        - Meetings of the State Disaster Management Group which received updates on dam releases; and
    (d) Email communication with the Brisbane City Council in relation to its post-event assessment of flooding including requests for assistance from DERM.

74. A log of correspondence, emails, meetings or briefings regarding the above matters in this section is attachment **JNB-26**. Where documents or meetings are the subject of privilege this has been noted. Where documents relating to items in the log have been previously provided this has been noted. Where documents have not been previously provided they are attached where possible.

Item 12: An account of all briefings within my knowledge, verbatim where possible, prepared by the Department of Environment and Resource Management for any Minister or disaster management authority or personnel.

Item 12 Clarification: An account of all briefings within my knowledge, verbatim where written briefings are not available, prepared by the Department of Environment and Resource Management for me or any Minister or disaster management authority or personnel between 1 October 2010 and 31 March 2011

regarding water supply in South East Queensland, flooding in South East Queensland or the operation of Wivenhoe, Somerset or North Pine Dams.

Item 13: An account of all briefings I received, verbatim where possible, from any State Government department between 1 to 19 January 2011 regarding flooding or dam operations.

75. On 27 January 2011 I received a briefing from Departmental staff on a research paper which had been requested during my absence in early January from the Acting Director General by Minister Robertson. The document was entitled *"Rapid Assessment of Flood Mitigation Benefits of Dams"* and a copy is attachment **JNB-27**.

76. In addition to the briefings referred to earlier in this statement, there were also briefings prepared assessing flooding impacts from the perspective of other sections of DERM, such as the State Valuation Service, which provided advice to the Ministerial office on 25 February 2011.

77. Minister Robertson also received briefings on some relevant matters as part of a regularly scheduled briefing with the Director General including:
    (a) An update on the status of gauging stations on Friday 7 January 2011 (undertaken by the Acting Director General and staff in my absence) following regional flood events;
    (b) Briefings on (1) flood line mapping and (2) Flooding Impacts on Valuations on Friday 28 January 2011;
    (c) A briefing on 11 February 2011 on the Impacts on Land from Flooding; the preparation of the Environment Recovery 'roadmap' and the establishment of the Queensland Floods Commission of Inquiry.

    A copy of the agendas for these briefings is attachment **JNB-28**

78. A log of briefings regarding the matters in this section is attachment **JNB-29**. Where documents or meetings are the subject of privilege this has been noted (documents relating to cabinet are provided as attachment **JNB-30**). Where documents relating to items in the log have been previously provided this has been noted. Where documents have not been previously provided they are attached where possible. By implication all the documents in attachment **JNB-26** also belong in this category however they have not been duplicated in attachment **JNB-29**.

79. Attachment **JNB-30** contains some documents identified in attachment **JNB-29** as being subject to cabinet privilege which I have decided to release to the Commission. I have not released any cabinet documents in the strict sense (that is, a cabinet submission, matters to note, cabinet briefing note etc) or any documents which might not be cabinet documents in the strict sense but which 'belong' to another government department.

Item 14: An account of all communications I had, verbatim where possible, or any briefings received from the Flood Operations Centre between 1 and 19 January 2011.

80. I did not receive any communications or briefings directly from the Flood Operations Centre between 1 January 2011 and 19 January 2011. In accordance with the draft Dam Release Protocol I received all my briefings regarding Flood Operations Centre operations from the SEQ Water Grid Manager.

81. I received, by email, technical situation reports (TSRs) from Dan Spiller, Director, Dam Operations, SEQ Water Grid Manager. These reports are in Appendix F of the Seqwater January 2011 Flood Event Report on the Operation of Somerset Dam and Wivenhoe Dam dated 2 March 2011. The emails by which I received the TSRs are included in attachment **JNB-29**.

I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867*.

Signed . [redacted]

John Neville Bradley

Taken and declared before me, at Brisbane this 4th day of April 2011

. . . . [redacted] . . . .

Solicitor/~~Barrister/Justice of the Peace/Commissioner for Declarations~~

DAM FULL SUPPLY LEVEL (FSL) INVESTIGATIONS
SEQWATER GATED STORAGES

INTRODUCTION

The following short paper examines the issues associated with temporary lowering the full supply levels of Seqwater's gated dams to improve short term flood mitigation benefits. The paper considers Wivenhoe Dam, Somerset Dam, North Pine Dam and Leslie Harrison Dam.

WIVENHOE DAM AND SOMERSET DAM

Wivenhoe Dam and Somerset dam control only 50% of the Brisbane River catchment (Bremer River and Lockyer Creek catchments are not controlled), therefore the Flood Mitigation benefits provided by the dam will depend on the rainfall distribution experienced during a flood event. This makes it difficult to quantify exactly the benefits of lowering the storage in anticipation of possible flood rains.

There are primarily two types of flood events that may occur in the Brisbane River Catchment. There are the smaller events that impact primarily on the rural bridges upstream of Moggill and the larger events that impact on urban areas in Brisbane. The threshold that separates these two events is a river flow of around 3500 cubic metres per second at Moggill. To understand the possible benefits of lowering the storage to reduce flooding impacts, it makes sense to discuss these two types of events separately.

Events Impacting on Bridges (Moggill Flow < 3500m^3/s) – Limited Urban Impacts

In recent history, flood events of this nature occurred in April 1989, February 1999 and October 2010. The flow characteristics of events of this type are shown in the following table.

Event	Wivenhoe Dam					
	Starting Level		Volume Of Inflow	Volume Of Outflow	Peak Outflow	Peak Water Level
	m AHD	%	ML	ML	m3/s	m AHD
Early April 1989	67.06	>100	690,000	690,000	1,620	69.78
Late April 1989	67.00	100	870,000	820,000	1,490	71.45
February 1999	63.92	<100	1,220,000	900,600	1,800	70.45
October 2010	67.03	>100	640,000	640,000	1,300	69.65

The October 2010 event was examined to determine the benefits of lowering the storage level. This event commenced with the dam at FSL. The event was examined with the dam at 95% capacity, 90% capacity, 80% capacity, 50% capacity and empty at the commencement of the event. The results are shown in the following table. When reading the table it is important to understand that the bridges are impacted not just by outflows from Wivenhoe, but also by flows from the uncontrolled areas of the river catchment. Accordingly, the location of a bridge within the system will dictate the size of catchment area that will impact on the bridge. All inundation times shown in the table are approximations only, made for the purposes of this investigation.

Dam Percentage Full at Event Commencement	Approximate Duration of Wivenhoe Radial Gate Releases/ Twin Bridges Inundation (hours)	Approximate Duration of Savages Crossing and Colleges Crossing Inundation (hours)	Approximate Duration of Burtons Bridge and Kholo Bridge Inundation (hours)	Peak Flow at Moggill (m^3/s)
100%	230	247	183	1848
95%	187	214	183	1848
90%	185	214	183	1841
80%	172	214	183	1786
50%	130	214	153	1722
0%	0	189	38	940

The table shows that the reduction in FSL won't have a large impact on Bridge inundation times. A reduction in the order or 36 hours or 15% of the total inundation time may be possible for the low level bridges only. The reductions are generally caused by the delay in release commencement associated with the lower starting FSL. However, the bridges can often already inundated at this time anyway due to flood inflows into the Brisbane River from the 50% of the catchment not controlled by Wivenhoe Dam. Lowering the FSL of the dam has no impact on such inundations as shown in the table.

For events smaller than those considered above, it should be noted that the Manual of Flood Mitigation allows a trigger level buffer of 27500 megalitres above FSL and this has the effect of protecting Twin Bridges and the lower level bridges from inundation as a result of minor events. Twin Bridges is essentially a low level causeway that is inundated following any radial gate release. This inundation could possibly be prevented by raising the bridge deck level. Regardless, the areas accessed using this bridge can also be accessed using the Fernvale Bridge. It is acknowledged however that the closing of Twin Bridges causes inconvenience to local residents, as it adds approximately another five kilometres to the journeys to and from their residences. Approximately 40 residences and several businesses (primarily turf farms) are impacted.

Events Impacting on Urban Areas (Moggill Flow > 3500m^3/s) – All rural bridges inundated

Events of this nature have not been experienced since the construction of Wivenhoe Dam was completed in 1984, with the last event of this nature being experienced in 1974. The inflow volume into Wivenhoe Dam associated with the 1974 event has been estimated to be in the order of 1.5 million megalitres. However during the 1974 event, an additional 1.5 million megalitres of flood flow impacting of the urban areas of Brisbane originated from catchment areas that are not controlled by Wivenhoe Dam.

For events of this nature, it is unlikely that peak water levels in Brisbane would be significantly impacted by minor reductions in the level of Wivenhoe Dam. Certainly reductions in dam volume in the order of at least 250000 megalitres would be needed to provide any significant reduction in water level peaks experienced in urban areas. Additionally, reductions in the FSL of this order would not necessarily guarantee reductions

in urban flood levels, as the effectiveness of Wivenhoe Dam in reducing urban flood levels is directly dependant on the distribution of rainfall in the Brisbane River catchment during a flood event (Wivenhoe Dam controls only 50% of the total Brisbane River catchment) and the spacing between individual flood events.

NORTH PINE DAM

North Pine Dam has no flood mitigation potential. Unlike Wivenhoe Dam, once the dam has reached FSL, all water flows into the dam must be released to protect the structural safety of the dam.

Any radial gate operation at North Pine Dam to release flood water, results in inundation of Youngs Crossing Road, so lowering the FSL is problematic and may best be achieved by increasing the daily water diversion to the North Pine Dam Water Treatment Plant. There are river release valves that allow some water to be drained from North Pine Dam without inundating Youngs Crossing. These valves have been operated continuously since the recent gate releases to manage residual inflows into the dam. However outflows from these valves are restricted to flows in the order of several hundred megalitres per day as larger flows will adversely impact on Youngs Crossing. Certainly a small reduction in the level of North Pine Dam is potentially beneficial in preventing closures of Youngs Crossing Road associated with small storm events.

It should be noted however that Youngs Crossing Road is also impacted by uncontrolled flood flows from Lake Kurwongbah and local storm run-off. In recent times Youngs Crossing Road has been closed by flood water during times when no water releases were being made from North Pine Dam, but when storm rains resulted in flood flows from uncontrolled areas of the catchment.

The table below gives an indication of the rainfall required to operate for NPD:

Level	Capacity			Rainfall Required to Operate	
				Wet Conditions	Dry Conditions
	m AHD	%	ML	mm	mm
FSL	39.60	100.0%	214,302	5	60
Reduced FSL	39.10	95.0%	203,618	35	100

Recent changes to the Manual of Flood Mitigation for North Pine Dam allows for some ability to retain up to 2500 megalitres of water to reduce impacts on Youngs Crossing Road, provided favourable weather forecasts are experienced. However the preferred option to reduce public inconvenience associated with storm events would be to raise the flood immunity of the river crossing on Youngs Crossing Road. This crossing is primarily a low level causeway that is potentially unsuitable given the volume of traffic that now uses this crossing on a daily basis.

LESLIE HARRISON DAM

Similar to North Pine Dam, Leslie Harrison Dam has no flood mitigation potential. Once the dam has reached FSL, all water flows into the dam must be released to protect the structural safety of the dam.

The dam is relatively small with a total full supply storage volume of only 24800 megalitres, against an inflow volume during a 72 hour 1 in 50 year storm event of over 30000 megalitres. Flood gate operations at Leslie Harrison Dam do not impact on public roads and generally only inconvenience the general public during large flood events. Reductions in this inconvenience cannot be achieved by small reductions in dam storage

[redacted]

From: Peter McManamon [redacted]
Sent: Saturday, 15 January 2011 8:55 AM
To: Bradley John
Cc: [redacted]
Subject: FW: QUU Sitrep #16
Follow Up Flag: Follow up
Flag Status: Completed
Attachments: 20110115_Executive_Summary_sitrep_16[1].doc; 20110115_Sitrep_16__Extreme_wet_weather[1].doc

John
Barry asked me to send you a copy of QUU's management SitRep Report as received this morning.
I will arrange for updating as soon as practicable and on availability of information.
Peter

LinkWater
The Queensland Bulk Water Transport Authority

Peter McManamon
Chief Executive Officer
[redacted]
Level 5, 200 Creek Street | PO Box 1045 | Spring Hill Qld 4004
[redacted] w
www.linkwater.com.au

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One ream of paper = 225 litres water & 20kg greenhouse gases & 3kg coal & chemicals & 0.05 fully grown trees

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From: Brett Spink [redacted]
Sent: Saturday, 15 January 2011 8:48 AM
To: Peter McManamon
Subject: QUU Sitrep #16

FYI

Brett Spink
Risk Program Manager
SEQ Water Grid Manager
Ph: [redacted]
Email: [redacted]
Post: PO Box 16205, BRISBANE CITY EAST, QLD 4002
Visit: Level 15, 53 Albert St, BRISBANE
ABN: 14 783 317 630

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Queensland Urban Utilities UPDATE 5am Saturday 15/1/2011

EVENT SUMMARY – SITREP 16

Status of water and sewerage assets and services

The following is a summary of current and forecast impacts, based on flood modelling.

Brisbane City Council area (as at 4.30am)
Water:

- All water pumping stations operational (one with generator set).
- Two properties without water (due to main burst).

Wastewater:

- 48 sewerage pumping stations flooded or without power.
- Major wastewater treatment plants have flooded are not operating (Karana Downs, Oxley, Fairfield, Wacol).
- No impact on residents.

Ipswich City Council area
Disruption to some telemetry and site communications equipment resulting in the need for physical site fault assessment.

Water: Initial reports indicate no operational problems. Water sampling commenced west of Ipswich.

Wastewater:

- Two wastewater treatment plants are offline – Bundamba and Goodna.
- 28 sewerage pumping stations are not operating.
- No impact on residents is expected.

QUEENSLAND UrbanUtilities

Lockyer Valley
Water:
- All reservoirs intact.
- Working with Seqwater and Water Grid Manager to restore supplies. Bottled water being flown and trucked in.
- Two water pumping stations offline - Helidon (damaged), Postman's Ridge (a generator set is on site and it will be operational today)
- Laidley and Forest Hill have two days supply.
- Gatton has received 350kl of water by tanker.
- Repairing the road for tanker access into Helidon.
- Unable to access Withcott and power is down to the area. Repair to supply main has commenced.
- Regency Downs/Kensington Grove reliant on water tankers to provide supply.

Wastewater:
- All water reclamation plants operational.
- Repairs have commenced to Main Sewer Rising Main to Gatton, which washed away.
- Further investigation as water recedes.

Scenic Rim
Water and wastewater: No issues

Somerset
Water:
- Diesel pump and piping installed at Lowood WTP and testing continues. Should be operational by early morning.
- Working with Seqwater and Water Grid Manager to restore supplies. Bottled water being flown and trucked in.
- Esk and Toogoolawah WTPs will return to normal operation status by later today.
- Minden reliant on bottled water.
- Power restored to Linville PS and water is being delivered to the reservoir.
- Lowood and Fernvale still in supply but reliant on water tankers to maintain current levels.

Wastewater:
- Esk, Fernvale, Lowood and Toogoolawah WRPs not serviceable.

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

RESERVOIR/PS	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICE (Y/N)	NOTES	Status
Plainlands	Plainlands	5	55		Y		
Victoria St	Forest Hill	0.18	60	2 days	Y		
Summer St boosted zone, pump station and reservoir	Laidley	1.12	100	2 days	Y		Consideration of System Isolation
Douglas McInnes Drive		1.14	80		Y		
Rosewood Laidley Road Reservoir		0.45	100		Y	Can backfeed into town	
Sippel Road (Lakes Estate)		0.09	80		Y	Trickle feed to tanks	
Glenore Grove Booster							damaged fencing, switchboard ok, not critical for supply
Gatton Reservoir - low	Woodlands Rd	5.95	0.24ML		Y		
Gatton Reservoir - high	Woodlands Rd	0.24			Y		
Gatton Reservoir - low	Cochrane St	2	0.06ML		Y		• Fencing washed away • lightning strike · telemetry & local control damaged (not sure of this or below)
Gatton Reservoir -	Cochrane St	2			Y		· Fencing washed away · lightning strike

high							· telemetry & local control damaged (not sure of this or above)
Gatton PS		N/A					Networked water supply unavailable
Helidon - Small	Seventeen Mile Road	0.7	0				Networked water supply unavailable
Helidon - Large	Seventeen Mile Road	1.5	0				
Millora Rd (Dobel Dr)		0.18	5		Y		
Pump Station	Rossiter Rd	N/A					
Warrego Hwy PS		N/A				Pump Motor and Switchboard being replaced. Genset on site until 16/1	WASHED AWAY
Postmans Ridge Reservoir	Murphy's Creek Ridge	0.33	50				· 200mm trunk supply line damaged
							· Switchboard damaged
Postmans Ridge PS	Murphy's Creek Ridge	N/A					Genset onsite 14/01/2011
Withcott	Dolley's Rd	1.94	0			**No inlet feed available due to break on 200mm DICL inlet main after pump station at Postman's Ridge. Both ends isolated. Postmans Ridge Pump Station is flooded and inoperable.**	Networked water supply unavailable
Withcott PS		N/A					
Tabletop	Berghoffer Rd	0.003	25		Y		
Tabletop PS					Y		

Please note: Details in this table are based on the latest information at time of publication. Due to the changing nature of the situation this table will be updated regularly.

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WASTEWATER STATUS

Updated – 5:00AM Saturday, 15 January 2011

ASSET	LOCATION	STATUS	NOTES
Railway St WRP	Forest Hill	Y	
Gordon St PS	Forest Hill	Y	
Railway St PS	Forest Hill	Y	
Treatment Plant Rd WRP	Gatton		
Crescent St PS	Gatton	Y	
East St PS	Gatton	Y	
Myler Crt PS	Gatton	Y	
Lake Apex PS	Gatton		
Industrial Rd PS	Gatton		
South St PS	Gatton	Y	Operational
Karrash Road	UNK	Y	Damaged Pump
Hennessy St PS	Gatton	Y	
Golf Links Dve PS	Gatton	Y	
Western Dve PS	Gatton	Y	Telemetry damaged - condition not determined
Tew Crt PS	Gatton	Y	
Back Flagstone Creek Rd WRP	Helidon		No power. Generator organised.
Airforce Rd PS	Helidon	Y	
Lawlers Rd PS	Helidon	Y	
Plant St PS	Helidon		
Boundary Rd WRP	Laidley		
Kurrajong Crt PS	Laidley	Y	
Stanford Pl PS	Laidley	Y	
Boundary Rd PS	Laidley		
Hayes St PS	Laidley	Y	
Alexander St PS	Laidley		
Pike St PS	Laidley	Y	Operational but no road access

Patrick St PS	Laidley		Operational but no road access
Pioneer St PS	Laidley		
Storr St PS	Laidley		
Vaux St PS	Laidley		

WATER RECLAMATION PLANT	NOTES
Gatton WRP	Operational and Accessible
Laidley WRP	Operational and Accessible
Forest Hill WRP	Operational and Accessible
Carole Park Reclamation Pant	Not accessible but Operational

QUEENSLAND UrbanUtilities

SOMERSET WATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES
Lowood 1	Jacqueline St Res 2	3			Y	Level is Critically Low but being maintained due to reliance on tankers
Lowood 2	Glamorgan Vale Rd / Ziebell	2			Y	
Lowood 3	Acacia St	1.13			Y	
Tarampa	Prenzlau Rd	0.022				
Fernvale	Knox Rd	2	EMPTY	-	Y	Level is Critically Low but being maintained due to reliance on tankers
Balance tank/P	Fernvale	UNK				
Lowood West		3				Networked water supply unavailable
Plainslands		5				
Pump Station & Reservoir	Summer St	1.12				
Wilson Estate	Douglas McInness Dr	1.14				
Forest Hill	Victoria St	0.18				
Lakes Estate	Sippel Rd	0.09				
Brown Cres PS		N/A				
Laidley Rd	Laidley Rd	0.45				
Reservoir - low	Woodlands Rd	5.95				
Reservoir - high	Woodlands Rd	0.24				
Pump Station	Rossiter Rd	N/A				
Warrego Hwy PS		N/A				
Esk		1.1 ML	0.4		Y	To return to normal status 14/1 afternoon
BP	East St	N/A				45kW soft start – 18l/s max
Toogoolawah		2	0.5		Y	To return to normal status 14/1 afternoon
Kilcoy	Saleyards Rd	3.6	?	1 day	Y	(Source: WGM)

						3 tanks – 0.45, 0.63 & 1.8 ML
Jimna			65	2 days	Y	(Source: WGM)
Linville		0.1	50	2 days	Y	Incorrect SCADA reading at Lowood. Manually checked (Source: WGM)

QUEENSLAND UrbanUtilities

SOMERSET WASTEWATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

WATER RECLAMATION PLANT	PREVIOUS NOTES	CURRENT STATUS
Esk WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Fernvale WRP	Not Accessible	Not Serviceable – No Further Information available
Lowood WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Kilcoy WRP	Not Accessible	Power Restored
Toogoolawah WRP	Normal Operation	Not Serviceable – No Further Information available

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SCENIC RIM AREA STATUS

Updated – 5:00AM Saturday, 15 January 2011

NO ISSUES

QUEENSLAND UrbanUtilities

BRISBANE AREA WATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

Asset Type	Number	Last Updated	
Telemetry	2	14/01/2011	4:00
Water Pump Stations & Boosters		14/01/2011	4:00
Flooded or Without Power	1		
Customers Affected	0		
Res Levels (ML)	65.53	14/01/2011	4:00
Water Main Bursts	3	14/01/2011	4:00
Properties Affected	2		
PRV's	5	14/01/2011	4:00
Trunk Mains	1	14/01/2011	4:00
Dirty Water Incidents	8	14/01/2011	4:00

QUU RESERVOIRS – TIME TILL LOW LEVEL

Status	Code
More Than 5 hours supply	
Between 3 and 5 hours supply	
Less than 3 hours supply	

QUEENSLAND Urban Utilities

Location	Current Volume (ML)	Usable Volume (ML)	Current Level (m)	Est ROF Time to Low (Hrs)
Mt. Gravatt	5.74	1.14	2.37	6.54
Roles Hill 1 - Decommissioned	1.50	0.74	1.18	
Nathan - Offline	0.00	0.00	0.00	
Outlook	0.18	0.14	1.30	32.48
Grovely 2	3.99	2.60	3.46	12.30
Toohey Mt 2	2.55	1.57	3.12	34.16
Karana Downs R60M	0.20	0.00	0.49	0.88
Bracken Ridge	5.23	3.65	2.65	7.85
Highgate Hill 1	2.01	1.00	1.56	6.92
Inala	5.19	2.90	3.40	46.99
Bartleys Hill 1	5.29	2.33	3.85	16.06
Bardon Hill	1.42	0.83	1.91	19.64
Milne Hill	6.10	2.45	4.09	6.26
Highgate Hill 2	1.81	0.81	1.41	5.97
Grovely 1	1.45	0.87	2.51	13.46
The Gap	6.95	3.78	7.01	38.72
Tarragindi	35.48	16.64	3.87	14.66
Holland Park 2	3.69	2.89	5.05	18.97
Richlands	5.15	2.54	10.25	7.06
Mt Ommaney	14.45	5.32	4.76	14.50
Manly Elevated	5.81	0.17	24.70	2.08
Karana Downs R60M	0.93	0.12	2.31	3.42
Mitchelton	0.73	0.32	1.17	20.64
Stafford 2	2.44	1.61	2.02	7.49
Karawatha	1.79	0.89	3.54	4.96
Holland Park 1	0.95	0.61	5.23	16.21
Bartleys Hill 2	8.42	3.57	4.18	16.16
Roles Hill 2	5.51	0.61	3.42	8.99
Boss Rd WP30	15.26	4.36	6.72	19.65
The Summit	0.22	0.04	3.37	16.24
Boss Rd WP30	0.12	0.01	5.61	1.15
Toohey Mt 1	1.12	0.72	2.24	21.62
Manly Tank	0.40	0.02	5.22	0.64
Chapel Hill	0.93	0.27	0.93	4.36
Stafford 1	0.00	0.00	0.00	0.00
Eildon Hill - Offline	0.04	0.00	0.01	
Total Volume		**65.53**		

QUEENSLAND UrbanUtilities

BRISBANE AREA WASTEWATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

48	Pump Stations Flooded or without power	**11**	Generators Flooded
3	Treatment Plant Flooded or without power	**0**	Generators Flooded

QUEENSLAND UrbanUtilities

IPSWICH WATER ASSETS SUMMARY

Updated - 5:00AM Saturday 15 January 2011

PUMP STATION	LOCATION	SERVICEABLE	POWER	STATUS
Bundamba 1 Catchment				
Brisbane Terrace				n/a
Francis Street				Operational
Moggill Ferry				Not Flooded
Tantivity				Not Flooded
Moores Pocket				Flooded
Karalee A				Not Flooded
Karalee B				Not Flooded
Mt Crosby				Not Flooded
Harris Street				Operational
Harrison street				Operational
Enterprise Street				Operational
Rosebery Prade				Not Flooded
Woodend Road				Not Flooded
Haig Street				Operational
Tiger Street				Not Flooded
Tivoli Wastewater Centre				Not Flooded
Luckie Crescent				Operational
Boundary Street North				Not Flooded
Boundary Street south				Not Flooded
Blackall Street				Not Flooded
Chermside Road (Major Station)				Not Flooded
Bundamba 2 Catchment				
Samford Road				Not Flooded
Chalk Street				Operational
Old Toowoomba Road				Not Flooded
Ivor Marsden				Not Flooded
Okeefe				Operational
Hanlon Street				Flooded
Lobb Street				Not Flooded
Lobley Street				Not Flooded
Sutton Street				Not Flooded

Berry Street				Operational
Winston Street				Operational
Hall Street				Operational
Saleyard Road				Operational
Videroni Street				Not Flooded
Queen Street				Operational
Ashburn Road				Not Flooded
Bognuda Street				Not Flooded
Hudson Street				Operational
Kenneth Street				Not Flooded
Nelson Street				Operational
Carole Park Catchment				
Cobalt Street				Operational
Goodna Catchment				
Brisbane Terrace (Major Station)				Not Flooded
Riverview Road				Operational
Monash Street				Not Flooded
Six Mile Creek				Not Flooded
Cedar Road				Operational
Eagle Heights				Operational
McAuliffe Street				Not Flooded
Lower Cross Street				Not Flooded
Keidges Road				Operational
Butterfly Green				Operational
Springfield Collage Green				Operational
Waterford Road				Operational
Fiona Street				Operational
West Street				Operational
Rosewood Catchment				
School Street				Operational
Bassetts Lane				Operational

QUEENSLAND UrbanUtilities

IPSWICH WASTEWATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

2	Pump Stations Under Water
55	Pump Stations Above water

3	WRPs Under Water
1	WRPs Above Water

Condition	No. Pump Stations
Normal Operation	27
Inundated but accessible	
Inundated / not accessible	2

WATER RECLAMATION PLANT	NOTES
Bundamba Water Reclamation Plant	Inaccessible and Inundated
Goodna Reclamation Plant	Inaccessible and Inundated
Rosewood Reclamation Plant	Inaccessible and Inundated
Carole Park Reclamation Pant	Normal Operation

[redacted]

From: Barry Dennien [redacted]
Sent: Saturday, 15 January 2011 9:28 AM
To: Bradley John
Subject: Fwd: Teleconference 7:30am 15 Jan Minutes

John

This a more useful summary

Regards
Barry Dennien

Begin forwarded message:

> ***From:*** [redacted]
> ***Date:*** *15 January 2011 9:14:49 AM AEST*
> ***To:*** *Barry Dennien* [redacted]
> ***Subject: Teleconference 7:30am 15 Jan Minutes***
>
> ***Lowood and isolated town ship***
>
> *Water treatment plant flow now at of 140 litres/second established at 5:00am. Clear water balance tank at 7% and increasing. Five QUU teams working the trunk distribution lines to fix issues. Additional 5 teams from Allconnex Water also currently being deployed to address any additional trunk leaks.*
>
> *Boiled water notice still in place for Locker Valley with a requirement that the messaging relating to this is reinforced in the affected areas at QH request*
>
> *Bottled water and tankers to town ships being supplied by QUU meeting current demands can meet the 3 litres per day per person. Councils having issues distributing.*
>
> *Withcott mains a major issue with a couple of days required to resolve the issues*
>
> *QUU requested assistance with QPS approval to check Gatton to Helliden pipeline running through Grantham which is a designated crime scene. Scott Denner to follow up.*
>
> ***Production***
>
> *Mt Crosby East Bank 228ML (Water Quality 0.08NTU)*
>
> *Mt Crosby West Bank 232ML (Water Quality 0.05NTU)*
>
> *North Pine and NPI 100ML*
>
> *SRWP 100ML*
>
> *Total 660ML production*
>
> *Estimated demand approx 520-550ML*
>
> *Unity water requested supply to be increased from 300Litres to 400Litres per second will be reviewed at 12:00pm update meeting*
>
> *Production Water Balance Review Meeting scheduled for 12:00 to confirm production, supply and demand*
>
> *Concentrating on ensuring reservoirs to support Yeronga and Fairfield*
>
> *Karana Downs usage high will need to keep supply to this location to meet high demand*
>
> ***Chemical Delivery***
>
> *Access to East and West bank now confirmed Caustic and Hypo now being delivered to meet demand*
>
> ***Clean up***
>
> *PRW Approved for use for clean down for tankers by OWSR and QH*
>
> *Staged notification for tankers, fire brigade and Main Roads and Transport to fill from the*

PRW charge points being followed up by WaterSecure.

UnityWater seeking permission to use class A+ for clean-up Paul Burrell and QH covering the approvals

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QUEENSLAND UrbanUtilities

Queensland Urban Utilities UPDATE 5am Saturday 15/1/2011

EVENT SUMMARY – SITREP 16

Status of water and sewerage assets and services

The following is a summary of current and forecast impacts, based on flood modelling.

Brisbane City Council area (as at 4.30am)
Water:

- All water pumping stations operational (one with generator set).
- Two properties without water (due to main burst).

Wastewater:

- 48 sewerage pumping stations flooded or without power.
- Major wastewater treatment plants have flooded are not operating (Karana Downs, Oxley, Fairfield, Wacol).
- No impact on residents.

Ipswich City Council area
Disruption to some telemetry and site communications equipment resulting in the need for physical site fault assessment.

Water: Initial reports indicate no operational problems. Water sampling commenced west of Ipswich.

Wastewater:

- Two wastewater treatment plants are offline – Bundamba and Goodna.
- 28 sewerage pumping stations are not operating.
- No impact on residents is expected.

QUEENSLAND Urban Utilities

Lockyer Valley

Water:

- All reservoirs intact.
- Working with Seqwater and Water Grid Manager to restore supplies. Bottled water being flown and trucked in.
- Two water pumping stations offline - Helidon (damaged), Postman's Ridge (a generator set is on site and it will be operational today)
- Laidley and Forest Hill have two days supply.
- Gatton has received 350kl of water by tanker.
- Repairing the road for tanker access into Helidon.
- Unable to access Withcott and power is down to the area. Repair to supply main has commenced.
- Regency Downs/Kensington Grove reliant on water tankers to provide supply.

Wastewater:

- All water reclamation plants operational.
- Repairs have commenced to Main Sewer Rising Main to Gatton, which washed away.
- Further investigation as water recedes.

Scenic Rim

Water and wastewater: No issues

Somerset

Water:

- Diesel pump and piping installed at Lowood WTP and testing continues. Should be operational by early morning.
- Working with Seqwater and Water Grid Manager to restore supplies. Bottled water being flown and trucked in.
- Esk and Toogoolawah WTPs will return to normal operation status by later today.
- Minden reliant on bottled water.
- Power restored to Linville PS and water is being delivered to the reservoir.
- Lowood and Fernvale still in supply but reliant on water tankers to maintain current levels.

Wastewater:

- Esk, Fernvale, Lowood and Toogoolawah WRPs not serviceable.

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

RESERVOIR/PS	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICE (Y/N)	NOTES	Status
Plainlands	Plainlands	5	55		Y		
Victoria St	Forest Hill	0.18	60	2 days	Y		
Summer St boosted zone, pump station and reservoir	Laidley	1.12	100	2 days	Y		Consideration of System Isolation
Douglas McInnes Drive		1.14	80		Y		
Rosewood Laidley Road Reservoir		0.45	100		Y	Can backfeed into town	
Sippel Road (Lakes Estate)		0.09	80		Y	Trickle feed to tanks	
Glenore Grove Booster							damaged fencing, switchboard ok, not critical for supply
Gatton Reservoir - low	Woodlands Rd	5.95	0.24ML		Y		
Gatton Reservoir - high	Woodlands Rd	0.24			Y		
Gatton Reservoir - low	Cochrane St	2	0.06ML		Y		• Fencing washed away • lightning strike · telemetry & local control damaged (not sure of this or below)
Gatton Reservoir -	Cochrane St	2			Y		· · Fencing washed away · lightning strike

high							· telemetry & local control damaged (not sure of this or above)
Gatton PS		N/A					Networked water supply unavailable
Helidon - Small	Seventeen Mile Road	0.7	0				Networked water supply unavailable
Helidon - Large	Seventeen Mile Road	1.5	0				
Millora Rd (Dobel Dr)		0.18	5		Y		
Pump Station	Rossiter Rd	N/A					
Warrego Hwy PS		N/A				Pump Motor and Switchboard being replaced. Genset on site until 16/1	WASHED AWAY
Postmans Ridge Reservoir	Murphy's Creek Ridge	0.33	50				· 200mm trunk supply line damaged
							· Switchboard damaged
Postmans Ridge PS	Murphy's Creek Ridge	N/A					Genset onsite 14/01/2011
Withcott	Dolley's Rd	1.94	0			**No inlet feed available due to break on 200mm DICL inlet main after pump station at Postman's Ridge. Both ends isolated. Postmans Ridge Pump Station is flooded and inoperable.**	Networked water supply unavailable
Withcott PS		N/A					
Tabletop	Berghoffer Rd	0.003	25		Y		
Tabletop PS					Y		

Please note: Details in this table are based on the latest information at time of publication. Due to the changing nature of the situation this table will be updated regularly.

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WASTEWATER STATUS

Updated – 5:00AM Saturday, 15 January 2011

ASSET	LOCATION	STATUS	NOTES
Railway St WRP	Forest Hill	Y	
Gordon St PS	Forest Hill	Y	
Railway St PS	Forest Hill	Y	
Treatment Plant Rd WRP	Gatton		
Crescent St PS	Gatton	Y	
East St PS	Gatton	Y	
Myler Crt PS	Gatton	Y	
Lake Apex PS	Gatton		
Industrial Rd PS	Gatton		
South St PS	Gatton	Y	Operational
Karrash Road	UNK	Y	Damaged Pump
Hennessy St PS	Gatton	Y	
Golf Links Dve PS	Gatton	Y	
Western Dve PS	Gatton	Y	Telemetry damaged - condition not determined
Tew Crt PS	Gatton	Y	
Back Flagstone Creek Rd WRP	Helidon		No power. Generator organised.
Airforce Rd PS	Helidon	Y	
Lawlers Rd PS	Helidon	Y	
Plant St PS	Helidon		
Boundary Rd WRP	Laidley		
Kurrajong Crt PS	Laidley	Y	
Stanford Pl PS	Laidley	Y	
Boundary Rd PS	Laidley		
Hayes St PS	Laidley	Y	
Alexander St PS	Laidley		
Pike St PS	Laidley	Y	Operational but no road access

Patrick St PS	Laidley		Operational but no road access
Pioneer St PS	Laidley		
Storr St PS	Laidley		
Vaux St PS	Laidley		

WATER RECLAMATION PLANT	NOTES
Gatton WRP	Operational and Accessible
Laidley WRP	Operational and Accessible
Forest Hill WRP	Operational and Accessible
Carole Park Reclamation Pant	Not accessible but Operational

QUEENSLAND UrbanUtilities

SOMERSET WATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES
Lowood 1	Jacqueline St Res 2	3			Y	Level is Critically Low but being maintained due to reliance on tankers
Lowood 2	Glamorgan Vale Rd / Ziebell	2			Y	
Lowood 3	Acacia St	1.13			Y	
Tarampa	Prenzlau Rd	0.022				
Fernvale	Knox Rd	2	EMPTY	-	Y	Level is Critically Low but being maintained due to reliance on tankers
Balance tank/P	Fernvale	UNK				
Lowood West		3				Networked water supply unavailable
Plainslands		5				
Pump Station & Reservoir	Summer St	1.12				
Wilson Estate	Douglas McInness Dr	1.14				
Forest Hill	Victoria St	0.18				
Lakes Estate	Sippel Rd	0.09				
Brown Cres PS		N/A				
Laidley Rd	Laidley Rd	0.45				
eservoir - low	Woodlands Rd	5.95				
Reservoir - high	Woodlands Rd	0.24				
Pump Station	Rossiter Rd	N/A				
Warrego Hwy PS		N/A				
Esk		1.1 ML	0.4		Y	To return to normal status 14/1 afternoon
BP	East St	N/A				45kW soft start – 18l/s max
Toogoolawah		2	0.5		Y	To return to normal status 14/1 afternoon
Kilcoy	Saleyards Rd	3.6	?	1 day	Y	(Source: WGM)

						3 tanks – 0.45, 0.63 & 1.8 ML
Jimna			65	2 days	Y	(Source: WGM)
Linville		0.1	50	2 days	Y	Incorrect SCADA reading at Lowood. Manually checked (Source: WGM)

QUEENSLAND UrbanUtilities

SOMERSET WASTEWATER ASSETS STATUS

Updated – 5:00AM Saturday, 15 January 2011

WATER RECLAMATION PLANT	PREVIOUS NOTES	CURRENT STATUS
Esk WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Fernvale WRP	Not Accessible	Not Serviceable – No Further Information available
Lowood WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Kilcoy WRP	Not Accessible	Power Restored
Toogoolawah WRP	Normal Operation	Not Serviceable – No Further Information available

QUEENSLAND Urban Utilities

SCENIC RIM AREA STATUS

Updated – 5:00AM Saturday, 15 January 2011

NO ISSUES

QUEENSLAND UrbanUtilities

BRISBANE AREA WATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

Asset Type	Number	Last Updated	
Telemetry	2	14/01/2011	4:00
Water Pump Stations & Boosters		14/01/2011	4:00
Flooded or Without Power	1		
Customers Affected	0		
Res Levels (ML)	65.53	14/01/2011	4:00
Water Main Bursts	3	14/01/2011	4:00
Properties Affected	2		
PRV's	5	14/01/2011	4:00
Trunk Mains	1	14/01/2011	4:00
Dirty Water Incidents	8	14/01/2011	4:00

QUU RESERVOIRS – TIME TILL LOW LEVEL

Status	Code
More Than 5 hours supply	
Between 3 and 5 hours supply	
Less than 3 hours supply	

QUEENSLAND UrbanUtilities

Location	Current Volume (ML)	Usable Volume (ML)	Current Level (m)	Est ROF Time to Low (Hrs)
Mt. Gravatt	5.74	1.14	2.37	6.54
Roles Hill 1 - Decommissioned	1.50	0.74	1.18	
Nathan - Offline	0.00	0.00	0.00	
Outlook	0.18	0.14	1.30	32.48
Grovely 2	3.99	2.60	3.46	12.30
Toohey Mt 2	2.55	1.57	3.12	34.16
Karana Downs R60M	0.20	0.00	0.49	0.88
Bracken Ridge	5.23	3.65	2.65	7.85
Highgate Hill 1	2.01	1.00	1.56	6.92
Inala	5.19	2.90	3.40	46.99
Bartleys Hill 1	5.29	2.33	3.85	16.06
Bardon Hill	1.42	0.83	1.91	19.64
Milne Hill	6.10	2.45	4.09	6.26
Highgate Hill 2	1.81	0.81	1.41	5.97
Grovely 1	1.45	0.87	2.51	13.46
The Gap	6.95	3.78	7.01	38.72
Tarragindi	35.48	16.64	3.87	14.66
Holland Park 2	3.69	2.89	5.05	18.97
Richlands	5.15	2.54	10.25	7.06
Mt Ommaney	14.45	5.32	4.76	14.50
Manly Elevated	5.81	0.17	24.70	2.08
Karana Downs R60M	0.93	0.12	2.31	3.42
Mitchelton	0.73	0.32	1.17	20.64
Stafford 2	2.44	1.61	2.02	7.49
Karawatha	1.79	0.89	3.54	4.96
Holland Park 1	0.95	0.61	5.23	16.21
Bartleys Hill 2	8.42	3.57	4.18	16.16
Roles Hill 2	5.51	0.61	3.42	8.99
Boss Rd WP30	15.26	4.36	6.72	19.65
The Summit	0.22	0.04	3.37	16.24
Boss Rd WP30	0.12	0.01	5.61	1.15
Toohey Mt 1	1.12	0.72	2.24	21.62
Manly Tank	0.40	0.02	5.22	0.64
Chapel Hill	0.93	0.27	0.93	4.36
Stafford 1	0.00	0.00	0.00	0.00
Eildon Hill - Offline	0.04	0.00	0.01	
Total Volume		**65.53**		

QUEENSLAND UrbanUtilities

BRISBANE AREA WASTEWATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

48	Pump Stations Flooded or without power	**11**	Generators Flooded
3	Treatment Plant Flooded or without power	**0**	Generators Flooded

QUEENSLAND UrbanUtilities

IPSWICH WATER ASSETS SUMMARY

Updated - 5:00AM Saturday 15 January 2011

PUMP STATION	LOCATION	SERVICEABLE	POWER	STATUS
Bundamba 1 Catchment				
Brisbane Terrace				n/a
Francis Street				Operational
Moggill Ferry				Not Flooded
Tantivity				Not Flooded
Moores Pocket				Flooded
Karalee A				Not Flooded
Karalee B				Not Flooded
Mt Crosby				Not Flooded
Harris Street				Operational
Harrison street				Operational
Enterprise Street				Operational
Rosebery Prade				Not Flooded
Woodend Road				Not Flooded
Haig Street				Operational
Tiger Street				Not Flooded
Tivoli Wastewater Centre				Not Flooded
Luckie Crescent				Operational
Boundary Street North				Not Flooded
Boundary Street south				Not Flooded
Blackall Street				Not Flooded
Chermside Road (Major Station)				Not Flooded
Bundamba 2 Catchment				
Samford Road				Not Flooded
Chalk Street				Operational
Old Toowoomba Road				Not Flooded
Ivor Marsden				Not Flooded
Okeefe				Operational
Hanlon Street				Flooded
Lobb Street				Not Flooded
Lobley Street				Not Flooded
Sutton Street				Not Flooded

Berry Street				Operational
Winston Street				Operational
Hall Street				Operational
Saleyard Road				Operational
Videroni Street				Not Flooded
Queen Street				Operational
Ashburn Road				Not Flooded
Bognuda Street				Not Flooded
Hudson Street				Operational
Kenneth Street				Not Flooded
Nelson Street				Operational
Carole Park Catchment				
Cobalt Street				Operational
Goodna Catchment				
Brisbane Terrace (Major Station)				Not Flooded
Riverview Road				Operational
Monash Street				Not Flooded
Six Mile Creek				Not Flooded
Cedar Road				Operational
Eagle Heights				Operational
McAuliffe Street				Not Flooded
Lower Cross Street				Not Flooded
Keidges Road				Operational
Butterfly Green				Operational
Springfield Collage Green				Operational
Waterford Road				Operational
Fiona Street				Operational
West Street				Operational
Rosewood Catchment				
School Street				Operational
Bassetts Lane				Operational

QUEENSLAND UrbanUtilities

IPSWICH WASTEWATER ASSETS SUMMARY

Updated – 5:00AM Saturday, 15 January 2011

2	Pump Stations Under Water
55	Pump Stations Above water

3	WRPs Under Water
1	WRPs Above Water

Condition	No. Pump Stations
Normal Operation	27
Inundated but accessible	
Inundated / not accessible	2

WATER RECLAMATION PLANT	NOTES
Bundamba Water Reclamation Plant	Inaccessible and Inundated
Goodna Reclamation Plant	Inaccessible and Inundated
Rosewood Reclamation Plant	Inaccessible and Inundated
Carole Park Reclamation Pant	Normal Operation

[redacted]

From: Geoff Stead [redacted]
Sent: Monday, 17 January 2011 1:01 PM
To: Bradley John
Subject: FW: Wivenhoe interviews

John, below is the advice from GMU. I have spoken to Mike Lyons who is checking whether the Australian has called today. Mike also tells me that CM has put Des Houghton on the Wivenhoe story instead of Brian Williams. Des wrote an article last week you may have seen which was
extremely critical of the dam management. G

From: Kimberley Gardiner
Sent: Monday, 17 January 2011 12:40 PM
To: Geoff Stead
Cc: Premiers Office - Media Unit; Lauren Sims; Lance McCallum
Subject: RE: Wivenhoe interviews

I am happy for Barry to do interview if requested - let me know if the request comes in (we don't want to feed The Australian's campaign unnecessarily). You would have seen the re-write of the HIB - we need to be sensitive to the fact that there will be an inquiry announced. Cheers Kimberley.

From: Geoff Stead
Sent: Monday, 17 January 2011 12:34 PM
To: Kimberley Gardiner
Cc: Premiers Office - Media Unit; Lauren Sims; Lance McCallum
Subject: Wivenhoe interviews

Kimberley, Minister Robertson is of the view that it would be appropriate for Water Grid's Barry Dennien to chat with Hedley Thomas and Brian Williams and give them a more detail assessment of the operations of Wivenhoe last week including figures that show the inflows were double that of 74, the river heights were much lower and how the release strategy was spot on according to the Manual which was devised by scientific experts. Are you ok with this kind of interview to proceed? Thanks, Geoff

Geoff Stead
Senior Media Advisor
Office of the Hon Stephen Robertson MP
Minister for Natural Resources, Mines and Energy and Trade
P: [redacted]
M:
E:

[redacted]

From: Water Grid Emergency Manager [redacted]
Sent: Tuesday, 18 January 2011 7:47 AM
To: Bradley John
Subject: Lowood WTP off line and QUU Sitrep
Attachments: SitRep 26 - Extreme Weather Event - 17.01.11.pdf

Colleagues

attached is the latest QUU SITREP from last night. Please note that this morning at 0417h we received a call from Seqwater advising that the temporary water pump at Lowood WTP was off line. We are expecting an update later this morning on anticipated repair time and any other contingency arrangements.

Follow-up call from QUU at 0505h advising that there is sufficient supply in reserviors supplied by the Lowood WTP for about 1-2 days.

Seqwater Director Operations is on his way to the site to assess the issues and provide further information on repair time. Once we have this information and have further spoke to QUU we will provide a further update.

If you have any questions please call us on [redacted]

Water Grid Emergency Management Team

[redacted]

From: Julie Shanks [redacted]
Sent: Tuesday, 18 January 2011 10:19 AM
To: Bradley John
Cc: Hausler Simon
Subject: 1) Lowood WTP 2) Sludge disposal at Mt Crosby

John

Lowood WTP

Information from Jim Pruss (Seqwater Dir Operations) as at 10AM

- Pump is fine but having problems with the hoses
- Need a crane to move the pump closer to the river but road is damaged.
- Working on the issue and still expected to have pump working by lunchtime
- SEQwater (Dave Roberts) is approaching hire companies (Eg Coates) for a high lift pump as a standby in case of ongoing issues.

Information from Rob Sullivan (QUU)

- All Lowood reservoirs have 1-2 days supply

Sludge disposal at Mt Crosby

Information from Jim Pruss (10AM)

- There is a build up of sludge at Mt Crosby that they cannot continue to hold onsite.
- SEQwater are seeking approval to return some of the better quality sludge to the river.
- They are approaching Andrew Connor (DERM) re this issue.

I will ask around if there are other WTPS that are experiencing waste disposal issues

No other information at this stage

Cheers

Barry

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Critical issues

- **Lowood WTP offline as at 4.17AM due to temporary pump failure. At 0505am QUU advised there is sufficient supply in reserviors supplied by the Lowood WTP for about 1-2 days. Seqwater Director Operations is on his way to the site to assess the issues and provide further information on repair time.**

- LinkWater system storages were holding 427 megalitres on 17 January, up 12 megalitres from 16 January. Overnight on 16 January 2011 East Bank increased production by 50 megalitres (to 220 megalitres per day) and West Bank came on overnight but has since been shut down. East Bank is now producing 170 megaltitres per day. Total production from central plant is 370 megalitres per day currently but can quickly ramp up a further 450 megalitres per day if needed.

- While consumption on 15 January 2011 was 420 megalitres per day across the connected grid area, demand decreased on 16 January 2011 to 400 megalitres per day (lower than the expected 420 megalitres per day). Demand has increased (as at 2pm) on 17 January 2011 to around 420 megalitres per day and LinkWater system storages are declining (392 megalitres at 2.30pm on 17 January) to optimise water quality in the network.

- **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.**

- **At 6am Wivenhoe Dam was at 107.8% and dropping. The closing sequence began at 2pm on 17 January but held constant overnight s to assist water supply pumping at Lowood. The closing gates sequence will resume at 09:00 Tuesday before final closure on Thursday morning.**
- **The bridges below Wivenhoe Dam will progressively come out of water over the next few days.**
- **At 6am Somerset was 98.98m and 379,016ML at 99.8% and discharging through one cone valve. All sluices are shut.**

- **At 6am** North Pine Dam was at 99.4% and all gates were closed.

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.

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.

- **On 17 January 2011 (8.14pm), there is a reticulation supply issue for 21 customers in the Mt Ommaney zone who** are currently without water during the day. Loss of river crossings has impacted water usage. Further intermittent impacts across zones within the flood impact areas due to emergency water use. Rezoning work carried out to increase pressure.
-
- Sites tested for water quality by QUU on 17 January 2011 in Brisbane and Ipswich met water quality specifications (see note below). QUU has confirmed that routine sampling will recommence on 17 January for Brisbane and Scenic Rim, although higher frequencies of monitoring will continue in the Ipswich zones for 17 and 18 January 2011 at this stage.

- Queensland Health, through their Public Health Units, are monitoring for gastrointestinal diseases and determining whether these are associated with exposure with flood water or the drinking water system. To date, there have been no confirmed outbreaks

- NOTE: There was a report on 15 January 2011 of the detection of (*E. coli*) at 1 colony forming unit per 100 millitres at Ashwell school at Rosewood (test taken on 14 January 2011). On 14 December 2010 there was also a detection of *E. coli* in the same location. These detections are likely due to the location of the sampling site and low usage of water during school holidays (as water sits in the pipes), and is unlikely to have anything to do with the current flood crisis. Therefore it has not been included in the water quality issues within this briefing note. QUU are managing this incident in a similar way in which they managed the December detection, and the incident has been reported to the Office of the Water Supply Regulator (OWSR), Queensland Health and the Water Grid Manager as per regulatory and Emergency Response Plan requirements, respectively. A follow up test undertaken on 15 January 2011 (results obtained on 16 January 2011) did not detect any *E. coli*.

TREATMENT PLANT	SUPPLY	QUALITY
Mt Crosby Water Treatment Plant (West Bank and East Bank)	Storage at 392 megalitres as at 2.30pm 17 January 2011. Although production by East Bank increased overnight (by 50 megalitres) on 16 January 2011 to 220 megalitres, production is now at 170 megalitres per day by East Bank. While West Bank was on overnight on 16 January 2011, current production is nil.	Plant is operating within quality specifications
North Pine Water Treatment Plant and Northern	Jointly delivering 100 megalitres per day	Plant is operating within quality specifications

Pipeline		
Southern Regional Water Pipeline Note: Supply from the desalination plant decreased from 100% to 66% on 15 January 2011 at 6pm.	Transporting 100 megalitres per day to central Queensland	Pipeline is operating within quality specifications
Lander Shute Water Treatment Plant	Operating	Plant is operating within quality specifications
Ewan Maddock Water Treatment Plant	Started at 17:30 on 15 January 2011 producing an estimated 200 litres per second.	Plant is operating within quality specifications

UNCONNECTED WATER AREAS (Small towns)

Queensland Urban Utilities

General information

- The affected towns supplied by Queensland Urban Utilities (QUU) are:
  - Lowood Gatton Laidley Supply: which also delivers water to Grantham, Helidon, Fernvale and Withcott
  - Kilcoy
  - Somerset
  - Jimna
  - Linville and
  - Kirkleagh and Wivenhoe Dam recreation areas.

- All systems have charged storages.

- The permanent intake requirements at Lowood will be assessed when the floodwater recedes and the damage can be inspected. In the mean time, a diesel pump is being employed successfully.

Critical issues

- Supplies to the smaller centres have been restored sufficient to meet demands.

- The advice from QUU is that they expect 98% of customers will have been supplied with water since 10am on 17 January 2011.

- There are no major bursts (except for Fernvale) and there are ten crews available for any minor reticulation repairs.

- It is understood that all water supplies are now operational and all reservoirs are charged. Issues have been identified as follows:

  - Fernvale has experienced bursts in the pipe system and these are now being investigated.

  - Withcott has 450 connections and with power returned people will also rely on bores and rainwater in addition to town supply (as well as bottled water). Water is being fed into the reticulation system and most properties will be receiving water on 17 January 2011.

  - Grantham reticulation north of railway line is fully supplied as at 16 January 2011. However south of the railway line is fully evacuated. Bottled water is being supplied to emergency services.

- Detection 1: Test results received on 16 January 2011 from samples taken on 15 January 2011 revealed that *E. coli* was detected (at 1 colony forming unit per 100 millilitres) in the reticulation system at Laidley (Patrick St). This area falls within the boil water alert which was reissued on 15 January 2011. QUU took a follow up sample on 16 January at the site and the results of that test obtained on 17 January were negative for *E. coli*. QUU reported the initial detection to Queensland Health, Office of the Water Supply Regulator (in DERM) and the Water Grid Manager. QUU is undertaking normal corrective measures in response.

- Detection 2: Test results received on XX January 2011 **(date to be confirmed)** from samples taken on 17 January 2011 revealed that *E. coli* was detected (at 2 most probable number per 100 millilitres which is a different testing methodology to colony forming units per 100 millilitres) in the reticulation system at the Laidley Shire Council Depot (chlorine levels were low). This area falls within the boil water alert which was reissued on 16 January 2011. QUU has taken a follow up sample on 17 January at the site and the results will be obtained on 18 January. QUU has reported the detection to Queensland Health, Office of the Water Supply Regulator (in DERM) and the Water Grid Manager. QUU is undertaking normal corrective measures in response.

- Tests in the remainder of the sites on 17 January 2011 in Somerset and Lockyer Valley did not indicate detections of *E. coli*.

- Higher frequencies of monitoring will continue in the Lockyer Valley and Somerset zones for 17 and 18 January 2011.

- A boil water notice for the affected Lockyer Valley, Marburg and Somerset township towns was issued by Queensland Urban Utilities at approximately 3.00 pm on 13 January 2011 and is still in effect. This was reviewed and amended by the Office of the Water Supply Regulator (in the Department of Environment and Resource Management), Queensland Health and the Grid Water Quality Technical Coordination Team. That alert was reissued on 14 January 2011 to include Laidley. QUU reissued its boil water alert on 16 January 2011 in accordance with the request from Queensland Health for the inclusion of specific words in the alert. The notice was reissued on 17 January 2011.

- Restoration of power supplies enables maximum use of rainwater tanks and bores in the recovery process. Energex has supplied Withcott now

- There may be water quality issues when water supply is restored. For this reason, the "boil water" alert should remain in place until water quality testing has confirmed that the drinking water supplies are safe to drink. There may be other system breakages and operational issues, however QUU proposes to deal with these as a routine operation matter.

- For information on use of purified recycled water and class A+ recycled water for washdown, refer above to grid-connected water areas.

- More detailed information on specific areas is as follows:

AREA	SUPPLY	RESERVOIR STORAGE LEVELS (WTP – Water Treatment Plant reservoirs) (Distribution – Distribution reservoirs) Note some areas have only one reservoir		QUALITY
Lowood Gatton Laidley Water Supply Scheme	Lowood supply became operational at 5am 15 January 2011 and continues to deliver 140 litres per second (a reduced rate) via the use of a temporary diesel pump. The operation of the water treatment plant appears to be stable and water is getting through to Gatton. QUU is on-site with additional assistance from AllConnex to assist with the recovery operations. Grantham reticulation north of railway line is fully supplied. However south of the railway line is fully evacuated. Bottled water is being supplied to emergency services.	WTP (at 2.30pm 17 Jan): Balance tank (at 2.30pm 17 Jan): Distribution: Plainlands Laidley Summers St* Laidley Douglas McInnes* Laidley Rd Rosewood* Sippel Rd (Lakes Estate)* (*combined equals 2 days supply) Forest Hill (equals 2 days supply) Woodlands (High) Gatton) Woodlands (Low) (Gatton) Cochrane St (Gatton) Cochrane St Low (Gatton) Helidon Postman's Ridge Murphy's Creek Tabletop Fernvale Withcott Lowood 1 (Jacqueline St) Lowood 2 (Glamorganvale) Lowood 3 (Acacia St)	23% 33% 7% 17% 14% 100% 80% 60% 98% 76% 95% 86% 95% 52% 79% 91% 25% 55% 80% 55% 75%	Under boil water alert from 13/1/11 and remains current. Laidley was added to the re-issued boil water alert on 14/1/11. Test results from sample on 15 January at Laidley reveal *E. coli* detected at 1 colony forming unit per 100 millilitres (further details above). Resample taking place on 16 January 2011. Retest taken on 17 January was negative for *E. coli*. Test results from a sample on 17 January 2011 revealed that *E. coli* was detected (at 2 most probable number per 100 millilitres) at the Laidley Shire Council Depot. Resample was taken on 17 January at the site and the results will be obtained on 18 January. There will be consideration by QH and OWSR for lifting the boil water notice when there are at least 3 successive days of no detection of *E. coli*. However testing at this point in time indicates that water quality is meeting specifications. Further

			testing is still required.
Esk	Plant is operating.	WTP (at 2.30pm 17 Jan): 92% Distribution: 90%	Plant is operating within quality specifications
Kilcoy	Wade St: The main local supply intake was washed away and Seqwater is seeking to re-establish this supply. Seqwater has a backup diesel pump on the raw water supply feeding the local Kilcoy water treatment plant until power and a new intake arrangement can be installed. The abattoir at Kilcoy has been advised that they may now take water at their usual rate. In the meantime, the backup water supply from Somerset Dam via the Kilcoy/Somerset Treatment Plant is fully operational but not required at this time.	WTP: 100% Distribution (at 2.30pm 17 Jan): 90%	Plant is operating within quality specifications
Somerset	The water treatment plant is operational and can be operated when required. The main issue is the water turbidity and it would be more efficient to operate the plant when the turbidity level declines.	WTP (at 2.30pm 17 Jan): 82% Distribution: Not applicable as only one reservoir	Somerset township is included on boil water alert on 13 January 2011 which remains current. Plant is operating within quality specifications
Jimna	Situation under control.	WTP (at 2.30pm 17 Jan): 75% Distribution: Not applicable as only one reservoir	Plant is operating within quality specifications
Linville	There is no power and a generator is being utilised. Plant is available to operate when required using the generator.	WTP (at 2.30pm 17 Jan): 80% Distribution: Not applicable as only one reservoir	Plant is operating within quality specifications

Kirkleagh, Wivenhoe and Atkinson camping grounds	Camping grounds to be restored as a lower priority. Kirkleagh: At 19:30 on 15 January 2011 reservoir level was unchanged at 2.5m. While the plant remains offline, operations plan to run this plant on 17 January 2011 (only to be operated while within quality specifications). Wivenhoe camping grounds: Water treatment plant is off and currently inoperable. Work is planned to commence on the plant on 17 January 2011. 4 houses are supplied from the source and water is being tankered in when required. Atkinson: Water treatment plant remains off. Water is tankered when required and chlorine residual boosted when delivered. A boil water alert notice remains in place.	55%	N/A

Note: Figures for reservoir storages are as at 7pm Sunday 16 January 2011, with the exception of:

- figures underlined which are as at 3pm 16 January 2011
- figures for Withcott and Fernvale which are as at 10am 17 January 2011
- those figures which are specified as at 2.30pm 17 January 2011.

Unitywater

The affected towns supplied by Unitywater are Dayboro and Kenilworth.
As at 6AM 18 January

AREA	SUPPLY	TREATMENT PLANT RESERVOIR STORAGE LEVELS	QUALITY
Dayboro	**Water treatment plant operating from 13 January 2011.** **Plant remains operating on manual while operators are monitoring turbidity in raw water intake**	**High level reservoir: 90%** **Low level reservoir: 62%** **Holding 2-3 days supply**	Plant is operating within quality specifications
Kenilworth	**Plant remains operating on manual while operators are monitoring turbidity in raw water intake**	**WTP: 85%** **Holding 2-3 days supply**	Plant is operating within quality specifications

SEWERAGE

This update is as at 10am 17 January 2011:

Provisional Assessment

- Queensland Urban Utilities (QUU) has established an Eastern and Western Recovery Teams with the Western Team recovering from west of Ipswich and Lockyer Valley, and the Eastern Team looking after Brisbane city.

- The recovery teams have been established in a 3 phase recovery process:
  - To undertake a preliminary assessment of the facilities including safety of access and a preliminary assessment of the situation;

- When safety of access is ascertained, cleanup crews are despatched (70 cleanup crews in total have been established); and
- Repair team comprising fitters and electricians are deployed as necessary.

- In excess of 350 personnel have been assigned for cleanup and recovery comprising QUU, Unitywater, AllConnex and others.

- Asset classes that are being inspected and repaired include pump stations, wastewater treatment plants, pipelines, civil structures (buildings) and control system including System Control and Data Acquisition (SCADA).

- Severe damage can be expected for those facilities where the electrics and control systems have been fully submerged. A process has been initiated for a quick turnaround of damaged switchboards at QUU workshops.

- All risk analysis and prioritisation of repairs to sewer and water civil network and buildings has been completed. Reports up to 5pm, 15 January, were that a very initial physical assessment had occurred on 79 pump stations and 9 water reclamation plants. These sites will now be isolated and tested.

- Much of the work will be outsourced to contractors under existing "panel of provider" arrangements. Significant coordination is occurring with the councils concerned and Allconnex staff are assisting with the recovery.

- Where there has been severe flooding and manhole covers may have been blown and sewage discharged into private properties, a call centre has been established and cleanup crew will be deployed where the household reports that such events have occurred.

- Clean up crews have now started in the field. Initial clean up has started at 51 sites. Agreement has been reached with WaterSecure to provide recycled water for clean up. QUU assisted with the repairs and clean up of the WaterSecure Bundamba purified water recycling plant. Recovery operations are being hindered by the volume of debris and traffic at critical locations.

- QUU will not be addressing the clean up requirements of flooded private septic tanks. This may be a matter for consideration by the relevant councils.

- The priority for recovery is 1 - restoration of water supply, 2 – repair of sewage pump stations to remove wastewater from the suburbs, and 3 – repair of wastewater treatment plants.

- QUU reports damage as follows. This list is unlikely to grow with the exception of pipe damage in areas that are still submerged.

SEQ Regional Communities

- The sewered communities include:
  Lockyer Valley Regional Council: Gatton, Laidley, Forest Hill, Fernvale, Lowood, Helidon
  Somerset Regional Council: Esk, Toogoolawah, Kilcoy, and Somerset.

- The Scenic Rim Regional Council reports that all its wastewater facilities are operating normally.

- The town of Withcott is serviced by septic tanks.

- For Lockyer Valley Regional Council area, QUU advises:
  - All sewerage pump stations fully restored.
  - There have been no further updates on the following issues:
    - Gatton not operating. Repairs have commenced to the main Gatton sewer rising main which was washed away.
    - Laidley and Forest Hill plants are operational.
    - No power available at the Lowood and Helidon wastewater treatment plants

- The town of Withcott is serviced by septic tanks.

- For Somerset Regional Council area, QUU advises:
  - Esk wastewater treatment plant is operational but sill an issue with the pump station and alternative options are being investigated.
  - Access to Fernvale wastewater treatment plant is still flooded although plant is ok. Possibly inspecting on 17 January with possible airlift access.
  - Toogoolawah and Kilcoy plants are operational.
  - Somerset Dam township is serviced by septic tanks.
  - Sewer pump stations down at Esk (1), Lowood (2), Kilcoy (1) and Fernvale (3) due to power outages and flooding. Cleaning and testing underway today for accessible sites.

Brisbane and surrounding metropolitan areas

It has been reported by QUU as follows:

- Ipswich:
  - 27 sewerage pumping stations are not operating, but no impact on residents is expected.
  - Bundamba wastewater treatment plant is operating (Stage 1 screening only)
  - Goodna wastewater treatment plant is expected to be operating (Stage 1 screening only) by 17 January.
  - Sewage pump stations are being dried (switchboards and motors), some parts replaced and inspected by Energex prior to recommissioning
  - Rosewood and Carole Park wastewater treatment plants are fully functional

- Brisbane
  - 47 (down from 49) sewerage pumping stations flooded or without power, but no impact on residents is expected – note SITREP 23 contained incorrect numbers.
  - Power to the Wacol wastewater treatment plant has been restored and is now operational.
  - Karana Downs, Oxley and Fairfield wastewater treatment plants are still not operational.
  - The damage to the wastewater treatment plants at Oxley, Fairfield and Karana Downs are of concern due to the extent of submergence.
  - Major damage to Oxley and Fairfield which are high technology facilities is expected, particularly to the electrical and control systems and it may be weeks before these plants are fully restored. Clean up and repair crews are on-site at Oxley and Fairfield for screening recovery by Monday 17 January – full recovery will take considerable time. For Karana Downs, recovery team was on-site 16 January 2011 for assessment of the condition.
  - Oxley Creek wastewater treatment plant - a temporary pump has been installed and is pumping through primary screens then to bypass. Recover team checking status of all electrical equipment.
  - Fairfield wastewater treatment plant - operating (stage 1) only.

INTERIM
SEQ WATER GRID REPORT
ISSUES FOR WATER QUALITY AND SUPPLY AND SEWERAGE TREATMENT
AS AT TUESDAY 18 JANUARY 2011 (8.30AM)

Changes since report provided at 17 January 3.00pm highlighted in bold.

Attached is QUU SITREP-26 (17 January 8.14PM) and received at 18 January 7.47AM .
Next QUU SITREP due 8.30am 18 January 2011.

WATER

GRID-CONNECTED WATER AREAS

General information

- Grid connected areas are supplied by the SEQ Water Grid Manager and include Brisbane, Ipswich, Scenic Rim, Somerset, Lockyer (Queensland Urban Utilities - QUU), Sunshine Coast, Moreton Bay (Unity Water), Gold Coast, Logan and Redlands (AllConnex) council jurisdictions. The areas most impacted are the Lockyer Valley, Somerset, Ipswich and Brisbane.

- Seqwater and LinkWater's operational monitoring capabilities are fully operational which, in combination with the verification monitoring, continue to highlight safe drinking water quality.

- A boil water notice is still in effect for the Atkinson Dam (Seqwater Dam) recreational site.

- LinkWater is accommodating increased requirements for water supply for Sunshine Coast area from the Water Grid.

- No *E. coli* positive results have been returned in the SEQ bulk distribution network this week.

- LinkWater has increased its verification testing verification frequency to daily (from weekly) since 12 January 2011 and will continue to do this until further notice, although some sites still remain inaccessible. Seqwater has increased testing frequency (particularly for problematic assets and assets being put on line after being offline) and testing frequency will increase further when sampling sites are accessible.

- Seqwater reports that water quality specifications are being met where water treatment plants are operational under current flow scenarios. Queensland Health has advised on 15 January 2011 that the Water Grid Manager revert to standard operating procedures and re-advise if there is a further change to turbidity that will result in the end product exceeding agreed critical limits.

- While there are few known issues with the reticulation system at this stage in the grid connected area, ongoing issues may be identified with water quality and supply over time (e.g. main breaks) and reticulation systems are currently being monitored.

- Approval has been given by Queensland Health and the Office of the Water Supply Regulator (the regulators) to use in both metropolitan and regional SEQ communities purified recycled water for washdown purposes only (no human or animal consumption). A press release on this matter was issued on 15 January 2011. There are at least three sites that can provide purified recycled water to tankers – Bundamba, Lowood and Gibson Island. To manage supply of the water from the charge points at those sites, there will staged notification for tankers, fire brigade and the Department of Main Roads and Transport. As at 16 January 2011, only the Lowood offtake has been utilised by the Rural Fire Brigade.

Critical issues

- **Lowood WTP offline as at 4.17AM due to temporary pump failure. At 0505am QUU advised there is sufficient supply in reserviors supplied by the Lowood WTP for about 1-2 days. Seqwater Director Operations is on his way to the site to assess the issues and provide further information on repair time.**

- LinkWater system storages were holding 427 megalitres on 17 January, up 12 megalitres from 16 January. Overnight on 16 January 2011 East Bank increased production by 50 megalitres (to 220 megalitres per day) and West Bank came on overnight but has since been shut down. East Bank is now producing 170 megaltitres per day. Total production from central plant is 370 megalitres per day currently but can quickly ramp up a further 450 megalitres per day if needed.

- While consumption on 15 January 2011 was 420 megalitres per day across the connected grid area, demand decreased on 16 January 2011 to 400 megalitres per day (lower than the expected 420 megalitres per day). Demand has increased (as at 2pm) on 17 January 2011 to around 420 megalitres per day and LinkWater system storages are declining (392 megalitres at 2.30pm on 17 January) to optimise water quality in the network.

- **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.**

- **At 6am Wivenhoe Dam was at 107.8% and dropping. The closing sequence began at 2pm on 17 January but held constant overnight s to assist water supply pumping at Lowood. The closing gates sequence will resume at 09:00 Tuesday before final closure on Thursday morning.**
- **The bridges below Wivenhoe Dam will progressively come out of water over the next few days.**
- **At 6am Somerset was 98.98m and 379,016ML at 99.8% and discharging through one cone valve. All sluices are shut.**

- **At 6am** North Pine Dam was at 99.4% and all gates were closed.

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.

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.

- **On 17 January 2011 (8.14pm), there is a reticulation supply issue for 21 customers in the Mt Ommaney zone who** are currently without water during the day. Loss of river crossings has impacted water usage. Further intermittent impacts across zones within the flood impact areas due to emergency water use. Rezoning work carried out to increase pressure.
-
- Sites tested for water quality by QUU on 17 January 2011 in Brisbane and Ipswich met water quality specifications (see note below). QUU has confirmed that routine sampling will recommence on 17 January for Brisbane and Scenic Rim, although higher frequencies of monitoring will continue in the Ipswich zones for 17 and 18 January 2011 at this stage.

- Queensland Health, through their Public Health Units, are monitoring for gastrointestinal diseases and determining whether these are associated with exposure with flood water or the drinking water system. To date, there have been no confirmed outbreaks

- NOTE: There was a report on 15 January 2011 of the detection of (*E. coli*) at 1 colony forming unit per 100 millitres at Ashwell school at Rosewood (test taken on 14 January 2011). On 14 December 2010 there was also a detection of *E. coli* in the same location. These detections are likely due to the location of the sampling site and low usage of water during school holidays (as water sits in the pipes), and is unlikely to have anything to do with the current flood crisis. Therefore it has not been included in the water quality issues within this briefing note. QUU are managing this incident in a similar way in which they managed the December detection, and the incident has been reported to the Office of the Water Supply Regulator (OWSR), Queensland Health and the Water Grid Manager as per regulatory and Emergency Response Plan requirements, respectively. A follow up test undertaken on 15 January 2011 (results obtained on 16 January 2011) did not detect any *E. coli*.

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  - Linville and
  - Kirkleagh and Wivenhoe Dam recreation areas.

- All systems have charged storages.

- The permanent intake requirements at Lowood will be assessed when the floodwater recedes and the damage can be inspected. In the mean time, a diesel pump is being employed successfully.

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As at 6AM 18 January

AREA	SUPPLY	TREATMENT PLANT RESERVOIR STORAGE LEVELS	QUALITY
Dayboro	**Water treatment plant operating from 13 January 2011.** **Plant remains operating on manual while operators are monitoring turbidity in raw water intake**	**High level reservoir: 90%** **Low level reservoir: 62%** **Holding 2-3 days supply**	Plant is operating within quality specifications
Kenilworth	**Plant remains operating on manual while operators are monitoring turbidity in raw water intake**	**WTP: 85%** **Holding 2-3 days supply**	Plant is operating within quality specifications

SEWERAGE

This update is as at 10am 17 January 2011:

Provisional Assessment

- Queensland Urban Utilities (QUU) has established an Eastern and Western Recovery Teams with the Western Team recovering from west of Ipswich and Lockyer Valley, and the Eastern Team looking after Brisbane city.

- The recovery teams have been established in a 3 phase recovery process:
  - To undertake a preliminary assessment of the facilities including safety of access and a preliminary assessment of the situation;

- When safety of access is ascertained, cleanup crews are despatched (70 cleanup crews in total have been established); and
- Repair team comprising fitters and electricians are deployed as necessary.

- In excess of 350 personnel have been assigned for cleanup and recovery comprising QUU, Unitywater, AllConnex and others.
- Asset classes that are being inspected and repaired include pump stations, wastewater treatment plants, pipelines, civil structures (buildings) and control system including System Control and Data Acquisition (SCADA).
- Severe damage can be expected for those facilities where the electrics and control systems have been fully submerged. A process has been initiated for a quick turnaround of damaged switchboards at QUU workshops.
- All risk analysis and prioritisation of repairs to sewer and water civil network and buildings has been completed. Reports up to 5pm, 15 January, were that a very initial physical assessment had occurred on 79 pump stations and 9 water reclamation plants. These sites will now be isolated and tested.
- Much of the work will be outsourced to contractors under existing "panel of provider" arrangements. Significant coordination is occurring with the councils concerned and Allconnex staff are assisting with the recovery.
- Where there has been severe flooding and manhole covers may have been blown and sewage discharged into private properties, a call centre has been established and cleanup crew will be deployed where the household reports that such events have occurred.
- Clean up crews have now started in the field. Initial clean up has started at 51 sites. Agreement has been reached with WaterSecure to provide recycled water for clean up. QUU assisted with the repairs and clean up of the WaterSecure Bundamba purified water recycling plant. Recovery operations are being hindered by the volume of debris and traffic at critical locations.
- QUU will not be addressing the clean up requirements of flooded private septic tanks. This may be a matter for consideration by the relevant councils.
- The priority for recovery is 1 - restoration of water supply, 2 – repair of sewage pump stations to remove wastewater from the suburbs, and 3 – repair of wastewater treatment plants.
- QUU reports damage as follows. This list is unlikely to grow with the exception of pipe damage in areas that are still submerged.

SEQ Regional Communities

- The sewered communities include:
  Lockyer Valley Regional Council: Gatton, Laidley, Forest Hill, Fernvale, Lowood, Helidon
  Somerset Regional Council: Esk, Toogoolawah, Kilcoy, and Somerset.

- The Scenic Rim Regional Council reports that all its wastewater facilities are operating normally.

- The town of Withcott is serviced by septic tanks.

- For Lockyer Valley Regional Council area, QUU advises:
  - All sewerage pump stations fully restored.
  - There have been no further updates on the following issues:
    - Gatton not operating. Repairs have commenced to the main Gatton sewer rising main which was washed away.
    - Laidley and Forest Hill plants are operational.
    - No power available at the Lowood and Helidon wastewater treatment plants

- The town of Withcott is serviced by septic tanks.

- For Somerset Regional Council area, QUU advises:
  - Esk wastewater treatment plant is operational but sill an issue with the pump station and alternative options are being investigated.
  - Access to Fernvale wastewater treatment plant is still flooded although plant is ok. Possibly inspecting on 17 January with possible airlift access.
  - Toogoolawah and Kilcoy plants are operational.
  - Somerset Dam township is serviced by septic tanks.
  - Sewer pump stations down at Esk (1), Lowood (2), Kilcoy (1) and Fernvale (3) due to power outages and flooding. Cleaning and testing underway today for accessible sites.

Brisbane and surrounding metropolitan areas

It has been reported by QUU as follows:

- Ipswich:
  - 27 sewerage pumping stations are not operating, but no impact on residents is expected.
  - Bundamba wastewater treatment plant is operating (Stage 1 screening only)
  - Goodna wastewater treatment plant is expected to be operating (Stage 1 screening only) by 17 January.
  - Sewage pump stations are being dried (switchboards and motors), some parts replaced and inspected by Energex prior to recommissioning
  - Rosewood and Carole Park wastewater treatment plants are fully functional

- Brisbane
  - 47 (down from 49) sewerage pumping stations flooded or without power, but no impact on residents is expected – note SITREP 23 contained incorrect numbers.
  - Power to the Wacol wastewater treatment plant has been restored and is now operational.
  - Karana Downs, Oxley and Fairfield wastewater treatment plants are still not operational.
  - The damage to the wastewater treatment plants at Oxley, Fairfield and Karana Downs are of concern due to the extent of submergence.
  - Major damage to Oxley and Fairfield which are high technology facilities is expected, particularly to the electrical and control systems and it may be weeks before these plants are fully restored. Clean up and repair crews are on-site at Oxley and Fairfield for screening recovery by Monday 17 January – full recovery will take considerable time. For Karana Downs, recovery team was on-site 16 January 2011 for assessment of the condition.
  - Oxley Creek wastewater treatment plant - a temporary pump has been installed and is pumping through primary screens then to bypass. Recover team checking status of all electrical equipment.
  - Fairfield wastewater treatment plant - operating (stage 1) only.

[redacted]

From: Dan Spiller [redacted]
Sent: Tuesday, 18 January 2011 9:27 AM
To: Bradley John; [redacted]
Cc: Dennien Barry [redacted] 'Madgwick, [redacted] Best Debbie; [redacted] 'Rob Drury'; 'Mike Foster'
Subject: Update on releases
Attachments: 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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[redacted]

From: Ellwood Dean
Sent: Tuesday, 18 January 2011 5:19 PM
To: Bradley John; Wall Terry; Best Debbie
Cc: Reilly Bob; McMain Lisa
Subject: FW: Maintenance of water Supply Lockyer Valley towns supplied by Lowood Water Treatment Plant: Approval to vary floodwater releases under the Flood Mitigation Manual for Wivenhoe/Somerset Dams

Please see attached advice from GM OWSR regarding a variation to the Flood Mitigation Manual for Wivenhoe/Somerset dams. This advice will be included in the next sit rep as well.

Regards
dean

Dean Ellwood
Assistant Director-General
Environment & Natural Resource Regulation
Department of Environment and Resource Management
Phone: [redacted]
Mobile:
Email:
Visit: Floor 7 400 George Street Brisbane

From: Reilly Bob
Sent: Tuesday, 18 January 2011 5:13 PM
To: Ellwood Dean
Cc: McMain Lisa
Subject: Maintenance of water Supply Lockyer Valley towns supplied by Lowood Water Treatment Plant: Approval to vary floodwater releases under the Flood Mitigation Manual for Wivenhoe/Somerset Dams

Hi Dean

The purpose of this email is to advise you of an urgent regulatory decision that I made this afternoon to assist in maintaining the drinking water supply to the Lockyer Valley towns e.g. Gatton. supplied by the Lowood Water Treatment Plant owned by Seqwater.

Background

The Lowood raw water pumps were significantly damaged in the January 2011 flood event. Temporary arrangements have been put in place. However, at approximately 3 pm this afternoon, I was verbally advised by the Chief Executive Officer of Seqwater, Peter Borrows, that the flow level in the Brisbane River at Lowood needed to be maintained for another 12 hours to enable the temporary pumping arrangements to be stabilised. (In the event of failure, the raw water pumps would cease operating. If they could not be repaired quickly, and the verbal advice was that this would be difficult, then drinking water supplies to the Lockyer Valley towns would be compromised).

The desired outcome could be achieved by maintaining the existing level of releases for a further 12 hours from Wivenhoe, than planned. Reductions in releases were scheduled to commence at around 3 pm. (Releases would be gradually reduced so as to minimise the chances of river bank slumping)

Seqwater advised that maintaining the releases would reduce the full supply level in Wivenhoe/Somerset to 95% (instead of 100%), and that the Grid Manager had advised on 24

December that they had no "in principle" objection to Seqwater undertaking such action.

However, as such an approach constituted a variation to the flood release strategy approved in the Flood Mitigation Manual, approval from the CEO of DERM, or a delegated officer such as myself, was required. Such decisions are normally made by OWSR staff.

Decision

Given the circumstances, I approved the variation, as to do otherwise would potentially compromise drinking water supples in the major Lockyer Valley towns. (Seqwater subsequently advised that the actual reduction in dam levels will be to 94.6% in Wivenhoe and 97.3% at Somerset)

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

[redacted]

From: Dan Spiller [redacted]
Sent: Wednesday, 19 January 2011 7:52 AM
To: Bradley John; [redacted]
Cc: Dennien Barry [redacted] Best Debbie; [redacted] 'Rob Drury'
Subject: Update on release strategy
Attachments: 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

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[redacted]

From: Water Grid Emergency Manager [redacted]
Sent: Sunday, 16 January 2011 7:30 AM
To: Bradley John
Subject: QUU Situation Reports - correction
Follow Up Flag: Follow up
Flag Status: Completed
Attachments: 20110115 Executive Summary sitrep 19_1800.doc; 20110115 Sitrep 19 Extreme wet weather.doc; 20110116 Executive Summary sitrep 20_0500.doc; 20110116 Sitrep 20 Extreme wet weather.doc

Colleagues,

Please note, there is an error in the QUU Situation Report. We confirm that the Lowood Water Treatment Plant is operational. QUU were aware of the status and have noted the correction.

Regards,

Water Grid Emergency Team

[redacted]

QUEENSLAND UrbanUtilities

LDCC Queensland Urban Utilities UPDATE 19:00pm Saturday 15/1/2011

EVENT SUMMARY – SITREP 19

Status of water and sewerage assets and services

The following is a summary of current and forecast impacts

Brisbane City Council area (as at 19:00pm)
Water:
- All water pumping stations operational (one with generator set). Reservoir levels maintained during the day under flood recovery demands (street and house cleaning)

Wastewater:
- 49 sewerage pumping stations flooded or without power.
- 3 wastewater treatment plants have been flooded and are not operating (Karana Downs, Oxley, Fairfield).
- No impact on residents.

Ipswich City Council area
Water:
- No operational problems.
- Water sampling commenced, awaiting results on 16/1/2011.

Wastewater:
- Two wastewater treatment plants remain offline – Bundamba and Goodna.
- 31 sewerage pumping stations are not operating.
- No impact on residents.

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Lockyer Valley
Water:
- All reservoirs intact.
- Progressively filling Reservoirs.
- Tanker deliveries continuing to Lowood and Gatton Reservoirs during the night
- Postman's Ridge Pump Station operational. Repairs to supply main (Withcott) completed.
- Repairing the road for tanker access into Helidon.
- Withcott – Mains to be charged on Sunday 16 January
- Regency Downs and Kensington Grove returning to normal operational status.

Wastewater:
- All water reclamation plants operational.
- Repairs have commenced to Main Sewer Rising Main to Gatton, which washed away.

Scenic Rim
Water and Wastewater: No issues

Somerset
Water:
- Lowood WTP operational and filling clear water tank, supply restored , progressively filling Reservoirs.
- Esk WTP and Toogoolawah WTP returned to normal operation status.
- Minden customers reliant on bottled water.
- Power restored to Linville PS and water is being delivered to the reservoir.
- Fernvale still in supply but reliant on water tankers to maintain current levels.
- Extra crews have been arranged on standby as a contingency plan for the water supply to the affected Lockyer Valley and Somerset areas.
- A 20,000 litre tanker has been organised to deliver potable water to the Glamorgan Vale Water Board Reservoir to assist in providing an old age home with water. For non-potable use only.

Wastewater:
- Fernvale WRP still not accessible.
- Toogoolawah WRP returned to normal operation.
- Esk WRP now accessible, repairs expected to be completed on 16 January.

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- Lowood WRP still without power (maybe another 5 days)

LOCKYER VALLEY WATER ASSETS STATUS

LDCC

Updated – 19:00PM Saturday, 15 January 2011

RESERVOIR/PS	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES	Status
Plainlands	Plainlands	45	4		Y		
Victoria St	Forest Hill	0.18	60	2 days	Y	Visual estimation 2m	
Summer St boosted zone, pump station and reservoir	Laidley	1.12	58	2 days	Y		Consideration of System Isolation
Douglas McInnes Drive		1.14	53		Y		
Rosewood Laidley Road Reservoir		0.45	100		Y	Can backfeed into town	
Sippel Road (Lakes Estate)		0.09	80		Y	Trickle feed to tanks	
Glenore Grove Booster					N	Only used during high demand.	Not a priority (given demand)
Gatton Reservoir - low	Woodlands Rd	5.95	0.24ML		Y		
Gatton Reservoir - high	Woodlands Rd	0.24			Y		
Gatton Reservoir - low	Cochrane St	2	1.5M visual		Y		Fencing washed away

							lightning strike
							telemetry & local control damaged (not sure of this or below)
Gatton Reservoir - high	Cochrane St	2	100		Y		Fencing washed away
							lightning strike
							telemetry & local control possibly damaged
Gatton PS		N/A			Y		Network water supply unavailable
Helidon - Small	Seventeen Mile Road	0.7	0		Y		Networked water supply unavailable
Helidon - Large	Seventeen Mile Road	1.5	5		Y		
Millora Rd (Dobel Dr)		0.18	5		Y		
Rossiter Rd Pump Station	Rossiter Rd	N/A			N	Only two houses drawing on this system.	No Power - not used often.
Warrego Hwy PS		N/A			N	Pump Motor and Switchboard being replaced. Genset on site until 16/1	Expect operational today. JP Richards working ... repairs to switchboard (expect 2 to ... weeks). Gen set has arrived. Can operate on manual with Gen set - only waiting on wring in of soft starter. Motor at Donaldsons getting dried

							out.
Postmans Ridge	Murphy's Creek Ridge	0.33	24		N		Contractor has the main reinstated. Expect servieable by afternoon Sat 15 Jan. Waiting for a fitting to connect either end.
Postmans Ridge PS		N/A			N	No power to site. Genset on standby at Coates - now has approval to transport, 5t limit MRD approval receieved for this move.	Switchboard, building and auxilliary equipment is serviceable.
Withcott	Dolley's Rd	1.94	0		N	No inlet feed available due to break on 200mm DICL inlet main after pump station at Postman's Ridge. Both ends isolated.	Networked water supply unavailable - reservoir OK but empty. Expect fitting restored late afternoon Sat 15 Jan.
Withcott PS		N/A			Y	No Water	

Tabletop	Berghoffer Rd	0.003	25		Y		Plenty of water. No power. No check yet on boost pumps. Maybe ten customers on boost.
Tabletop PS					Y		

Please note: Details in this table are based on the latest information at time of publication. Due to the changing nature of the situation this table will be updated regularly.

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LOCKYER VALLEY WASTEWATER STATUS

LDCC

Updated – 19:00PM Saturday, 15 January 2011

ASSET	LOCATION	STATUS	NOTES
Railway St WRP	Forest Hill	Y	
Gordon St PS (429)	Forest Hill	Y	
Railway St PS (428)	Forest Hill	Y	Operational, but standby pump is in electrical fault. Crews to address today, probably.
Treatment Plant Rd WRP	Gatton	Y	Operational - has power but no sodium hypochlorite for disinfection. Order placed but not accessible by road.
Crescent St PS (408)	Gatton	Y	
East St PS (409)	Gatton	Y	
Myler Crt PS (410)	Gatton	Y	
Lake Apex PS (411)	Gatton	Y	
Industrial Rd PS (412)	Gatton	Y	
South St PS (413)	Gatton	Y	Operational, but high float fault alarm.
Karrasch Road PS (420)	Placid Hills	Y	Operational, damaged pump now reset and OK.
Hennessy St PS (414)	Gatton	Y	
Golf Links Dve PS (415)	Gatton	Y	
Western Dve PS (416)	Gatton	Y	Duty pump OK, but standy pump is out on high amps alarm. Requires lifting.
Tew Crt PS (417)	Gatton	Y	Duty pump OK, but standy pump is out
Back Flagstone Creek Rd WRP	Helidon	Y	Operational but not accessible as yet. No mains power. Generator now running the effluent transfer pump. Awaiting supply restoration.
Airforce Rd PS (405)	Helidon	Y	
Lawlers Rd PS (406)	Helidon	Y	

Plant St PS (407)	Helidon	Y	
Boundary Rd WRP	Laidley	Y	
Kurrajong Crt PS (424)	Laidley	Y	
Stanford Pl PS (425)	Laidley	Y	
Boundary Rd PS (426)	Laidley	Y	
Hayes St PS (427)	Laidley	Y	
Alexander St PS	Laidley	Y	
Pike St PS	Laidley	Y	Operational but limited road access due to power pole over with low hanging wires. 4WD access OK. Pole fix being arranged with local Lowood contractor.
Patrick St PS (422)	Laidley	Y	Operational but limited road access
Pioneer St PS	Laidley	Y	
Storr St PS	Laidley	Y	
Vaux St PS	Laidley	Y	

WATER RECLAMATION PLANT	NOTES
Gatton WRP	Operational and Accessible
Laidley WRP	Operational and Accessible
Forest Hill WRP	Operational and Accessible
Carole Park Reclamation Pant	Not accessible but Operational

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SOMERSET WATER ASSETS STATUS

LDCC

Updated – 19:00PM Saturday, 15 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES
Lowood 1	Jacqueline St Res 2	3			Y	Level is Critically Low but being maintained due to reliance on tankers
Lowood 2	Glamorgan Vale Rd / Ziebell	2			Y	
Lowood 3	Acacia St	1.13			Y	
Tarampa	Prenzlau Rd	0.022			N	No supply
Fernvale	Knox Rd	2	EMPTY	-	Y	Level is Critically Low but being maintained due to reliance on tankers
Balance tank/P	Fernvale	UNK			U	
Lowood West		3			Y	Networked water supply unavailable
Esk		1.1 ML	0.4		Y	To return to normal status 14/1 afternoon
BP	East St	N/A			Y	45kW soft start – 18l/s max
Toogoolawah		2	0.5		Y	To return to normal status 14/1 afternoon
Kilcoy	Saleyards Rd	3.6	?	1 day	Y	(Source: WGM) 3 tanks – 0.45, 0.63 & 1.8 ML
Lowood	WP75 Forest Hill Fernvale Road				N	Needs electrical work, went

						under
Lowood	WP76 Main st				Y	
Lowood	WP77 James st				Y	
Lowood	WP78 Prospect st				Y	
Lowood	WP79 Prospect st				Y	
Lowood	WP80 Prospect st				Y	
Lowood	WP81				N	Went under, needs electrical work
Lowood	WP82 Macadamia st				Y	
Lowood	WP83 Haslington park				Y	
Jimna			65	2 days	Y	(Source: WGM)
Linville		0.1	50	2 days	Y	Incorrect SCADA reading at Lowood. Manually checked (Source: WGM)

QUEENSLAND UrbanUtilities

SOMERSET WASTEWATER ASSETS STATUS

LDCC

Updated – 19:00PM Saturday, 15 January 2011

WATER RECLAMATION PLANT	PREVIOUS NOTES	CURRENT STATUS
Esk WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Fernvale WRP	Not Accessible	Not Serviceable – No Further Information available
Lowood WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Kilcoy WRP	Not Accessible	Power Restored
Toogoolawah WRP	Not Serviceable – No Further Information available	Operational

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SCENIC RIM AREA STATUS

LDCC

Updated – 19:00PM Saturday, 15 January 2011

NO ISSUES

QUEENSLAND UrbanUtilities

BRISBANE AREA WATER ASSETS SUMMARY

LDCC

Updated – 19:00PM Saturday, 15 January 2011

Summary of Water Affected Assets			
Asset Type	**Number**		**Last Updated**
Telemetry	2		15/01/2011
Water Pump Stations & Boosters			15/1/11 20.30PM
Flooded or Without Power	0		
Customers Affected	0		
Res Levels (ML)	70.68		15/1/11 20.30PM
Water Main Bursts	3		15/1/11 20.30PM
Properties Affected	39		
PRV's	5		15/1/11 20.30PM
Trunk Mains	1		15/1/11 20.30PM
Dirty Waters	14 (0 outstanding)	0 outstanding	15/1/11 20.30PM

QUU RESERVOIRS – TIME TILL LOW LEVEL

Status	Code
More Than 5 hours supply	
Between 3 and 5 hours supply	
Less than 3 hours supply	

Location	Current Volume (ML)	Usable Volume (ML)	Current Level (m)	Est ROF Time to Low (Hrs)
Mt. Gravatt	6.35	1.76	2.63	10.07
Roles Hill 1 - Decommissioned	1.50	0.75	1.19	

Nathan - Offline	0.00	0.00	0.00	
Outlook	0.19	0.15	1.38	34.99
Grovely 2	2.34	0.96	2.03	4.51
Toohey Mt 2	2.42	1.44	2.96	31.33
Karana Downs R60M	0.44	0.00	1.09	3.62
Bracken Ridge	4.62	3.04	2.34	6.55
Highgate Hill 1	2.60	1.59	2.01	11.00
Inala	5.20	2.91	3.41	47.13
Bartleys Hill 1	6.13	3.19	4.43	22.01
Bardon Hill	1.43	0.84	1.92	19.90
Milne Hill	3.81	0.11	2.53	0.29
Highgate Hill 2	2.39	1.38	1.85	10.26
Grovely 1	0.92	0.34	1.59	5.30
The Gap	5.13	1.96	5.18	20.09
Tarragindi	36.71	17.84	3.99	15.71
Holland Park 2	1.78	1.01	2.47	6.60
Richlands	6.09	3.48	12.11	9.65
Mt Ommaney	20.34	11.30	6.75	30.83
Manly Elevated	5.92	0.27	25.13	3.36
Karana Downs R60M	1.04	0.04	2.59	1.05
Mitchelton	0.50	0.09	0.80	5.92
Stafford 2	2.75	1.90	2.26	8.86
Karawatha	1.40	0.50	2.79	2.82
Holland Park 1	0.48	0.14	2.67	3.75
Bartleys Hill 2	9.56	4.72	4.76	21.37
Roles Hill 2	5.46	0.68	3.46	9.91
Boss Rd WP30	17.37	6.83	7.70	30.81
The Summit	0.29	0.11	4.45	46.72
Boss Rd WP30	0.12	0.01	5.64	1.20
Toohey Mt 1	1.02	0.63	2.05	18.79
Manly Tank	0.47	0.06	5.66	1.94
Chapel Hill	1.30	0.64	1.29	10.40
Stafford 1	0.00	0.00	0.00	0.00
Eildon Hill - Offline	0.04	0.00	0.01	
Total Volume		**70.68**		

QUEENSLAND Urban Utilities

BRISBANE AREA WASTEWATER ASSETS SUMMARY

LDCC

Updated – 19:00PM Saturday, 15 January 2011

49	Pump Stations Flooded or without power	**11**	Generators Flooded
3	Treatment Plant Flooded or without power	**0**	Generators Flooded

QUEENSLAND UrbanUtilities

IPSWICH WATER ASSETS SUMMARY

LDCC

Updated - 19:00PM Saturday 15 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	SERVICABLE	HOLDING (%)	NOTES
Western Distribution Area Reservoirs					
Borallan			Y	57	Normal Operation
Marburg			Y	88	Normal Operation
Haigslea			Y	36	Normal Operation
Rosewood 1 & 2			Y	54/58	Normal Operation
Upper John Works at night for HLZ			Y	75	Filling
Denmark Hill			Y	44/46	Normal Operation
Karragroo			Y	56	Normal Operation
Brassall			Y	46	Normal Operation
Bundamba Distribution Area Reservoirs					
Blackstone			Y	76	Normal Operation
Ripley			Y	56	Normal Operation
Ripley HLZ Fills out of Ripley Res			Y	79	Normal Operation
Eastern Distribution Area Reservoirs					
Bundamba			Y	92/91	Normal Operation
Riverview (Child)			Y	63	Normal Operation
Goodna			Y	81	Normal Operation
Bertha Balances off of Goodna Level			Y	36	Normal Operation

Keidges Road			Y	84	Normal Operation
Keidges Road HLZ fills out of Keidges Res			Y	80	Normal Operation
Camira			Y	68	Normal Operation
Springfield			Y	84	Normal Operation

IPSWICH WASTEWATER ASSETS SUMMARY

LDCC

Updated - 19:00PM Saturday 15 January 2011

PUMP STATION	LOCATION	SERVICEABLE	POWER	FLOODED
Bundamba 1 Catchment				
Moggill Ferry		Y		Y
Francis		Y		
Tantivity		N		Y
Moores Pocket		Y		Y
Karalee A		N		N
Karalee B		N		N
Mt Crosby		N		N
Harris Street		Y		N
Harrison street		Y		N
Enterprise Street		Y		N
Rosebery Prade		N		Y
Woodend Road		N		Y
Haig Street		Y		N
Tiger Street		N		N
Tivoli Wastewater Centre		N		N
Luckie Crescent		Y		N
Boundary Street Nrth		N		N
Chermside Rd		N		
Boundary Street south		N		Y
Blackall Street		N		Y
Bundamba 2 Catchment				
Samford Road		N		N

Chalk Street		Y		N
Old Toowoomba Road		N		Y
Ivor Marsden		N		N
Okeefe		Y		Y
Hanlon Street		Y		Y
Lobb Street		N		Y
Lobley Street		N		Y
Sutton Street		N		N
Berry Street		Y		N
Winston Street		Y		N
Hall Street		Y		N
Saleyard Road		Y		N
Videroni Street		N		Y
Queen Street		Y		N
Ashburn Road		N		N
Bognuda Street		N		Y
Hudson Street		Y		N
Kennith Street		N		N
Nelson Street		Y		N
Carole Park Catchment				
Cobalt Street		Y		N
Goodna Catchment				
Brisbane Terrace		N		Y
Riverview Road		Y		?
Monash Street		N		?
Six Mile Creek		N		?
Cedar Road		Y		N
Eagle Heights		Y		N
McAuliffe Street		N		N
Lower Cross Street		N		Y
Keidges Road		Y		N
Butterfly Green		Y		N
Springfield Collage Green		Y		N
Waterford Road		Y		N
Fion Street		Y		N
West St		Y		

Rosewood Catchment				
School Street		Y		Y
Bassetts Lane		Y		Y

QUEENSLAND UrbanUtilities

IPSWICH WASTEWATER ASSETS SUMMARY

LDCC

Updated – 19:00PM Saturday, 15 January 2011

Condition	N. Pumps
Nrmal Operation	28
Inundated but accessible	11
Inundated / Nt accessible	21

WATER RECLAMATION PLANT	NOTES
Bundamba Water Reclamation Plant	Fully accessible. Not operational.
Goodna Reclamation Plant	Accessible. No power.
Rosewood Reclamation Plant	Limited access. Operational apart from chlorination
Carole Park Reclamation Pant	Normal Operation

QUEENSLAND UrbanUtilities

LDCC Queensland Urban Utilities UPDATE 5am Sunday, 16/1/2011

EVENT SUMMARY – SITREP 20

Status of water and sewerage assets and services

The following is a summary of current and forecast impacts.

Brisbane City Council area (as at 4.30am)
Water:

- All water pumping stations operational (one with generator set). Reservoir levels maintained during the day under flood recovery demands (street and house cleaning).
- Currently filling distribution reservoirs at Link Waters requested due to high levels in their reservoirs.

Wastewater:

- 49 sewerage pumping stations flooded or without power.
- Three wastewater treatment plants have been flooded and are not operating (Karana Downs, Oxley, Fairfield).
- No impact on residents.

Ipswich City Council area
Water:

- No operational problems.
- Water sampling commenced, awaiting results on Sunday, 16 January.

Wastewater:

- Two wastewater treatment plants remain offline – Bundamba and Goodna.
- 31 sewerage pumping stations are not operating.
- No impact on residents.

QUEENSLAND UrbanUtilities

Lockyer Valley
Water:
- Progressively filling reservoirs.
- Tanker deliveries continuing to Lowood and Gatton Reservoirs during the night.
- Postman's Ridge Pump Station operational. Repairs to supply main (Withcott) completed.
- Repairing the road for tanker access into Helidon.
- Withcott – mains to be charged on Sunday, 16 January.
- Regency Downs and Kensington Grove returning to normal operational status.

Wastewater:
- All water reclamation plants operational.
- Repairs have commenced to Main Sewer Rising Main to Gatton, which washed away.

Scenic Rim
Water and Wastewater: No issues.

Somerset
Water:
- Lowood WTP operational and filling clear water tank, supply restored, progressively filling reservoirs.
- Esk WTP and Toogoolawah WTP returned to normal operation status.
- Minden customers reliant on bottled water.
- Power restored to Linville PS and water is being delivered to the reservoir.
- Fernvale still in supply but reliant on water tankers to maintain current levels.
- Extra crews have been arranged on standby as a contingency plan for the water supply to the affected Lockyer Valley and Somerset areas.
- A 20,000 litre tanker has been organised to deliver potable water to the Glamorgan Vale Water Board Reservoir to assist in providing an old aged care home with water. For non-potable use only.

Wastewater:
- Fernvale WRP still not accessible.
- Toogoolawah WRP returned to normal operation.
- Esk WRP now accessible, repairs expected to be completed on Sunday, 16 January.
- Lowood WRP still without power (maybe another five days).

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WATER ASSETS STATUS

LDCC

Updated 5am Sunday, 16 January 2011

RESERVOIR/PS	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES	Status
Plainlands	Plainlands	45	4		Y		
Victoria St	Forest Hill	0.18	60	2 days	Y	Visual estimation 2m	
Summer St boosted zone, pump station and reservoir	Laidley	1.12	58	2 days	Y		Consideration of System Isolation
Douglas McInnes Drive		1.14	53		Y		
Rosewood Laidley Road Reservoir		0.45	100		Y	Can backfeed into town	
Sippel Road (Lakes Estate)		0.09	80		Y	Trickle feed to tanks	
Glenore Grove Booster					N	Only used during high demand.	Not a priority (given demand)
Gatton Reservoir - low	Woodlands Rd	5.95	0.24ML		Y		
Gatton Reservoir - high	Woodlands Rd	0.24			Y		
Gatton Reservoir - low	Cochrane St	2	1.5M visual		Y		Fencing washed away
							lightning strike
							telemetry & local control damaged (not sure of this or below)
Gatton	Cochrane	2	100		Y		Fencing

Reservoir - high	St						washed away lightning strike telemetry & local control possibly damaged.
Gatton PS		N/A			Y		Networked water supply unavailable
Helidon - Small	Seventeen Mile Road	0.7	0		Y		Networked water supply unovailable
Helidon - Large	Seventeen Mile Road	1.5	5		Y		
Millora Rd (Dobel Dr)		0.18	5		Y		
Rossiter Rd Pump Station	Rossiter Rd	N/A			N	Only two houses drawing on this system.	No Power - not used often.
Warrego Hwy PS		N/A			N	Pump Motor and Switchboard being replaced. Genset on site until 16/1	Expect operational today. JP Richardsons working on repairs to switchboard (expect 2 to 3 weeks). Gen set has arrived. Can operate manual with Gen set - only waiting on wring in of soft starter. Motor at Donaldsons getting dried out.
Postmans Ridge	Murphy's Creek	0.33	24		N		Contractor has the main

	Ridge						reinstated. Expect servieable by afternoon Sat 15 Jan. Waiting for a fitting to connect either end.
Postmans Ridge PS		N/A			N	No power to site. Genset on standby at Coates - now has approval to transport, 5t limit MRD approval receieved for this move.	Switchboard, building and auxilliary equipment is serviceable.
Withcott	Dolley's Rd	1.94	0		N	No inlet feed available due to break on 200mm DICL inlet main after pump station at Postman's Ridge. Both ends isolated.	Networked water supply unavailable - reservoir OK but empty. Expect fitting restored late afternoon Sat 15 Jan.
Withcott PS		N/A			Y	No Water	
Tabletop	Berghoffer Rd	0.003	25		Y		Plenty of water. No power. No check yet on boost pumps. Maybe ten customers on boost.
Tabletop PS					Y		

QUEENSLAND Urban Utilities

Please note: Details in this table are based on the latest information at time of publication. Due to the changing nature of the situation this table will be updated regularly.

QUEENSLAND UrbanUtilities

LOCKYER VALLEY WASTEWATER STATUS

LDCC

Updated 5am Sunday, 16 January 2011

ASSET	LOCATION	STATUS	NOTES
Railway St WRP	Forest Hill	Y	
Gordon St PS (429)	Forest Hill	Y	
Railway St PS (428)	Forest Hill	Y	Operational, but standby pump is in electrical fault. Crews to address today, probably.
Treatment Plant Rd WRP	Gatton	Y	Operational - has power but no sodium hypochlorite for disinfection. Order placed but not accessible by road.
Crescent St PS (408)	Gatton	Y	
East St PS (409)	Gatton	Y	
Myler Crt PS (410)	Gatton	Y	
Lake Apex PS (411)	Gatton	Y	
Industrial Rd PS (412)	Gatton	Y	
South St PS (413)	Gatton	Y	Operational, but high float fault alarm.
Karrasch Road PS (420)	Placid Hills	Y	Operational, damaged pump now reset and OK.
Hennessy St PS (414)	Gatton	Y	
Golf Links Dve PS (415)	Gatton	Y	
Western Dve PS (416)	Gatton	Y	Duty pump OK, but standy pump is out on high amps alarm. Requires lifting.
Tew Crt PS (417)	Gatton	Y	Duty pump OK, but standy pump is out
Back Flagstone Creek Rd WRP	Helidon	Y	Operational but not accessible as yet. No mains power. Generator now running the effluent transfer pump. Awaiting supply restoration.
Airforce Rd PS (405)	Helidon	Y	

Lawlers Rd PS (406)	Helidon	Y	
Plant St PS (407)	Helidon	Y	
Boundary Rd WRP	Laidley	Y	
Kurrajong Crt PS (424)	Laidley	Y	
Stanford Pl PS (425)	Laidley	Y	
Boundary Rd PS (426)	Laidley	Y	
Hayes St PS (427)	Laidley	Y	
Alexander St PS	Laidley	Y	
Pike St PS	Laidley	Y	Operational but limited road access due to power pole over with low hanging wires. 4WD access OK. Pole fix being arranged with local Lowood contractor.
Patrick St PS (422)	Laidley	Y	Operational but limited road access
Pioneer St PS	Laidley	Y	
Storr St PS	Laidley	Y	
Vaux St PS	Laidley	Y	

WATER RECLAMATION PLANT	NOTES
Gatton WRP	Operational and Accessible
Laidley WRP	Operational and Accessible
Forest Hill WRP	Operational and Accessible
Carole Park Reclamation Pant	Not accessible but Operational

QUEENSLAND UrbanUtilities

SOMERSET WATER ASSETS STATUS

LDCC

Updated 5am Sunday, 16 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	HOLDING (%)	EST SERVICE DURATION	SERVICEABLE (Y/N)	NOTES
Lowood 1	Jacqueline St Res 2	3			Y	Level is Critically Low but being maintained due to reliance on tankers
Lowood 2	Glamorgan Vale Rd / Ziebell	2			Y	
Lowood 3	Acacia St	1.13			Y	
Tarampa	Prenzlau Rd	0.022			N	No supply
Fernvale	Knox Rd	2	EMPTY	-	Y	Level is Critically Low but being maintained due to reliance on tankers
Balance tank/P	Fernvale	UNK			U	
Lowood West		3			Y	Networked water supply unavailable
Esk		1.1 ML	0.4		Y	To return to normal status 14/1 afternoon
BP	East St	N/A			Y	45kW soft starf – 18l/s max
Toogoolawah		2	0.5		Y	To return to normal status 14/1 afternoon
Kilcoy	Saleyards Rd	3.6	?	1 day	Y	(Source: WGM) 3 tanks – 0.45, 0.63 & 1.8 ML

Lowood	WP75 Forest Hill Fernvale Road				N	Needs electrical work, went under
Lowood	WP76 Main st				Y	
Lowood	WP77 James st				Y	
Lowood	WP78 Prospect st				Y	
Lowood	WP79 Prospect st				Y	
Lowood	WP80 Prospect st				Y	
Lowood	WP81				N	Went under, needs electrical work
Lowood	WP82 Macadamia st				Y	
Lowood	WP83 Haslington park				Y	
Jimna			65	2 days	Y	(Source: WGM)
Linville		0.1	50	2 days	Y	Incorrect SCADA reading at Lowood. Manually checked (Source: WGM)

QUEENSLAND UrbanUtilities

SOMERSET WASTEWATER ASSETS STATUS

LDCC

Updated 5am Sunday, 16 January 2011

WATER RECLAMATION PLANT	PREVIOUS NOTES	CURRENT STATUS
Esk WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Fernvale WRP	Not Accessible	Not Serviceable – No Further Information available
Lowood WRP	Was inundated, Now accessible	Not Serviceable – No Further Information available
Kilcoy WRP	Not Accessible	Power Restored
Toogoolawah WRP	Not Serviceable – No Further Information available	Operational

QUEENSLAND Urban Utilities

SCENIC RIM AREA STATUS

LDCC

Updated 5am Sunday, 16 January 2011

NO ISSUES

QUEENSLAND UrbanUtilities

BRISBANE AREA WATER ASSETS SUMMARY

LDCC

Updated 5am Sunday, 16 January 2011

Summary of Water Affected Assets

Asset Type	Number		Last Updated
Telemetry	2		15/01/2011
Water Pump Stations & Boosters			15/1/11 20.30PM
Flooded or Without Power	0		
Customers Affected	0		
Res Levels (ML)	70.68		15/1/11 20.30PM
Water Main Bursts	3		15/1/11 20.30PM
Properties Affected	39		
PRV's	5		15/1/11 20.30PM
Trunk Mains	1		15/1/11 20.30PM
Dirty Waters	14 (0 outstanding)	0 outstanding	15/1/11 20.30PM

QUU RESERVOIRS – TIME TILL LOW LEVEL

Status	Code
More Than 5 hours supply	
Between 3 and 5 hours supply	
Less than 3 hours supply	

Location	Current Volume (ML)	Usable Volume (ML)	Current Level (m)	Est ROF Time to Low (Hrs)
Mt. Gravatt	6.35	1.76	2.63	10.07
Roles Hill 1.- Decommissioned	1.50	0.75	1.19	

Nathan - Offline	0.00	0.00	0.00	
Outlook	0.19	0.15	1.38	34.99
Grovely 2	2.34	0.96	2.03	4.51
Toohey Mt 2	2.42	1.44	2.96	31.33
Karana Downs R60M	0.44	0.00	1.09	3.62
Bracken Ridge	4.62	3.04	2.34	6.55
Highgate Hill 1	2.60	1.59	2.01	11.00
Inala	5.20	2.91	3.41	47.13
Bartleys Hill 1	6.13	3.19	4.43	22.01
Bardon Hill	1.43	0.84	1.92	19.90
Milne Hill	3.81	0.11	2.53	0.29
Highgate Hill 2	2.39	1.38	1.85	10.26
Grovely 1	0.92	0.34	1.59	5.30
The Gap	5.13	1.96	5.18	20.09
Tarragindi	36.71	17.84	3.99	15.71
Holland Park 2	1.78	1.01	2.47	6.60
Richlands	6.09	3.48	12.11	9.65
Mt Ommaney	20.34	11.30	6.75	30.83
Manly Elevated	5.92	0.27	25.13	3.36
Karana Downs R60M	1.04	0.04	2.59	1.05
Mitchelton	0.50	0.09	0.80	5.92
Stafford 2	2.75	1.90	2.26	8.86
Karawatha	1.40	0.50	2.79	2.82
Holland Park 1	0.48	0.14	2.67	3.75
Bartleys Hill 2	9.56	4.72	4.76	21.37
Roles Hill 2	5.46	0.68	3.46	9.91
Boss Rd WP30	17.37	6.83	7.70	30.81
The Summit	0.29	0.11	4.45	46.72
Boss Rd WP30	0.12	0.01	5.64	1.20
Toohey Mt 1	1.02	0.63	2.05	18.79
Manly Tank	0.47	0.06	5.66	1.94
Chapel Hill	1.30	0.64	1.29	10.40
Stafford 1	0.00	0.00	0.00	0.00
Eildon Hill - Offline	0.04	0.00	0.01	
Total Volume		**70.68**		

QUEENSLAND UrbanUtilities

BRISBANE AREA WASTEWATER ASSETS SUMMARY

LDCC

Updated 5am Sunday, 16 January 2011

49	Pump Stations Flooded or without power
11	Generators Flooded
3	Treatment Plant Flooded or without power
0	Generators Flooded

QUEENSLAND UrbanUtilities

IPSWICH WATER ASSETS SUMMARY

LDCC

Updated 5am Sunday, 16 January 2011

RESERVOIR/P	LOCATION	CAPACITY (ML)	SERVICABLE	HOLDING (%)	NOTES
Western Distribution Area Reservoirs					
Borallan			Y	57	Normal Operation
Marburg			Y	88	Normal Operation
Haigslea			Y	36	Normal Operation
Rosewood 1 & 2			Y	54/58	Normal Operation
Upper John Works at night for HLZ			Y	75	Filling
Denmark Hill			Y	44/46	Normal Operation
Karragroo			Y	56	Normal Operation
Brassall			Y	46	Normal Operation
Bundamba Distribution Area Reservoirs					
Blackstone			Y	76	Normal Operation
Ripley			Y	56	Normal Operation
Ripley HLZ Fills out of Ripley Res			Y	79	Normal Operation
Eastern Distribution Area Reservoirs					
Bundamba			Y	92/91	Normal Operation
Riverview (Child)			Y	63	Normal Operation
Goodna			Y	81	Normal Operation
Bertha Balances off of Goodna Level			Y	36	Normal Operation

Keidges Road			Y	84	Normal Operation
Keidges Road HLZ fills out of Keidges Res			Y	80	Normal Operation
Camira			Y	68	Normal Operation
Springfield			Y	84	Normal Operation

IPSWICH WASTEWATER ASSETS SUMMARY

LDCC

Updated 5am Sunday, 16 January 2011

PUMP STATION	LOCATION	SERVICEABLE	POWER	FLOODED
Bundamba 1 Catchment				
Moggill Ferry		Y		Y
Francis		Y		
Tantivity		N		Y
Moores Pocket		Y		Y
Karalee A		N		N
Karalee B		N		N
Mt Crosby		N		N
Harris Street		Y		N
Harrison street		Y		N
Enterprise Street		Y		N
Rosebery Prade		N		Y
Woodend Road		N		Y
Haig Street		Y		N
Tiger Street		N		N
Tivoli Wastewater Centre		N		N
Luckie Crescent		Y		N
Boundary Street Nrth		N		N
Chermside Rd		N		
Boundary Street south		N		Y
Blackall Street		N		Y
Bundamba 2 Catchment				
Samford Road		N		N

[redacted]

From: Colin Jensen [redacted]
Sent: Tuesday, 7 December 2010 11:01 PM
To: Bradley John
Subject: Re: FW: BCC and Dredging at Breakfast Creek

Thanks - I'm still following through with my staff but would appreciate the 'reality check' from DERM

Regards

Colin Jensen
Chief Executive Officer
Brisbane City Council
GPO Box 1434 | Brisbane Qld 4001
Level 23, Brisbane Square | 266 George Street, Brisbane, Qld 4000
Phone:
Email: [redacted]

>>> "Bradley John" [redacted] 7/12/2010 10:54:57 pm >>> >>>
Just waiting for feedback Colin, will let you know

Thanks
John B

----- Original Message -----
From: Colin Jensen [redacted]
To: Bradley John
Cc: Brown Damien
Sent: Tue Dec 07 22:46:57 2010
Subject: Re: FW: BCC and Dredging at Breakfast Creek

Thanks John

I will have Council staff follow through with Tim

BTW - Did you have any guidance on DERM's view about the development proposal of underground car parking that intrudes into the heritage listed area of the Gasometer at Newstead?

egards

Colin Jensen
Chief Executive Officer
Brisbane City Council
GPO Box 1434 | Brisbane Qld 4001
Level 23, Brisbane Square | 266 George Street, Brisbane, Qld 4000
Phone:
Email: [redacted]

>>> "Bradley John" [redacted] 7/12/2010 3:16:58 pm >>> >>>

Colin

I promised to come back to you in relation to Breakfast Creek - I gather there was a meeting of officers on November 18 but there has not been an application received by DERM (as of late last week)

The appropriate contact officer is Tim Adams (ph 34062380) if your staff wish to

discuss further pre-lodgement.

regards

John Bradley

Director-General

Department of Environment and Resource Management

Telephone: [redacted]

Email:
<mailto[redacted]

www.derm.qld.gov.au <http://www.derm.qld.gov.au>

Department of Environment and Resource Management

400 George Street, Brisbane Q 4000

GPO Box 2454, Brisbane Q 4001

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3 sheets of A4 paper = 1 litre of water
+--+

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[redacted]

From: Best Debbie
Sent: Thursday, 9 December 2010 1:03 PM
To: 'Tim Watts'; Bradley John
Cc: Shirreffs Leslie; Himstedt Dale; Jamieson Peter
Subject: Response to your question about impact of floods on releasing Dec and WRP

Tim
You asked for advice on whether these two should proceed to be announced in view of the flooding.
I have enclosed the latest out west flood information and spoken with the relevant teams.

We are of the view that the Fitzroy should proceed as we really need to get the Fitzroy WRP out by Christmas.Otherwise, we wont be in a position to finalise the WRP before the Sept '11 statutory deadline. The fact that rivers are up and roads are cut really isn't an issue, as the documents will all be available electronically. A CRP meeting is scheduled for Rockhampton on 20 Dec, but otherwise the public presentations aren't scheduled until mid-January and submissions won't close until 28 Feb '11.

At this stage we believe the Cooper should also be released but with caveats around the consultation needing to change dependant on the weather. If there was a dramatic deterioration in the situation over the week end we could reassess Monday. I have listed these items for the morning meeting so we can discuss.
Debbie

FLOOD WARNING FOR THE BARCOO RIVER AND COOPER CREEK

Issued at 10:07 AM on Wednesday the 8th of December 2010
by the Bureau of Meteorology, Brisbane.

BARCOO RIVER

Blackall area received up to 126mm within the last 24 hours. This will result in river level rises and minor flooding at Blackall.

There is minor flooding along the lower Barcoo River from Isisford to Glenlock.

Further rises are likely between Isisford and the Retreat area during the weekend and into next week as floodwaters from the Blackall area travel downstream.

COOPER CREEK

Major flooding in the Cooper Creek at Windorah continues to ease with minor to moderate flooding expect

FORECAST

There are heavy to moderate storms are expected for the Southwest on Friday, Saturday and Sunday. Thi

A regional officer in Longreach has reviewed last years' rainfall and flooding and has recommended net t

To date widespread flooding with road closures including some of the major roads has occurred limiting ac

Private roads on stations will most likely be affected as well limiting stakeholder movements.

Debbie Best
Deputy Director-General, Water and Ecosystem Outcomes Division
Telephone [redacted]
Email [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

[redacted]

From: Dan Spiller [redacted]
Sent: Sunday, 12 December 2010 4:31 PM
To: Bradley John
Cc: Peter Borrows; Dennien Barry [redacted] Reilly Bob
Subject: Wivenhoe Dam release
Attachments: Technical Stuation Report W1.docx

John,

Technical report attached for your notification, as flagged this morning. Notification to you is required under the draft protocol.

Details of the proposed release are outlined in the report, as drafted by the Seqwater team.

Note that this event is expected to be smaller than the October event. Seqwater is expecting release 70,000 to 80,000 ML at this time, compared to 650,000 ML released during the October event. More importantly, the flow rate will be only 20 per cent of the October event.

Seqwater has advised the downstream councils and BOM, as outlined in the report and as per the draft protocol. Councils and BOM have not provided written assessments at this stage. Seqwater will continue to consult with them.

We are preparing a media release for this afternoon, flagging the gate release and providing an overview of levels across Water Grid storages. We intend to keep it low key, reflecting that this is a smaller release than October (no TV interviews today). We are consulting with Lance on content. Let me know if you want an opportunity to comment.

Please call me if you require any further information.

Regards,
Daniel Spiller

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TECHNICAL SITUATION REPORT

TSR Number	W1	Date of TSR release	12.12.2010	Time of TSR release	2pm

Seqwater status of inflows and dam operations

Somerset/Wivenhoe Dams

Operational releases have been made from Wivenhoe and Somerset Dams over the last week discharging water that has come into the dams, however this is not sufficient to handle the current inflows. Rainfall in the last 24 hours will result in significant inflows to Somerset and Wivenhoe Dams which will require gate operations in the next few days.

At Somerset, two regulators have been opened around midday Sunday and remain open until at least Thursday. This will release approximately 45,000ML into Wivenhoe Dam. Water level in Somerset Dam is expected to peak around 99.7m AHD during Monday.

There is a peak flow of about 150m3/s expected in the mid Brisbane during Monday, mostly resulting from Lockyer Ck. This will be similar to, if not slightly higher than, the peak of 130 m3/s which occurred on Monday 6/12/2010.

Some 30,000 ML is expected to flow into Wivenhoe Dam from the upper Brisbane R during the next week. Coupled with the Somerset release, this will result in a rise at Wivenhoe during the next 24 to 48 hours with a peak water level around 67.6 m AHD. Releases from Wivenhoe will not be made until the runoff from the Lockyer and local areas has passed Savages Crossing so as not to exacerbate local flooding.

Releases from Wivenhoe are expected to commence on Monday afternoon depending on flows downstream and further possible rainfall, ramping up from the current release of 50m3/s to 300m3/s. The regulator will be closed and Gate 3 will be progressively opened to 3.0m. It is expected to remain at this level until Thursday when it will be reduced back to 50m3/s, at which stage the water level in the dam is expected to be below 67.25m AHD. Low level releases of 50m3/s through the hydro and regulator will then continue

It should be noted that a release of 300m3/s will impact upon Twin Bridges, Savages Crossing and Colleges Crossing. The release strategy is to discharge the stored floodwaters as quickly as possible to return the flood buffer in the dams in case there is further rainfall but in a manner that attempts to minimize disruption downstream.

The Dam Regulator has been advised of the planned actions to confirm the suitability of the planned release strategy.

Councils were contacted by phone and a follow up email sent however their phone advice is considered sufficient considering the minor actions required of councils. They can offer further comments if they desire at any stage.

The planned release strategy has been provided around 10am on 12.12.2010 by phone to
Bribsane City Council – Chris Lavin
Ipswich City Council – Tony Trace
Somerset Regional Council – Tony Jacobs

Although informal operational advice to Councils occurs at other times.

Issues raised by Councils were only a request to be advised when releases began to enable bridge closures. Somerset requested Burton's Bridge to remain open if possible or notice provided if we intend to release sufficient water to close it on purpose.

Actions taken will be to mobilise the flood centre on Monday and advise Councils as requested regarding releases.

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 was advised of planned releases via their flood information email. No formal advice is required of them as the release is a minor drawdown however there is ongoing advice provided by them on predicted rainfall and flows.

Actions taken will be to mobilise the flood centre on Monday and advise Councils as requested regarding releases and keep BoM up to date.

BoM Technical Officer name	
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)

BCC will advise internally for information purposes mainly re bridge closures in other council areas that may affect Brisbane residents.

Actions taken will be to mobilise the flood centre on Monday and advise Councils as requested regarding releases.

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)

Ipswich will coordinate closure of Colleges Crossing as necessary and any other actions.

Actions taken will be to mobilise the flood centre on Monday and advise Councils as requested regarding releases

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)

Somerset Council will coordinate closure of Twin Bridges and Savages Crossing as necessary and any other actions.

Actions taken will be to mobilise the flood centre on Monday and advise Councils as requested regarding releases

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**	13.12.2010	**Time**		**or Event**	

[redacted]

From: Dan Spiller [redacted]
Sent: Sunday, 12 December 2010 4:35 PM
To: Bradley John
Subject: FW: Wivenhoe Dam release
Attachments: Technical Stuation Report W1.docx

John,

I should have mentioned that our communications team has consulted with the Councils about the media release. All three have agreed to the key elements of the release (most difficult was BCC, which is not affected by the bridge closures, but is now happy - at least at an officer level).

Dan

From: Dan Spiller
Sent: Sunday, 12 December 2010 4:31 PM
To: John Bradley [redacted]
Cc: Peter Borrows; Barry Dennien; [redacted]
Subject: Wivenhoe Dam release

John,

Technical report attached for your notification, as flagged this morning. Notification to you is required under the draft protocol.

Details of the proposed release are outlined in the report, as drafted by the Seqwater team.

Note that this event is expected to be smaller than the October event. Seqwater is expecting release 70,000 to 80,000 ML at this time, compared to 650,000 ML released during the October event. More importantly, the flow rate will be only 20 per cent of the October event.

Seqwater has advised the downstream councils and BOM, as outlined in the report and as per the draft protocol. Councils and BOM have not provided written assessments at this stage. Seqwater will continue to consult with them.

We are preparing a media release for this afternoon, flagging the gate release and providing an overview of levels across Water Grid storages. We intend to keep it low key, reflecting that this is a smaller release than October (no TV interviews today). We are consulting with Lance on content. Let me know if you want an opportunity to comment.

Please call me if you require any further information.

Regards,
Daniel Spiller

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[redacted]

From: Dan Spiller [redacted]
Sent: Sunday, 12 December 2010 5:25 PM
To: Bradley John
Subject: FW: DRAFT - HEAVY RAINS PROMPT CONTROLLED RELEASES FROM WIVENHOE DAM

From: SEQWGM Media
Sent: Sunday, 12 December 2010 5:22 PM
To: Dan Spiller
Subject: DRAFT - HEAVY RAINS PROMPT CONTROLLED RELEASES FROM WIVENHOE DAM

DRAFT

MEDIA RELEASE
12 DECEMBER 2010

HEAVY RAINS PROMPT CONTROLLED RELEASES FROM WIVENHOE DAM

Controlled releases from Wivenhoe Dam are expected to begin tomorrow afternoon, following the weekend's heavy rainfall across South East Queensland.

Water Grid spokesperson Dan Spiller said the dam operators are likely to open one of the five gates, to release a daily average of 30,000 megalitres over a number of days. The releases will restore the dam to just below full supply level.

"The volume of water released will be less than in October, when we had all five gates open and were releasing up to 130,000 megalitres per day," said Mr Spiller.

"Releases are expected to continue until towards the end of the week, depending upon any further rainfall."

Somerset Dam began releasing water into Wivenhoe Dam at midday today, after heavy rainfall on the Sunshine Coast.

All dams throughout South East Queensland have been hovering around 100 per cent capacity since heavy rainfall during early October.

Hinze Dam is continuing to release approximately 5,000 megalitres of water per day through the outlet gates. Several other local dams are continuing to spill.

Mr Spiller said with all the water currently around the area, the community needs to be vigilant about safety around dams, weirs and fast-flowing waters.

"Members of the public need to be aware of the dangers of swimming in weirs and flooded waterways. The facts are that it only takes ankle deep water to knock you off your feet, and only 60 seconds to drown," he said.

"We are discouraging people from visiting Wivenhoe Dam over the next few days to view the gate openings, given how wet the area is and the forecast for further rainfall."

The Water Grid has consulted with Ipswich, Somerset and Brisbane City Councils regarding the decision to release water from Wivenhoe Dam tomorrow.

Levels in the Lockyer River were taken into account, with the releases from Wivenhoe Dam timed so as to allow sufficient time for levels downstream to drop.

The release is expected to result in the closure of Twin Bridges, Colleges Crossing and Savages Crossing.

ENDS

Notes to the editor

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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 visit www.watergrid.com.au

For further details contact the SEQ Water Grid Communications Unit on:

Ph: [redacted] **| Email:** [redacted]

Aleisha Coote
Senior Media Advisor
SEQ Water Grid Communications Unit
Phone
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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[redacted]

From: Barry Dennien [redacted]
Sent: Monday, 13 December 2010 12:10 PM
To: Ken Smith; Bradley John
Subject: RE: Media alert: GATES SET TO OPEN AT WIVENHOE AT 1.00PM

Ken

No issues raised, the release is minor and will have very little impact if any on BCC, Ipswich and Somerset will have a few bridge closures and feel the impact a little more.

Barry

From: Ken Smith [redacted]
Sent: Monday, 13 December 2010 11:55 AM
To: Barry Dennien; John Bradley [redacted]
Subject: FW: Media alert: GATES SET TO OPEN AT WIVENHOE AT 1.00PM

Thanks Barry. No issues with Council ?

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone: [redacted]
Mobile:
Email:

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From: Barry Dennien [redacted]
Sent: Monday, 13 December 2010 11:49 AM
To: Bradley John; Ken Smith
Cc: Dan Spiller; Rob Drury; Michael Lyons
Subject: FW: Media alert: GATES SET TO OPEN AT WIVENHOE AT 1.00PM

Ken / John

In accordance with the new flood release protocols I am required to inform you when a release is to be made from Wivenhoe Dam.

All parties to the protocol have been consulted and they raised no concerns with the release strategy.

Note the media release below.

Regards

Barry Dennien

From: SEQWGM Media
Sent: Monday, 13 December 2010 11:20 AM
Subject: Media alert: GATES SET TO OPEN AT WIVENHOE AT 1.00PM

Media alert

Following last night's announcement, one of the five gates at Wivenhoe Dam will be opening today at 1.00pm.

Where: Wivenhoe Dam

When: 1.00pm, Monday 13 December

Photo opportunities: the best photos can be captured from the public viewing platform. This can be accessed by turning left off the Brisbane Valley Highway, near Fernvale.

For further information, please note the media release below.

From: SEQWGM Media
Sent: Sunday, 12 December 2010 5:58 PM
Subject: Media release: HEAVY RAINS PROMPT CONTROLLED RELEASES FROM WIVENHOE DAM

MEDIA RELEASE
12 DECEMBER 2010

HEAVY RAINS PROMPT CONTROLLED RELEASES FROM WIVENHOE DAM

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Hinze Dam is continuing to release approximately 5,000 megalitres of water per day through the outlet gates. Several other local dams are continuing to spill.

Mr Spiller said with all the water currently around the area, the community needs to be vigilant about safety around dams, weirs and fast-flowing waters.

"Members of the public need to be aware of the dangers of swimming in weirs and flooded waterways. The facts are that it only takes ankle deep water to knock you off your feet, and only 60 seconds to drown," he said.

"We are discouraging people from visiting Wivenhoe Dam over the next few days to view the gate openings, given how wet the area is and the forecast for further rainfall."

The Water Grid has consulted with Ipswich, Somerset and Brisbane City Councils regarding the decision to release water from Wivenhoe Dam tomorrow.

All release are being managed in accordance with approved flood management plans. Levels in the Lockyer River were taken into account, with the releases from Wivenhoe Dam timed to allow sufficient time for levels downstream to drop.

The release is expected to result in the closure of Twin Bridges, Colleges Crossing and Savages Crossing.

-

ENDS

-

-

Notes to the editor

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For further information visit www.watergrid.com.au

For further details contact the SEQ Water Grid Communications Unit on:

Ph: (07) 3247 3000 | Email: media@seqwgm.com.au

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[redacted]

From: Barry Dennien [redacted]
Sent: Friday, 17 December 2010 1:37 PM
To: spiller daniel [redacted] Lyons Michael [redacted] Bradley John
Subject: FW: Technical Report W5
Attachments: Technical Stuation Report W5.docx

John

Latest technical report supporting the planned flood release tonight. We are continuing to discuss with Seqwater if this release can be extended in either time or volume to reduce the flood storage level below full supply level and possibly mitigate the on and off again releases during this wet period. Keep you updated.

Barry

From: Rob Drury [redacted]
Sent: Friday, 17 December 2010 1:28 PM
To: Dan Spiller
Cc: Barry Dennien; Peter Borrows; Jim Pruss; Mike Foster; Grant Horton
Subject: Technical Report W5

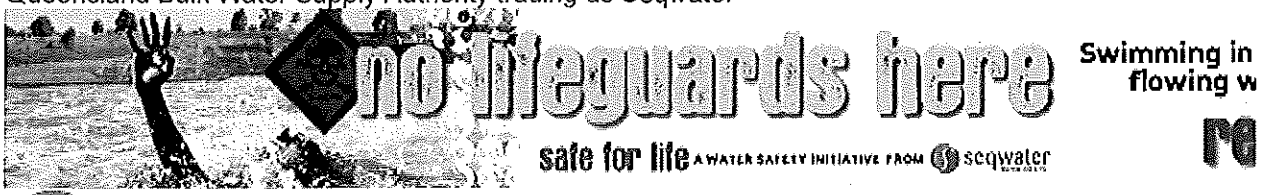
Attached is the Technical Report W5.

Barry,
It should cover off on your questions in your email before as well.

Hadn't sent this through earlier as for such minor releases, I send the Technical Report through when we have contacted Councils and have a fairly clear understanding of where we are heading so the technical info has been shared and there is communication with Councils and then rely on the Communications process to give the early update to WGM and others as was done this morning.

Rob

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



seqwater
WATER FOR LIFE

Ph [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	W5	Date of TSR release	17.12.2010	Time of TSR release	12pm

Seqwater status of inflows and dam operations

Somerset/Wivenhoe Dams

The previous release plan was to get Wivenhoe dam as close to FSL as possible without inundating Burtons bridge and balance this off against opening Colleges Crossing as soon as possible. The BOM forecasts on Wednesday when the decision was made to proceed with closure on Thursday morning indicated a low chance of significant rainfall until Sunday and unfortunately these forecasts did not prove correct and were revised upwards on Thursday.

A decision to commence a release tonight was made this morning by Duty Flood Engineers to provide as much notice to impacted Councils as possible. Due to the large storms experienced yesterday afternoon and night, the current rain on the ground will result in over 60,000ML needing to be released from Wivenhoe and Somerset Dams to achieve FSL. Additionally BOM are forecasting an additional 20 to 50 millimetres of rain tonight, with further rain forecast through the weekend. If this rain eventuates, substantial flood releases will occur impacting a number of bridges along the river.

The extent of the release commencing tonight will depend on the rain that falls in the catchment over the next 72 hours. This could vary between 10 and 100+ millimetres and the release strategy will be developed in accordance with the Manual of Flood Mitigation as the situation develops. The objectives of the release will be to protect the safety of the dam while minimising flooding impacts on the crossings downstream of the dam in the Brisbane River.

Councils were contacted this morning to advise of the strategy and they had no concerns with the strategy and agreed with the strategy.

Twin Bridges, Savages Crossing and Colleges Crossing may be impacted by releases but it depends to some extent on the rainfall tonight and weekend. Significant rainfall could result in other bridges being impacted by releases.

A follow up email will be sent in case Councils want to provide an assessment.

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 of the strategy.

Action taken was to mobilise the flood centre.

BoM Technical Officer name	
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 was advised of the strategy.

Action taken was to mobilise the flood centre.

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 was advised of the strategy.

Action taken was to mobilise the flood centre.

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 was advised of the strategy.

Action taken was to mobilise the flood centre.

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	17.12.2010	Time		or Event	Gate opening

[redacted]

From: Ken Smith [redacted]
Sent: Wednesday, 22 December 2010 1:25 PM
To: Dennien Barry [redacted] Bradley John
Cc: spiller daniel [redacted] 'Jim McGowan'; 'Bruce Grady'
Subject: RE: Brisbane residents sandbagging against localised floods
Follow Up Flag: Follow up
Flag Status: Completed

Thanks Barry. We are getting further advice from the Bureau on Friday at our SDMG meeting which John or his rep will attend.

Jim/ Bruce ...what are the impacts of the higher tide peak on Friday? 1.85 to 1.95?

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone
Mobile
Email: [redacted]

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From: Barry Dennien [redacted]
Sent: Wednesday, 22 December 2010 1:13 PM
To: Ken Smith; John Bradley [redacted]
Cc: Dan Spiller
Subject: RE: Brisbane residents sandbagging against localised floods

Ken

Current release rate is 110,000 megalitres per day (1300 cubic meters per second) October releases were at a maximum of 1500 cubic meters per second. These are expected to continue until tomorrow and then cut back over the xmas break. However the variable in all of this is the rain forecast. Wivenhoe is at 106% and we are targeting 100% by tomorrow allowing for inflows still coming .

The forecast could change in the coming days with the low forming off the Mid East Coast of Queensland, getting the dam back to 100% is critical in case the rain event escalates.

The tide peaked today at 1.85m and tomorrow and Friday will peak slightly higher than at 1.95m this is higher than October 1.66m peak. Then the tides will start to decrease.

We remain in close communication with the BOM and BCC. The protocol is being followed.

Regards

Barry

From: Ken Smith [redacted]
Sent: Wednesday, 22 December 2010 12:53 PM
To: John Bradley [redacted] Barry Dennien
Subject: FW: Brisbane residents sandbagging against localised floods

John and Barry

Some very localised flooding. What are the current release levels from Wivenhoe?

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone
Mobile
Email: [redacted]

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From: Kimberley Gardiner [redacted]
Sent: Wednesday, 22 December 2010 12:41 PM
To: Anna Bligh; Premiers Office - Media Unit; Stephen Beckett; Melissa Patch; Adam Shortman
Cc: Ken Smith
Subject: Brisbane residents sandbagging against localised floods

Brisbane residents sandbagging against

localised floods

By Stephanie Smail ABC News

Posted 11 minutes ago

- Map: Brisbane 4000

Tidal flooding has inundated some suburbs along the Brisbane River this morning.

Days of heavy rain, storm run-off and releases from the Wivenhoe Dam, north of Ipswich, have raised river levels.

There is minor flooding in suburbs including Windsor, Albion and Newstead.

The Brisbane City Council says some sandbagging is underway but the water levels are already dropping.

Kimberley Gardiner
Director, Government Media Unit
Office of the Premier of Queensland
P [redacted]
M
E

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[redacted]

From: Barry Dennien [redacted]
Sent: Wednesday, 22 December 2010 2:03 PM
To: Bradley John; Ken Smith
Cc: Lyons Michael @ SEQWGM; spiller daniel @ SEQWGM
Subject: FW: Media update - Dam releases
Attachments: Technical Stuation Report W14.docx

Ken John

We will keep you updated on our press releases from now on.

Also see attached this morning's "Technical Situation Report"

This report is a key step in the Premier's flood release protocol.

Dan Spiller will shortly send through some advertising we are planning over the coming days with regards flood releases and Dam recreation.

I will send through a fact sheet on Wivenhoe Flood Management in the next few hours after it comes back from the editor.

Regards

Barry

From: SEQWGM Media
Sent: Wednesday, 22 December 2010 10:47 AM
Subject: Media update - Dam releases

22 December 2010 - Morning

Media update: Dam releases

Releases from Wivenhoe Dam continued overnight with all five spillway gates at Wivenhoe Dam opened.

The current release volume of 110,000 megalitres will be maintained until Thursday 23 December 2010, when releases are expected to reduce as the flood storage compartment empties.

Continued gate operations are being assessed depending on whether the forecasted level of rainfall and inflows is received over the Christmas period.

The Water Grid continues to work closely with local councils regarding the likely impacts of these releases on surrounding areas which include the closure of Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Crossing and Kholo Crossing.

Releases equivalent to about 35,000 megalitres per day are continuing from Somerset Dam into Wivenhoe Dam, and are expected to continue depending on forecast rainfall.

The gates at Leslie Harrison Dam closed at 4.00pm yesterday, after a minor release was made.

Members of the public seeking information on potential impacts in their local areas should direct inquiries to their local councils.

For recorded information on current dam releases in South East Queensland, members of the public are encouraged to call **1800 613 122**.

Recreation update

While every effort will be made to keep recreational sites open, public safety is paramount and it is possible that some sites may be closed at short notice due to heavy weather.

Therefore, members of the public who are considering recreational activities including camping at South East Queensland dams over the Christmas/New Year period are urged to explore other options – have a plan B.

Currently, Somerset Dam has been re-opened for all water-based recreational activities, however this may change.

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ENDS

Notes to the editor

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For further details contact the SEQ Water Grid Communications Unit on:
Ph: [redacted] **| Email:** [redacted]

Jade Simmons
Senior Correspondence Officer
SEQ Water Grid Communications Unit

SEQ Water Grid Manager
Phone [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002

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TECHNICAL SITUATION REPORT

TSR Number	W14	Date of TSR release	22.12.2010	Time of TSR release	8.30am

Seqwater status of inflows and dam operations

Somerset/Wivenhoe Dams

Rainfall

No rainfall has occurred over the catchment of the dams since 03:00 on Monday 20 December 2010. All major streams have now peaked and inflows are receding.

Wednesday 22 December Rain developing
Thursday 23 December Rain easing to showers
Friday 24 December Showers tending to rain at times
Saturday 25 December Showers tending to rain at times
Sunday 26 December Rain increasing
Monday 27 December Rain at times
Tuesday 28 December Rain at times

Somerset Dam

Gate operations are occurring at Somerset Dam and are expected to continue until at least Wednesday 22 December 2010 assuming no further rainfall. Two sluice gates are currently releasing about 410 m3/s from the dam into Lake Wivenhoe.

Somerset Dam peaked at EL 100.43 m AHD at around 13:00 on Monday 20 December 2010 and the lake level is slowly falling. Somerset Dam is currently at EL 99.68 m AHD, (108 % of capacity).

The estimated inflow into Somerset Dam to date is 121,500ML, of which 103,000 ML has been discharged into Wivenhoe Dam.

Continued gate operations may be necessary if forecast rainfall from Wednesday to Monday results in subsequent river rises.

Wivenhoe Dam

Gate operations are occurring at Wivenhoe Dam and are expected to continue until Thursday 23 December 2010 assuming no further rainfall. Releases from the dam were increased slightly late yesterday as other river flows dropped and have been steady at a maximum release rate of about 1,440 m3/s since 18:00 Tuesday 21/12/2010. This flow rate will be maintained until early Thursday 23 December 2010, when releases will be reduced as the flood storage compartment is emptied.

Wivenhoe Dam peaked at a level of EL 68.24 m AHD at approximately 04:00 on Tuesday 21/12/2010. The current level is EL 67.71 m AHD (107% of capacity) and falling slowly.

The estimated inflow into Wivenhoe Dam to date (excluding releases from Somerset Dam) is 181,000 ML, of which 221,500 ML has been released. The total estimated inflow into both dams for this event, based upon rainfall to date is 310,000 ML.

Continued gate operations may be necessary if forecast rainfall from Wednesday to Monday results in subsequent river rises.

Impacts of Releases

The increased release from Wivenhoe Dam has resulted in elevated levels in the Brisbane River from Wivenhoe to Colleges Crossing. Twin Bridges, Savages Crossing and Colleges Crossing were inundated earlier in the event. As a consequence of the increased release from Wivenhoe Dam, Burtons Bridge was inundated at around 00:40 on Tuesday 21 December 2010. Kholo Bridge was inundated around midday Tuesday 21 December 2010. In accordance with the adopted operational strategy these bridges should be back in service by late Thursday or Friday and all bridges (with the exception of Twin Bridges) should be trafficable for Christmas providing no further rainfall occurs. No future rainfall is currently included in these forecasts.

Advice from the BoM regarding predicted tides in the Brisbane River at the City Gauge, suggest that peak levels (1.7 to 1.8 m AHD) may reach or slightly exceed the minor flood level of 1.7 m AHD. The effect of the Wivenhoe release on these high tide values is estimated to be about 0.1m. Peak levels will coincide with high tides which are expected at about 11:00 am on Wednesday 22 December and around noon on Thursday 23 December. Tide levels will be monitored over the next few days and these estimates may be adjusted by BoM in light of changed observations. It is anticipated that this advice will be updated sometime today but no significant change to this advice is expected.

Emails have been sent to BCC, ICC and SRC this morning with similar information and requesting any assessments or concerns. If any are received they will be forwarded.

The BoM is aware of all releases.

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)

As above.

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)

BCC has been contacted by Flood Centre on ongoing basis.
Email sent to request any assessment.

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)

ICC has been contacted by Flood Centre on ongoing basis.
Email sent to request any assessment.

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)

SRC has been contacted by Flood Centre on ongoing basis.
Email sent to request any assessment.

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**	Closing strategy

[redacted]

From: Dan Spiller [redacted]
Sent: Wednesday, 22 December 2010 2:13 PM
To: Bradley John; Ken Smith
Cc: Lyons Michael @ SEQWGM; Dennien Barry [redacted]
Subject: RE: Media update - Dam releases

Ken and John,

Advertisements below, as per Barry's email.

In addition to dam releases, we are worried about people going to the dams to camp just as they are closed – or that we may need to close the facilities during the week (we were expected 150,000 people to use the dam recreation facilities this Christmas holiday).

We are also anxious to highlight that closures of Council-owned roads is a matter for those Councils – and may occur for reasons other than dam releases, including local flooding and maintenance.

Newspaper and radio scripts below. Scripts have been approved by Council officers.

Cost of newspaper advertising is about $25k, funded by WGM. Radio will be focussed on Thursday and Friday, with press advertising next week (no press spots available this week).

John: Advertising approved in principle by MO. Geoff is reviewing text now.

Dan

Approved text for print ads:

WATER GRID COMMUNITY SERVICE ANNOUNCEMENT

Wet weather means that water releases from dams across the region are likely to continue this holiday season.

For daily information on dam releases in South East Queensland, contact 1800 613 122.

While every effort will be made to keep recreational sites open, public safety is paramount and it is possible that some sites may be closed at short notice due to heavy weather.

The Water Grid is urging campers at South East Queensland dams to consider a plan B this holiday season.

For more information on the status of dam levels and Water Grid recreation sites visit www.watergrid.com.au

For information on local flooding, including road closures, contact the local council or visit their website.

The council areas that are affected by Wivenhoe Dam releases are:

- Somerset Regional Council; 5424 4000; www.somerset.qld.gov.au
- Ipswich City Council; 3810 6666; www.ipswich.qld.gov.au

- Brisbane City Council; 3403 8888; www.brisbane.qld.gov.au

Approved radio script:

Wet weather means that water releases from dams across South East Queensland are likely to continue this holiday season.

To find out the latest information on dam releases call 1800 613 122.

The Water Grid is making every effort to keep recreational sites open, but public safety is paramount. Some sites may need to be closed at short notice. Visit www.watergrid.com.au for the latest information.

For information on local flooding, including road closures, contact the local council or visit their website.

From: Barry Dennien
Sent: Wednesday, 22 December 2010 2:03 PM
To: John Bradley [redacted]; Ken Smith
Cc: Michael Lyons; Dan Spiller
Subject: FW: Media update - Dam releases

Ken John

We will keep you updated on our press releases from now on.

Also see attached this morning's "Technical Situation Report"

This report is a key step in the Premier's flood release protocol.

Dan Spiller will shortly send through some advertising we are planning over the coming days with regards flood releases and Dam recreation.

I will send through a fact sheet on Wivenhoe Flood Management in the next few hours after it comes back from the editor.

Regards

Barry

From: SEQWGM Media
Sent: Wednesday, 22 December 2010 10:47 AM
Subject: Media update - Dam releases

22 December 2010 - Morning

Media update: Dam releases

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[redacted]

From: Barry Dennien [redacted]
Sent: Wednesday, 22 December 2010 2:19 PM
To: Ken Smith; Bradley John
Cc: Lyons Michael [redacted]; spiller daniel [redacted]
Subject: RE: Media update - Dam releases
Attachments: Page 1 Factsheet changes.pdf; Page 2 Factsheet changes.pdf

Ken

See attached

Barry

From: Ken Smith [redacted]
Sent: Wednesday, 22 December 2010 2:10 PM
To: Barry Dennien; John Bradley [redacted]
Cc: Michael Lyons; Dan Spiller
Subject: RE: Media update - Dam releases

Thanks Barry. Can I get a copy of the fact sheet, albeit I understand it is a draft and will treat it as such.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone [redacted]
Mobile
Email:

Tomorrow's Queensland: strong, green, smart, healthy and fair - www.towardQ2.qld.gov.au

Please consider the environment before printing this email (3 sheets of paper = 1 litre of water)

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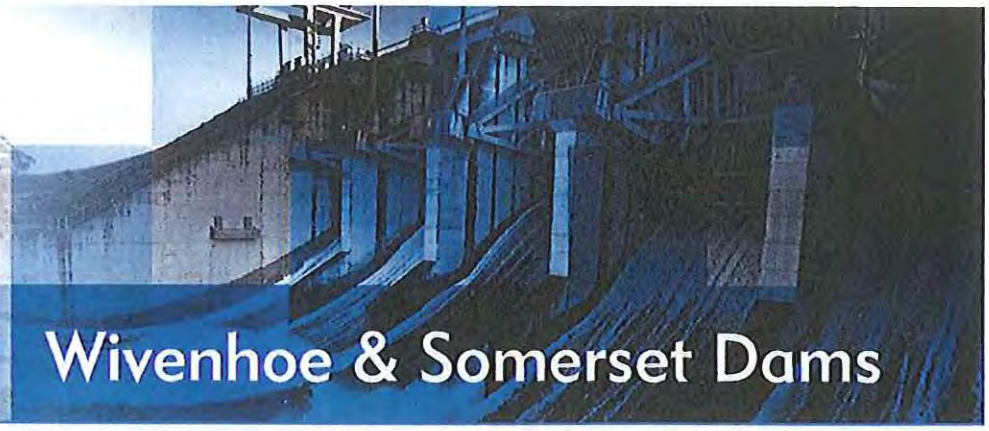
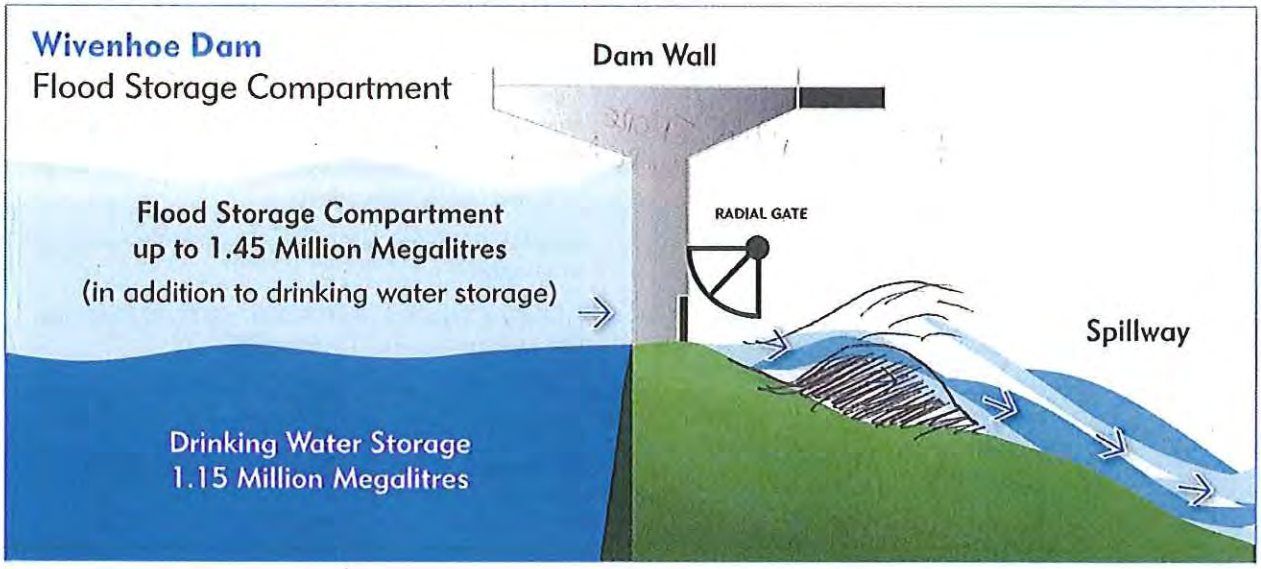
SEQ Water Grid



Wivenhoe & Somerset Dams

A FEW FACTS

- Wivenhoe Dam was built in response to the 1974 floods, and is an award winning feat of hydrological and structural engineering.
- Somerset Dam was completed in 1959. In the event of heavy rains, Somerset releases water downstream to Wivenhoe when it reaches full capacity.
- On top of storing as much as 1.15 million megalitres of precious drinking water, Wivenhoe can also store an additional 1.45 million megalitres, equal to 2.5 times the volume of Sydney Harbour. The space for this extra water is called the dam's flood storage compartment. Its job is to hold back the flood waters which gather in the Brisbane Valley and which can threaten Brisbane after heavy weather events.
- The flood storage compartment temporarily stores flood waters and releases them at a controlled rate so as to minimise downstream impacts. In other words, there will be much lower flood levels along the Brisbane River in the Ipswich and Brisbane urban areas than would have otherwise occurred without the dam.
- Wivenhoe Dam is able to withstand a flood with a 1 in 100,000 risk of occurring in any one particular year, an extremely rare event.
- In an event similar to January 1974, there would still be a large amount of local flooding in and around Ipswich and Brisbane due to the heavy local rainfall but water levels along the Brisbane River would be reduced due to the mitigating impact of Somerset and Wivenhoe dams.
- If it wasn't for Wivenhoe and Somerset dams, a considerable number of people, their properties and infrastructure could be at even greater risk of serious flood, this makes these dams a crucial component of South East Queensland's flood mitigation plan and something Queenslanders can be proud of.



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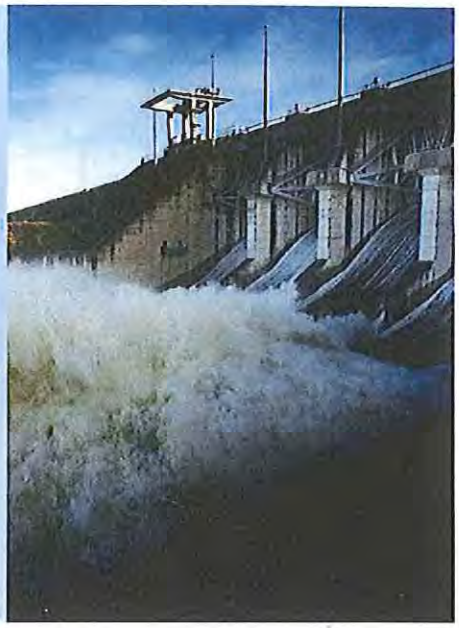
seqwater | LinkWater | WaterSecure | SEQ Water Grid Manager

Spectacular pictures - but why does Wivenhoe have to release stored flood water?

- South East Queensland has a weather pattern that often sees prolonged or multiple rain events in close succession.
- As soon as Wivenhoe's flood storage compartment begins to fill, it has to be carefully emptied. This has to be done in order to make room in case another heavy rainfall event arrives quickly. Before any release from the compartment, the following flood factors are considered: catchment runoff below the dam wall, urban runoff and storm surges.
- Brisbane can still flood from other sources such as rainfall in the catchment below the dam wall, and because Wivenhoe only controls 50% of the Brisbane Catchment.
- A fundamental principle is that all floodwater should be released within seven days. This means the greater the volume received in the flood storage compartment, the greater the discharge required.



How are the releases managed?

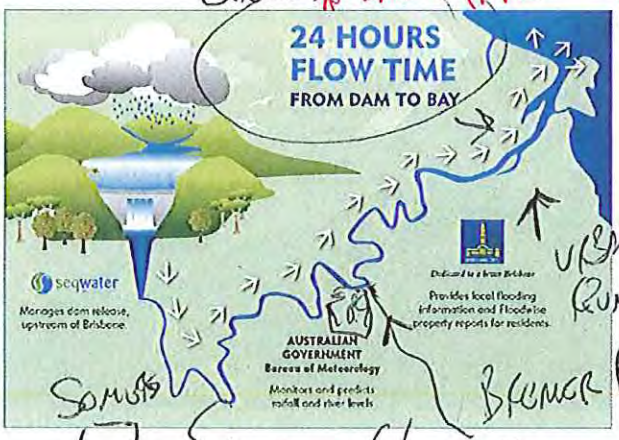
Before Wivenhoe begins a controlled emptying of its flood storage compartment, a dedicated 24hour Flood Operations Centre is activated for the specific purpose of managing the possible effects downstream.

The actions of the Flood Operations Centre are guided by a Flood Mitigation Manual. The Queensland State Government, local councils and all emergency services are advised before the water flows so that communities can be warned and take all necessary precautions.

The amount of water being released depends on the level currently inside the flood storage compartment, as well as the amount of incoming flows and flows in downstream tributaries.

Wivenhoe's managers therefore have to decide on how much to let go in order to keep Wivenhoe ready for more rain and safe.

During a major flooding event the Bureau of Meteorology, the Water Grid, Seqwater (Wivenhoe and Somerset Dam operators) and local councils work together to formulate advice and instructions for the public and relevant Emergency Services on how to manage impending localised flooding.



The Bureau of Meteorology, Seqwater and local councils continually monitor rainfalls throughout all South East Queensland catchments during a flood event. The Bureau of Meteorology provides rainfall forecasts for Seqwater's dam operators monitoring the surrounding catchments.

Using this information, a comprehensive network of river height sensors and real time rainfall data across the Wivenhoe catchment, Seqwater is then able to formulate a schedule of controlled dam releases to ensure the safety and integrity of the dam wall is maintained, and maximum protection from flooding in urban areas is achieved.

Based on the Bureau's forecasts and predictions, as well as Seqwater's dam releases, South East Queensland local councils then begin alerting residents to road and bridge closures, as well as advising on the severity and flows of the impending flood event.

The following priorities are considered when determining how much water has to be let go, and how fast:

- ensuring the structural safety of the dam
- providing maximum protection from flooding for urbanised areas
- minimising disruption to rural industries along the Brisbane River and Stanley River valleys
- retaining the storage at Full Supply Level at the conclusion of a flood event
- minimising impacts to riparian flora and fauna during the water release phase of a flood event.

How to prepare for flooding?

In the event of flooding, the Bureau of Meteorology, working together with the Water Grid, bulk water authorities and local councils to ensure minimal impact downstream after any dam releases. For information on local flooding, contact your local council for flood information packs and advice.

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www.watergrid.com.au

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[redacted]

From: Dan Spiller [redacted]
Sent: Thursday, 23 December 2010 3:41 PM
To: [redacted] Bradley John; Best Debbie; [redacted]
Cc: Dennien Barry [redacted] Mike Foster; Rob Drury
Subject: SEQ dam releases: Technical Situation Report
Attachments: Technical Stuation Report W17.docx

All,

For information, this afternoon's:

- Technical Situation Report is attached
- Media update is below.

Please contact me if you require any further information.

Regards,
Dan

23 December 2010 - Afternoon

Media update: Dam releases

As at 3pm today the following water releases are being made: Please note that the release strategy is continually being updated based on weather conditions.

Four of the five gates at Wivenhoe Dam are now closed. One gate is still open as a result of the forecast of increasing rain tomorrow. Around 30 000 megalitres is being released through this gate and it is expected that this will be reassessed tomorrow.

It is expected that Kholo Bridge and Burtons Bridge will be open to traffic this evening. Twin Bridges, Savages Crossing and Colleges Crossing are expected to remain closed until at least Christmas Day. Local councils have been consulted regarding the re-opening of the major downstream crossings.

Members of the public seeking information on potential impacts in their local areas, including road closures, should direct inquiries to their local councils.

The gates at Somerset Dam were closed at around 9am this morning.

Further rainfall and inflows may result in overnight gate openings at North Pine Dam. Council will be consulted ahead any gate openings.

For recorded information on current dam releases in South East Queensland, members of the public are encouraged to call **1800 613 122**.

Recreation update

Wivenhoe and Somerset dams are open for all water-based recreational activities, however this may change at short notice depending on weather.

The following recreation sites at Wivenhoe Dam remain closed:

- Billies Bay
- River access at Atkinsons Crossing

All other recreational sites have reopened however this status could change due to weather.

While every effort will be made to keep recreational sites open, public safety is paramount and it is possible that some sites may be closed at short notice due to poor weather.

Members of the public who are considering recreational activities, including camping, at South East Queensland dams over the Christmas/New Year period are urged to consider alternative arrangements.

PLEASE NOTE: Conditions will be extremely dangerous as flood conditions exist in some areas.

For further information on the Water Grid: www.watergrid.com.au

Daniel Spiller
Director, Operations
SEQ Water Grid Manager
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TECHNICAL SITUATION REPORT

TSR Number	W17	Date of TSR release	23.12.2010	Time of TSR release	2.30pm

Seqwater status of inflows and dam operations

Somerset/Wivenhoe Dams

Somerset Dam

Sluice gate operations ceased at 09:00 today with the lake level at 99.10 m AHD. Base flows will result in the lake level rising over the next few days.

Further gate operations may be necessary in coming days if forecast rainfall results in subsequent river rises.

Wivenhoe Dam

Wivenhoe Dam is currently discharging around 350 m^3/s with Gate 3 open 3.5 m. The scheduled cessation of gate operations at Wivenhoe Dam has been extended until tomorrow afternoon (Friday 24 December 2010) with a target of 1.00pm as base flows and the overnight rain has meant the lake level has not dropped as quickly as anticipated. The current lake level is 67.23 m AHD.

Continued gate operations may be necessary if forecast rainfall results in subsequent river rises. The gate closure sequence will be reviewed throughout today and discussions with impacted Local Authorities will be ongoing.

Impact of Wivenhoe Dam Releases

The releases from Wivenhoe Dam have resulted in elevated levels in the Brisbane River downstream to Colleges Crossing. Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Bridge and Kholo Bridge are currently all closed due to inundation resulting from these releases. In accordance with the current operational strategy Kholo Bridge and Burtons Bridge should be trafficable by this evening.

Projected "early side" times for bridges becoming clear of water based on the current gate closure sequence and concurrent Lockyer Creek flows are as follows:-

Burtons Bridge – 18:00 Thursday 23 December 2010.
Kholo Bridge – 21:00 Thursday 23 December 2010.

The remaining bridges will most likely remain closed until Christmas Day.

Rainfall

There have been falls of between 10 and 30 mm in the catchments over the last 24 hours. This has led to small rises in the Stanley, Pine, Lockyer and Bremer Rivers. The Lockyer Creek flow is likely to impact the middle-Brisbane River tomorrow and this may prevent the opening of Savages Crossing and Colleges Crossing.

Rainfall across the region is expected to increase up to 06:00 on 25 December 2010 before easing and further heavy rainfall may commence late on 29 December 2010.

Tide levels continue to be monitored closely with peak tide estimates being adjusted by BOM to account for Wivenhoe Dam outflows.

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	[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**	Closure

Williams Lynette

From: Dan Spiller [redacted]
Sent: Friday, 24 December 2010 2:41 PM
To: [redacted] Bradley John; Best Debbie; Tim Watts [redacted] Lance McCallum [redacted] Geoff Stead [redacted]
Cc: Dennien Barry [redacted] adcock john [redacted] Reilly Bob; Brown Damien; [redacted] Rob Drury [redacted]
Subject: Technical Situation Report and Kholo Bridge damage
Attachments: Technical Stuation Report W19.docx

All,

The Wivenhoe Dam gate closed at 1pm today, with the dam just above FSL. Releases through the value will continue, with ongoing monitoring of inflows. Some more detail is contained in the attached technical report.

We have just been advised by BCC that Kholo Bridge has been severely damaged (I will forward photos seperately). They are preparing Community Service Announcement now claiming this is due to dam releases. The bridge will be unserviceable until early 2011.

We will try to work with BCC officers regarding the wording of the release. For this event, the flows were due to a combination of the gate opening and significant Lockyer Valley flows. Flows have been no more than in October. In October, College's Crossing was damaged with Ipswich City Council making public statements at that time. EMQ dealt with the claims for damages. Seqwater is not liable, provided it made releases in accordance with the management plan.

For information, today's media updates is below. With the gate now closed, we will only issue updates as the situation changes. (Aside from the release to the CM on Monday around the Wivenhoe Dam fact sheet.)

From today, I am A/CEO. Please call on [redacted] if you have any queries or require any further information.

Regards,
Dan

WEEKLY GRID UPDATE
FRIDAY 24 DECEMBER 2010

Please note, this will be the last formal update from the Water Grid team until Tuesday 4 January, unless there are significant changes to current operational procedures.

WATER GRID READY FOR HOLIDAY SEASON

Over the last few weeks, Water Grid operators have been managing controlled releases from the region $B!G (Bs key storages to ensure the Grid is prepared for further rains this summer.

Water Grid spokesperson, Barry Dennien, said Brisbanē $B!G (Bs key storage, Wivenhoe Dam, has released more than 320,000 megalitres since the gates were opened earlier this month.

~ $B!H (BWith further rain expected this summer it is important we retain the dam at just below full drinking water supply level for the safety of South East Queensland~ $B!I (B Mr Dennien said.

On top of storing 1.15 million megalitres of drinking water, Wivenhoe Dam can also temporarily store an additional 1.45 million megalitres, equal to 2.5 times the volume of Sydney Harbour.

~ $B!H (BAlthough this may sound like a large flood buffer, Wivenhoe $B!G (Bs flood storage compartment can fill in less than three days following heavy rainfall~ $B!I (B Mr Dennien said.

~ $B!H (BIn fact, following heavy rainfall in October, Wivenhoe Dam received inflows equivalent to almost half the flood compartment capacity in just a few days.

~ $B!H (BIt is important for the flood storage compartment to be emptied through controlled releases following heavy rainfall and inflows into the dam. As a result of the recent releases, the flood compartment is now empty, ready for any inflows over the holiday season~ $B!I (B

DAM RELEASES

As at 8am today the following water releases are being made: Please note that the release strategy may change according to weather conditions.

One gate at Wivenhoe Dam remains open, releasing a daily average of around 30,000 megalitres.

Kholo Bridge and Burtons Bridge have re-opened to traffic. Twin Bridges, Savages Crossing and Colleges Crossing are currently closed.

Releases from Wivenhoe will continue over the holiday period depending on rainfall and inflows. Releases from other key storages may also occur depending on the weather.

Water Grid representatives have been working closely with councils since the releases from Wivenhoe and other dams began to ensure any likely impacts in surrounding areas were minimised.

Members of the public seeking information on potential impacts in their local areas, including road closures, should direct inquiries to their local councils.

For recorded information on current dam releases in South East Queensland, members of the public are encouraged to call **1800 613 122**.

For information on local flooding, including road closures, contact the local council or visit their website.

The council areas that are affected by Wivenhoe Dam releases are:

- Somerset Regional Council; 5424 4000; www.somerset.qld.gov.au
- Ipswich City Council; 3810 6666; www.ipswich.qld.gov.au
- Brisbane City Council; 3403 8888; www.brisbane.qld.gov.au

WEATHER CONSIDERATIONS FOR CAMPERS

Campers heading to South East Queensland dams are being urged to consider alternative arrangements this holiday season, with further wet weather expected over coming weeks.

Water Grid spokesperson Barry Dennien said every effort will be made to keep recreational sites open, however public safety is paramount.

~ $B!H (BIt is possible that some sites may be closed at short notice due to heavy weather and we are asking campers to explore other options. $B!I (B

The region $B!G (Bs dam operators, Seqwater, are closely monitoring the levels, inflows and releases at all of South East Queensland $B!G (Bs major dams.

Seqwater is offering a refund to those campers who wish to cancel bookings at Water Grid assets due to raised dam levels and flooding.

Mr Dennien said those campers wishing to continue with their plans are being advised that if lakes rise to unsafe levels, Seqwater rangers will be asking people to leave.

~ $B!H (BSafety is a top priority for us, and we are asking members of the public to cooperate with all warnings and requests, to ensure everyone is kept safe. $B!I (B

Wivenhoe and Somerset dams are currently open for all water-based recreational activities, however this may change at short notice depending on weather.

The following recreation sites at Wivenhoe Dam remain closed:

- Billies Bay
- River access at Atkinsons Crossing

All other recreational sites have reopened however this status could change due to weather.

For more information on the status of Water Grid recreation sites visit www.watergrid.com.au

Some camping grounds are fully booked, but if further heavy rainfall is received, it may be necessary for one or more of the campgrounds to close. Please contact the operators of the various camp grounds of information specific to each site.

GRID TWELVE

The current supply capacity of the **Grid Twelve is 100.0 %**, no change from last week. The Grid Twelve makes up nearly 90 % of South East Queensland $B!G (Bs total water storage volume. See below for further breakdowns:

Dam	**Current capacity** (%)	**Change in capacity on last week** (%)	**Rainfall** (mm over past seven days)
Wivenhoe	**100%**	No change	93mm
Somerset	**100%**	No change	111mm
North Pine	**97.0%**	2.6% $B"- (B	86mm

Hinze	**97.2%**	3.6% $B", (B	73mm
Baroon Pocket	**100%**	No change	110mm
Leslie Harrison	**96.8%**	2.5% $B"- (B	81mm
Ewen Maddock	**100%**	No change	134mm
Cooloolabin	**100%**	No change	149mm
Lake Kurwongbah	**100%**	No change	86mm
Lake MacDonald	**100%**	No change	109mm
Little Nerang	**100%**	No change	73mm
Wappa	**100%**	No change	149mm

The current supply capacity of the **Grid Three 3 (Wivenhoe, Somerset and North Pine) is 100 %**, no change from last week.

Note: The Grid Twelve and Grid Three % full is calculated by dividing the combined current storage volume of the dams in the group by the combined full storage volume.

DID YOU KNOW?

In times of heavy rainfall, the strategic management of dams is essential to assist in the protection of South East Queensland against flood. In accordance with the requirements of the Water Supply Act 2008, Seqwater, who are part of the Water Grid, maintains a comprehensive Dam Safety Management Program covering its 25 referable dams.

CONTACT DETAILS

Please direct all media enquiries to the Water Grid Communications Unit:

Phone [redacted]
Email:
Website: www.watergrid.com.au

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TECHNICAL SITUATION REPORT

TSR Number	W19	Date of TSR release	24.12.2010	Time of TSR release	1.30pm

Seqwater status of inflows and dam operations

Current status but cauld change based on inflows or rainfall.

Current objectives	• Monitor the rain overnight and ongoing inflows.	
Strategy	• Close gates at Wivenhoe at 1.00pm • Wivenhoe continues to release 4,200ML per day through hydro and valves.	
Key considerations	Storage levels:	Just above FSL
	Inflows:	Ongoing base flows
	Rainfall:	
	Lockyer/Bremer:	Flows increasing. With further rainfall, may inundate local bridges with further rainfall.
	Brisbane River:	Any minor impact on tides still decreasing.

Somerset Dam

Sluice Gate and valve operations have ceased for the time being.

Wivenhoe Dam

Radial Gate operations ceased at 1.00pm.
A regulator and hydro will be opened to release around 4,200ML per day.

The Flood Centre will monitor overnight and consider options tomorrow morning based on inflows and rainfall.

Further gate operations may be necessary in coming days.

Impacts of Wivenhoe Dam Releases

Twin Bridges, Savages Crossing and Colleges Crossing may still be affected by flows from the Lockyer.

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	[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

[redacted]

From: Dan Spiller [redacted]
Sent: Friday, 24 December 2010 2:55 PM
To: Bradley John
Cc: Tim Watts [redacted]
Subject: FW: Kholo Bridge release and photos
Attachments: IMG_1431.JPG; IMG_1430.JPG

From: Dan Spiller
Sent: Friday, 24 December 2010 2:41 PM
To: [redacted] John Bradley [redacted] Debbie Best [redacted] Tim Watts [redacted] Lance McCallum [redacted] Geoff Stead [redacted]
Cc: Barry Dennien; John Adcock; [redacted] Damien Brown [redacted] Rob Drury [redacted]
Subject: Kholo Bridge release and photos

All,

Further to previous email, we have just received a copy of the draft release from BCC (see below). Reference to the bridge is factual.

Barry and I spoke to the CEO of BCC about flood impacts this morning, and I will continue to do so over coming days.

Photos are also attached.

Regards,
Dan

Tidal flooding continues but water levels decreasing

23 December, 2010

Minor tidal flooding again occurred in some areas of Brisbane earlier today due to a higher than usual tide, however water levels are starting to decrease from what was seen earlier in the week as part of the normal tide cycle.

Minor tidal flooding occurred today on roads, parks and bikeways in Albion, Newstead, Windsor, Bowen Hills and East Brisbane.

Roads affected included Waterloo and Ross Street in Newstead, Sandgate Road at Albion, and Windsor's Northey Street.

The roads affected today are expected to experience some tidal flooding tomorrow at high tide, which is due at 12.21pm (Brisbane Bar), and also possibly on Sunday.

Motorists are advised to avoid parking in the areas that may be affected by tidal flooding over the weekend and to be aware that some sections of these roads and bikeways may be closed to vehicles and bikes for a short period during and following the high tide peak.

Residents are also advised that Kholo Bridge on Kholo Road is currently closed due to major flood damage. Repairs will commence next week and the crossing is expected to reopen in the

first week of January. Motorists will need to seek alternative routes while works are undertaken.

To find out where flooding may occur from creeks, rivers and storm tides, download the Flood Flag map for their suburb. These maps are free for download and are available from Council's website at www.brisbane.qld.gov.au/floodwise

For more information, phone Council on 3403 8888.

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[redacted]

From: Ken Smith [redacted]
Sent: Friday, 24 December 2010 4:56 PM
To: Bradley John
Subject: Re: latest from BOM re seq

Jb

Appreciate the update. Be good to see the next iteration from Dan. Thanks

---

From: Bradley John [redacted]
To: Ken Smith
Sent: Fri Dec 24 16:40:19 2010
Subject: latest from BOM re seq

Ken
Don't treat this as gospel yet as Dan is sending through some advice early evening but....

- Latest BOM advice is (while it will still be raining) it should not be significant rainfall over next 8 days in SEQ.
- This should allow releases in the pattern of recent times.
- Given tides are declining from today onwards, this should see river heights declining over the period, not rising.
- SEQWGM is talking with Colin Jensen this afternoon who will keep us appraised of his (moderate) advice to the Lord Mayor.

Thanks
John Bradley
Director-General
Department of Environment and Resource Management
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Ken Smith [redacted]
Sent: Friday, 24 December 2010 3:35 PM
To: Bradley John
Cc: spiller daniel [redacted]
Subject: Re: Kholo Bridge release and photos

Thanks for the heads up JB and Dan. Await further bridge rage reports eagerly.

From: Bradley John [redacted]
To: Ken Smith
Cc: spiller daniel [redacted]
Sent: Fri Dec 24 15:06:15 2010
Subject: FW: Kholo Bridge release and photos

Ken
There has been major damage to Kholo's bridge as per Dan's email below.
Council officers originally had a release more blaming Seqwater releases but it has been toned down to the below.
The bridge outage is more of an inconvenience as I'm told there are other access options for residents.

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Dan Spiller [redacted]
Sent: Friday, 24 December 2010 2:41 PM
To: [redacted] Bradley John; Best Debbie; Tim Watts [redacted] Lance McCallum [redacted] Geoff Stead [redacted]
Cc: Dennien Barry [redacted] adcock john [redacted] Reilly Bob; Brown Damien; [redacted] Rob Drury [redacted]
Subject: Kholo Bridge release and photos

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+--+
Think B4U Print
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[redacted]

From: Steven Dunn [redacted] on behalf of SDCC [redacted]
Sent: Tuesday, 28 December 2010 5:47 AM
To: [redacted]

Subject: QEMR as at 05.00 Tuesday 28 December 2010

DEPARTMENT OF COMMUNITY SAFETY
Daily Queensland Emergency Management Report
as at 5:00am Tuesday 28 December 2010

SIGNIFICANT EVENTS

Emergency Alert Campaigns for the following three towns:

- **Dalby:** Myall Creek may peak 12pm 27 Dec-Concerned residents should evacuate to family friends or Evacuation Centres-Dalby Showground or South School-Call 46626666 for information.
- **Alpha:** Flood Evacuation Warning from Queensland Police Jordan River rising concerned residents should go to evacuation centre at shire hall. Info phone local police.
- **Jericho:** Flood Evacuation Warning from Queensland Police Jordan River rising concerned residents should go to evacuation centre at shire hall. Info phone local police.

Evacuations

- **Charleville:** DDMG Charleville RFA evacuation of residents Torres Park above Augathella (EMQ air assets unable to reach Charleville until 0700 28/12/10), DCC Charleville indicated that couple will be collected AM via Helo from Tambo at approx 0430 28/12/10.
- **Theodore:** The remainder of the hospital patients (10) have been relocated to the RSL Hall. Increasing rises overnight have prompted the initiation of a helicopter evacuation of Theodore to a mining camp at Moura. At 020 the river was 14.24m with BOM predicting a height of 14.43m by 0600. Previous record height was 14.07m. Up to five aircraft are being chartered to carry out the evacuation. Aircraft will begin deploying to Theodore at first light.
- **Dalby:** 12 Houses evacuated, 4 waiting and should river get to 4m (approx midnight) 100 houses would be impacted. 90 evacuees at Dalby South State School, 34 evacuees at the Dalby Showgrounds. 4WD vehicles can access Dalby airport. Boats are now being used to evacuate housing, so it is expected that the numbers at evacuation centres will continue to grow.
- **Chinchilla:** A total of 10 houses (i.e. 40 persons) have been evacuated with further evacuations expected. 4WD vehicles can access Chinchilla airport. Boats are now being used to evacuate housing, so it is expected that the numbers at evacuation centres will continue to grow.

WEATHER OBSERVATIONS

Warnings

- **Severe Weather Warning:** for Flash Flooding For people in the Central Highlands and Coalfields, Wide Bay and Burnett and Capri
- **Flood Warnings:**
  - **Burnett River and Tributaries:** Very high flows are arriving in the Munduberra area tonight from the upper Burnett, Auburn and E
  - **Laidley, Lockyer and Warrill Creeks and the Bremer River:** Moderate to major flooding continues in the Laidley, Lockyer and \
  - **Baffle Creek and Kolan River:** Major flood levels are approaching a peak of about 16.5 metres in Baffle Creek at Miindale. River
  - **Condamine and Balonne Rivers:** Further moderate to locally heavy rainfall is forecast for the next 24 hours, with renewed rises
  - **Thomson and Barcoo Rivers, and Cooper Creek including Jordan River to Jericho:** The Jordan River at Jericho is expected
  - **Fitzroy River Basin:** Major flood levels continue along the Dawson and Comet Rivers and Mackenzie Rivers. Minor flooding cont
  - **Warrego River:** Heavy rainfall across the Carnarvon Range overnight Sunday is causing fast rises and moderate to major floodin
  - **Don River:** Heavy rainfall over the upper parts of the Don River in the past 12 hours have caused renewed rises with minor flood
  - **Burdekin River Systems including Alpha Creek:** At 8pm Monday, Alpha Creek at Alpha was 7.9 metres rising. A major flood p
  - **Tully and Murray River:** Minor flood levels continue to ease in the Tully River at Euramo, where at 3pm Monday the river level at
  - **Moonie River:** 24-hour rainfall totals to 9am Monday in excess of 100 mm have fallen over the upper reaches of the Moonie Rive
  - **Weir River:** 24-hour rainfall totals to 9am Monday in excess of 100 mm have fallen over the upper reaches of the Weir River. Thi
  - **Herbert River:** Moderate flooding is easing in the upper Herbert River at Gleneagle Homestead. Minor flooding between Nash's C
  - **Haughton River:** Minor to moderate flooding is easing in the Haughton River between Powerline and Giru. Minor flooding is easi
  - **Coastal Rivers – Maryborough to Gold Coast:** Since 9am Sunday, rainfall between 100 and 150mm has fallen over the Logan,

Rainfall

- In the period since 09.00am Monday significant rainfall was recorded at:
  - Kingsborough TM (West of Gladstone) 151mm
  - Beckers TM (West of Gladstone) 148mm
  - Rannes TM(West of Gladstone) 140mm
  - Coolmaringa TM (Emerald) 120mm
  - Forbes Road TM (Proserpine) 116mm
  - Dumbleton Rocks Alert (Mackay) 109mm

Weather Outlook

- A trough is moving through the Fraser coast at present and will reach the Capricorn region this afternoon. An upper trough occurs over western Queensland and a weak monsoonal trough occurs over the southern Gulf. A ridge of higher pressure will become established along the southern coast in the wake of the coastal trough.

- Monsoonal showers and storms continuing over the tropics. Early rain easing about eastern districts but redeveloping this afternoon with thunderstorms and some heavy falls. Easing rain over the Burnett, Wide Bay and Sunshine coast. Isolated showers over the remainder of the SE coast and across southern Queensland. Isolated afternoon showers and thunderstorms over the NW, fine in the far west. Moderate to fresh NW winds over most northern areas of the state. Moderate to fresh S/SE winds developing north about the SE coast.

SES 132 500 CALLS

- 2880 calls ware made to SES 132 500 in the period since 05.00am Mondey:
  - Gold Coast 283 calls
  - Brisbane 240 calls
  - Warwick 189 calls
  - Dalby 135 calls
  - Bundaberg & Burnett 135 calls
  - Logan 130 calls
  - Toowoomba 124 calls

DISASTER MANAGEMENT SYSTEM ACTIVATION STATUS AND KEY ACTIVITIES

- **SDCC:** Stand Up
- **DDMG:**

Gold Coast	Alert
Innisfail	Alert
Logan	Alert
Redcliffe	Alert
Brisbane	Lean Forward
Cairns	Lean Forward
Charleville	Lean Forward
Mareeba	Lean Forward
Rockhampton	Lean Forward
Townsville	Lean Forward
Dalby	Stand Up
Gladstone	Stand Up

- **LDMGs:**

Bundaberg	Alert
Burdekin	Alert
Charters Towers	Alert
Gold Coast	Alert
Hinchinbrook	Alert
Quilpie	Alert
Maranoa	Alert
Moreton	Alert
North Burnett	Alert
Townsville	Alert
Brisbane	Lean Forward
Fraser Coast	Lean Forward
Gympie	Lean Forward
Logan	Lean Forward
Redlands	Lean Forward
Rockhampton	Lean Forward
Scenic Rim	Lean Forward
South Burnett	Lean Forward
Sunshine Coast	Lean Forward
Banana	Stand Up
Barcaldine	Stand Up
Murweh	Stand Up
Western Downs	Stand Up

*Definitions

Alert – Monitor situation; no action required.
Lean Forward – on stand by; prepared but not activated.
Stand up – activated.

MEDIA

- ABC News Online reports: Residents are on evacuation alert in several rural Queensland towns cut off by near record-breaking flood levels, as torrential rain continues to lash the state. The statewide damage bill has passed more than $600 million and many flood-affected residents believe the worst is still to come. The weather bureau says the areas at greatest risk in the next 24 hours are in the state's south at Chinchilla, Dalby, Warwick, and further north at Theodore and Rockhampton in central Queensland. Authorities have been surprised by the rapid rise of floodwaters at Dalby on the Western Darling Downs, while further west homes and businesses in Chinchilla have water at roof level. The State Emergency Service (SES) says it received 1,800 call-outs across the state on Monday. In Chinchilla, Charleys Creek is expected to peak at 7 metres or above late Monday night and into Tuesday, almost 50 centimetres higher than the 1983 flood. http://www.abc.net.au/news/stories/2010/12/27/3102400.htm.

- The Courier Mail reports: Roads, homes and vital infrastructure have been damaged from the Atherton Tableland to the Gold Coast as flood records are broken across the state. Brisbane recorded its wettest December in more than 150 years with 471.8mm dumped until 5pm yesterday, beating the 470mm recorded in 1859. Wivenhoe Dam's five floodgates are expected to be opened today and the Brisbane City Council last night warned residents to prepare for the worst. Localised flooding had closed at least 20 roads throughout the city last night. Several collection points have been established for free council-issued sandbags. Evacuation centres have been set up in several western Queensland towns – including Chinchilla, Theodore, Jericho, Alpha, Mundubbera, Gayndah, Warwick, Killarney and Dalby – with even emergency services struggling to access some communities in the bad weather. Emergency workers began evacuating residents at Dalby last night as Myall Creek rose toward an expected peak of 4m at midnight. About 71 residents also were evacuated at Theodore with authorities to decide this morning whether or not to mandatorily evacuate the remaining 300 residents of the town. Acting Premier Paul Lucas said the rain was set to continue for days. "The big question for all of us is what will happen with the rain. No one can answer that," Mr Lucas said. http://www.couriermail.com.au/news/features/dalby-theodore-residents-evacuate-as-flooding-grips-much-of-queensland/story-e6freorf-1225976866120

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Emergency Management EMQ Queensland	**Situation Report** State Disaster Coordination Centre	Queensland Government

Event:		
Central Coast Flooding December 2010		
Daily SitRep No:	**Time:**	**Date:**
008	17:00hrs	31/12/10
Distribution:		
Minister, Director-General, Executive Director etc		
From:		
State Disaster Coordination Centre – Kedron Phone: [redacted] Facsimile: [redacted] Email: [redacted]		

THIS SITREP NOW REPORTS VIA REGION / TOWN
(Changes are highlighted in bold)

1. Statewide Summary

ACTIVATION STATUS*	DISASTER MANAGEMENT GROUPS AND CENTRES
Stand up	SDCC
DDMGs	
Stand up	Gladstone Dalby Rockhampton Bundaberg
Lean Forward	Townsville Charleville
Alert	Cairns Innisfail Mareeba Logan Redcliffe Brisbane
Stand down	
LDMGs	
Alert	Quilpie Maranoa Moreton Logan Gold Coast
Stand up	North Burnett Barcaldine

	Banana Western Downs Chinchilla Bundaberg Lockyer Valley Rockhampton
Lean Forward	South Burnett Fraser Coast Gympie Sunshine Coast Brisbane Redlands Hinchinbrook Townsville Burdekin Charters Towers
Stand Down	Scenic Rim Murweh

*Definitions

Alert – Monitor situation; no action required.
Lean Forward – on stand by; prepared but not activated.
Stand up – activated.

- The SDCC remains activated to support the Central Coast Flood event.
- Significant Highlights:
  - **Emergency Alert for Dalby asking residents to use water for emergencies only i.e drinking, toilet and showers.**
  - **D-G of DPC as the Chair, State Disaster Management Group issued a direction for Rockhampton and Bundaberg under S46 of the Disaster Management Act suspending normal retail hours for essential items (groceries and essential goods). This will enable these retailers to open for normal trading hours on those days that retail trading is restricted.**
  - **Emergency alert for Emerald issued Thursday evening updating on the expected flood levels**
  - DPW & TMR have been working with the Toll Group in relation to possible options for continuity of supply to food retail outlets in centres north and west of Rockhampton.
  - Emergency alert for Emerald was issued 30.12.10 with expected peak flood levels up to 0.5m above 2008 flood levels
  - Emergency alerts for Dalby, Alpha, Jericho and Baralaba with health and safety concerns for the water and advised to boil water.
  - Rockhampton and Bundaberg are expected to exceed flood records.
- QPS Deputy Commissioner Ian Stewart has been appointed State Disaster Coordinator and will be empowered for 14 days.
- **The next teleconference will be at 1100hrs on 01.01.11**

2. Declarations/Activations

Disaster Declarations

The Minister for Police, Corrective Services and Emergency Services has approved the following Disaster Declarations:

Disaster District	Date approved
Dalby	28 December 2010
Gladstone	28 December 2010
Longreach (Barcaldine RC)	28 December 2010
Bundaberg	29 December 2010
Rockhampton	29 December 2010
Roma	**31 December 2010**

Natural Disaster Relief and Recovery Arrangements (NDRRA)

The Minister for Police, Corrective Services and Emergency Services has recently approved the activation of the Natural Disaster Relief and Recovery Arrangements (NDRRA). The area defined for receipt of NDRRA relief measures is *"Communities within Queensland affected by heavy rainfall and associated flooding, November – December 2010"*.

Commonwealth / State Natural Disaster Relief and Recovery Arrangements (NDRRA) have been activated for the following **41** locations as a result of weather events from November to December 2010:

LGA	Counter Disaster Operations	Personal Hardship Assistance Scheme	Restoration of Essential Public Assets	Concessional Loans for Small Business	Concessional Loans for Primary Producers	Freight Subsidies for Primary Producers
Balonne Shire Council	✓		✓	✓	✓	✓
Banana Shire Council	✓	✓	✓	✓	✓	✓
Barcaldine Regional Council	✓	✓	✓	✓	✓	✓
Barcoo Shire Council	✓		✓			
Blackall-Tambo Regional Council	✓		✓	✓	✓	✓
Bulloo Shire Council	✓		✓			
Bundaberg Regional Council	✓	✓	✓	✓	✓	✓
Burdekin Shire Council	✓					

LGA	Counter Disaster Operations	Personal Hardship Assistance Scheme	Restoration of Essential Public Assets	Concessional Loans for Small Business	Concessional Loans for Primary Producers	Freight Subsidies for Primary Producers
Cairns Regional Council	✓		✓			
Cassowary Coast Regional Council	✓		✓			
Central Highlands Regional Council	✓	✓	✓	✓	✓	✓
Charters Towers Regional Council	✓					
Cherbourg Aboriginal Shire Council	✓			✓	✓	✓
Fraser Coast Regional Council	✓		✓			
Gladstone Regional Council	✓		✓	✓	✓	✓
Gold Coast City Council	✓		✓			
Goondiwindi Regional Council	✓		✓	✓	✓	✓
Hinchinbrook Shire Council	✓		✓			
Ipswich City Council	✓					
Isaac Regional Council	✓		✓	✓	✓	✓
Lockyer Valley Regional Council	✓	✓	✓	✓	✓	✓
Logan City Council	✓					
Longreach Regional Council	✓		✓	✓	✓	✓
Mackay Regional Council	✓	✓	✓			
Maranoa Regional Council	✓		✓	✓	✓	✓
Moreton Bay Regional Council	✓		✓			
Murweh Shire Council	✓		✓	✓	✓	✓
North Burnett Regional Council	✓	✓	✓	✓	✓	✓
Paroo Shire Council	✓		✓			
Quilpie Shire Council	✓		✓			
Rockhampton Regional Council	✓		✓	✓	✓	✓

LGA	Counter Disaster Operations	Personal Hardship Assistance Scheme	Restoration of Essential Public Assets	Concessional Loans for Small Business	Concessional Loans for Primary Producers	Freight Subsidies for Primary Producers
Scenic Rim Regional Council	✓		✓	✓	✓	✓
Somerset Regional Council	✓		✓	✓	✓	✓
South Burnett Regional Council	✓		✓	✓	✓	✓
Southern Downs Regional Council	✓	✓	✓	✓	✓	✓
Sunshine Coast Regional Council	✓		✓			
Tablelands Regional Council	✓		✓			
Toowoomba Regional Council	✓	✓	✓	✓	✓	✓
Townsville City Council	✓					
Western Downs Regional Council	✓	✓	✓	✓	✓	✓
Woorabinda Aboriginal Shire Council	✓			✓	✓	✓

3. Regional Reports:

- **Central Region**

Alpha

- **Roads into Alpha remain closed to public however there is now access to emergency services – possibly opening 01.01.11 and water has receded.**
- **Some residents returned to houses after clean up yesterday.**
- 150 people have been evacuated - 5 houses were inundated.
- over 75% of houses in Alpha have had the electricity checks conducted.
- Alpha has no town water however can survive for the next few days with current water supply.

Biloela (Thangool, Jambin, Goovigen & Wowan)

- 11 evacuees are in the Biloela Settlers Motel.
- 3 high dependency and 14 aged care evacueees from Jambin are in Biloela hopsital
- Department of Communities members dispatched to Biloela to conduct impact assessments.
- Jambin is isolated by road but this primarily due to damage and not to water ingress with road crews currently tasked to area reporting that road cannot be open at this time due to damage incurred. Advice is that town has 4-5 days food and 3 days milk

& bread. 4 low set houses have been inundated and some residents have self evacuated to QCWA hall or higher residences.

- Goovigen: A local resident contacted to assess the situation and given DCC emergency contact number. Report that township has food for 2-3 days and 1 family self evacuated to Goovigen Hotel due to water rising quickly around their house.
- Wowan has reported that Evacuation Centre with the 11 evacuees has now moved to CWA Hall as issues arose with the septic tank at the Multipurpose Centre (MPC) due to flooding.

Emerald

- **1100 today RAAF C130 Hercules transported a QRFS Flexible Habitat (tentage) to Emerald for use as emergency / temporary accommodation for evacuees.**
- **Ten (10) QFRS personnel travelled on the C130 to assemble the Habitat.**
- **Emerald Hospital and nursing home evacuated. Temporary hospital at GP's office has been established.**
- **Hospital building has not been impacted at this stage.**
- **0654 today the Nogoa River appears to have peaked at 16.12m on south side of Emerald. Fairbairn Dam is at 5.47m.**
- **500 homes have been evacuated.**
- **Numbers of evacuees as at 0500 hrs today are:**

Evacuation Centre	Registrations	Staying
Agricultural College	202	82
Town Hall	956	206
St Patricks School	102	95
Harvest Life Church		65
Totals	**1260**	**448**

- **A number of residents have established their own 'tent city' on the north side of town. LDMG tasked to establish numbers and issues.**
- **One (1) critical patient flown to Brisbane, 5 patients and 1 Nurse to Springsure, 4 patients flown to Blackwater and 2 patients to be evacuated later today – destination TBA.**
- **15 aged care patients remain in Emerald.**
- **Emerging issue is congestion and overloading of the mobile network with large numbers of impacted people using mobile phones and laptop computers. Red Cross are having to ask people to switch off their equipment. Discussions will be held with Telstra today.**
- **Ergon continues to manage customer connections for safety reasons, cutting off those where inundation creates risk.**
- **The power substation is expected to be unaffected.**
- **Central Highlands LDMG concerning a telephone network outage for landlines in the Duaringa area.**
- Planning for another two schools to be established as Evacuation Centres.
- 80% of Emerald township is inundated in various degrees.
- Rail between Emerald and Willows closed at 0800 30.12.10.
- No road access although Airport is operational.
- Major Issues/Projected Operations:
  - Planning for large numbers of mandatory evacuations
  - Resupply for Emerald and smaller communities of Springsure, Rolleston and Blackwater.
  - Access and fuel for Blackhawks – Emerald airport has sufficient to Sunday for current tasking, fuel supplies are being sourced.

- On going monitoring will continue regarding resupply of Emerald and Duaringa. Woolworths may have water inundation based on the current increase in predictions and may not be available as a distribution point.
- LDMG to advise re possible timeframes for QFRS Rapid Assessment teams to enter Emerald for recovery purposes. QFRS presently planning to enter Emerald in 5 days time.

Jericho

- **Town remains closed to public.**
- **Electricity checks continuing before returning residents.**
- All roads in/out are cut.
- Will need re-supply in the next few days.
- Jericho will have electricity checks conducted of all homes in next few days.

Mundubbera and Gayndah

- **Flooding has ceased in Mundubbera and Gayndah due to Burnett River heights falling slowly. Main flood peak has left this area and is heading downstream in the direction of Bundaberg.**
- **Powerlines in Mundubbera are being restored with no more 20 houses without power.**
- Substantial road damage sustained to all roads in Mundubbera area. All bridges required to be inspected by engineers prior to use.
- Water services were expected to be restored to Gayndah this afternoon with mains pressure restored. Gayndah Hospital has 5000 Gallon reserve tank with a back up pump being repaired.
- Power lines have been taken down in flooding in Mundubbera with some outlying Mundubbera properties affected.
- Ergon advise 92 customers off supply but with roads to Mundubbera now open support from Gayndah going in.

Rockhampton

- **4 evacuation centres are located at the Town Hall, Agricultural College, St. Patricks School and Harvest Light Church and are prepared for up to 2000 people.**
- **Door knocking conducted 30.12.2010 to 2000 homes.**
- **Evacuations of vulnerable dwellings commenced at 0800 31.12.10.**
- **Food distribution point established at Heritage Village.**
- **30 homes have had power disconnected – no plans to disconnect any further homes.**
- **Georgeson Oval identified as alternative helicopter landing site if airport is flooded.**
- Evacuation centre established at Queensland University Campus with current RFA for 300 beds – this facility can accommodate 600 to 1200.
- 4000 properties impacted with 140 houses inundated and 1000 with inundation to yards.
- Flood Barriers not appropriate for power supply and will possibly be used at airport which is expected to close by sat afternoon or Sunday morning. **Further supplies of flood barriers from Townsville will arrive 01.01.11**
- Central Highlands LDMG, RLDMG and EMQ are continuing to provide media releases and public safety messages for affected communities.
- Current predictions indicate a 9.4+m height for the Fitzroy River. Expecting 9m Sunday morning.

- Highways to south and west will be cut. Highway to north is cut at 9.4m.
- At 9m level:
  - 150 homes with floorboard inundations.
  - 1000 homes with water in yard.
  - 4000 parcels of land.
- Water supply will remain operational until 11 metres.
- Power supply will remain operational until 10 metres.
- Reassessing planning with new levels. Doorknocking and letter box drops are increasing.
- Commenced evacuating Stanley Street to the east
- Continued planning for evacuations and a lengthy period of isolation.
- Resupply will likely be an issue as event unfolds – Gracemere, Alton Downs, Ridgelands.
- The mines which have been granted Transitional Environmental Programs are Fitzroy Catchment: Rolleston, Ensham, Poitrel, South Walker, Isaac Plans, Cook, Callide, Moranbah North, Minerva, Kestral and Carborough Downs.

Theodore, Taroom, Moura and Baralaba

- **The Baralaba Coal Mine has been inundated after the levy banks broke. Reports that there is 110m of water in the mine with significant loss of equipment. Early indications that it will be some 12 months before it can again become operational.**
- **Resupply for QPS staff in Theodore will occur on Sunday 02.01.11**
- **Banana LDCC have reported that no damage assessments have been able to be undertaken as of yet of inundated homes, businesses, roads or bridges or critical infrastructure in Theodore.**
- QPS personnel in Theodore have reported the following with regards to water inundation.
  - Of the 202 hoses 152 have been inundated internally and externally whilst the remaining 50 have only suffered external inundation. Additionally 20 non-residential premises (businesses, school, dental clinic, QAS) have suffered both internal and external inundation whilst another 5 non-residential premises have suffered external inundation.
  - Theodore township evacuations completed 30.12.10 including the removals of pets.
- Theodore Airport – open to rotary wing aircraft only.
- BOM website advises that river heights will remain around current levels for the next 7 days.
- Sewerage Treatment Plant in Theodore has been switched off and plant is isolated by floodwaters and may be partially functioning, however sewer pump stations are expected to be non operational. Some sewage overflows have occurred.
- Water Treatment Plant in Theodore has had the power turned off and is isolated. Water supplies to the reservoir have been replenished.
- Electricity supply being monitored by Ergon Staff – system is progressively shut as water levels rise.
- Taroom reports several evacuations conducted (6 people from 4 houses on the 28 December) and furniture moved to higher ground at properties but no further evacuations since this time. Caltex Service Station is under water. Air operation to assist with resupply conducted by Banana LDCC. Ergon Energy staff have declared Dawson River to be a no-go area for boats due to overhead power lines being in close and dangerous proximity.

- Floodwaters from the Taroom area are expected to prolong major flood levels at Theodore. Major flood waters rising at Baralaba. A level of 15m has been advised and falling slowly. Moura is 12.48m and steady. Baralaba Water Treatment Plant is operational; the river height would need to rise another 2m before problems may arise. Baralaba QPS advised that power is now restored. Estimate 3-5 days food – but will need to confirm on a daily basis Water has entered the school oval.

Woorabinda

- **Currently has a sustainable water supply. Water supply being sourced and purified from Momosa Creek.**
- **Still no telephone communications.**
- **No issues with power, sewerage or food supply.**
- Sewerage Treatment Plant is operational.
- There are no telephone communications at present, Telstra are attempting to rectify, nil indication of timing for service restoration. People unable to access funds through EFTPOS. Department of Communities working with community to organise funds.
- Police utilizing radio and Satellite phone.

- **South West Region**

Charleville area

- Significant falls in the upper Warrego River catchment is now moving downstream. The river peaked at Augathella last night at 6.55m resulting in the slight inundation of 3 houses on the other side of the river to the levee.
- The Warrego River is expected to peak in Charleville on the weekend at about 6m, well within the levee bank.

Chinchilla and Warra

- **Chinchilla Cultural Centre – 23 evacuations processed and accommodated at local hotels.**
- **13 inundated houses and 25 with external flooding.**
- **5 inundated businesses and 25 with external flooding.**
- **120 customers currently without power. Power is assessed and reconnected as residents return.**
- **Ergon energy expected to reconnect 50 dwellings today.**
- **Water and telecoms are operational.**
- **Major Issues/Projected Operations:**
  - **Fuel rationing occurring to ensure supply for emergency service vehicles.**
  - **Fuel for helicopters and resupply being trucked in today.**
- **Warra power disconnected with Ergon Energy attending today attempt reconnections.**
- **Warra water treatment plan contaminated. Residents advised to boil water. Ergon Energy inspecting plant today.**
- 5 dwellings inundated by flood waters in Warra.
- Ergon reports around 114 customers are off supply with 7 transformers de-energised as a precaution. Water treatment plant has been impacted but Ergon assets will be repaired as soon as water recedes.
- Chinchilla Airport remains open.
- Landlines currently not working at Warra.

- Chinchilla sewerage system is full and residents have been warned not to enter water.

Condamine

- **Condamine completely evacuated to Dalby (82 people) via 2 Army Blackhawk helicopters.**
- **4 QPS and 1 SES stationed at Condamine for security.**
- **Ergon Energy advised that two main generators suppling power to Condamine will be disconnected at some stage due to rising waters.**

Dalby

- **Dalby Showgrounds evacuation centre has registered 56 evacuees, 18 placed at the centre and 2 placed in motel due to age/ health plus evacuees received from Condamine.**
- **evacuees received from Condamine on 30/12/10.**
- **10 small dogs evacuated from Condamine and staying at centre with owners.**
- **Power is operational with supply to majority of customers.**
- **Dalby Water Treatment Plan remains out of action with 2 days supply available.**
- **Strategies to meet water requirements include trucking in water, accessing bore water supplies, distributing bottled water and level 6 water restrictions.**
- **Ergon Energy and council working on plant today. Reverse osmosis plant expected to be operational by Sunday afternoon.**
- **Telecoms fully operational.**
  - **Airport remains open** but Rail line closed at Macalister.
- **Numerous resupply requests received yesterday in relation to food and medical items and it more requests expected today.**
- **35 dwellings have been cleaned by QFRS and this will continue.**
- Evacuation Centre is now at the Dalby Showgrounds with 30 registered evacuees.
- Resident Doctors at Tara and Miles are suffering fatigue and are being relieved by other Doctors who are being who were flown in 30.12.10.
- 1800 mega litre ring tank dam north of Oakey burst yesterday afternoon which is flowing into the Myall Creek..
- Level 6 water restrictions implemented. Emergency Alert campaign has been released to Dalby area advising residents not to drink water due to water contamination caused by flooding. If no other option boil water for three minutes before consuming.
- Once the water has receded it is likely to take a further 7 days to be restored.
- DDCC attending to food resupply to effected properties in Ducklo and Kumbarilla areas.

Roma

- **A Disaster Declaration was issued for Roma Disaster District 31.12.10**
- After receiving additional information on flood heights upstream of Roma the LDMG revised their forecast to an increased flood level of 6.8 to 7.1 metres in Roma. A door knocking / advice to residents in low-lying areas of Roma (McPhie, Edward, Charles, Lovell, George, Edna, Major Streets and Felicity Court and Alexander Avenue) was conducted yesterday (pm), advising them of the revised flood height forecast and to take precautionary measures and consider voluntary evacuations ("lift of shift") if they believed it was required.

Tara

- **No unleaded fuel and limited stock of diesel available.**
- **Two fuel trucks arriving today via Goondiwindi.**

- **North Coast Region**

Bundaberg

- **Bundaberg Civic Centre – 47 evacuatees.**
- **Houses impacted – 210 external and 208 internal.**
- **Businesses impacted – 150 external and 130 internal.**
- **Telstra advised fibre cable break near Bundaberg has been resolved and a significant number of the services including 3G and GSM services were restored at approx 23:43 EST 30.12.10.**
- **Burnett River height was at 6.8m at 15.00 and expected to reach 5.5m tomorrow night.**
- Burnett Traffic Bridge and the Tallon Bridge are closed to all traffic except emergency services and council vehicles therefore isolating Bundaberg North.
- Temporary emergency services centre set up in North Bundaberg with QAS, QFS and QPS in attendance.
- Regular media releases being conducted advising local residents of bridge closure.
- Specialty shops in Hinkler Shopping Centre located in CBD Bundaberg are closed due to underground car park being completely flooded. Woolworths and Coles are operating at this location.
- Power at Bundaberg City is being load shared due to flooding of substations. Minor power interruptions have occurred as a result.
- Currently 1800 customers in the Bundaberg RC and 215 in the Nth Burnett RC are either without power or have unreliable power.
- Power supply interruption to South Bingera, Pine Creek and Electra, Bundaberg North Bundaberg.
- Ergon are working on issue unknown time of re connection.

- **Transport Conditions**

MSQ – 18:00pm

- All ports are open except Bundaberg which is closed due to debris in the channel.

Major Highway Road Closures as at 17:00hrs 31/12/10 as per TMR.
Further detailed information available from 131940 website.

- Bruce Highway - north of Maryborough
- Leichardt Highway - north of Wandoan
- Fitzroy Development Rd - north of Taroom
- Burnett Highway - north of Monto
- Dawson Highway - Calliope to Springsure
- Canarvon Highway - north of Injune
- Warrego Highway - west of Dalby
- Moonee Highway - west of Moonee
- Barwon Highway - west of Goondiwindi

4. **Weather (BOM) (as at 16:15hrs 31.12.10)**
Further details visit www.bom.gov.au

Weather Situation

A ridge along the east coast of Queensland and will begin to relax during Saturday. The monsoon trough will become established again on Saturday through Torres Strait and will then move slowly southwards. An upper trough will move onto the southeast coast during the weekend.

Forecast for Saturday

Scattered showers and thunderstorms in the northwest and tropics, tending to rain in the far north. Scattered showers along the east coast, more isolated in the south. Afternoon showers and thunderstorms about the eastern districts. Fine elsewhere. Light to moderate SE to NE winds, fresh at times near the coast.

Forecast for Sunday

The ridge along the east coast will continue to weaken while the monsoon trough slips southwards over Cape York Peninsula. So further showers, storms and rain areas with moderate to heavy falls will continue over the far north of the state. Showers and storms will occur over the remaining tropics. Scattered showers and local thunder will continue about the southern coast and adjacent inland. Some middle level cloud will possibly produce some very weak rain and local thunder over southern inland border areas. NW winds will occur north of the monsoon trough while light to moderate SE to NE winds will occur elsewhere.

Forecast for Monday

The monsoon trough will nudge further southwards over Cape York Peninsula with further showers, storms and rain areas with moderate to heavy falls continuing over the far north of the state. Showers and storms will occur over much of the remaining tropics. Scattered showers and local thunder will continue about the southern coast and adjacent inland. Isolated showers and thunderstorms will develop across the remaining south-east inland and the southern interior. Winds will freshen along the southern coast as a low develops over the southern Coral Sea.

Forecast for Tuesday

The monsoon trough will extend further southwards over the northern tropics, with further showers, storms and rain areas with moderate to heavy falls continuing over the northern areas of the state. Showers and storms will occur over much of the remaining tropics. Scattered showers and local thunder will continue about the remaining eastern half of the state. Winds will become fresh to strong along the southern coast as a low develops over the southern Coral Sea.

Outlook for Wednesday, Thursday and Friday

The low will move slowly to the south-east during the period allowing winds along the southern coast to ease and shift to the NE to N as a drier S'ly change moves across the south-west of the state during Wednesday and Thursday. The monsoon trough will become established over the far north of the state and will maintain showers, storm and rain areas with some moderate to heavy falls. Showers and thunderstorms will continue over most inland districts as conditions will remain unstable before the wind change. This activity will contract eastwards before the change and become scattered over the southeast on Thursday.

5. Agency Deployments

Queensland Fire and Rescue

Emerald – 10 Flexible Habitat Unit staff deployed to Emerald. Due to depart Amberley Airbase at 1130 hours.

- **Emerald - arriving 0800 31/12/10**
- **1 x Ops Off)**
- **2 x Admin) IMT Support**
- **1 x Station Officer)**
- **1 x Air Base Manager,**
- **2 x Air Base Operations Officers**

Biloela - arriving 31/12/10 PM

- **1 x Admin Officer,**
- **1 x Ops Officer,**
- **1 x Air Base Manager,**
- **2 x Air Base Officer**

Rockhampton ROCC – arriving PM 31/12/10

- **2 x ROCC Coordinator,**
- **4 x Logistics Officers,**
- **2 x Special Ops Liaison Officers**

Rockhampton ICC - arriving PM 31/12/10

- **1 x Air Base Manager,**
- **2 x Air Base Operations Officers,**
- **1 x Planning Officer,**
- **1 x Logistics Officers,**
- **2 x elAP Operators,**
- **2 x FireCom Operators,**
- **2 x Admin Officers**

Bundaberg

16 personnel Rapid Assessment Team travelling to Bundaberg by road arriving Monday 3rd January 2011

Emergency Management Queensland

- EMQ Representative to deploy 31.12.10 to Rockhampton.
- EMQ Representative to deploy on Monday (03.01.11) to Toowoomba.Central Region – Area Directors to Banana Shire (Theodore), Emerald and Rockhampton.
- EMQ Representative flown to Emerald to assist LDMG.

State Emergency Service

- 2 x coxswains deployed to Dalby.
- 2 from Rockhampton to Theodore on Sunday 26.12.10.
- Up to 140 volunteers (including from Victoria and non-affected Qld regions) are on standby as planning for deployment will take place tomorrow in advance of requests for assistance as water levels drop.

Queensland Ambulance Service

Gladstone
Tactical Medical Centre
- **4 x staff**

Other Deployments
- **4 x staff from Townsville to go to Emerald on Sunday.**
- **QAS Special Operations has established a Tactical Medical Centre (portable air conditioned 25 bed facility with three ICU beds) at Gladstone Airport to assist QHealth with clinical coordination and transit capability. This facility will be staffed by a manager, three paramedics, doctors and nurses.**

Department of Communities

South West Qld – total 44 department staff
- **Coordination Centre: 26**
- **Warwick: 2**
- **Dalby 7**
- **Gatton 2**
- **Chinchilla 7**

Partner Agencies:
Red Cross
- **Dalby: 1 staff member + 7 volunteers**
- **Warwick: 1 staff member + 6 volunteers**
- **Chinchilla: 2 volunteers**

Lifeline
- **Dalby: 2 staff**
- **Warwick: 2 staff**
- **Gatton: 1 staff member – may increase to 2**

Central Queensland – total 21 department staff
Coordination Centre: 8
Moura: 7 department staff + 7 recovery partner staff
Bundaberg: 2
Emerald: 20 ready for deployment when flood waters subside
Biloela: 3
Alpha: 1

Partner Agencies:
Red Cross – 6 staff members and 45 volunteers
- **Dalby: 1 staff member + 7 volunteers**
- **Warwick: 1 staff member + 6 volunteers**
- **Chinchilla: 2 volunteers**
- **Emerald: 1 staff member + 20 volunteers**
- **Moura: 1 staff member + 4 volunteers**
- **Bundaberg: 6 volunteers**

Lifeline – 24 staff
- **Dalby: 3 staff**

- Chinchilla 2 staff
- Warwick: 2 staff
- Gatton: 1 staff member
- Emerald: 8 staff members
- Moura: 1 staff member
- Bundaberg: 4 staff + 10 on standby
- Lockyer Valley: 1 staff
- Gayndah: 2 staff

6. Agency / Stakeholder Reports

Red Cross

- Red Cross Emergency Services has implemented an Incident Management Team to respond to the current flooding event. We are managing Evacuation Centres in Moura (for evacuated Theodore residents), Emerald, Dalby (including for Condamine residents) and Bundaberg. We are carrying out Recovery in Dalby, Theodore (Moura), Chinchilla and Bundaberg and Outreach in Dalby and Warwick.

- Personnel are currently prepositioning in Rockhampton and increasing response in Emerald and Bundaberg.

Department of Communities

- The Personal Hardship Assistance Scheme (PHAS) under the Natural Disaster Relief and Recovery Arrangements (NDRRA) has been activated for ten (10) Local Government Areas within South West and Central Queensland Department of Communities' regions including:
  - Banana Shire Council
  - Barcaldine Regional Council
  - Bundaberg Regional Council
  - Central Highlands Regional Council
  - Lockyer Valley Regional Council
  - Mackay Regional Council
  - North Burnett Regional Council
  - Southern Downs Regional Council
  - Toowoomba Regional Council
  - Western Downs Regional Council
- The potential closure of Rockhampton Airport will limit the ability of Regional staff to support the recovery effort.
- Fitzroy River anticipated to peak at 9.5 metres. Regional Office could be susceptible to flooding at a river height of 9.0 metres. Contingency planning has commenced to relocate Regional Office operations to the Disability Services' Office.
- Departmental Coordination Centres have been established in Toowoomba, Mackay and Rockhampton
- A Community Recovery Coordination and Referral Service has been established at the Cultural Centre in Chinchilla.
- Outreach teams are visiting evacuation centres in the following locations to provide support and assistance:
  - Warwick and surrounds
  - Dalby
  - Chinchilla
  - Lockyer Valley

- Outreach is also being planned for the following communities should a need be identified, or as roads become passable:
  - Moonie
  - Miles
  - Grantham
  - Alpha
  - Jericho
  - Gayndah
  - Mundubbera
  - Bundaberg
  - Goodnight Scrub
- Additional outreach may be required to other small communities across affected areas as roads become passable and as information becomes available from local councils and disaster management groups
- Road access across affected areas is restricted. This is impacting on the ability to deploy staff to commence recovery operations. Options including air travel and alternative routes are being explored.

Queensland Heath

Emerald Hospital Status

- Most patients were evacuated last night 30/12/2010.
- Currently in the hospital are:
  - 6 medical patients to be transferred to Springsure and Blackwater
  - 2 maternity patients to be transferred to Mackay
  - 2 others to be transferred to the Wesley (private renal patient) and RBWH
- The fifteen private aged care patients were moved to the Emergency clinic at the Agricultural Centre.
- The Emergency Clinic has one elderly gentleman who has a terminal illness will be airlifted.
- Two medical clinics have been established on higher ground. One at the Agricultural Centre (East) and a new centre established at a GP clinic (West) which has resuscitation and full consultation facility 24/7.
- The full emergency, operating theatres and maternity sections of the hospital remain staffed for emergency presentations.

Rockhampton Hospital Status

- Rockhampton Hospital is not expected to experience any inundation.
- It is anticipated that all hospital services can be sustained during the flood and community based, at home patients have been contacted where possible and ongoing care communication and support services have been arranged.
- Queensland Health Central Pharmacy have advised a potential need for SDCC transport logistics support to resupply Rockhampton Hospital.

Aero-medical update

- There has been in increase of EMS Helicopter services at Rockhampton to 2 x 24/7 utilising Capricorn Helicopter Rescue and EMQ-Helicopter Rescue.
- EMQ will plan to go 24/7 from Saturday. QAS will provide paramedics and Careflight will provide Medical Staff
- Contingency plan when the Rockhampton Airport close is for a aero-medical helicopter to be based at the hospital helipad to transfer patients in and out of the hospital, to re with fixed wing aircraft which will be based at Gladstone Airport.
- Gladstone Airport is the option of choice to stage patients at for aero-medical retrieval/transport south.

Public Health

- Public Health advice being provided to all DDMGs
- EHO deployed to North Burnett to assist health service
- Enhanced public health surveillance for gastrointestinal disease will be established today. Report of 3 persons presenting to Chinchilla Hospital with gastro intestinal disease. Public Health Physician and Environmental Health Officer will follow up to identify sources and mitigation measures.
- Handgel to be supplied to evacuation centres in Rockhampton.
- As water recedes, public health messages will be provided, in coordination with LDMG, to advise community regarding managing public health risks in clean up.

Human Social Health

- Human social services and resources are being prepared in consultation with Health Service Districts and Department of Communities to assist LDMGs in the transition to, and during, the recovery phase of this event.

- The full range of relevant fact sheets are available at: http://www.health.qld.gov.au/healthieryou/disaster/default.asp

Ergon Energy

Southern Region

Wide Bay

- More than 560 properties in inner-city and suburban areas of Bundaberg will remain disconnected until flood levels recede. The properties are concentrated in North Bundaberg and East Bundaberg. There has been very little damage to the network in the city area, so crews will be able to focus on reconnecting customers as soon as it's safe to do so. We have 80-100 staff available over the weekend to begin restoration work as the water recedes. Staff are also available to do testing on the Bundaberg Central substation to put it back into action as soon as possible. They will also be testing 8 padmount transformers and around 150 pillar boxes in subdivisions that have all been inundated.
- Bundaberg town 563 customers remain off supply, 163 because of inundation and the other 400 were taken off supply as a safety precaution due to rising water. However, it is likely that a number of premises within the 442 have now been inundated. 42 customers that were de-energised as a safety precaution have been restored
- In the southern part of the CBD (Hinkler Place) all customers surrounding the shopping centre have been restored, down from 222 at this time yesterday. Within the shopping centre Coles and Woolworths have been unaffected and have continued trading. A 1MVA transformer that supplies the foodcourt and specialty shops is now clear of the floodwater and will be restored this afternoon. K-Mart is supplied by a transformer that is still underwater. They have their own generator, but have been unable to utilise this as their LV switchboard is underwater. Once K-Mart repair their own LV board, they will use their generator until our transformer is able to be placed back on-line.
- In South Bingera 183 remain off supply. This remains the most difficult area of restoration for Wide Bay North. There are multiple sites where faults are present. These include areas where Ergon assets are undamaged, but underwater, and also where there is damage to assets such as transformers washed off poles by floodwater. Crews are currently working from boats to

identify and isolate any areas where faults exist. We will commence restoration to as many customers as possible this afternoon when all faults are isolated.

- The Bundaberg Central substation remains de-energised as a safety precaution as flood waters have entered the grounds. Water has entered the site but there has been no damage to plant and equipment.
- There is no customer impact as supply is being provided from East and West substations.

South West

- Crews are making good progress in restoring power to parts of the Darling Downs where floodwaters are receding. Toowoomba and Dalby crews have restored power today to all 60 properties in Warra that were disconnected earlier in the week. They will go to Chinchilla tomorrow to support local and other Toowoomba crews, who reinstated supply to 18 properties, including some commercial premises, earlier today. They expect to make good inroads tomorrow now floodwaters are receding more quickly. However, crews do not expect to restore power in the evacuated town of Condamine over the long weekend. Meanwhile, crews in St George have begun preparations for expected flooding in the Balonne region in the next fortnight.
- Condamine town - 67 premises have been taken off supply because of inundation. The 33kV line has been de-energised as it is under water, and 3 transformers are also inundated. Currently 21 premises still have supply, but they will more than likely be deenergised when the peak hits at 7pm this evening. The entire town has been evacuated, so no one is in town waiting on restoration. Regarding the 2 feedlots that were impacted by the necessity to proactively disconnect supply to the Condamine Township. We isolated the feeder that goes to Condamine township and restored HV supply to the feedlots. The larger feedlot will be able to remain on supply as there is no river crossing, however supply has been restored to the smaller feedlot for as long as possible, for the owner to prepare feed for the cattle, however we expect to de-energise again tonight because of the rising floodwater (the clearance would be down to 2.5m) and it may stay off for several days. The customer understands the need for the de-energisation.
- Dalby All residential customers have been restored. The water treatment plant is the only customer that remains without supply.
- Chinchilla 187 customers remain without supply. 18 customers who were disconnected due to inundation were restored today, and one transformer disconnected as a precaution has been restored. Of the 187, there are 78 customers without supply due to inundation, and 109 customers de-energised as a safety precaution due to the height of the flood water. For the remaining customers, approximately 60% are now clear of the floodwater and we are working to restore them through this afternoon and again tomorrow morning. One crew from Toowoomba has arrived in Chinchilla to assist.
- Resourcing
  Restoration plans for both Chinchilla and Bundaberg are being developed. Supply is being restored where possible, however the majority of work is still being hampered by the floodwaters. 80-100 staff available over the weekend in Bundaberg to begin restoration depending on flood levels.

Central Region

- The Baralaba Mine has been inundated by the Dawson River at Baralaba. Woorabinda has an issue with the water treatment plant, however it is a water issue, not an electricity issue. Supply has been restored to all of Woorabinda.

- Disconnection for safety reasons of houses either inundated by water in Emerald or are anticipated to be inundated in Rockhampton, will increase over the coming days.
- Emerald is still a key area of concern with 398 premises disconnected due to inundation or as a safety precaution. 1200 people have been evacuated from town and while flood water appears to be receding, it's too early for any reconnections. Coles New World Plaza in Emerald is off supply due to inundation. A restoration plan is in place for when the water recedes.
- Rockhampton 40 houses disconnected. Fitzroy River is at 8.2m and is now forecast to reach 9.4m. Local Ergon Energy crews have begun door-knocking in low-lying areas to discuss plans for keeping things safe if major flood levels eventuate. Maps which predict the areas that will have water inundation are being utilised to create an action plan for disconnections required in the coming days.
- Theodore - 202 premises remain off supply due to inundation. Customers have been disconnected until premises can be made safe. All residents have been evacuated . Water levels are expected to continue to rise. Two Ergon Energy staff have been evacuated form the town and we are aware of floodwater in the Theodore depot.
- Moura - 22 customers off supply and Wowan 19 customers remain off due to inundation.
- Rolleston 13 customers remain off supply due to inundation.

National Contact Centre

- With floodwaters headed Rockhampton's way, the National Contact Centre has activated contingency plans to ensure service to customers. Already, about 10 Customer Care Representatives have been cut off from the Rockhampton NCC in Alma Street by rising water. With the swollen Fitzroy River tipped to peak at over 9.4 metres, a large number of local NCC employees may not be able to reach either Alma Street, or the back-up site at Richardson Road. To ensure customer needs are met, and pressure on available resources is managed optimally:
- Six members of the Rockhampton critical fault shift crew have relocated to Townsville, where they will operate out of the OCC and NCC. The employees, whose homes are not at risk of flooding, have volunteered for the assignment, and have a critical role to play in maintaining the IVR messaging and managing Life Support operations.
- Energex is on standby to allocate up to 20 fault specialists to Ergon Energy's call capacity, if necessary. SPARQ is also working with the NCC to manage any technology impacts flooding may trigger.
- The fault queue has been given maximum priority, meaning an incoming fault call will be answered before an incoming general enquiry call.

- A message will be added to the front of the General Enquiries Queue IVR on Tuesday morning advising customers that the large volume of flood-related calls is causing delays in answering general enquiries, and requesting that, unless the matter is urgent, they ring back in a few days.
- Credit management issues have been put on hold, and any time-to-pay enquiries will be diverted to Revenue Operations' credit management team from Tuesday, alleviating some of the general enquiries load.

Department of Public Works

- As road openings permit, QBuild damage assessment teams have begun to be mobilised throughout flood impacted areas to provide a better understanding of damage to state government built infrastructure. Teams of personnel are being readied for deployment as roads become trafficable and buildings become exposed from floodwaters.
- QBuild have coordinated the establishment of ablution and other services at the Emerald Evacuation Centre. A number of portable showers were also being transported into the Emerald by QBuild.
- 1,000 inflatable mattresses and a suitable number of pumps have been air freighted into Emerald from Brisbane. The mattresses have been supplied on a consignment basis by BigW and subject to being returned unused and in good condition will be accepted back with a credit provided against the initial invoice cost. Proper management of the resources will significantly reduce the final cost of the bedding to government. Subject to the final outcome and assessment of need at Emerald some of these resources could be redeployed to Rockhampton.
- QBuild has identified electrical contractors within the Longreach/Barcaldine Region who could work with Ergon on the reconnection of power to affected homes in both Alpha and Jericho. 5 contractors are located in Longreach, 3 are based in Barcaldine and another 2 work out of Blackall to the southwest of Alpha/Jericho. Roads cuts in these areas may necessitate transport assistance for the contractors. QBuild also has 2 electricians who are based in Rockhampton and are available for deployment subject to unavailability of local tradespersons. QBuild maintains a large number of electricians who can be deployed out of SEQ to assist in flood impacted regions over coming days. QBuild is coordinating the development of a list of electricians who hold appropriate qualifications for working with Ergon on pre inspections for reconnects at residences at all of the centres impacted by floodwaters
- Arrangements have been made for the supply of approx 80 inflatable mattresses/pumps to Bundaberg eta QBuild's Burnett Regional Office at 0900 hrs Thursday 30 Dec. QBuild have also coordinated the supply of an additional 300 mattresses and pumps from the local BigW outlet. Other bedding materials i.e. sheets and blankets etc are being sourced through QHealth. Again any excess bedding could be re-deployed to Rockhampton
- DPW (SDS) is sourcing potential commercial suppliers of bulk quantities of bottled water (@600ml bottles) for deployment to flood affected communities over coming days. Advice has been received that commercial providers can deliver approximately 100,000 litres or 166,000 units of bottled water per day. No requests have been received in relation to prepositioning of bulk quantities of bottled water.
- QFleet have been requested to provide 10 vehicles in support of disaster response/recovery operations in the Darling Downs region. Agencies seem to be limiting requests to 4wd vehicles which are in short supply. It is strongly suggested that wherever practicable agencies should make use of normal sedans where possible and leave the 4wd's to those who need to work in off road conditions.

7. 132 500 (Tasks) Statistics (period 1600 30.12.10 to 1600 31.12.10)

Region	Calls Answered
Far Northern Region	
	5
Northern Region	
	9
Central Region	
	485
North Coast Region	
	76
Brisbane Region	
	61
South East Region	
	15
South West Region	
	42
Unknown origin	
	116
TOTAL	809

* Outstanding tasks have been recorded in RFA Online but are yet to be allocated or completed

8. SITREP AUTHORISATION

Prepared by:	Intelligence Cell [redacted]	**Signed:**	**Date/ Time:** 19:42 31.12.10
Prepared by:	QPS Liaison Officer [redacted]	**Signed:** [redacted]	**Date/ Time:** 19:43 31.12.10
Approved by:	State Operations Coordinator	**Signed:** [redacted]	**Date/ Time:** 20 '24 31 12 10

The Queensland Emergency Management Report (QEMR) update will be issued at 0500 hours, Saturday 1 January 2011.

The next SDCC situation report will be issued at 1700 hours, Friday Saturday 1 January 2011.

[redacted]

From: Sheila King [redacted]
Sent: Monday, 22 November 2010 10:07 AM
To: 'Jim McGowan'; [redacted]
Cc: 'Doris Galea'; Williams Lynette; [redacted]
Subject: TRIM Internal : DOC/10/150123 : Attachment 2 - Protocol for the communication of flooding information for the Brisbane River Catchments including floodwater releases from Wivenhoe and Somerset Dams

Follow Up Flag: Follow up
Flag Status: Red

Attachments: Attachment ~ for the communication of flooding information for the Brisbane River Catchments including floodwater releases from Wivenhoe and Somerset Dams.DOCX; doc20101122095228.pdf


Attachment ~ for ıe communica...


doc2010112209522 8.pdf (1 MB)

Printed - LW

Please find attached a copy of the signed and approved Premier Briefing Note and outgoing letters to Mayors, for your information and any further distribution, as per the Director-General's request.

Kind regards

Sheila King; Executive Assistant
Office of the Director-General
Department of the Premier and Cabinet

(07) [redacted]

------< TRIM Record Information >------

Record Number : DOC/10/150123
Title : Attachment 2 - Protocol for the communication of flooding information for the Brisbane River Catchments including floodwater releases from Wivenhoe and Somerset Dams

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PREMIER'S BRIEFING NOTE
Governance

Tracking Folder No. TF/10/27097
Document No. DOC/10/150108

Approved / Not Approved / Noted
Premier [signature]
Date 22/11/10

To: **THE PREMIER**
Date: 17 November 2010
Subject: **Development of a Protocol dealing with the release of Floodwater from Wivenhoe and Somerset Dams**

- **RECOMMENDATION**

It is recommended that you:

- **sign** the letters to the Lord Mayor of the Brisbane City Council (BCC) and Mayors of the Ipswich City Council and the Somerset Regional Council seeking to put in place as an interim measure the draft protocol pending finalisation and formal signature by the four parties to the protocol (**Attachment 1**).

- **KEY ISSUES**

- Following your request on 14 October 2010 for the development of a protocol with the Brisbane City Council concerning the release of floodwaters from Wivenhoe Dam, a working group of officers from the Department of Environment and Resources Management, SEQwater, Queensland Police Service, Bureau of Meteorology, the Department of Community Safety and the Department of the Premier and Cabinet developed a draft protocol as a basis for consultation with councils.
- The initial focus of the draft protocol was on the technical assessment of the release of flood waters from the Wivenhoe and Somerset Dams and public communication.
- Following consultation with BCC and Ipswich City Council on 28 October 2010, the protocol was broadened to include general flooding within the Brisbane River catchment, including floodwaters from Wivenhoe and Somerset Dams. BCC also sought specific changes to clarify that any agency may initiate public communications and that the State would have 'no right to veto' a public message that was the responsibility of another agency/authority.
- Any agency may trigger the provisions of the protocol, commencing with technical monitoring and assessment, followed by briefing and activation of arrangements, if necessary, and public communications.
- Decision-making principles contained in the protocol include the paramount importance of public safety, consideration of upstream and downstream community impacts, agreed regular and consistent communications, flexibility in decision making around public communications and disaster management, and the use of the *Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam* for dam management decisions.
- Ipswich City Council has indicated its support for the protocol. While BCC Senior Officials have indicated their agreement, formal BCC support is yet to be provided.
- Finalisation of the protocol has been delayed due to the late engagement by Somerset Regional Council and the BCC not providing final sign-off at the political level.
- While steps are being taken to implement the finalisation of the protocol, I recommend that you write to the Lord Mayor and Mayors of Ipswich and Somerset requesting that the protocol be implemented on an interim basis pending finalisation and formal signature. Draft letters are attached for your consideration (**Attachment 1**).
- A copy of the protocol reflecting the changes sought by Ipswich City Council and BCC is at **Attachment 2**.

Comments *(Premier or DG)*
Copy to DG DCS - DG DERM ED EMQ (Bruce Grady) and DG DIP for information + further distribution - both PBN + letters to Mayors.

Ken Smith
Director-General

Action Officer: Brad Smith
Area: Executive Services
Telephone: 323 60090

Approvals by Director /ED / DDG
Documented in notes in TRIM

Premier of Queensland

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

Executive Building
100 George Street Brisbane
PO Box 15185 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email
Website www.thepremier.qld.gov.au

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

Campbell,

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*

Executive Building
100 George Street Brisbane
PO Box 15185 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email
Website www.thepremier.qld.gov.au

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

Paul,

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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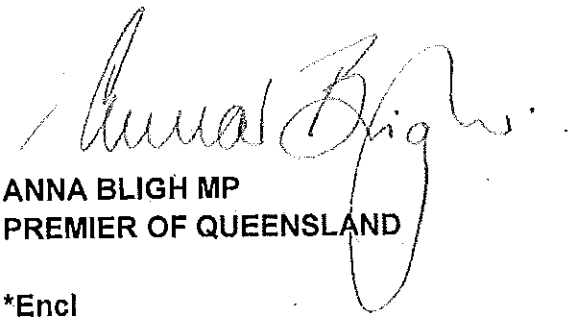
Yours sincerely



ANNA BLIGH MP
PREMIER OF QUEENSLAND

***Encl**

Premier of Queensland

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

Executive Building
100 George Street Brisbane
PO Box 15185 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email
Website www.thepremier.qld.gov.au

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

Graeme,

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

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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 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;
- 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 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.

- 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 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 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.

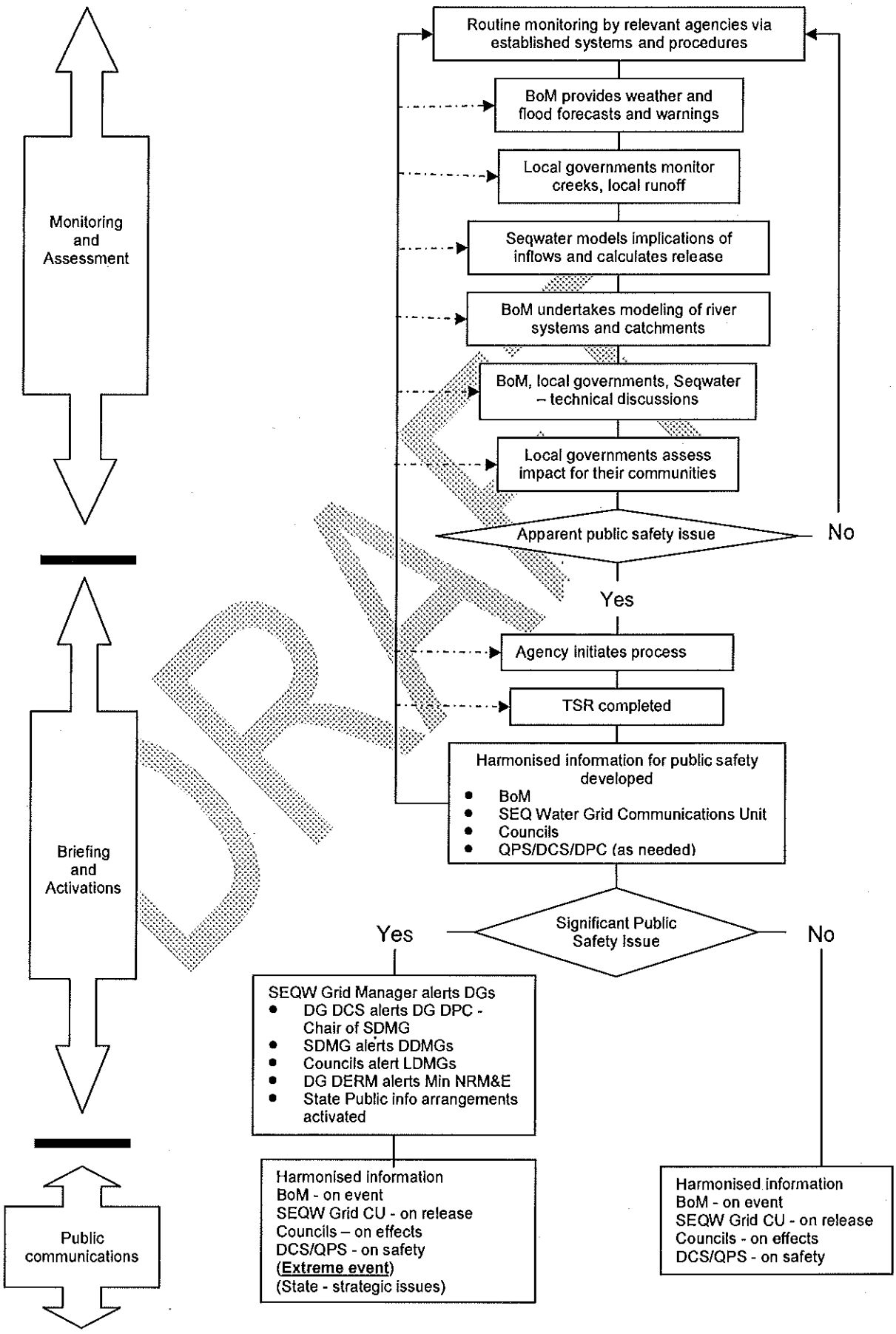
Protocol Maintenance

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.

Appendix A

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



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.

- 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.

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	

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	

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 informatian)

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**		**or Event**	

[redacted]

From: Reilly Bob
Sent: Tuesday, 23 November 2010 1:05 PM
To: Bradley John; Best Debbie
Cc: Allen Peter
Subject: FW: Letters from the Premier concerning the proposed interim implementation of the draft protocol on Brisbane River Catchment Flooding - Wivenhoe and Somerset Dams
Attachments: SIGNED VERSION OF DOC10153018 NEWMAN.PDF; SIGNED VERSION OF DOC10153031 PISASALE.PDF; SIGNED VERSION OF DOC10153046 LEHMANN.PDF

Hi John, Debbie

FYI

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Brad Smith [redacted]
Sent: Tuesday, 23 November 2010 12:00 PM
To: [redacted] Reilly Bob
Cc: 'Bruce Grady'; Sharon Bailey
Subject: Letters from the Premier concerning the proposed interim implementation of the draft protocol on Brisbane River Catchment Flooding - Wivenhoe and Somerset Dams

Good Afternoon Mike and Bob

I refer to my earlier advice, the Premier has now signed the letters to the Lord Mayor and Mayors of Ipswich and Somerset requesting that the draft protocol be implemented on an interim basis to provide a communications framework pending formal finalisation and signature by the four parties to the protocol. Please find attached copies of the signed letters.

Regards

Brad Smith
Manager, Executive Support
Department of the Premier and Cabinet
Ph: [redacted]
Mobile: [redacted]
Tomorrow's Queensland: strong, green, smart, healthy and fair - www.towardQ2.qld.gov.au

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Premier of Queensland

Executive Building
100 George Street Brisbane
PO Box 15185 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email [redacted]
Website www.thepremier.qld.gov.au

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

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

Campbell –,

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*

Executive Building
100 George Street Brisbane
PO Box 15185 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email
Website www.thepremier.qld.gov.au

22 NOV 2010

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

Paul,

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

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/10/153046*

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Facsimile [redacted]
Email [redacted]
Website www.thepremier.qld.gov.au

22 NOV 2010

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

Graeme,

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**

Our ref: Doc 1562726

25 March 2011

Mr John Bradley
Director-General
Department of Environment and Resource Management
GPO Box 2454
BRISBANE QLD 4001

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 John Bradley to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry, in which the said Mr Bradley:

- 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 topics:

1. his knowledge in relation to seasonal forecasts received from the Bureau of Meteorology from 1 September 2010 to 31 March 2011 and any action taken by you in response to these briefings;

2. his role in relation to the Full Supply Level of Wivenhoe and Somerset Dams ('the Dams');

3. his role in relation to dam operations at Wivenhoe, Somerset and North Pine Dams;

4. when, how and why the Full Supply Level which existed for the Dams at the time of the January 2011 Flood Event was determined;

5. an account of all discussions, correspondence, meetings or briefings you participated in from 1 September 2010 to 30 March 2011 regarding possible alteration of the Full Supply Level of the Dams;

6. provision of all notes made of all discussions or meetings regarding changes to the level of the Dams between 1 September 2010 and 30 March 2011;

7. any decision made by you regarding the level of the Dams;

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8. provision of any written record regarding any decision made by you regarding the level of the Dams;

9. how (in terms of regulatory or legislative changes, directives to operators etc), and why the amount of water in the Dams was decreased in February 2011;

10. details, including verbatim accounts where possible, of all discussions, correspondence, meetings or briefings regarding decreasing the Dams' levels in January and February 2011;

11. details, including verbatim accounts where possible, of all discussions, correspondence, meetings or briefings regarding releasing water from the Dams to decrease their level in December 2010 or January 2011 (but without altering the Full Supply Level);

12. an account of all briefings within his knowledge, verbatim where possible, prepared by the Department of Environment and Resource Management for any Minister or disaster management authority or personnel;

13. an account of all briefings you received, verbatim where possible, from any State Government Department or officer between 1 to 19 January 2011 regarding flooding or dam operations;

14. an account of all communications you had, verbatim where possible, or any briefings received from the Flood Operations Centre between 1 and 19 January 2011.

He 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 12 noon, 1 April 2011.

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

C. Holmes

Commissioner
Justice C E Holmes

Our ref: Doc 1566827

30 March 2011

Mr Paul Lack
Assistant Crown Solicitor
Crown Law
GPO Box 5221
BRISBANE QLD 4001

Dear Mr Lack

Requirement to Provide Statement issued 25 March 2011

I refer to the Requirement to Provide Statement issued on 25 March 2011 to the Director-General of the Department of Environment and Resource Management, Mr John Bradley, and served on you.

Pursuant to item 12 of the requirement, Mr Bradley is required to provide information, identify sources and make commentary and provide opinions he is qualified to give in respect of–

> 'an account of all briefings within his knowledge, verbatim where possible, prepared by the Department of Environment and Resource Management for any Minister or disaster management authority or personnel.'

By way of clarification, I advise that the Commission is seeking an account of all briefings within the knowledge of the Mr Bradley, verbatim where written briefings are not available, prepared by the Department of Environment and Resource Management for him or any Minister or disaster management authority or personnel between 1 October 2010 and 31 March 2011 regarding water supply in South East Queensland, flooding in South East Queensland or the operation of Wivenhoe, Somerset or North Pine Dams.

If you have any questions, please contact [redacted] on telephone [redacted]

Yours sincerely

[redacted]

Jane Moynihan
Executive Director

400 George Street Brisbane
GPO Box 1738 Brisbane
Queensland 4001 Australia
Telephone 1300 309 634
Facsimile +61 7 3405 9750
www.floodcommission.qld.gov.au
ABN 65 959 415 158

Our ref: Doc 1567317

30 March 2011

Mr Paul Lack
Assistant Crown Solicitor
Crown Law
GPO Box 5221
BRISBANE QLD 4001

Dear Mr Lack

Requirement to Provide Statement issued 25 March 2011

I refer to your letter dated 30 March 2011 in relation to the Requirement to Provide Statement issued on 25 March 2011 to the Director-General of the Department of Environment and Resource Management, Mr John Bradley, and served on you.

In consideration for the difficulties which may occur in having Mr Bradley's statement sworn and witnessed before 12 noon on 1 April 2011, the Commission will not take steps to enforce the Requirement until 12 noon on 4 April 2011.

Yours sincerely

[redacted]

Jane Moynihan
Executive Director

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www.floodcommission.qld.gov.au
ABN 65 959 415 158

DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT

EMG MEETING #76 – 25 October 2010

DG CONFERENCE ROOM – L. 13 – 400 GEORGE STREET

ENDORSED MINUTES

Attendance: John Bradley (Chair); Terry Wall; Chris Robson; Tony Roberts; Lynne Turner; Damien Brown; Danielle Anderson; Andrea Leverington; Dean Ellwood; Christine Williams; Jim McNamara and Doug Watson.

Secretariat: Steph Hogan.

AGENDA ITEM	COMMENTARY AND OUTCOMES
[redacted]	[redacted]
ITEM 2 – DIRECTOR-GENERAL UPDATES a) CEO Leadership Team meeting b) Summer Issues & Availability of Senior Staff During that Period	**Commentary:** The Director-General discussed the following matters:- ➢ Minister Robertson will be out of the office for trade matters from 27 October to 5 November. ➢ The DG will be out of the office from Thursday for meetings in North Queensland, including wild rivers and attending community cabinet in Mt Isa (31 October/1 November). ➢ Meetings being arranged to work through conditions following the Commonwealth Minister recent decision about CSG/LNG projects. ➢ Refocus of the summer issues to deal with four issues (mine discharges; parks, flows downstream of Wivenhoe and dam safety generally). o ACTION – Danielle to lead reworking of the summer issues paper. o ACTION: Danielle to lead preparation of a brief to come back to EMG for 22 November that includes a 2-3 page document on each of the four risks that includes a description of the risk, mitigation strategies, remaining risk (post-mitigation) and key communication messages. o ACTION: Doug to ensure there are PPQs in both Minister Robertson and Jones folders in relation to our readiness for flooding with a separate PPQ on flooding in relation to risk of mine discharges.
[redacted]	

AGENDA ITEM	COMMENTARY AND OUTCOMES
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Minutes Endorsed: 29/November/2010

AGENDA ITEM	COMMENTARY AND OUTCOMES
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Minutes Endorsed: 29/November/2010

AGENDA ITEM	COMMENTARY AND OUTCOMES
ITEM 9 – NEXT MEETING	**Commentary:** The next meeting will be Tuesday 2 November 2010.

Minutes Endorsed: 29/November/2010

DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT

EMG MEETING #80 – 22 November 2010

DG CONFERENCE ROOM – L. 13 – 400 GEORGE STREET

ENDORSED MINUTES

Attendance: John Bradley (Chair); Debbie Best; Chris Robson; Tony Roberts; Greg Withers; Danielle Anderson; Annie Moody; Christine Williams and Doug Watson.

Apologies: Terry Wall; Damien Brown and Dean Ellwood.

Secretariat: Steve Armstrong.

AGENDA ITEM	COMMENTARY AND OUTCOMES
[redacted]	[redacted]
[redacted]	
[redacted]	

Minutes Endorsed: 29 November 2010

AGENDA ITEM	COMMENTARY AND OUTCOMES
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
ITEM 6 – SUMMER ISSUES – DERM'S PREPAREDNESS	**Commentary:** Ken Davis joined the meeting and spoke to the pre-circulated paper. EMG asked that the Disaster Management Risk Register be completed. **Outcome:** EMG noted the paper and **endorsed** the DERM Disaster Management Plan subject to the completion of the Disaster Management Risk Register.
[redacted]	[redacted]

AGENDA ITEM	COMMENTARY AND OUTCOMES
	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Minutes Endorsed: 29 November 2010

Department of Environment and Resource Management

Water Supply (Safety and Reliability) Act 2008

Water Supply (Chief Executive) Delegation (No. 1) 2010

1. Citation

This delegation may be cited as the *Water Supply (Chief Executive) Delegation (No. 1) 2010.*

2. Definitions

For the purposes of this delegation –

Act means the *Water Supply (Safety and Reliability) Act 2008*

chief executive means the Director-General of the department administering the Act

department means the government entity, as defined under the *Public Service Act 2008*, carrying out the function of administering the Act

regulator means the chief executive of the department

3. Commencement

This delegation shall commence on the day of execution.

4. Power to Delegate

This delegation is made under section 582[1] of the Act.

5. Powers Delegated

(1) The powers of the chief executive referred to in the section of the Act listed in Columns 1 and 2, Schedule 1 are delegated to the person or persons holding the office of the department referred to by number in Column 3, Schedule 1, subject to any words in Column 4, Schedule 1 which limit the delegation.

(2) The office described by a number in Column 3, Schedule 1 is a reference to the office or offices in Column 2, Schedule 2 corresponding to that number in Column 1, Schedule 2.

[1] Chief executive's power to delegate to "an appropriately qualified public service officer or employee".

6. Entire Document

This delegation is comprised of six (6) pages.

7. Revocation

On commencement this instrument revokes the *Water Supply (Chief Executive) Delegation (No. 1) 2009*.

8. Delegation

This delegation is made by **John Bradley,** Director-General, Department of Environment and Resource Management.

Certified correct for signature
Director,
Legal Services [redacted]
21/7/2010

Signed: [redacted]
John Bradley
Director-General
Department of Environment and Resource Management

Date : 13/8/2010

SCHEDULE 1

Column 1 Powers Delegated (Section)	Column 2 Section Name	Column 3 Level of Office	Column 4 Limits of Power
52	When water efficiency management plan may be required	2, 3, 5	
53	Content of water efficiency management plan	2	
56	Reporting under water efficiency management plan	2, 3, 5	
57	Amending or replacing water efficiency management plan by chief executive direction	2, 3, 5	
342	What is failure impact assessment	2	
343	When dam must be failure impact assessed	2, 3, 4	
348	Cost of failure impact assessment	2, 3, 4	The delegate may authorise payment up to the limit of the delegate's financial delegation
349	Decision about failure impact assessment	2, 3, 4, 6, 7	
350	Notice accepting failure impact assessment	2, 3, 4, 6, 7	
351	Reviewing failure impact assessment	2, 3, 4, 6, 7	
352	Rejecting failure impact assessment	2, 3, 4, 6, 7	
353	Applying safety conditions for existing referable dams	2, 3, 4, 6	
354	Deciding safety conditions	2, 3, 4, 6	Excluding power to make guidelines
354(2)	Deciding safety conditions *(power to make guidelines)*	2	
355	Process after deciding safety conditions	2, 3, 4, 6	
356	Changing conditions	2, 3, 4, 6	Excluding power to make guidelines
356(6)	Changing conditions *(power to make guidelines)*	2	
357A	Chief executive may engage person to provide information	2, 3, 4, 6	
358	Application of div 4 *(emergency powers)*	2, 3, 4, 6, 9,10	
359	Direction to owner of emergency part of land	2, 3, 4, 6, 9,10	
359A	Taking immediate action about failure of dam	2, 3, 4, 6, 9,10	

Column 1 Powers Delegated (Section)	Column 2 Section Name	Column 3 Level of Office	Column 4 Limits of Power
360	Notice for recovering expenses	2, 3, 4	
361	Notice in relation to land other than leased State land	2, 3, 4	
362	Notice in relation to leased State land	2, 3, 4	
363	Emergency powers if imminent danger of dam failure	2, 3, 4	
365	Cancellation of development permit for decommissioned dam	2, 3, 4, 6	
371	Approving flood mitigation manual	2, 3, 4	
372	Amending flood mitigation manual	2, 3, 4	
373	Regular reviews of flood mitigation manual	2, 3, 4	
402	Appointment and qualifications *(authorised officer)*	2	
403	Appointment conditions and limit on powers	2	
404	Issue of identity card	2	
429	Dealing with forfeited things	2, 3, 4	
461	Chief executive's power to obtain criminal history report	2, 3, 4	
462	Criminal history is confidential document	2, 3, 4	
465	Who may give compliance notice	2, 3, 4	
466	Compliance notice	2, 3, 4	
467	Chief executive or regulator may take action and recover costs	2, 3, 4, 8	
491	Evidentiary aids	2, 3, 4, 8	
501	Chief executive's or regulator's power to remedy stated public nuisance	2, 3, 4, 5	
513	Requirements for making review application	1, 2, 3, 4	
514	Review decision	1, 2, 3, 4	
515	Notice of review decision	1, 2, 3, 4	
572	Chief executive may make guidelines	2	

Column 1 Powers Delegated (Section)	Column 2 Section Name	Column 3 Level of Office	Column 4 Limits of Power
574	Documents regulator and chief executive must keep available for inspection and purchase	2, 3, 4	
577	Records kept in registries	2	
579A	Chief executive may share particular information	2, 3, 4, 6, 9	
584	Non-payment of fees and charges	2, 3, 4	
585	Approved forms	2	
638	Provision for carrying out particular failure impact assessments	2, 3, 4, 6	

SCHEDULE 2

DELEGATION OF CHIEF EXECUTIVE'S POWERS

Level of Office Column 1	Office or Offices Column2
1	Associate Director General, Operations and Environmental Regulator Business Group
2	General Manager, Office of the Water Supply Regulator
3	Director, Water Industry Asset Management & Standards, Office of the Water Supply Regulator
4	Director, Dam Safety (Water Supply), Dam Safety, Office of the Water Supply Regulator
5	Manager (Infrastructure Management) Water Industry Asset Management & Standards, Office of the Water Supply Regulator (Position number 71591310)
6	Project Manager, Dam Safety (s70), Dam Safety, Office of the Water Supply Regulator
7	Officers who have been accredited in relation to dam failure impact assessment by the department[i] holding the office: • Principal Engineer (Toowoomba), Water Industry Asset Management & Standards, Office of the Water Supply Regulator (Position number 76005163) • Principal Engineer, Dam Safety, Office of the Water Supply Regulator (Position number 71004292)
8	Director, Legal Services, Corporate Services, Water and Corporate Services
9	Manager, Dam Safety (Farm Dams), Dam Safety, Office of the Water Supply Regulator
10	Principal Project Officer (Farm Dam Reg), Dam Safety, Office of the Water Supply Regulator

[i] Persons accredited have received training and passed tests and their accreditation has been confirmed in writing by the General Manager, Office of the Water Supply Regulator.

Department of Environment and Resource Management

Water Supply (Safety and Reliability) Act 2008

NRRM LEGAL SERVICES
DELEGATION

Water Supply (Chief Executive) Delegation (No. 1) 2009

REVOKED ON 13 August 2010
BY Water Supply (Chief Executive) Delegation (No. 1) 2010 (WS015)

1. Citation

This delegation may be cited as the *Water Supply (Chief Executive) Delegation (No. 1) 2009*.

2. Definitions

For the purposes of this delegation –

Act means the *Water Supply (Safety and Reliability) Act 2008*

chief executive means the Director-General of the department administering the Act

department means the government entity, as defined under the *Public Service Act 2008*, carrying out the function of administering the Act

regulator means the chief executive of the department

3. Commencement

This delegation shall commence on the day of execution.

4. Power to Delegate

This delegation is made under section 582[1] of the Act.

5. Powers Delegated

(1) The powers of the chief executive referred to in the section of the Act listed in Columns 1 and 2, Schedule 1 are delegated to the person or persons holding the office of the department referred to by number in Column 3, Schedule 1, subject to any words in Column 4, Schedule 1 which limit the delegation.

(2) The office described by a number in Column 3, Schedule 1 is a reference to the office or offices in Column 2, Schedule 2 corresponding to that number in Column 1, Schedule 2.

[1] Chief executive's power to delegate to "an appropriately qualified public service officer or employee".

6. Entire Document

This delegation is comprised of five (5) pages.

7. Revocation

On commencement this instrument revokes the *Water Supply (Chief Executive) Delegation (No. 2) 2008.*

8. Delegation

This delegation is made by **John Bradley,** Acting Director-General, Department of Environment and Resource Management.

Certified correct for signature
Director,
Legal Services .....
21 / 7 / 2009

Signed: .....
John Bradley
A/Director-General
Department of Environment and Resource Management

Date : 22 / 7 / 2009

SCHEDULE 1

Column 1 Powers Delegated (Section)	Column 2 Section Name	Column 3 Level of Office	Column 4 Limits of Power
52	When water efficiency management plan may be required	2, 3, 5	
53	Content of water efficiency management plan	2	
56	Reporting under water efficiency management plan	2, 3, 5	
57	Amending or replacing water efficiency management plan by chief executive direction	2, 3, 5	
342	What is failure impact assessment	2	
343	When dam must be failure impact assessed	2, 3, 4	
348	Cost of failure impact assessment	2, 3, 4	The delegate may authorise payment up to the limit of the delegate's financial delegation
349	Decision about failure impact assessment	2, 3, 4, 6	
350	Notice accepting failure impact assessment	2, 3, 4, 6	
351	Reviewing failure impact assessment	2, 3, 4, 6	
352	Rejecting failure impact assessment	2, 3, 4, 6	
353	Applying safety conditions for existing referable dams	2, 3, 4	
354	Deciding safety conditions	2, 3, 4	Excluding power to make guidelines
354(2)	Deciding safety conditions *(power to make guidelines)*	2	
355	Process after deciding safety conditions	2, 3, 4	
356	Changing conditions	2, 3, 4	Excluding power to make guidelines
358	Application of div 4 *(emergency powers)*	2, 3, 4	
359	Direction to owner of emergency part of land	2, 3, 4	
360	Failure to comply with notice	2, 3, 4	
361	Notice in relation to land other than leased State land	2, 3, 4	
362	Notice in relation to leased State land	2, 3, 4	
363	Emergency powers if imminent danger of dam failure	2, 3, 4	

371	Approving flood mitigation manual	2, 3, 4	
372	Amending flood mitigation manual	2, 3, 4	
373	Regular reviews of flood mitigation manual	2, 3, 4	
402	Appointment and qualifications *(authorised officer)*	2	
403	Appointment conditions and limit on powers	2	
404	Issue of identity card	2	
429	Dealing with forfeited things	2, 3, 4	
461	Chief executive's power to obtain criminal history report	2, 3, 4	
462	Criminal history is confidential document	2, 3, 4	
465	Who may give compliance notice	2, 3, 4	
466	Compliance notice	2, 3, 4	
467	Chief executive or regulator may take action and recover costs	2, 3, 4, 7	
491	Evidentiary aids	2, 3, 4, 7	
501	Chief executive's or regulator's power to remedy stated public nuisance	2, 3, 4, 5	
513	Requirements for making review application	1, 2, 3, 4	
514	Review decision	1, 2, 3, 4	
515	Notice of review decision	1, 2, 3, 4	
572	Chief executive may make guidelines	2	
574	Documents regulator and chief executive must keep available for inspection and purchase	2, 3, 4	
577	Records kept in registries	2	
584	Non-payment of fees and charges	2, 3, 4	
585	Approved forms	2	

SCHEDULE 2

DELEGATION OF CHIEF EXECUTIVE'S POWERS

Level of Office Column 1	Office or Offices Column2
1	Deputy Director-General
2	General Manager, Office of the Water Supply Regulator
3	Director, Water Industry Asset Management & Standards, Office of the Water Supply Regulator
4	Director, Dam Safety (Water Supply), Water Industry Asset Management & Standards, Office of the Water Supply Regulator
5	Manager (Infrastructure Management) Water Industry Asset Management & Standards, Office of the Water Supply Regulator
6	Officers who have been accredited in relation to dam failure impact assessment by the department[2] holding the office: • Manager (Infrastructure Management) Water Industry Asset Management & Standards, Office of the Water Supply Regulator • Principal Engineer(Cairns), Water Industry Asset Management & Standards, Office of the Water Supply Regulator • Principal Engineer(Toowoomba), Water Industry Asset Management & Standards, Office of the Water Supply Regulator • Principal Engineer, Dam Safety, Water Industry Asset Management & Standards, Office of the Water Supply Regulator (Position number 71004292)
7	Director, Legal Services

[2] Persons accredited have received training and passed tests and their accreditation has been confirmed in writing by the General Manager, Office of the Water Supply Regulator.

Department of Environment and Resource Management

Water Act 2000

NR&M LEGAL SERVICES
DIVISION

Water Act Delegation (No. 2) 2009

REVOKED ON 26 July 2010
BY Water Act Delegation (No. 1) 2010 (WA175)

WA15-0

1. Citation

This delegation may be cited as the *Water Act Delegation (No. 2) 2009.*

2. Definitions

For the purposes of this delegation –

the Act means the *Water Act 2000*

chief executive means the Director-General of the department administering the *Water Act 2000*

department means the government entity, as defined under the *Public Service Act 2008*, carrying out the function of administering the Act

An officer with a **"Level 3 Water Act Delegation Competency"** also holds both Level 2 and Level 1 Water Act Delegation Competencies.

An officer with a **"Level 2 Water Act Delegation Competency"** also holds a Level 1 Water Act Delegation Competency.

3. Commencement

This delegation shall commence on 1 July 2009 or the day of execution whichever is the later.

4. Power to Delegate

This delegation is made under section 1012 of the Act.

5. Powers Delegated

For each category listed in the schedule, the powers of the chief executive under the sections of the Act listed in row 1 are delegated to the holder of the office listed in row 2 provided however such powers may only be exercised by the holder of the office who has the Accredited Competency Requirement shown in row 3 of the category.

6. Limitations

Specific limitations of powers delegated under this instrument are, where required, outlined in row 4 of the Category.

7. Revocation

On commencement this instrument revokes the *Water Act Delegation (No. 1) 2009.*

8. **Entire Document**

The document consists of nine (9) pages including the instrument of delegation and the schedule.

9. **Delegation**

This delegation is made by **John Bradley,** A/Director-General, Department of Environment and Resource Management.

Certified correct for signature
Director,
Legal Services .....
23 / 6 / 2009

Signed: .....
John Bradley
A/Director-General
Department of Environment and Resource Management

Date : 22 / 6 / 2009

Category 6

Row 1 - Sections of the *Water Act 2000*
973 974
Row 2 - Office
Director, Water Use Project Manager, Metering, Brisbane
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 7

Row 1 - Sections of the *Water Act 2000*
767 768 780 863 864 921(1)
Row 2 - Office
Manager, Compliance Support Unit Manager, Regional Investigations Principal Advisor, Policy Support, Compliance Support Unit Principal Advisor, Training and Regional Support, Compliance Support Unit
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 8

Row 1 - Sections of the *Water Act 2000*
300 302 306 308 310 314 301 305 307 309 312
Row 2 - Office
Principal Policy Officer, Water Management, Brisbane Team Leader (Water Authorisations) Principal Technical Officer (Drilling)
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 9

Row 1 - Sections of the *Water Act 2000*
1007(5)
Row 2 - Office
District Advisor, Land Management & Use, Goondiwindi, Warwick District Advisor, Catchment & Regional Planning, Toowoomba Natural Resource Management Officer, Land Management & Use, Mackay, Rockhampton Natural Resource Officer, Land Management, Biloela, Toowoomba Natural Resource Officer, Landscape and Community Services, Bundaberg Natural Resource Officer, Water Management & Use, Goondiwindi Principal Natural Resource Officer, Water Management & Use, Goondiwindi Resource Management Officer, Land Management & Use, Emerald Senior Natural Resource Officer, Water Planning, Toowoomba Senior Project Officer, Land Management & Use, Central West Region Senior Project Officer, Water Management & Use, Warwick Senior Technical Officer, Water Management & Use, Toowoomba Technical Officer, Water Services, Rockhampton
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Schedule

Category 1

Row 1 - Sections of the *Water Act 2000*
All powers of the chief executive under the Act
Row 2 - Office
Deputy Director-General Assistant Director-General
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 2

Row 1 - Sections of the *Water Act 2000*										
24	108	122	144	187	217	244	301	339	967	1037A
25	108B	122A	145	189	218	245	302	360ZDO	968	1046
25ZA(4)	108C	125	170	191	219	267	305	360ZDP	968A	1048A
36	111	126	171	194	220	269	306	739	973	1049
72	111A	127	172	196	221	270	307	757H	974	1057
[illegible]	112	127B	173	197	222	271	308	767	1000	1058
[illegible]	113	127C	174	198	225	272	309	768	1001	1089
78A	115	128A	175	201	227	273	310	780	1003	1122
80	116	128B	176	205	228	281	312	783	1003A	1136D
82	117	129	180	206A	229	283	314	825	1004	
100	118	131	181	207	229A	284	329	826	1005	
102(2)(a)	118A	132	183	208	232	287	331	863	1007	
102(2)(c)	119	133	184	209	233	288	332	864	1009	
102(4)(a)	119A	134	184A	211	235	289	334	878	1013	
104	119B	138	185	212	238	290	335	921(1)	1013B	
105	119C	140	185A	214	240	291	336	934	1014(2) (ca)	
107	121	143	186A	216A	242	300	337	966	1037	

Row 2 - Office
General Manager Executive Director
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 3

This category not used.

Category 4

This category not used.

Category 5

Row 1 - Sections of the *Water Act 2000*					
72	77	80	780	864	1007(5)
75	78A	82	863	921(1)	

Row 2 - Office
Manager, Land Management
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 10

Row 1 - Sections of the *Water Act 2000*									
24	113	127C	174	198	225	272	309	768	1001
25	115	128A	175	201	227	273	310	780	1003
25ZA(4)	116	128B	176	205	228	281	312	783	1003A
36	117	129	180	206A	229	283	314	825	1007
72	118	131	181	207	229A	284	329	826	1009
75	118A	132	183	208	232	287	331	863	1013
77	119	133	184	209	233	288	332	864	1013B
78A	119A	134	184A	211	235	289	334	878	1037
80	119B	138	185	212	238	290	335	921(1)	1037A
82	119C	140	185A	214	240	291	336	934	1046
107	121	143	186A	216A	242	300	337	966	1048A
108	122	144	187	217	244	301	339	967	1049
108B	122A	145	189	218	245	302	360ZDO	968	1057
108C	125	170	191	219	267	305	360ZDP	968A	1058
1	126	171	194	220	269	306	739	973	1089
111A	127	172	196	221	270	307	757H	974	1122
112	127B	173	197	222	271	308	767	1000	1136D

Row 2 - Office
Director, Riverine Management
Director, Water Accounting
Director, Water Management
Director, Water Systems

Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 11

Row 1 - Sections of the Water Act 2000									
24	122A	134	206A	221	242	287	337	864	1007
25	125	138	207	222	244	288	339	878	1009
25ZA(4)	126	140	208	225	245	289	360ZDO	921(1)	1013B
36	127	143	209	227	267	290	360ZDP	934	1037
75	127B	144	211	228	269	291	757H	966	1037A
77	127C	145	212	229	270	300	767	967	1046
78A	128A	191	214	229A	271	329	768	968	1048A
80	128B	194	216A	232	272	331	780	968A	1049
82	129	196	217	233	273	332	783	1000	1057
108B	131	197	218	235	281	334	825	1001	1058
121	132	198	219	238	283	335	826	1003	1089
122	133	205	220	240	284	336	863	1003A	1136D

Row 2 - Office
Manager, North, South East Region
Manager, Water Management & Use
Manager – Water Projects
Manager, Water Services
Principal Policy Officer, Water Management, Brisbane
Team Leader (Service Management)
Team Leader (Water Authorisations)
Regional Manager, Water Services
Regional Manager, Land & Vegetation Services
Regional Services Director

Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 12

Row 1 - Sections of the *Water Act 2000*									
24	129	194	212	227	244	287	335	864	1037
25	131	196	214	228	245	288	336	878	1037A
108B	132	197	216A	229	267	289	337	934	1046
125	133	198	217	229A	269	290	339	966	1049
126	134	205	218	232	270	291	360ZDO	967	1057
127	138	206A	219	233	271	300	360ZDP	968	1058
127B	143	207	220	235	272	329	780	968A	1089
127C	144	208	221	238	273	331	825	1007	
128A	145	209	222	240	281	332	826	1009	
128B	191	211	225	242	283	334	863	1013B	

Row 2 - Office
Leader, Water Resource Management
Principal Natural Resource Officer
Principal Project Manager
Resource Management Officer
Resource Management Officer (Water)
Senior Advisor Regulatory Services
Senior Natural Resource Officer
Senior Planning Officer
Senior Policy Officer
Senior Project Officer

Row 3 - Accredited Competency Requirement
Level 3 Water Act Delegation Competency

Category 13

Row 1 - Sections of the *Water Act 2000*					
75	77	78A	80	82	1007(5)

Row 2 - Office
Leader, Water Resource Management
Manager, Catchment & Regional Planning, Toowoomba
Manager, Land Management & Use, Cairns, Central West Region, Toowoomba
Manager, Water Management & Use
Manager – Water Projects
Manager, Vegetation Management, Central West Region
Principal Scientist, Landscape and Community Services, North Region
Principal Scientist, Regional Service Delivery, South East Region
Regional Manager, Land and Vegetation Services
Regional Manager, Landscape and Community Services, South East Region
Regional Manager, Water Services
Regional Services Director
Resource Management Officer (Water), Water Services, Woolloongabba
Senior Land Resources Officer, Landscape and Community Services, North Region

Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 14

Row 1 - Sections of the *Water Act 2000*
75 78A 80 82 1007(5)
Row 2 - Office
Extension Officer, Catchment & Regional Planning, Toowoomba Senior Natural Resource Officer, Landscapes and Community Services, Bundaberg Senior Natural Resource Officer, Land and Vegetation Services, Rockhampton Senior Technical Officer, Landscapes and Community Services, Ayr Senior Technical Officer, Water Management and Use, Mareeba Natural Resource Management Officer, Land and Vegetation Services, Mackay Natural Resource Officer, Water Management and Use, Ayr
Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 15

Row 1 - Sections of the *Water Act 2000*
143 207 220 222 228 232 238 267 281
Row 2 - Office
Administration Officer Administration Officer (Licensing) Administration Officer (Water Management) Administration Officer (Water Licensing) Engineer, Statewide GABSI Extension Officer Hydrologist Natural Resource Officer Operations Officer Operations Officer (Groundwater Drilling) Project Officer Regional Administration Officer Regional Admin Officer (Licensing) Resource Management Officer Senior Administration Officer Senior Administration Officer (Licensing) Technical Officer (Drilling) Technical Officer Technical Officer (Water Management and Use)
Row 3 - Accredited Competency Requirement
Level 1 Water Act Delegation Competency

Category 16

This category not used.

Category 17

Row 1 - Sections of the *Water Act 2000*							
24	144	212	227	244	287	335	966
25	145	214	228	245	288	336	967
126	194	216A	229	267	289	337	968
127	198	217	229A	269	290	339	968A
127B	205	218	232	270	291	360ZDO	1013B
127C	206A	219	233	271	300	360ZDP	1089
128A	207	220	235	272	329	825	
128B	208	221	238	273	331	826	
129	209	222	240	281	332	863	
143	211	225	242	283	334	864	

Row 2 - Office
Engineer, Statewide GABSI
Extension Officer
Hydrologist
Natural Resource Officer
Operations Officer
Planning Officer
Principal Technical Officer (Drilling)
Project Officer
Project Officer (Water Management)
Resource Management Officer
Senior Advisor Regulatory Services
Senior Hydrologist
Senior Natural Resource Officer
Senior Planning Officer
Senior Project Officer
Senior Technical Officer (Drilling)
Senior Technical Officer
Stream Control Officer
Technical Officer (Water Management and Use)
Technical Officer - Resource Management
Technical Officer

Row 3 - Accredited Competency Requirement
Level 2 Water Act Delegation Competency

Category 18

Row 1 - Sections of the *Water Act 2000*
100(4)

Row 2 - Office
Director, Water Planning, Brisbane
Manager – Water Projects, Water Planning, Central West Region
Manager Water Planning
Natural Resource Officer
Principal Policy Officer, Water Planning
Project Officer, Water Services
Regional Manager, Water Services
Regional Services Director
Senior Advisor Regulatory Services
Senior Engineer, Water Services
Senior Natural Resource Officer, Water Planning
Senior Planning Officer, Water Planning
Senior Policy Officer, Water Planning
Senior Project Officer, Water Services
Senior Technical Officer
Technical Officer

Row 3 - Accredited Competency Requirement
No accredited competency requirement

Category 19

Row 1 - Sections of the *Water Act 2000*					
121	122	125	126	127B	127C
Row 2 - Office					
Director, Strategic Water Policy					
Row 3 - Accredited Competency Requirement					
No accredited competency requirement					

Category 20

Row 1 - Sections of the *Water Act 2000*					
121(8)	122(6)	125(2)	126	127B	127C
Row 2 - Office					
Team Leader (Water Trading)					
Row 3 - Accredited Competency Requirement					
No accredited competency requirement					

Category 21

Row 1 - Sections of the *Water Act 2000*						
128A	144	198(10)	211 (L)	220	232	267
28B	194	205	214 (L)	222	233	281
129	198(5)	207	216A	228	238	
143	198(9)	208	219	229A	245	
Row 2 - Office						
Regional Administration Officer Regional Admin Officer (Licensing) Senior Administration Officer Senior Administration Officer (Licensing)						
Row 3 - Accredited Competency Requirement						
Level 2 Water Act Delegation Competency						
Row 4 – Limitations						
Powers of Sections 211 and 214 are limited to decisions arising from Sections 216A						

(L) = Limitations apply.

CTS No. 19311/10

Department of Environment and Resource Management
MINISTERIAL BRIEFING NOTE

Advisor [redacted] OK
Dated 22/10/10
Approved Not Approved Noted
Further information required
Minister [redacted]
Dated 25/10/10

TO: **Minister for Natural Resources, Mines and Energy and Minister for Trade**

RECEIVED
MINISTERIAL OFFICE
22 OCT 2010

☐ MINISTER
☐ POL ADV
☐ MEDIA ADV
☐ PARL SEC
☐ ADMIN
☐

SUBJECT: **Managing Flood Impacts Downstream of Large Water Supply Dams**

TIMEFRAME

- Approval of this brief is required by 29 October 2010 to enable prompt action to be taken on this matter.

RECOMMENDATION

It is recommended that the Minister:

- **sign** the letter to the SEQ Grid Manager (Attachment 1) requesting him to consider options to pre-emptively reduce dam water levels to help manage low-level, downstream flood impacts. (A draft media release forms Attachment 2)
- **sign** the letter (Attachment 3) to Director-General, Department of Environment and Resource Management (DERM), requesting him to initiate action to remind the owners of large water supply dams about their obligations to provide advice to communities downstream of their dams about flood flows through them.
- **note** the draft letter (Attachment 4)from the dam safety regulator in DERM to dam owners regarding the previous points.

BACKGROUND

Letter to the SEQ Grid Manager

The main SEQ water supply dams have reached their full capacity, for water supply purposes. As their catchments are saturated, even quite minor rainfall events will result in water releases. A large number of minor rainfall events are anticipated between now and the end of the 2011 wet season, in early April 2011.

As these water releases will usually co-incide with local flooding (due to the rain event generating the release) downstream of the dam. These low-level flood events inconvenience a range of people, particularly those who need to access their properties over low-level crossings that traverse these streams/rivers.

Accordingly, it is suggested you request the SEQ Grid Manager to investigate the option of making small releases from these water supply dams to reduce the number of incidents resulting in low-level flooding impacts. (Preliminary advice from the Grid Manager is that such a strategy will not adversely affect water supply security).

Letter to the Director-General

With the exception of Wivenhoe, North Pine and Somerset Dams that have special flood management arrangements, other large water supply dams, once full; bascially "pass through" the floodwaters that flow into them.

Author	Cleared by	Cleared by	Recommended:
Name: Bob Reilly Position: GM(OWSR) Tel No: [redacted] Date: 22 October 2010	Name: Bob Reilly Position: GM(OWSR) Tel No: [redacted]	Name: Position: Tel No:	Name: John Bradley Director-General, DERM Tel No: [redacted] Date:
	Name: Dean Ellwood Position: ADG(ENRR) Tel No:	Name: Position: Tel No:	

File Ref:

However, the local governments responsible for the communities downstream of the dams, can reasonably expect that dam owners will tell them about the volumes of floodwater flowing through their dams.

The dam safety regulator, DERM, requires the owners of large water supply dams to have, and keep current, Emergency Action Plans. Amongst other matters, these plans set out the notification protocols for local governments (and other emergency management agencies) in the event of significant floods (basically those that will impact on buildings).

DERM does not approve these plans, or review their content. Nor is it involved in the negotiations between dam owners and local government/emergency management organisations in the development of these plans.

CURRENT ISSUES

SEQ Grid Manager Letter

Given the water security situation, it is desirable to minimise the low-level flooding impacts typically associated with minor rainfall events, where practical.

Letter to the Director-General

Given the likelihood of above average floods during the 2011 wet season, it is important that the Emergency Action Plans are current.

RESOURCE/IMPLEMENTATION IMPLICATIONS

- The SEQ Grid manager will advise of any financial implications associated with the proposal contained in your letter to him.
- There were no resource issues for DERM.

PROPOSED ACTION

- The two letters will give effect to the commitments being given to Cabinet on 25 October 2010, by yourself, on these matters.

OTHER INFORMATION

- *Consultation:* The SEQ Grid Manager (Dan Spiller) has been consulted and supports the proposed action contained in your letter to the Grid Manager.
- *Legislation:* NA

MINISTER'S COMMENTS

ATTACHMENTS

- Attachment 1 – Letter to SEQ Grid Manager
- Attachment 2 – Letter to D-G, DERM
- Attachment 3 – Letter to Dam Owners

Author	Cleared by	Cloared by	Recommended:
Name: Bob Reilly Position: GM(OWSR) Tel No: [redacted] Date: 22 October 2010	Name: Bob Reilly Position: GM(OWSR) Tel No: [redacted]	Name: Position: Tel No:	Name: John Bradley Director-General, DERM Tel No: [redacted] Date:
	Name: Dean Ellwood Position: ADG(ENRR) Tel No:	Name: Position: Tel No:	

File Ref:

Attachment 2

DRAFT ONLY

SEQ Water Grid prepares for summer big wet

The Minister for Natural Resources Stephen Robertson MP today announced measures to configure the Grid for improved flood mitigation in preparation for a forecast bigger than usual wet season.

Our water supply is now more secure than ever before. The Grid 12 are at 100 per cent of storage capacity, going into the traditional wet season with forecasts of higher than median rainfall and the prospect of multiple flood events.

With this security, we have the opportunity to make sure we are prepared as possible for the prospect of minor and major flooding.

Recent heavy rains which saw a flood water volume the size of Sydney Harbour – or the equivalent to 122,000 Olympic sized swimming pools – added to and released safely from Wivenhoe Dam in less than 7 days.

Minister Robertson said that while Wivenhoe is designed to handle even more water, it was prudent to consider options to increase the dam's storage compartment for the coming season. This would be achieved by temporarily decreasing its drinking water storage capacity.

"Wivenhoe Dam no longer stands alone. Because the dams are full and we've hooked them up across the Grid, we can actually rely on Wivenhoe Dam less for drinking water and more for flood mitigation which gives us a powerful advantage."

"Let's remember, Wivenhoe Dam was built to hold back flood water from Brisbane and Ipswich. This temporary move may give it even more capacity to help keep us dry, just in case we really get a huge season." Mr Robertson said.

At the very least, we expect it to reduce the frequency and duration of major dam releases, which flood crossings near the dam – isolating some residents and significantly inconveniencing others.

The operation of North Pine and Leslie Harrison dams will also be reviewed. At least for Leslie Harrison Dam, this would be a return to standard operating procedures prior to the drought, when the dam was routinely drawn down to 95 per cent of capacity to minimise the impacts of storms on downstream residents.

We have analysed water security for South East Queensland over five years, taking into account differing levels of flows and demand. Our analysis indicates that lowering the combined storage level of Grid 12 storages to 95 per cent of capacity presents a low risk of adversely effecting regional or sub-regional water security.

Seqwater and the Water Grid Manager are reviewing the operations of the dams and will provide detailed advice on the changes to operations for this summer.

Mr Robertson emphasised that this is only a temporary measure, reflecting that dams are full.

Mr Robertson also announced that the $395 million upgrade of Hinze Dam remains on track to be completed by the end of year, providing much improved flood protection for parts of the Gold Coast.

"While we have all been focussed on water security, the improved flood management capacity is every bit as important."

"South East Queensland has a water grid for all seasons not just for drought. Being able to move water means an unprecedented level of management to direct and control our water supplies. These prudent decisions simply reflect the Grid's world class ability to respond to a changing environment in the interest of all South east Queenslanders."

Ends

Attachment 3

File/Ref CTS 19311/10

To the Dam Owner
[Reply Address]
[SUBURB STATE POSTCODE]

Dear Sir/Madam

It is important that local governments (and other emergency management organisations) responsible for communities downstream of your dam(s), are aware of significant flood events that might pass through them.

To assist in the regard, you are required under dam safety condition DS13 to have, and keep current, an Emergency Action Plan (EAP) for each of the following dam(s):

INSERT LIST

I seek your written confirmation, by 30 November 2010, that the(se) EAP(s) are current.

Please contact me on [redacted] if you have any queries.

Yours sincerely

Peter Allen
Director (Dam Safety)
Office of the Water Supply Regulator

Queensland 4 Australia

Telephone + 61 7
Facsimile + 61 7

Website www.derm.qld.gov.au

ABN 46 640 294 485

Queensland Government

Ref CTS 19311/10

25 OCT 2010

Office of the
Minister for Natural Resources,
Mines and Energy and
Minister for Trade

Mr J Bradley
Director-General
Department of Environment and Resource Management
GPO Box 2454
BRISBANE QLD 4001

Dear Mr Bradley

It is important that the local governments (and other emergency management organisations) responsible for communities located downstream of large water supply dams, are aware of significant flood events that pass through those dams.

I understand that the Department of Environment and Resource Management in its role as dam safety regulator requires the owners of these dams to have, and keep current Emergency Action Plans. Amongst other matters, these plans deal with the matters referred to in the previous paragraph.

I request that you arrange for the relevant dam owners to be contacted and provide you with an assurance that their Emergency Action Plans are current.

I note that the owner of the three flood mitigation dams, namely Wivenhoe, North Pine and Somerset will not be asked to do this, as separate flood management arrangements apply to these dams.

Yours sincerely

[redacted]

STEPHEN ROBERTSON MP

Rec'd - ODG
25 OCT 2010

Level 17
61 Mary Street Brisbane 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile
Email
ABN 65 959 415 158

Queensland Government

Ref CTS 19311/10

25 OCT 2010

Office of the
Minister for Natural Resources,
Mines and Energy and
Minister for Trade

Mr Gary Humphrys
Chair
SEQ Water Grid Manager
PO Box 16205
CITY EAST QLD 4002

Dear Mr Humphrys

I write in relation to seeking advice regarding options to and benefits of releasing water from key storages in anticipation of major inflows over the coming summer.

I understand that the key Water Grid storages are at 100 per cent of storage capacity going into the traditional wet season, with forecasts of higher than median rainfall and the prospect of multiple flood events.

I am also advised that our water supply is more secure than ever before, due to storages being full, key Water Grid projects completed and ongoing water efficiency.

I seek your urgent advice about whether this water security provides an opportunity to reduce the volume stored in key dams as a means of reducing the severity, frequency and duration of flooding in downstream areas.

In doing so, I note that recent releases from Wivenhoe Dam have resulted in significant inconvenience and isolation for residents in some downstream areas. With the catchments saturated, I understand that even quite minor rainfall events will result in further water releases and further inconvenience for these residents.

By end November 2010, I would appreciate your advice as to the available options and the likely benefits. At a minimum, you should review the operation of Wivenhoe, North Pine and Leslie Harrison dams. At least for Leslie Harrison Dam, this would be a return to standard operating procedures prior to the drought, when the dam was routinely drawn down to 95 per cent of capacity to minimise the impacts of storms on downstream residents.

I also seek your confirmation that these options would not significantly impact upon our current water security, measured as the probability of needing to reintroduce Medium Level Restrictions over the next five to ten years.

Level 17
61 Mary Street Brisbane 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile [redacted]
Email [redacted]
ABN 65 959 415 158

Queensland Government

Office of the
Minister for Natural Resources, Mines and Energy and Minister for Trade

I emphasise that this is only a temporary measure, reflecting that dams are full prior to the commencement of the traditional wet season. I expect that your advice will include a clear date or trigger beyond which dams will be allowed to fill to their full supply level.

Thank you in advance for your assistance.

Should you have any further enquiries, please feel welcome to contact Mr John Bradley, Director General, Department of Environment and Resource Management on [redacted]

Yours sincerely

STEPHEN ROBERTSON MP

Level 17
61 Mary Street Brisbane 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone [redacted]
Facsimile [redacted]
Email [redacted]
ABN 65 959 415 158

SEQ Water Grid manager

Secure and efficient water through partnership and innovation

10/11/93

RECEIVED
MINISTERIAL OFFICE
17 JAN 2011

- [ ] MINISTER
- [ ] POL ADV
- [ ] MEDIA ADV
- [ ] ADMIN
- [ ] PARLSEC/EO

For:
- [ ] ACTION
- [ ] ACK LTR / IRS
- [ ] INFO / MIN FILE

To Dept For:
- [ ] BRIEF
- [x] REPLY
- [ ] ACTION
- [ ] INFO / FILE

17/1/11

TRIM ref: 0/10/7953

24 December 2010

Hon Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
and Minister for Trade
PO Box 15216
Brisbane Qld 4001

Dear Minister

I am pleased to respond to your letter of 25 October 2010 regarding options to and benefits of releasing water from key storages in anticipation of major inflows over the current wet season. Our advice follows, based on discussions with Seqwater.

Only four of the dams in South East Queensland region are gated, with the ability to release significant amounts of water in anticipation of major inflows. These are Wivenhoe, Somerset, North Pine and Leslie Harrison dams.

Detailed operational procedures have been approved for each of the gated dams. The dams will continue to be operated in accordance with these procedures. These procedures generally relate to the management of the dams and should be managed above Full Supply Level. This advice relates to the water security aspect of the management of the dams below Full Supply Level.

Based on information currently available, Seqwater has advised that releasing water to below Full Supply Level may provide some benefits in terms of reduced community and operational impacts during minor inflow events, such as has occurred over the past month. For medium and major flood events, it considers that pre-emptive releases will provide negligible benefits.

Informed by this advice, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it has no in-principle objection to minor releases from Wivenhoe, Somerset and North Pine dams to minimise the operational and community impacts of gate releases. Specifically, it has advised that it has no in-principle objection to:

- Wivenhoe and Somerset dams being drawn down to 95 per cent of their combined Full Supply Level
- North Pine Dam being drawn down to 97.5 per cent of its Full Supply Level.

PO Box 16205, City East Q 4002 Tel: +61 7 3247 4404 Fax: +61 7 3405 0373 www.seqwgm.qld.gov.au
ABN: 14 783 317 690

The SEQ Water Grid Manager has assessed the water security implications of the release to be negligible, having no impact on our ability to meet the risk criteria specified in the System Operating Plan or our ability to meet our supply obligations to Grid Customers. From a water security perspective, the Queensland Water Commission has also confirmed that it does not have any objections to the potential release.

Please note that these arranges are intended to apply for the current wet season only, taking into account the level of storages and the rainfall forecasts over coming months.

For future wet seasons, the SEQ Water Grid Manager will continue to work with Seqwater to investigate the optimal arrangements. In particular, we propose to further investigate options that may reduce the frequency or duration of intermediate level flows (between 1,900 and 3,500 cubic metres per second). In addition, we recommend that the investigations with the Queensland Water Commission to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply be expanded to include options involving the release of the additional water once major inflows are forecast.

I trust that this advice is sufficient. If you have any questions, please do not hesitate to contact Mr Dan Spiller, Director Operations, by telephone on [redacted] or by email on [redacted]

Yours sincerely

[redacted]

Gary Humphrys
Chair

ATTACHMENT

Wivenhoe and Somerset dams

Wivenhoe Dam can store up to 1.15 million litres (ML) of drinking water. In addition, it has the capacity to store an additional 1.45 ML of flood water.

While large, the flood compartment can be filled within days. For example, following heavy rainfall in October 2010 Wivenhoe Dam received inflows equivalent to almost half of the flood storage compartment capacity in just a few days.

Several factors influence flood release strategies for Wivenhoe and Somerset dams.

First, rain events that have caused flooding have historically been prolonged events over several days, often with a second event occurring several days to a week after the first. As a result, the operational procedures for the dam are designed to ensure that all water held in the flood compartments is released within seven days of a rain event, ensuring that the flood compartment is available for any future inflows.

Secondly, the dam only controls flood waters from part of the Brisbane River catchment area. About 50 per cent of the catchment area of the Brisbane River is upstream of the Wivenhoe Dam wall, and can be potentially controlled by it. No flood mitigation structures exist for most of the potential run-off from the other 50 per cent of the catchment area.

Third, the Bureau of Meteorology has had limited success in plotting rainfall distribution accurately to assess where most flooding risk lies above or below the dam wall. Historical floods have demonstrated that flooding can occur from both. For example, the 1974 flood flows primarily occurred below the dam wall whilst the 1890's event occurred above the dam wall. As a result, when releasing water from Wivenhoe Dam it is very important to predict and monitor below the dam wall flows so as to understand combined river flows that cause flood impacts.

Taking these factors into account, the flood release strategy for Wivenhoe and Somerset dams has a hierarchy of objectives:

- Ensure the structural safety of the dam
- Provide optimum protection of urbanised areas from inundation
- Minimise disruption to rural life
- Retain full supply level after a flood event
- Minimise impacts to flora and fauna during the drain down phase.

Within this framework, flood releases from Wivenhoe Dam typically fall into two categories of flood events based on the impact they cause when combined with below the dam wall catchment runoff:

- Larger events typically involving combined river flows greater than 3,500 cubic meters per second measured at Moggill. These events would have flood impacts on

urban areas in Brisbane. This scale of release has not been required since Wivenhoe Dam was completed.

- Smaller events with combined river flows of less than 1,900 cubic meters per second measured at the Mt Crosby weir which can inundate up to seven rural bridges isolating up to 50 households and causing inconvenience to many more. There has been six of these events since 1984, when Wivenhoe Dam was completed.

Our assessment of the benefits of lowering dam storage levels to reduce flooding impacts is below for these two event types.

Large events

Seqwater has advised that releases of greater than 3,500 cubic metres per second (m3/s) from Wivenhoe Dam are likely to impact on urban areas in Brisbane. Events of this nature have not been experienced since Wivenhoe Dam was completed in 1984.

Seqwater has advised that:

- pre-emptive releases are likely to have negligible impacts on the extent of these impacts
- any impacts would require releases of at least 250,000 ML. This is equivalent to a release of about 16 per cent of the combined storage capacity of Wivenhoe and Somerset dams.

A pre-emptive release of this scale is not recommended, based on information currently available. The potential water security impacts are considered to be more significant than the negligible benefits. These potential security impacts include costs associated with the earlier or avoidable operation of the desalination facility at capacity, as well as the increased probability of triggering the implementation of a drought response plan.

More detailed investigation of opportunities to actively manage flood storage is recommended, including options to increase flood supply level on a temporary basis. These investigations need to be led by Seqwater, and involve the Bureau of Meterology, Councils and the SEQ Water Grid Manager.

In particular, t has been identified that it is worth investigating the impacts on downstream flooding for intermediate level flows (flows between 1900 and 3500 cm^3/s).

Seqwater will undertake extensive investigations for the Queensland Water Commission in early 2011 to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply. We will recommended that the scope of this work be widened to consider the benefits of pre-lowering storage levels based on mid range rainfall events and the reduced impacts to river levels and subsequent property impacts. It is noted that predicting rainfall intensity and location, even as events are about to occur has not been accurate, however the Bureau of Meteorology is improving its methods.

Smaller events

Pre-emptive releases from Wivenhoe Dam may reduce the impacts of minor gate releases (strategies W1A to W1E in the operational procedures).

Minor gate releases may result in the closure of up to six bridges, isolating up to 50 dwellings and inconveniencing many more. As stated in existing flood management plans, releases should be managed to minimise the impacts on these residents. Over the immediate term, Councils have requested that bridge closures be avoided over the Christmas to New Year period, if at all possible. In addition:

- There are resource implications involved in the activation of the flood control centre. Under flood management plans, the centre must be staffed by suitability qualified officers at all times during gate releases. There are currently only four quality duty engineers, who have staffed the flood centre for much of period since the initial release in October.
- Gate releases during the Christmas holiday period would result in closure of dams to water based activities, impacting on up to 150,000 people who are expected to use the recreational facilities over the holiday period.

The Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released from Wivenhoe and Somerset dams to 95 per cent of storage capacity at any time until end March 2010.

Under this recommendation, storage levels could potentially be reduced by up to about 77,250 ML. This is equivalent to the amount of water released between 13 and 16 December 2010, through a single gate.

Pre-emptive releases will be managed so as to minimise the likelihood of gate releases due to small storms and local rainfall. Storage capacity will usually be reduced through a combination of:

- Extended gate releases, especially for strategy W1C. For comparison, up to 130,000 ML/day was released during in November and mid December 2010. At this rate, the additional releases could occur in about half a day.
- Ongoing gate releases of up to 30,000 ML/day, which do not isolate any residents but can inundate some lower bridges that cause inconvenience.
- Ongoing valve release of up to about 4,300 ML/day, which can be maintained without inundate any bridges.

Actual releases would be decided by Seqwater based on operational considerations and in accordance with its statutory and regulatory obligations.

Water security impacts

The water security impacts of releases will be zero if the dams fill over the remainder of the wet season. Current forecasts indicate that there is a high probability of this occurring:

- Heavy rainfall is forecast over the Christmas holiday period, as noted above.
- Over the remainder of the wet season, advice from the Bureau of Meteorology is that sea surface temperatures are likely to remain at levels typical of a La Niña event into the first quarter of 2011, with the majority of the models indicating the event will gradually weaken over the coming months.

The water security impacts will be minimal, even if there were no further inflows to the dams. Modelling indicates that the reduction would have a minimal impact on the probability of key water Grid storages falling to 40 per cent of capacity over the next five years.

North Pine and Leslie Harrison dams

North Pine and Leslie Harrison dams do not have flood mitigation potential. Once the dams have reached Full Supply Level, all water flows into the dam must be released to protect the structural safety of the dam.

Seqwater has advised that, without major releases, there are negligible benefits to reducing volumes stored in North Pine or Leslie Harrison dams for the purposes of reducing the extent or duration of any downstream flooding impacts.

For North Pine Dam, there may be some operational and community benefits to minor releases to below Full Supply Level in some circumstances. Any gate operation at North Pine Dam results in inundation of Youngs Crossing Road, which isolates a number of residents. These impacts are currently being minimised by releasing from North Pine Dam at night. With further rainfall forecast, Seqwater may choose to reduce the level to below Full Supply Level in order to reduce the frequency of night releases or the likelihood of releases being required during the day.

For this dam, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released to 97.5 per cent of storage capacity at any time until end March 2010.

For Leslie Harrison Dam, gate operations do not impact on public roads and generally only inconvenience the general public during large flood events. There is no scope to reduce this inconvenience through small pre-emptive releases. Accordingly, no in-principle approval be made for pre-emptive releases from this dam.

[redacted]

From: Best Debbie
Sent: Wednesday, 16 February 2011 8:59 AM
To: Bradley John
Subject: FW: Optimising the Brisbane River System

Attachments: Inaugural Meeting Agenda - Project Reference Group.DOC

Can we discuss please?
Debbie

From: Pearce Ken
Sent: Thursday, 3 February 2011 5:15 PM
To: Tucker, Greg [redacted] Hogan Bernadette; [redacted] 'Colin Apelt'; Sommer Peter; Tony Jacobs
: Sommer Peter; Patullo Emma
Subject: Optimising the Brisbane River System

Dear PRG Members,

The Brisbane River System Project is being set up to address Key Action #50 in the SEQ Water Strategy. Seqwater and the Commission are obligated by the Strategy to :

"Review the operation of the Brisbane River system to optimise the water supply yield and balance flood storage and water supply storage volume requirements."

Initially the scope of the Project was limited to consideration of the "maximum level to which the working storage of Wivenhoe Dam could be raised without raising the dam walls."

Owing to recent flooding in the Brisbane River Valley, it is seen as prudent to develop the scope, with input from the Project Reference Group, for consideration of the Commission's Executive. The scope as currently proposed is as follows.

Optimise water supply and flood mitigation in the Brisbane River system using existing water supply infrastructure (Wivenhoe Dam), new infrastructure and operational arrangements. This would require the consideration of:

* a FSL for existing water supply infrastructure (Wivenhoe Dam) that balances supply and flood mitigation;
* new infrastructure that can optimise the yield of the system and or flood mitigation; including management infrastructure;
* new and existing infrastructure working in unison to optimise supply and flood mitigation;
* improving or upgrading downstream infrastructure that would increase operational flexibility at upstream structures, such as raising road crossings downstream of Wivenhoe Dam; and
* operational improvements.

Consideration of the FSL of existing infrastructure could lead to a dynamic FSL approach for water supply infrastructure in the Brisbane River system. This dynamic

approach could take into consideration the likelihood and degree of inflows in the water cycle year along with the supply/demand balance of the Water Grid.

The balancing of water supply and flood mitigation would need to consider parameters in the WRP and ROP. The optimum outcome may therefore involve legislative amendments.

The scope of the exercise will be discussed at the inaugural meeting of the Project Reference Group.

A draft agenda for the inaugural meeting is attached for your consideration. Please advise if you would like to make any changes.

I will be away until the 21 February 2011. Please make contact with Ms Emma Patullo in my absence should you wish to respond; or want additional information. Emma's telephone number is [redacted]

Regards

Ken Pearce

Project Officer

Regional Planning & Policy

Queensland Water Commission

Level 16, 53 Albert Street, Brisbane QLD 4000

PO Box 15087 City East QLD 4002

[redacted]

[redacted]

[



Inaugural Meeting Agenda - Pro...

Optimisation of the Brisbane River System

Agenda

TYPE OF MEETING	**Inaugural meeting of the Project Reference Group (PRG)**
TIME & DATE	9:30 am – 4:00 pm, Friday 25 February 2011
LOCATION	Wivenhoe Dam Operations Complex

Item	Time	Subject	Lead	Outcome required
1	9:30 - 9:50 am	**Tea/Coffee**	Seqwater	
2	9:50 – 10:00 am	**Welcome by Chairman**	Peter Sommer (QWC)	
3	!0:00 – 11:00 am	**Brisbane River System Operations** o **Recent drought and flood events** o **Constraints on operation** o **Issues**	Rob Drury (Seqwater)	
4	11:00 – 1:00 pm	**Tour of Wivenhoe Dam and downstream constraints**	Rob Drury (Seqwater)	
5	1:00 – 1:45 pm	**Lunch**	Seqwater	
6	1:45 – 2:00 pm	**Project Scope**	Peter Sommer	
7	2:00 – 2:30 pm	**Terms of Reference for the PRG** o **Membership of the PRG**	Peter Sommer	Agreement on TOR
8	2:30 – 3:00 pm	**Commission of Inquiry into QLD's unprecedented flood disaster**	Peter Sommer	
9	3:00 – 3:30 pm	**Project Strategy**	Ken Pearce (QWC)	Agreement on strategy
10	3:30 – 3:45 pm	**Close**	Peter Sommer	
11	3:45 – 4:15 pm	**Afternoon Tea**	Seqwater	

[redacted]

From: Best Debbie
Sent: Wednesday, 16 February 2011 4:58 PM
To: Hinrichsen Lyall
Subject: FW: Optimising the Brisbane River System

Attachments: Inaugural Meeting Agenda - Project Reference Group.DOC

Debbie Best
Deputy Director-General, Water and Ecosystem Outcomes Division Telephone [redacted]
Mobile [redacted] Email [redacted] www.derm.qld.gov.au

Department of Environment and Resource Management Level 13, 400 George Street, Brisbane Q 4000 GPO Box 2454, Brisbane Q 4001

-----Original Message-----
From: Best Debbie
Sent: Wednesday, 16 February 2011 4:54 PM
To: 'Lance McCallum'; Waldman Karen
Cc: Bradley John
Subject: FW: Optimising the Brisbane River System

Lance,
I have spoken to Karen that this workshop should not proceed until after the Commission of Inquiry. Karen is consulting with Mary tomorrow about the workshop and how to manage not proceeding. She will be advising us on how this will be managed.
Debbie

From: Pearce Ken
Sent: Thursday, 3 February 2011 5:15 PM
To: Tucker, Greg [redacted] Hogan Bernadette; [redacted] 'Colin Apelt'; Sommer Peter; Tony Jacobs
Cc: Sommer Peter; Patullo Emma
Subject: Optimising the Brisbane River System

Dear PRG Members,

The Brisbane River System Project is being set up to address Key Action #50 in the SEQ Water Strategy. Seqwater and the Commission are obligated by the Strategy to :

"Review the operation of the Brisbane River system to optimise the water supply yield and balance flood storage and water supply storage volume requirements."

Initially the scope of the Project was limited to consideration of the "maximum level to which the working storage of Wivenhoe Dam could be raised without raising the dam walls."

Owing to recent flooding in the Brisbane River Valley, it is seen as prudent to develop the scope, with input from the Project Reference Group, for consideration of the Commission's Executive. The scope as currently proposed is as follows.

Optimise water supply and flood mitigation in the Brisbane River system using existing

water supply infrastructure (Wivenhoe Dam), new infrastructure and operational arrangements. This would require the consideration of:

* a FSL for existing water supply infrastructure (Wivenhoe Dam) that balances supply and flood mitigation;
* new infrastructure that can optimise the yield of the system and or flood mitigation; including management infrastructure;
* new and existing infrastructure working in unison to optimise supply and flood mitigation;
* improving or upgrading downstream infrastructure that would increase operational flexibility at upstream structures, such as raising road crossings downstream of Wivenhoe Dam; and
* operational improvements.

Consideration of the FSL of existing infrastructure could lead to a dynamic FSL approach for water supply infrastructure in the Brisbane River system. This dynamic approach could take into consideration the likelihood and degree of inflows in the water cycle year along with the supply/demand balance of the Water Grid.

The balancing of water supply and flood mitigation would need to consider parameters



Inaugural Meeting Agenda - Pro...

in the WRP and ROP. The optimum outcome may therefore involve legislat ve amendments.

The scope of the exercise will be discussed at the inaugural meeting of the Project Reference Group.

A draft agenda for the inaugural meeting is attached for your consideration. Please advise if you would like to make any changes.

I will be away until the 21 February 2011. Please make contact with Ms Emma Patullo in my absence should you wish to respond; or want additional information. Emma's telephone number is [redacted]

Regards

Ken Pearce

Project Officer

Regional Planning & Policy

Queensland Water Commission

Level 16, 53 Albert Street, Brisbane QLD 4000

PO Box 15087 City East QLD 4002

[redacted]

[

[redacted]

From: Best Debbie
Sent: Wednesday, 16 February 2011 8:56 PM
To: Bradley John
Subject: Re: Optimising the Brisbane River System

I wasn't happy with the response I got

----- Original Message -----
From: Bradley John
To: [redacted]
Cc: Best Debbie
Sent: Wed Feb 16 20:25:27 2011
Subject: Fw: Optimising the Brisbane River System

Lance - If this is accurate let me know otherwise we will need to address tomorrow
Thanks Jb

----- Original Message -----
From: Waldman Karen
Sent: Wednesday, February 16, 2011 07:55 PM
: Best Debbie
: Bradley John
Subject: RE: Optimising the Brisbane River System

Hi Debbie

I have spoken with Lance tonight and explained to him the background to the issue and how we are handling. He asked to be phoned tomorrow following further Commission meeting discussions but seemed comfortable with our explanation. I know you are in Perth but would like to give you the same information when it is convenient to talk. Could you call me if you get a chance tomorrow.

Regards, Karen.

Chief Executive Officer | Queensland Water Commission T [redacted]

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Regards

Ken Pearce

Project Officer

Regional Planning & Policy

Queensland Water Commission

Level 16, 53 Albert Street, Brisbane QLD 4000

PO Box 15087 City East QLD 4002

[redacted]

[redacted]

[

seqwater

WATER FOR LIFE

JANUARY 2011 FLOOD EVENT

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1 INTRODUCTION

Wivenhoe Dam was constructed by the Queensland Government between 1977 and 1984. The dam is a 56 m AHD high and 2.3 kilometre long earth and rock embankment separated into two parts by a concrete gravity spillway. The spillway is controlled by 5 radial gates, each 12.0 metres wide by 16.0 m AHD high. Two saddle dam embankments are located on the left side of the reservoir.

The dam spillway capacity was upgraded in 2005. This was done primarily through the construction of a 164 metre wide secondary spillway through the right abutment of the existing dam. This spillway contains three erodible earth fill fuse plug embankments that are initiated at different dam levels in excess of EL 75.6.

The dam has two main functions by providing:

- A 1,165,000 ML storage at full supply level (FSL EL 67.0) providing an urban water supply for Brisbane and surrounding areas;

- Flood mitigation in the Brisbane River by providing a dedicated flood storage volume of 1,450,000 ML up to EL77 (this flood level was increased as part the 2005 upgrade to allow a water level of EL80m and a temporary flood storage volume of 1,966,000 ML with all fuse plugs initiated and the dam at the point of failure).

The dam has an EXTREME hazard classification under ANCOLD guidelines because of the significant development downstream in the Brisbane and Ipswich metropolitan areas, with the population at risk in the event of a dam failure numbering in the hundreds of thousands.

In accordance with the Queensland Regulatory program for dam spillway upgrades, a further upgrade of Wivenhoe Dam for dam safety reasons only is scheduled to occur prior to 2035 to enable the dam to safely pass the Probable Maximum Flood. This work will involve the reconstruction of Saddle Dam 2 as a fuse plug spillway.

Wivenhoe Dam is in excellent condition. Comprehensive Dam Safety reviews undertaken in accordance with ANCOLD guidelines have been undertaken in 1997 (Gutteridge, Haskins & Davey Pty Ltd), 2003 (Wivenhoe Alliance), 2006 (NSW Department of Commerce), 2009 (GHD) and September 2010 (Seqwater). The reports concluded that the design of the dam is in accordance with modern day standards and that there are no significant outstanding design or construction issues that require investigation.

2 WIVENHOE DAM FLOOD MITIGATION AND FLOOD OPERATIONS

2.1 Flood Mitigation

The Brisbane River catchment covers an area of approximately 14,000 square kilometres of which about half is below Wivenhoe Dam. Maximum overall flood mitigation effect is achieved by operating Wivenhoe Dam in conjunction with Somerset Dam. Although Somerset and Wivenhoe Dam reduce flooding in Brisbane City, major flooding can still occur. The Lockyer-Laidley Valley drains into the Brisbane River through Lockyer Creek that enters the Brisbane River just downstream of Wivenhoe Dam near Lowood. Another major tributary, the Bremer River, flows into the Brisbane River at Moggill. Wivenhoe Dam has no control over inflows into the Brisbane River from both these major tributaries.

Wivenhoe Dam mitigates downstream flooding by storing incoming flood water during a rainfall event and releasing these waters at a reduced flow rate downstream to minimise flood impacts. The timing of the releases is also manipulated so that the aim is for outflows from the dams to impact on downstream areas only after the peak inflows from the downstream major tributaries have passed. However, this aim cannot always be achieved in practice. This is because some large floods, such as the one currently being experienced, have the potential to overflow the dam's flood storage compartment. **Should this occur, the dam would fail and the resulting damage and loss of life would be at least 100 to 1000 times greater than that currently being experienced.**

Therefore the basis of all flood operation decision making is to ensure the dam never fails. This is the reason that the dam's flood storage compartment would never be intentionally fully filled as additional inflows after this point would result in a dam failure. Similarly, there will be uncertainty on future rainfall that could occur which could not be releases if there was insufficient flood storage which could not be stored or released.

Another factor that impacts on flood release decision making in large events are the levels at which the erodible fuse plugs are triggered. Loss of one or more fuse plugs severely limits the ability of the dam to mitigate the effects of future flood events that may occur prior to the fuse plug or plugs being reinstated. Reinstatement of a fuse plug following an event would take a minimum of 4 to 6 months and would require an extended period of relatively dry weather.

2.2 Flood Operations

A real time flood monitoring and forecasting system has been established in the Wivenhoe and Somerset Dam catchments. This system employs radio telemetry to collect, transmit and receive rainfall and stream flow information. The system consists of around 230 field stations that automatically record rainfall and/or river heights at selected locations in the dam catchments. Most of these field stations are owned by Seqwater with the remainder belonging to other agencies.

The rainfall and river height data is transmitted to Seqwater's Flood Operations Centre in real time. Once received in the Flood Operations Centre, the data is processed using a Real Time Flood Model (RTFM) to estimate likely dam inflows and evaluate a range of possible inflow scenarios based on forecast and recorded rainfall in the dam catchments. The RTFM is a suite of hydrologic computer programs that utilise the real time data to assist in the operation of the dams during flood events.

Seqwater engineers use the RTFM for flood monitoring and forecasting during flood events to operate the dams in accordance with a Manual of Flood Mitigation (the origin of and objectives and procedures contained in the Manual of Flood Mitigation are explained in the following section of this document). Releases of water from the dams are optimised to minimise the impacts of flooding in accordance with the objectives and procedures contained in a Manual of Flood Mitigation.

The RTFM and data collection network performed well During the January 2011 event, with no failures experienced that compromised the ability of Seqwater to operate the dam.

3 MANUAL OF FLOOD MITIGATION FOR WIVENHOE AND SOMERSET DAMS

The Manual of Flood Mitigation for Wivenhoe and Somerset Dams, in its current form, was developed in 1992 during an extensive hydrological study of the Brisbane and Pine Rivers catchments by DPI, Water Resources. The final reports were subject to extensive internal review by the Water Resources Group before being reviewed by an independent review panel comprising Professor Colin Apelt, Head of Department, Department of Civil Engineering, University of Queensland and Mr Eric Lesleighter, Principal Hydraulic Engineer and Chief Engineer Water Resources, Snowy Mountains Engineering Corporation.

Subsequently, the Manual was extensively reviewed during the Brisbane Valley Flood Damages Minimisation Study in 2006, with the latest comprehensive review of the Manual undertaken in 2009. Both of these reviews have included expert review panels comprising key stakeholders, with the most recent review involving representatives from DERM, BOM, BCC and SunWater.

The Manual of Flood Mitigation is prepared by Seqwater as the owner of the dam and approved and gazetted by the Chief Executive of DERM in accordance with the Water Supply Act 2008. The manual defines flood objectives procedures; roles and responsibilities; and staffing and operational requirements for flood events impacting on Wivenhoe and Somerset dams.

The primary objectives of the procedures contained in the flood manual are, in order of importance:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers primarily, this involves minimising inundation of the seven bridges below the dam upstream of Moggill);
- Retain the storage at Full Supply Level at the conclusion of the Flood Event.
- Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

During an event, the operation of the dam transitions between the following four operating strategies depending of the circumstances at the time. These procedures associated with these strategies are explained in detail in the Manual.

- **Strategy 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.

- **Strategy 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.

- **Strategy 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.

- **Strategy W4** – Primary consideration is to protecting the structural safety of 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 flood releases to avoid fuse plug initiation if at all possible as this would compromise flood mitigation capacity in the short to medium term.

In addition to these strategies, historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. Accordingly for each flood event, the aim is always to empty stored floodwaters within seven days after the flood peak has passed through the dams.

4 JANUARY 2011 FLOOD EVENT

4.1 Background

In the 25 days leading up to the current event, three flood events impacting on Wivenhoe Dam were experienced, with gate releases being made on all but five of those days. The total outflow from these events was around 700,000ML. The details of these events are as follows:

EVENT	EVENT START DATE	EVENT END DATE	VOLUME RELEASED (ML)
1	13/12/2010	16/12/2010	70,000
2	17/12/2010	24/12/2010	150,000
3	26/12/2010	02/01/2010	470,000

During these events, requests were received from Councils and residents impacted by bridge closures downstream of the dam to curtail releases as soon and as quickly as possible. Additionally the 2 January end date of the flood event prior to the current event meant that significant drain down of the dam prior to the onset of the current event that commenced on 6 January 2011, was not possible without major bridge inundation downstream of the dam and without exceeding minor flood levels in the lower Brisbane River.

Additionally, a flood event was also experienced in October 2010 that resulted in a release of 750,000ML from the dam. Accordingly drain down below the dam full supply level prior to the start of the first December event would not have been possible without significant bridge inundation and without exceeding minor flood levels (as defined by BOM and BCC) in the lower Brisbane River.

Regardless, significant drain down prior to the current event would have had little impact on the peak level in Wivenhoe Dam as shown in the table below. The reason for this is that this total event inflow volume of 2,600,000 ML is well in excess of the useable flood storage combined with the available water supply storages shown in the table.

The specific impact on the Lower Brisbane River of these reduced dam levels requires the use of a complex hydraulic model. The results of this modelling would still contain a degree of uncertainty as illustrated by the difficulties in estimating the final flood peak in Brisbane during the event. This

is because the rapid closure of the gates after peak inflow was achieved resulted in significant water level reductions downstream and this is difficult to model accurately.

JANUARY 2011 FLOOD			
Starting Level		Peak Height	Capacity
%	m AHD	m AHD	%
100	67.0	74.97	191
95	66.5	74.93	191
90	65.8	74.88	190
75	64.0	74.63	187
50	60.0	74.11	180

It should be noted that the possible reductions shown above are based on a dual peaked flood hydrograph with a volume of about 2,600,000 ML which occurred during this event. A hydrograph with the same volume but a different distribution could result in a significantly lower reduction in peak water levels.
Flood operations at the dam are also highly dependent upon the flood inflow volume and a slight variation in the flood volume could significantly reduce the benefits associated with draining down the dam prior to a flood event.

4.2 Event Decision Making

The following table contains a summary of the key decisions points associated with the current event. As at 16 January 2011, the event remains in progress.

DATE AND TIME	FLOOD EVENT MILESTONE
07:00 06/01/2011 (Thursday)	Rainfall is experienced in the dam catchments that will result in flood releases, however Wivenhoe releases are delayed for 24 hours to allow Lockyer Creek flood flows to pass downstream and prevent the isolation of the community dependent of Burtons Bridge. The forecast is for 150mm over the next 24 hours.
15:00 07/01/2011 (Friday)	Wivenhoe releases commence, with operational strategy W1 in use. Rainfall for the next four days is estimated to be between 140mm and 300mm, with a forecast for rain easing on Tuesday 11 January 2011. All bridges downstream of the dam with the exception of Fernvale Bridge and Mt Crosby Weir Bridge are expected to be inundated for a number of days.

06:00 09/01/2011 (Sunday)	Moderate to heavy rain periods forecast until Tuesday, but both Wivenhoe and Somerset dam levels were falling slowly, with Somerset at 1.27 m AHD above FSL and Wivenhoe 1.58 m AHD above FSL.
15:30 09/01/2011 (Sunday)	Following significant rain during the day a meeting of Duty Engineers is held. The QPF issued at 16:00 indicates 50mm to 80mm over the next 24 hours. Based on this forecast, it is anticipated that dam levels can be held to a maximum of 3.50 m AHD above FSL in Somerset and 5.5 m AHD above FSL in Wivenhoe. However, by 19:00 it was apparent that both Fernvale Bridge and Mt Crosby Weir Bridge would be inundated by the combined dam releases and Lockyer Creek flows and that the operational strategy had progressed to W2.
06:30 10/01/2011 (Monday)	Rainfall continued during the night and based on rainfall on the ground it was apparent the operational strategy had progressed to W3.
06:30 10/01/2011 (Monday)	Rainfall continued during the day but based on rainfall on the ground, operational strategy W3 remained in use. However it was apparent that any further heavy rain would result in progression of the operational strategy to W4.
08:00 11/01/2011 (Tuesday)	Rainfall continued during the night with isolated heavy falls in the Wivenhoe Dam catchment area and based on rainfall on the ground it was apparent the operational strategy would soon progress to W4 with Wivenhoe Dam exceeding 8.00 m AHD above FSL. The objective now was to limit outflows and subsequent flood damage to urban areas, while ensuring the structural safety of the dam.
11:00 11/01/2011 (Tuesday)	Rapid inflows were experienced in Wivenhoe Dam, with the dam rising almost a metre in eight hours. Releases were increased until the dam level stabilised in accordance with Strategy W4. Computer models were not reflecting actual dam inflows due to intense point rainfalls in the immediate catchment around the dam. Falls are estimated to be similar to those experienced at both Toowoomba and Upper Lockyer the previous day and are falling outside and between existing rain gauges.
21:00 11/01/2011 (Tuesday)	Wivenhoe Dam peaked. Peak release of 7450 cumecs with a level of 0.7 metres below fuse plug trigger.

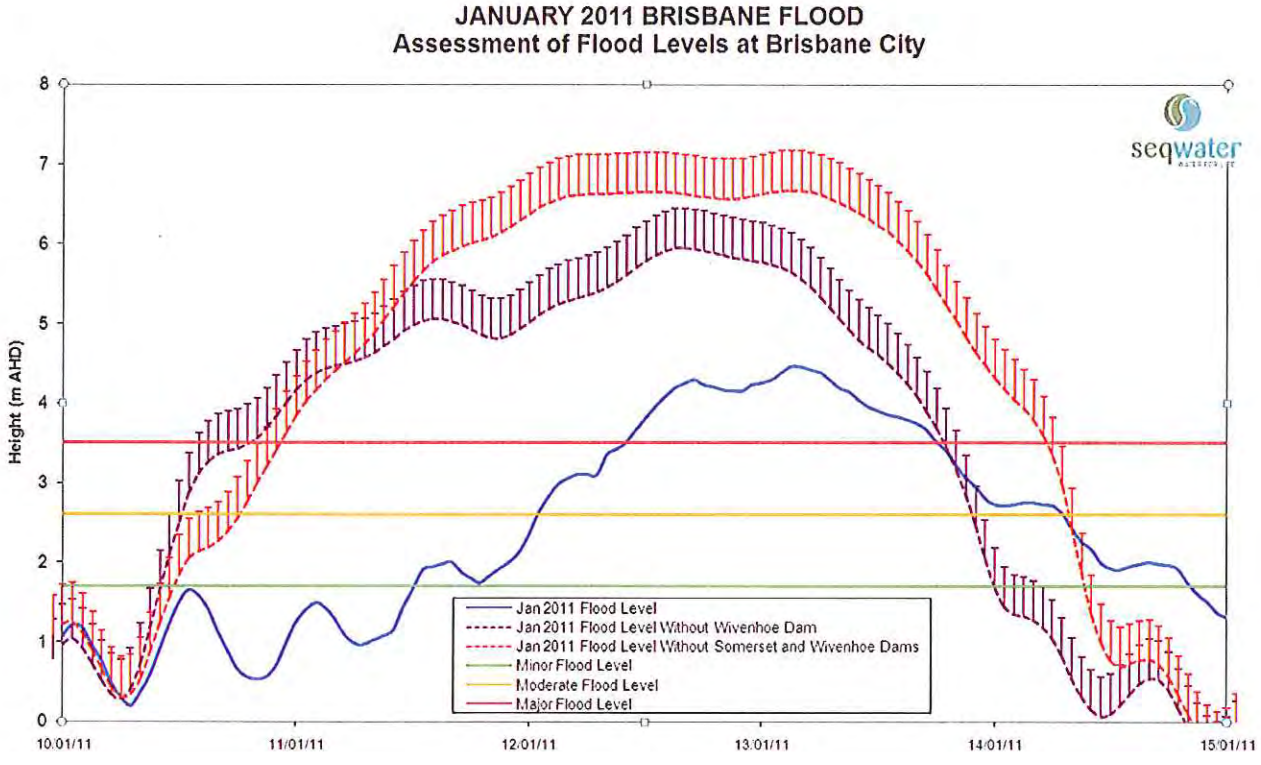
22:00 11/01/2011 (Tuesday)	Wivenhoe Dam releases were closed off as quickly as possible over the next 11 hours, while ensuring water levels in the dam did not rise further and initiate a fuse plug embankment.
08:00 12/01/2011 (Wednesday)	Minimum possible release level reached, with inflows matching outflows. Further reductions in release rate would likely cause the dam level to rise.
21:00 13/01/2011 (Thursday)	The 7 day dam drain down is commenced as Lockyer Creek and Bremer River peaks pass the Lower Brisbane area. Maximum release target is the limit of damaging floods in Brisbane being 3500 cumecs.
09:00 17/01/2011 (Monday)	Drain down continues, with released expected to cease on Wednesday 19 January 2011 unless further rainfall is experienced.

4.3 Flood Mitigation Benefits of Wivenhoe Dam

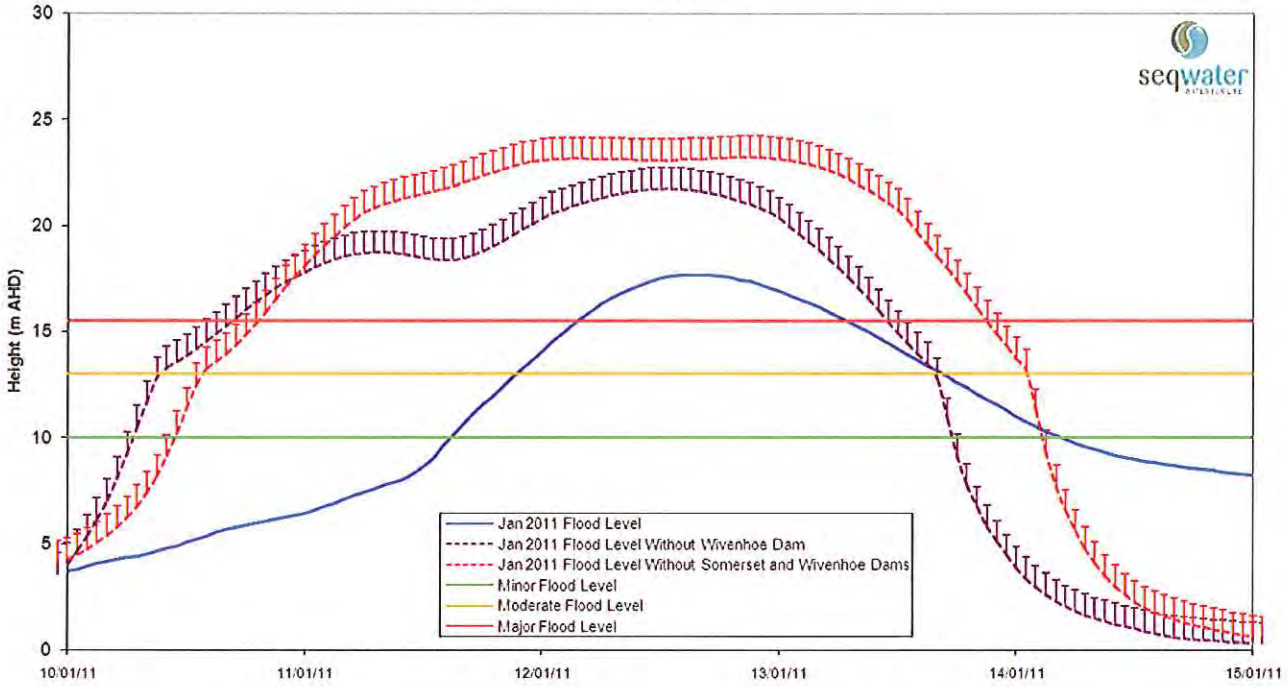
The following graphs demonstrate the significant benefits of Wivenhoe Dam in mitigating the current flood event, with reductions in flood peak of up to 2.5 metres in the City area and up to 5.5 metres in the Moggill area further upstream.

This equates to significant reduction in the potential for loss of life as well as saving in damages in the order of up to $1.6 billion based on current damage curves. Up to 13,000 more properties would have been impacted by the event without the Dam.

The time at which flood levels remained elevated above major levels has also been reduced by up to 3 days by the dam. This has significant benefits to impact on the population of the city, property damage and the recovery operation.



JANUARY 2011 BRISBANE FLOOD
Assessment of Flood Levels at Moggill



The strategy adopted to quickly close off releases once the peak in the dam had been reached and rain stopped falling certainly reduced the predicted flood peak by at least one metre in the lower Brisbane River area. This was carried out because the releases had stopped the dam from rising and careful monitoring allowed rapid reduction of releases while ensuring fuse plug initiation did not occur.

This notion is supported by BOM.

5 EVENT REVIEW

Under the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam that are approved and gazetted by the Department of Environment and Resource Management, there is a regulatory requirement that a report must be prepared as per the below wording:

"Seqwater must prepare a report after each Flood Event. The report must contain details of the procedures used, the reasons therefore and other pertinent information. Seqwater must forward the report to the Chief Executive within six weeks of the completion of the Flood Event."

Such a report was prepared for the flood events of February and March 2010 and copies are available. A copy of the Table of Contents of that report is included as Appendix 1. For this event, the report would be a comprehensive summary of all procedures, actions, outcomes and processes during the event.

It is recommended that the process and content for reports required for this event be:

- In the short term, utilise this report attached to this briefing note as the basis for communications and discussion.
- Prepare any Interim Reports as agreed to provide information and input as required.
- Seqwater prepare a Comprehensive Report as per the existing regulatory requirements of the Act and the gazetted manual and any requirements of the Dam Safety Regulator. This would be done within 6 weeks of the closure of the current event as per the manual. This timeframe is subject to any new mobilisation of the Flood Operations Centre. The Table of Contents would include:
    - Introduction
    - Flood Event Summary
    - Mobilisation and Staffing
    - Event Rainfall
    - Inflow and Release Details
    - Data Collection System Performance
    - Data Analysis Performance
    - Communication
    - Flood Management Strategies and Manual Compliance

- Improvements in data collection systems, practices and processes.
- improvements by interacting agencies
- Review of factors impacting on the protection of urban areas
- Recommendations & Conclusions

- The report would then be reviewed by the Dam Safety Regulator in conjunction with any peer review they require. The review should cover:
  - Were the provisions of the manual complied with?
  - What improvements to either facilities e.g. stream gauges, or work practices, are desirable to improve Sewater's ability to predict inflows into the dams.
  - Are improvements to either Seqwater's facilities or work practices desirable to improve Seqwater's ability to manage events? For example, investigations to raise the dam to improve its flood storage capacity, If so, what are they and their implications.
  - Are changes to the facilities or work practices of other organisations desirable to improve Seqwater's abilities to manage these events?
  - whether it is worth investigating increasing the flood capacity of Wivenhoe
  - whether the Brisbane River crossings which act, under some situations as a constraint on the releases from Wivenhoe, should be replaced by bridges. For example if the smallest could pass , for example, 2,500 cumecs, then this could enable higher releases under some circumstances.
  - Whether the policy of draining the flood compartment within 7 days should be modified.
  - Given the manual's order of priorities i.e. protection of the dam etc, are any changes in the flood release strategies for either dam desirable? If so, what are they, and their implications
- Based on this review, a review of the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam would occur utilising an expert panel of review including representatives of DERM, Seqwater, BoM, affected Local Governments and other stakeholders as necessary.

Appendix A

FINAL REPORT – FLOOD EVENTS AT WIVENHOE, SOMERSET AND NORTH PINE DAMS FOR FEBRUARY AND MARCH 2010

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27 January 2011

seqwater
WATER FOR LIFE

The Honourable Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
and Minister for Trade
PO Box 15216
CITY EAST QLD 4002

Dear Minister,

In response to your letter dated 20 January 2011, I am pleased to be able to provide you with the following update.

Work has commenced on the full Seqwater report on the recent flood event at Wivenhoe Dam, as required under the Flood Mitigation Manual for Wivenhoe and Somerset Dams. I also note your request for the report to be completed as a matter of priority and earlier than the required timeframe of 6 weeks if achievable.

On Tuesday, 25 January 2011, Seqwater convened a meeting involving the Director-General of the Department of Natural Resource Management (DERM), senior Board and Chief Executive representatives from the Water Grid Manager (WGM), Queensland Water Commission (QWC) and senior officers from DERM, including the Dam Safety Regulator and the Water Supply Regulator, to discuss the range of issues raised in your letter.

As a result of that meeting, Seqwater is undertaking the following scope of work, which will be available for discussion with the above group next Tuesday, 1 February 2011:

- Further modelling to provide an indicative assessment of the benefits or otherwise of undertaking a pre-release strategy to pre-emptively reduce the Full Supply Level (FSL) of Wivenhoe Dam for the next 12 months, reflecting the current La Nina weather patterns.
- The development of a contingency protocol, should rainfall result in flood gate releases in the next few weeks, is already being progressed, including input from DERM, WGM and QWC.
- Improvements to the Technical Situation Report, identified by Mr Brian Cooper as part of his preliminary report, recommending more consistency in the information presented. The improvements are being undertaken with input from the Office of the Water Supply Regulator.

In addition, at the request of the WGM and the QWC, Seqwater will also be providing the above modelling data this week to both authorities to assist them to ascertain the impact of any pre-release strategy on the region's water supply security.

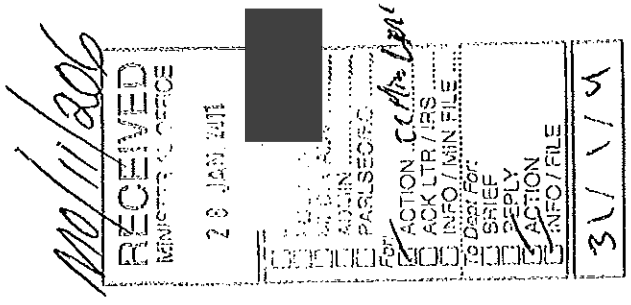
I will provide an update on the above work following next Tuesday's meeting.

Seqwater remains committed to providing the State Government with timely and considered advice on the operation of the region's dams, and co-operating fully with the Commission of Inquiry.

Yours sincerely,

[redacted]

Phil Hennessy
Chairman



Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources,
Mines and Energy and
Minister for Trade

20 JAN 2011

Ref CTS 00433/11

Mr Phil Hennessy
Chair
Seqwater
PO Box 16146
City East QLD 4002

CC: Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
CITY EAST QLD 4002

CC: Ms Mary Boydell
Commissioner
Queensland Water Commission
PO Box 15087
CITY EAST QLD 4002

CC: Mr Gary Humphrys
Chair
SEQ Water Grid Manager
PO Box 16205
CITY EAST QLD 4002

Dear Mr Hennessy

You will be aware that the Premier recently announced a Commission of Inquiry into Queensland Floods which will consider among other things, compliance with, and the suitability of the operational procedures relating to flood mitigation and dam safety.

The Commission is required to deliver an interim report by 1 August 2011 (on matters associated with flood preparedness to enable early recommendations to be implemented before next summer's wet season); and its final report by 17 January 2012.

However, I am also aware that Seqwater is currently managing the releases from the flood compartment of Wivenhoe and Somerset Dams in South East Queensland, in the context of the company's current Flood Mitigation Manual for those dams. There are three matters I wish to raise with you in this letter:

(1) I note that under the Flood Mitigation Manual for Wivenhoe and Somerset Dams, Seqwater is required to prepare a report on the recent flood event (see clauses 2.9 and 7.4 of the Manual). It is essential that a report (covering the requirements of both clauses 2.9 and 7.4 of the Manual) to the Department of Environment and Resource Management (DERM) is completed within the required timeframe of six weeks from the date of the incident. However in view of the fact that we remain in the middle of the wet season and further significant inflows are possible, I would urge you to complete this review, which should include consideration of the appropriate Full Supply Levels, as a matter of priority and urgency.

Any other changes you propose to the Flood Mitigation Manual, or related matters, eg improved data collection, should be clearly identified in the Review report, along with a timetable to implement them.

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(2) Furthermore, while this review of factors relevant to the operating release strategy and the Full Supply Levels is underway, I would request that you develop a contingency protocol which would ensure that if rainfall, that is likely to result in a flood release from Wivenhoe Dam, is forecast for the catchment then Seqwater will immediately convene a discussion with the Chief Executive Officer of DERM, his dam safety regulatory staff, and other appropriate parties.

(3) I note that the recent preliminary report by Mr Cooper identified a number of improvements that Seqwater could implement to achieve a better outcome in the application of the Draft Communication Protocol between government agencies and local governments. I request that you contact Mr Bob Reilly, General Manager, Office of the Water Regulator of the department on [redacted] to progress these as a matter of urgency.

I have also written to the Chair of the Water Grid Manager and the Water Commissioner requesting all necessary assistance be afforded to SEQ Water to ensure the matters raised in this letter are responded to as a matter of priority and with urgency.

Should you have any further enquiries, please do not hesitate to contact Mr John Bradley, Chief Executive of the Department, on [redacted]

Yours sincerely

STEPHEN ROBERTSON MP

4 February 2011

seqwater
WATER FOR LIFE

The Honourable Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
and Minister for Trade
PO Box 15216
CITY EAST QLD 4002

Dear Minister,

I refer to my 27 January 2011 letter and I am pleased to be able to relay to you the following further update, which has been provided to me by Seqwater's officers.

Work is continuing on the full Seqwater report on the recent flood event at Wivenhoe Dam, as required under the Flood Mitigation Manual for Wivenhoe and Somerset Dams. That report will address the requirements of sections 2.9 and 7.4 of the Manual and will be completed within the stipulated six week timeframe.

On Tuesday, 1 February 2011, Seqwater held a further meeting involving the Director-General of the Department of Environment and Resource Management (DERM), senior Board and Chief Executive representatives from the Water Grid Manager (WGM), Queensland Water Commission (QWC) and senior officers from DERM, including the Dam Safety Regulator and representatives from the Water Supply Regulator, to discuss the progress of works tasked to Seqwater on 25 January to address the issues raised in your letter of 20 January.

In your letter of 20 January 2011, you requested that Seqwater assist DERM in the consideration of the appropriate Full Supply Levels (***FSLs***) for Wivenhoe and Somerset Dams. Given that:

(a) Wivenhoe and Somerset Dams fulfil dual water supply and flood mitigation functions;
(b) the dams are the primary urban water supply for South East Queensland and their current FSLs are enshrined within the Moreton Resource Operations Plan and underpin the system yields adopted for the South East Queensland Water Strategy;
(c) Seqwater is obliged under its Flood Mitigation Manual to ensure that all opportunities to fill the dams are taken and therefore there should be no reason why the dams are not at their respective FSLs following a flood event,

it is noted that DERM is considering, from a policy perspective, whether the FSLs for the dams should be changed.

To assist DERM in formulating that policy position, Seqwater is continuing further modelling to provide an indicative assessment of the benefits or otherwise of undertaking a pre-release strategy to pre-emptively reduce the FSL of Wivenhoe Dam and the mechanisms by which any change to the FSL might best be implemented. However, given that this technical information will be of critical importance to:

(a) DERM in the formulation of its long term water supply and flood mitigation policies; and
(b) the Commission of Inquiry investigating the January 2011 flood events,

great care must be taken to ensure that the technical information is both accurate and comprehensive. Seqwater also notes that DERM will want to take into account the Inquiry's findings.

Compiling this technical information entails the following tasks:

(a) modelling the water outflows from Wivenhoe Dam for design flood events;
(b) calculating Brisbane River levels resulting from these various water outflow events; and
(c) determining the extent of inundation based on those Brisbane River levels.

In respect of task (a), Seqwater has completed modelling of approximately 90 permutations in respect of 3 previous flood events (including January 2011) and 6 design flood events (ranging between a 1 in 200 and a 1 in 5000 flood event) and our modelling has been peer reviewed by independent external experts.

Task (b) requires Seqwater to work with the Bureau of Meteorology (BOM) or Brisbane City Council (BCC), both of which have developed models for determining Brisbane River levels for various flow events. Seqwater is anxious to progress this task as a matter of priority but you should be aware that –

(i) BOM is unable to assist Seqwater at this point; and
(ii) BCC does not wish to assist until its model has been updated to take into account the January 2011 flood event.

If BCC is unable to assist promptly, Seqwater will need to utilise other modelling alternatives.

BCC has also developed the models which will need to be utilised to complete task (c). Task (c) can only be completed accurately when Seqwater and BCC have finalised task (b). Furthermore, Seqwater will need to have independently validated the input provided by BCC.

All of these tasks should be completed by 31 March 2011.

However, DERM may be satisfied, based on advice from QWC and the WGM from a water supply security perspective, that Wivenhoe Dam 's FSL could be reduced in the short term to, say, 75% of its current FSL. If that is the case, Seqwater can confirm (from its modelling undertaken in respect of task (a) to date) that, in respect of a flood event beyond Wivenhoe Dam's current flood mitigation design capability, such a reduced FSL will provide flood mitigation benefits for such an extreme rainfall event occurring in the Wivenhoe and Somerset catchments. For example, for a 1 in 500 probability flood event, the water outflows under Wivenhoe Dam's existing FSL are approximately 5,000 cubic metres of water per second (cumecs), whereas those water outflows would be approximately 3,400 cumecs in the case of a 75% FSL (assuming releases under the flood mitigation manual are triggered only at the reduced 75% FSL; by contrast, the water outflows would be approximately 3,700 cumecs if releases under the manual are triggered at the current FSL).
For your information, Wivenhoe Dam's current flood mitigation design enables it to contain a 1 in 100 probability flood event and substantially reduce the impacts of up to a 1 in 500 probability flood event.

Should a decision to reduce the FSL be made:

(a) Seqwater will need to work urgently with the Dam Safety Regulator to finalise any necessary changes to the flood mitigation manual;
(b) if requested, Seqwater can provide assistance to DERM following DERM's determinations regarding the Moreton Resource Operations Plan and the appropriate mechanism by which such a pre-release strategy would be implemented.

Seqwater has also developed a draft contingency protocol, should further rainfall result in the need for floodgate releases from Wivenhoe Dam in the next few weeks, and is currently finalising it with DERM.

Seqwater has sought input from the Office of the Water Supply Regulator to enable Seqwater to finalise improvements to the Technical Situation Report format identified by Mr Brian Cooper to enhance communication between government agencies and local governments during future flood events. Seqwater is currently finalising those improvements with DERM.

Seqwater remains committed to providing the State Government with timely and considered advice on the operation of the region's dams and co-operating fully with the Commission of Inquiry.

Yours sincerely,

[redacted]

Phil Hennessy
Chairman

seqwater
WATER FOR LIFE

7 February 2011

Mr John Bradley
Department of Environment and Resource Management
Director General
GPO Box 2454
BRISBANE QLD 4000

Dear Mr Bradley,

Please find attached a revised draft of the Contingency Protocol (Protocol) following our meeting last Friday 4 February 2011.

I confirm that the Protocol documents the process to initiate discussions between Seqwater and DERM, including the Dam Safety Regulator, on the options to be considered in the event of a predicted rainfall event greater than 100mm in any one day in the Wivenhoe/Somerset catchments (Trigger Rainfall Event).

The Protocol highlights a number of key issues to be consider including:

- Pre-release of water from Wivenhoe Dam based on predicted rainfall and possible release scenarios; and
- Possible changes to release procedures in relation to normal operations and to operations under the Flood Operations manuals, including accelerated releases.

The earlier draft of the Protocol has been discussed with the Dam Safety Regulator and we will be happy to finalise the Protocol with all appropriate representatives from DERM after they have had an opportunity to review the further draft.

Yours sincerely,

Peter Borrows
Chief Executive Officer

Contingency Protocol in the event of possible Wivenhoe Dam Gate Operations for Flood Releases

Objective

The purpose of this Contingency Protocol (Protocol) is to document the process to initiate discussions between Seqwater and DERM, including the Dam Safety Regulator and any other agencies as determined by DERM, on the options to be considered, in the event of a predicted rainfall event greater than 100mm in any one day in the Wivenhoe/Somerset catchments (Trigger Rainfall Event).

Background

The Minister for DERM has requested the development of the Protocol subsequent to the recent floods in SEQ in January 2011.

Protocol

Once the Seqwater Duty Flood Operations Engineer is aware of a Trigger Rainfall Event, Seqwater will contact the Dam Safety Regulator to determine if a meeting between the parties is required to be held. Depending on the size and intensity of the Trigger Rainfall Event, both parties may agree that a meeting is not necessary and email notification from Seqwater will suffice.

It should be noted that forecasts are not always accurate and an actual rainfall event greater than 100mm in any one day in the Wivenhoe/Somerset catchments may occur that was not predicted. In such an event, Seqwater will notify the Dam Safety Regulator immediately such an event occurs.

In the event that a meeting is held the purpose of the meeting would be for DERM to consider:

- The likelihood of releases from Wivenhoe Dam;
- The probable size of any releases from Wivenhoe Dam;
- The potential impacts of such releases from Wivenhoe Dam;
- Options including:
  - Pre-release of water from Wivenhoe Dam based on predicted rainfall and possible release scenarios ;
  - Possible changes to release procedures in relation to normal operations and to operations under the Flood Operations Manual including accelerated releases;
- Communications, including with Councils and other downstream stakeholders.

Briefing and Information

At the meeting, other parties may be requested to provide information, e.g. the Bureau of Meteorology, Brisbane City Council. These will be included with DERM's approval. Seqwater will provide to DERM all relevant information that is available in terms of predicted rainfall and provide impacts of any release strategies in terms of bridges and communities downstream.

Communications

Depending on the outcome of the discussion, further communications and discussions with other agencies may be required, in particular Brisbane City Council, Ipswich City Council Somerset Regional Council and Government agencies e.g. Bureau of Meteorology, Local Governments/Local Disaster Management Groups, SEQ Water Grid Manager, Queensland Police Service, and the Department of Premier and Cabinet (extreme events **only**). This will be required as there may be impacts of pre- releases on works downstream.

Review of Protocol

This protocol will be reviewed annually by Seqwater and DERM, or more frequently as determined by the parties.

7 February 2011

seqwater
WATER FOR LIFE

Mr John Bradley
Director General
Department of Environment and Resource Management
Level 13
400 George Street
BRISBANE QLD 4000

Dear John,

Impact of Reducing the Full Supply Level of Wivenhoe Dam on Flood Discharges

I refer to correspondence from The Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy, and Minister for Trade, dated 20 January 2011. I confirm that, as requested, Seqwater has undertaken further simulation modelling to assist DERM in its consideration of the appropriate Full Supply Level (***FSL***) for Wivenhoe Dam. The purpose of the modelling is to provide information to assist DERM in formulating a policy position by providing an indicative assessment of a range of FSLs and pre-release strategies to pre-emptively reduce the FSL of Wivenhoe Dam.

I enclose a memorandum *Impact of Reducing the Full Supply Level of Wivenhoe Dam on Flood Discharges*, which provides a summary of Seqwater's preliminary assessment into the impact of reducing the initial storage level of Wivenhoe Dam on the downstream discharges for major flood events. A number of scenarios are presented in the memorandum for consideration by DERM in determining, from a policy perspective, whether the FSLs for Wivenhoe Dam should be changed.

The scenarios presented in the memorandum provide an approximate analysis to help inform discussion and for further consideration by DERM. The review is intended only to provide an order of magnitude assessment of impacts and the results should not be utilised beyond that purpose. More accurate estimates would require a detailed investigation and analysis of the entire river system utilising multiple flood events and a combination of hydrologic, hydraulic, and routing models.

The analysis is based upon computer modelling of simulated gate opening sequences specified in the Flood Mitigation Manual during a "loss of communications" scenario. For the reasons noted in section 2 of the enclosed memorandum, while this scenario provides a consistent means of comparing the efficacy of different mitigation options, the actual degree of flood reduction achievable is dependent on the characteristics of the specific event. The model utilised adopts flood inflows that have been derived from an analysis of past historic events, in combination with design hydrographs developed previously for design and planning purposes by the Wivenhoe Alliance (2005).

The applicable assumptions for the modelled options, presented in section 2 of the memorandum, apply equally to the scenario set out in the correspondence from Seqwater's Chairman, Phil Hennessy, to Minister Robertson, dated 4 February 2011.

Yours sincerely,

Peter Borrows
Chief Executive Officer

Encl.



Impact of Reducing the Full Supply Level of Wivenhoe Dam on Flood Discharges

1 Introduction

This memo provides a summary of a preliminary assessment into the impact of reducing the initial storage level of Wivenhoe Dam on the downstream discharges for major flood events. Information is provided on the impacts of reducing the Wivenhoe Dam initial storage level to 95%, 90%, 85%, 75% and 50% of the normal full supply level (EL67.0M AHD).

2 Assumptions and Caveats

The analysis was undertaken using a computer model to simulate the gate opening sequence as provided in the Flood Manual during a "loss of communications" situation. During a loss of communications between the dam operators and the Flood Control Centre, operators would use predefined gate openings based solely on the Lake Level information available to them at the dams. It should be noted that in practice gate operations would normally seek to take advantage of additional information related to rainfall forecasts and tributary flows to ensure that flood peaks are reduced as far as possible without causing coincident flooding with downstream tributaries. Thus, while using the "loss of communications" flood operation rules provides a consistent means of comparing the efficacy of different mitigation options, the actual degree of flood reduction achievable is dependent on the characteristics of the specific event.

Flood inflows to the model were derived from an analysis of past historic events (1974, 1999, and 2011), in combination with "design hydrographs" developed previously for design and planning purposes (Wivenhoe Alliance, 2005[1]). These "design hydrographs" are obtained from models of both the rainfall and flood generation process, whereby floods of a given magnitude are assigned a specified probability of exceedance (eg a "1 in 200" event).

It should be stressed that the information presented here is based on approximate analyses to help inform discussion. More accurate estimates would require a detailed investigation and analysis of the whole river system utilising multiple flood events and a combination of hydrologic, hydraulic, and routing models. This review should thus be seen as providing an order of magnitude assessment of impacts and the results should not be utilised beyond that purpose.

[1] Wivenhoe Alliance, "Design Discharges and Downstream Impacts of the Wivenhoe Dam Upgrade, Q1091, September 2005

3 Options Considered

Five options are explored in this paper, as summarised in the following table:

There are five options considered going forward.

Option	Description	Comments
0 "Do nothing"	Continue with the current approved flood operation rules – that is, maintain the status quo and continue to utilise the dam as originally designed.	This option has utilised the existing strategies that have been implemented and refined over several flood events and the manual was developed by a comprehensive study.
1 "Early release"	Change the flood operating rules to ignore the early strategies designed to minimise disruption to the rural communities	Increase the release from the dam up to 1600 m^3/s as soon as practicable after gate operations commence; it is assumed that no attempt would be made to maintain bridge access downstream of the dam other than Mt Crosby Weir Bridge and the Brisbane Valley Highway Bridge.
2 "Pre-release"	Implementing a significant release of water once the notification of a major rainfall event has been received.	The reliability of forecasts by the Bureau of Meteorology are such that they do not allow the reservoir to be drawn down in a timely manner without potentially causing appreciable "artificial" flooding downstream.
3 "75% FSL"	Lower the storage level in Wivenhoe Dam to 75% of the current full supply level, and operate the dam under the current operating rules.	To safely lower the storage it is proposed that this option would be implemented by "Sunny Day" releases at a rate low enough to minimise disruption to the rural areas. This would be difficult to implement during a wet year where the risk of major flooding is greater. Once the storage level reached EL67 gate operations would commence as per the current flood manual.
4 "85% FSL amended"	Lower the storage level in Wivenhoe Dam to 85% of the current full supply level and amend the current flood manual to commence releases once the storage level exceeds EL65.25	The amended flood operating rules would retain the key level in the manual of EL74m, where the gates are opened until the flood level stops rising. This would require a change by the Queensland Government to the regulatory requirements and levels of service that the storage is operated under.
5 "75% FSL amended"	Lower the storage level in Wivenhoe Dam to 75% of the current full supply level and amend the current flood manual to commence releases once the storage level exceeds EL64.00	Same comment as for Option 4.

4 Results

The results of this analysis is summarised in Table 1 and Table 2.

Flood Event			Option 0 - Existing Rules		Option 1			Option 4			Option 5		
Event description	Maximum Inflow (m^3/s)	Flood Volume (ML)	Maximum Outflow (m^3/s)	Maximum Lake Level (m AHD)	Maximum Outflow (m^3/s)	Maximum Lake Level (m AHD)	Flow Reduction %	Maximum Outflow (m^3/s)	Maximum Lake Level (m AHD)	Flow Reduction %	Maximum Outflow (m^3/s)	Maximum Lake Level (m AHD)	Flow Reduction %
36 hour 1 in 200 design*	8,214	1,544,119	3,861	71.43	3,613	71.27	6%	2,639	70.66	32%	1,971	70.24	49%
36 hours 1 in 500 design	10,455	1,624,119	5,125	72.22	4,915	72.09	4%	4,028	71.53	21%	3,446	71.17	33%
36 hours 1 in 1000 design	12,031	1,772,752	6,049	72.8	5,854	72.68	3%	5,031	72.16	17%	4,504	71.83	26%
48 hours 1 in 5000 design	14,278	2,562,553	9,083	74.71	8,994	74.66	1%	8,535	74.37	6%	8,217	74.17	10%
72 hours 1 in 5000 design	13,181	2,880,602	8,204	74.16	8,101	74.1	1%	7,821	73.92	5%	7,609	73.79	7%
96 hours 1 in 5000 design	11,870	2,948,032	7,550	73.75	7,426	73.67	2%	7,135	73.49	5%	6,916	73.35	8%
120 hours 1 in 5000 design	12,727	3,005,136	7,265	73.57	6,986	73.39	4%	6,751	73.25	7%	6,635	73.17	9%
January 2011 historic	10,470	2,650,000	7,528	74.98	7,452	74.95	1%	5,746	74.62	24%	4,512	74.25	40%
1974 historic	5,953	1,410,000	3,275	73.31	3,159	73.26	4%	2,737	72.91	16%	2,493	72.71	24%
1999 historic	6,358	1,220,000	2,312	72.23	2,251	72.504	3%	1,814	71.89	22%	1,561	71.48	32%

Table 1 – Option Results

* Design events taken from the Wivenhoe Alliance (2005)

Flood Event			Option 0 - Existing Rules (Storage Level 100%)		Storage Level 95%		Storage Level 90%		Storage Level 85%		Storage Level 75% (Option 3)		Storage Level 50%	
Event description	Maximum Inflow (m^3/s)	Flood Volume (ML)	Maximum Outflow (m^3/s)	Maximum Lake Level (m AHD)	Maximum Outflow (m^3/s)	Flow Reduction %	Maximum Outflow (m^3/s)	Flow Reduction %	Maximum Outflow (m^3/s)	Flow Reduction %	Maximum Outflow (m^3/s)	Flow Reduction %	Maximum Outflow (m^3/s)	Flow Reduction %
36 hour 1 in 200 design*	8,214	1,544,119	3,861	71.43	3,579	7%	3,237	16%	2,965	23%	2,356	39%	1,134	71%
36 hours 1 in 500 design	10,455	1,624,119	5,125	72.22	4,863	5%	4,531	12%	4,271	17%	3,693	28%	2,213	57%
36 hours 1 in 1000 design	12,031	1,772,752	6,049	72.8	5,795	4%	5,478	9%	5,235	13%	4,705	22%	3,329	45%
48 hours 1 in 5000 design	14,278	2,562,553	9,083	74.71	8,949	1%	8,779	3%	8,645	5%	8,339	8%	7,397	19%
72 hours 1 in 5000 design	13,181	2,880,602	8,204	74.16	8,111	1%	7,995	3%	7,902	4%	7,689	6%	7,071	14%
96 hours 1 in 5000 design	11,870	2,948,032	7,550	73.75	7,447	1%	7,325	3%	7,233	4%	7,017	7%	6,404	15%
120 hours 1 in 5000 design	12,727	3,005,136	7,265	73.57	7,098	2%	6,911	5%	6,829	6%	6,702	8%	6,360	12%
January 2011 historic	10,470	2,650,000	7,528	74.98	7,453	1%	6,756	10%	5,876	22%	5,748	24%	4,209	44%
1974 historic	5,953	1,410,000	3,275	73.31	3,153	4%	2,974	9%	2,810	14%	2,618	20%	2,067	37%
1999 historic	6,358	1,220,000	2,312	72.23	2,132	8%	2,003	13%	1,920	17%	1,687	27%	1,007	56%

Table 2 – Routing Results for Storage Levels using the current Flood Manual Rules

5 Conclusions

Reductions in outflow flood can be achieved by the adoption of different storage levels and release strategies. However, due to the large volumes of water associated with major flood events, it is necessary to consider large changes to the full supply level to achieve appreciable reductions in flood magnitude. The impact of different initial storage levels reduces as the magnitude of the event increases.

10 February 2011

seqwater
WATER FOR LIFE

Mr John Bradley
Director-General
Department of Environment and Resource Management
Level 13, 400 George Street
BRISBANE QLD 4000

Dear John,

Further to our Chairman's letter to the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy, and Minister for Trade, of 4 February 2011, I advise that the SEQ Water Grid Manager informed Seqwater by the attached letter, received yesterday, 9 February 2011, that it has no objection, from a water security perspective, to Wivenhoe Dam being drawn down to 75% of its Full Supply Level (***FSL***) and that such a draw down, if temporary, would be unlikely to impact its obligations.

You will recall that, pursuant to Minister Robertson's earlier request, Seqwater undertook modelling of various potential flood events (which included approximately 90 permutations in respect of 3 previous flood events and 6 design flood events) and confirmed to you that a reduction in Wivenhoe Dam's storage level to 75% of its FSL will provide appreciable flood mitigation benefits. Reducing storage to this level will effectively increase the capability of the dam to further mitigate flood events (depending on rainfall conditions downstream of the dam).

By way of example, the simulation modelling undertaken by Seqwater, which was peer reviewed by independent experts and submitted to you with Seqwater's letter dated 7 February 2011, demonstrated, subject to the qualifications referred to in that letter, that the reduction in storage level of the Wivenhoe Dam to 75% of its FSL achieved (approximately):

(a) a flow reduction from 3900 cumecs to 2400 cumecs (being a 39% reduction) in the case of a 36 hour 1 in 200 design flood event; and

(b) a flow reduction from 5100 cumecs to 3700 cumecs (being a 28% reduction) in the case of a 36 hour 1 in 500 design flood event.

Seqwater notes the extreme January 2011 flood event resulted in 2,650,000 ML of flood water passing through Somerset and Wivenhoe Dams, which was 1,240,000 ML more than the 1974 floods.

In light of the SEQ Water Grid Manager's abovementioned advice to Seqwater, the extreme nature of the January 2011 event and the abovementioned modelling results, Seqwater recommends that Wivenhoe Dam's storage level be temporarily reduced to 75% of its FSL in order to temporarily increase its flood mitigation capacity. Should the State agree with this recommendation, Seqwater will then confer with your Departmental officers to explore the various options by which this outcome can most promptly be achieved.

I look forward to receiving your response.

Yours sincerely,

Peter Borrows
Chief Executive Officer

Attach.

SEQ Water Grid manager

Secure and efficient water through partnership and innovation

TRIM ref: D/11/502

9 February 2010

Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
City East QLD 4002

Dear Mr Borrows

I refer to Seqwater's Chair's letter to Minister Robertson dated 4 February 2011, regarding Seqwater's consideration of the appropriate Full Supply Levels (FSL) for Wivenhoe and Somerset dams. We acknowledge having recently received a copy of this letter from you.

I write regarding the water security impacts of lowering the FSL of Wivenhoe Dam, in light of the SEQ Water Grid Manager's obligation to manage water supplied from its water entitlements in accordance with Sections 6 and 7 (Desired Levels of Service Objectives and Risk Criteria) in the *South East Queensland System Operating Plan*. We understand that this is being considered as an interim measure for the current wet season.

I confirm previous verbal advice that, from a water security perspective, the SEQ Water Grid Manager has no objection to Wivenhoe Dam being drawn down to 75 per cent of its FSL. The water security implications of a temporary draw down are unlikely to impact our ability to comply with the *South East Queensland System Operating Plan* or our Grid Contract obligations.

If a permanent reduction of Wivenhoe Dam's FSL is later considered, this may have an impact on the *South East Queensland System Operating Plan's* desired levels of service objectives and we would suggest that you also engage with the Queensland Water Commission on this matter.

I trust that this advice is sufficient. If you have any questions, please do not hesitate to contact me by telephone on [redacted] or via email at [redacted]

Yours sincerely

[redacted]

Barry Dennien
Chief Executive Officer

CC: Karen Waldman, Chief Executive Officer, Queensland Water Commission.

CTS /11

Queensland Government

11 FEB 2011

Department of
Environment and Resource
Management

Mr Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority
PO Box 16146
CITY EAST QLD 4002

Dear Mr Borrows Peter

Thank you for your letter of 10 February 2011, in which you provided further advice regarding Seqwater's consideration of potential reductions in the Full Supply Level of Wivenhoe Dam.

Since receiving this correspondence on Thursday evening, we have held a number of discussions directly and with our officers to facilitate the early implementation of Seqwater's recommendation to reduce the storage level of Wivenhoe Dam to 75% of its Full Supply Level in order to temporarily increase its flood mitigation capacity.

It was also useful to receive the briefing yesterday afternoon on the outlook for the current wet season, with particular reference to South East Queensland, by the Queensland Regional Director of the Bureau of Meteorology, Mr Jim Davidson. We have discussed the immediate and 3 month weather outlook further today.

In our discussions today, you have indicated that the earliest timeframe by which Seqwater would seek to implement the reduction in the storage level of the dam would be late in the coming week, recognising the need to consider rainfall conditions and notification timeframes before such a release. You have indicated Seqwater remains confident in its ability to operationally respond to rainfall in the Bureau's current 8-day forecast within the provisions of the current Flood Mitigation Manual.

We have agreed to implement the recommendations of Seqwater in the following manner –

- I intend to propose an amendment to the Moreton Resource Operating Plan (ROP) for the consideration of Governor in Council. I am currently investigating the earliest possible date for such consideration but anticipate it will be no later than Thursday 17 February 2011.

- This ROP amendment would permit the subsequent submission by Seqwater to me of an Interim Program, for operations consistent with the recommendations of your letter of 10 February 2011. This Interim Program should be received immediately after the formal amendment of the ROP.

- I would then consider the interim program and respond directly.

- The State is currently considering the request for a Deed of Indemnity for the Corporation, its Board and officers, recognising that such releases below 100% Full Supply Level will occur outside the current provisions of the Flood Mitigation Manual

and the ROP. If granted, such an indemnity would be expected to be required for a limited duration until Seqwater arranges appropriate insurance relevant to the proposed new operating mode.

- Seqwater would then commence its recommended releases in accordance with the approved Interim Program.

Should you have any enquiries concerning the information in this letter, please do not hesitate to contact me on [redacted]

Yours sincerely

John Bradley
Director General

Queensland Government Gazette

EXTRAORDINARY

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Water Act 2000

APPROVAL OF AN AMENDMENT OF A RESOURCE OPERATIONS PLAN NOTICE (No 01) 2011

Short title

1. This notice may be cited as the *Approval of an amendment of a Resource Operations Plan Notice (No 01) 2011.*

Notice of document [s.106 of the Act]

2. Notice is given that the Governor in Council on 14 February 2011 approved an amendment to the Moreton Resource Operations Plan 2009.

The amended "Moreton Resource Operations Plan 2009" takes effect on the day the Governor in Council approved the amendment.

ENDNOTES

1. Made by the Governor in Council on 14 February 2011.
2. Published in the Gazette on 14 February 2011.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Environment and Resource Management.

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14 February 2011

QWC-6

Queensland water Commission

Securing our water, together.

Our ref: ME/11/0017

14 February 2011

Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
City East QLD 4002

Peter

Dear Mr Borrows

On 20 January 2011, the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade, wrote to the Queensland Water Commission (Commission) requesting the Commission provide all necessary assistance to Seqwater to ensure the Minister's requests to Mr Phil Hennessy, Chair, Seqwater, as raised in his letter of 20 January 2011, are able to be responded to as a matter of priority and with urgency.

On 25 January 2011, the Commission advised the Minister that it was liaising with Seqwater and undertaking preliminary work to support the matters raised.

Since that time the Commission has progressed its work in order to be in a position to provide advice to Seqwater and/or the Minister as and when required.

On 4 February 2011, you provided us with a copy of a letter from Seqwater's Chair to Minister Robertson regarding Seqwater's consideration of the appropriate Full Supply Levels (FSL) for Wivenhoe and Somerset Dams. This letter advised that "DERM may be satisfied, based on advice from QWC and the WGM from a water supply security perspective, that Wivenhoe Dam's FSL could be reduced in the short term to, say, 75% of its current FSL".

I note that the South East Queensland (SEQ) Water Grid Manager has provided you with a letter on 9 February 2011, confirming that "from a water security perspective, the SEQ Water Grid Manager has no objection to Wivenhoe Dam being drawn down to 75% of its FSL".

As you are aware, the Commission has now finalised a draft report as input information material for Seqwater, as requested by the Minister (attached), titled *Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam, 14 February 2011, Version 6*. The purpose of this report is to provide information on the potential impact on the security of supply in SEQ if a significant volume of water is released from the water supply capacity of Wivenhoe Dam as a potential flood mitigation measure. The information in this report has been shared with Seqwater officers during the course of its preparation, and a full version provided to you on 12 February 2011.

In preparing this report, the Commission has based its assumptions on the SEQ Water Strategy of July 2010, including the addition of purified recycled water into Wivenhoe at the 40% trigger level. Demand forecasts have been updated to align with the recent bulk water price review in November 2010.

Queensland Water Commission
PO Box 15087 City East Qld 4002
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ABN. 65 242 908 036 web: www.qwc.qld.gov.au

The report has considered scenarios as temporary options for the 2011 wet season, and commenced consideration of scenarios contemplating any permanent reductions to FSL from a Level of Service (LOS) yield perspective.

In summary, the report concludes that:

- If releases were made as a temporary measure to reduce the water level in Wivenhoe Dam by 25% from its FSL (a release of about 291,250 ML), the Risk Criteria of the *South East Queensland System Operating Plan* would still be met.
- Despite the above being met, if inflows for the next six years were as low as the 2001-2006 drought, full desalination may be triggered, as Grid 12 storage levels could drop to 60% in this time.
- As the volume released increases, more factors become impacted such as the increased likelihood of triggering desalination and the use of purified recycled water and restrictions, and potentially increased operating costs of the grid.
- Permanent reduction of the FSL by 25% will lower the LOS yield by about 30,000 ML/annum. This reduction in LOS yield may require the construction of new infrastructure to be brought forward by about five years to 2021, based on current demand assumptions. Other options to mitigate the yield reduction such as demand management measures may also be possible.
- Given the current demand is less than that in the recent bulk water price review assumptions used in this assessment, there is more confidence in the margin of supply security available in the demand/supply balance.
- Any permanent reduction would have to be more critically investigated, with this report commencing the analysis for purposes of assisting to inform the annual update of the SEQ Water Strategy and investigations related to the Brisbane River system.

Given the announcement on 13 February 2011 to lower the FSL to 75% for the 2011 wet season, the Commission looks forward to working with you closely in relation to any consideration of a permanent reduction of Wivenhoe's FSL.

The Commission would appreciate your feedback on this draft report, prior to formally progressing it as a final report to Seqwater and the Minister. I will be in touch shortly in order to discuss timing for your feedback with the aim of finalising the report within the next week or so.

If you require any further information, please contact me on [redacted] or on email at [redacted]

Yours sincerely

[redacted]

Karen Waldman
Chief Executive Officer

Enc (1)

cc John Bradley, Director General, Department of Environment and Resource Management

Barry Dennien, Chief Executive Officer, SEQ Water Grid Manager

QWC-6

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- Any permanent reduction would have to be more critically investigated, with this report commencing the analysis for purposes of assisting to inform the annual update of the SEQ Water Strategy and investigations related to the Brisbane River system.

Given the announcement on 13 February 2011 to lower the FSL to 75% for the 2011 wet season, the Commission looks forward to working with you closely in relation to any consideration of a permanent reduction of Wivenhoe's FSL.

The Commission would appreciate your feedback on this draft report, prior to formally progressing it as a final report to Seqwater and the Minister. I will be in touch shortly in order to discuss timing for your feedback with the aim of finalising the report within the next week or so.

If you require any further information, please contact me on [redacted] or on email at [redacted]

Yours sincerely

[redacted]

Karen Waldman
Chief Executive Officer

Enc (1)

cc John Bradley, Director General, Department of Environment and Resource Management

Barry Dennien, Chief Executive Officer, SEQ Water Grid Manager

INFORMATION MATERIAL ONLY

Queensland water Commission

Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam

14 February 2011

Version 6

Document Control

Date	Author/Reviewer	Description	Version
3/2/2011	Wai-Tong Wong	Draft	1
3/2/2011	Julie Allan, Mark Askins Richard Scott, Wendy Auton Justin Claridge, Gayle Leaver	Reviewed Draft - with edits	1, 2, 2A
8/2/2011	Wai-Tong Wong Mark Askins Wendy Auton	Draft edited with additional sections on modelling review by DERM, demand reduction and Waspp simulations. Incorporated comments by Karen Waldman	3
9/2/2011	Wai-Tong Wong Julie Allan, Mark Askins Wendy Auton, Justin Claridge John Collins (John Collins Consultants Pty Ltd)	Executive Summary added and section 4.1 edited. Comments from John Collins incorporated.	4
10/2/2011	Wai-Tong Wong Mark Askins, Wendy Auton Justin Claridge, Richard Scott	Incorporated strategic comments from Project Team meeting (Karen Waldman and Tad Bagdon)	5
11/2/2011	Wai-Tong Wong Julie Allan Mark Askins Justin Claridge	Incorporated minor edits and improved formatting	6

Approval

Date	Name	Description	Version
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Executive Summary

The purpose of this report is to provide information on the potential impact on the security of supply in South East Queensland (SEQ) if a significant volume of water is released from the water supply capacity of Wivenhoe Dam as a potential flood mitigation measure.

In the main the scenarios considered would be potentially a temporary measure over the 2011 wet season, based on the impacts to the SEQ Water Grid as a whole. The underlying assumptions used include the demand and supply capacity contained in the SEQ Water Strategy, with demand forecasts updated to align with the recent bulk water price review in November 2010.

For completeness two scenarios involving permanent reduction in the full supply volume of Wivenhoe Dam have also been considered, but further investigation is required to understand the full impacts. This assessment is based on sensitivity analysis of the total grid capacity and no detailed assessment has been undertaken.

The following observations can be drawn from these assessments:

- If releases were made as a temporary measure to reduce the water level in Wivenhoe Dam by 25% of full supply capacity (a release of about 291,250 ML), the (five year) Risk Criteria of the SEQ System Operating Plan (SOP) would still be met.
- Despite the SOP Risk Criteria being met, if inflows for the next 6 years were as low as the 2001-2006 drought, full desalination production may be triggered, as Grid 12 storage levels could drop to 60% in this time.
- As the volume released increases, more factors become impacted such as the increased likelihood of triggering desalination and the use of purified recycled water and restrictions and potentially increased operating costs of the grid.
- Permanent reduction in the full supply volume of 25% will lower the LOS yield by about 30,000 ML/annum. This reduction in LOS yield may require the construction of new infrastructure to be brought forward by about 5 years to 2021, based on current demand assumptions. Other options to mitigate the yield reduction such as demand management measures may also be possible.

These analyses are an exercise in assessing risk management rather than a forecast for the future. Therefore an understanding of the consequences involved for a particular risk profile is important.

This report does not recommend a particular scenario for adoption as other factors such as social, economic and environmental may also need to be considered. It provides some risk information on the security of supply based on the short term (SOP Risk Criteria) and the long term water demand/supply balance in the SEQ Water Strategy.

Operational and regulatory impacts such as increased pumping costs and the Water Resource Plan have not been assessed. Advice from the responsible agency or entity would need to also be considered.

1 Purpose

The purpose of this report is to outline the results of the assessment, from a water supply security perspective for South East Queensland (SEQ) over the short and long term, of possible scenarios for lowering of Wivenhoe Dam below the current deemed full operating supply level (i.e. 100 percent dam level for water supply purposes). The effects of temporarily lowering the full supply level of Baroon Pocket and Hinze Dams were also assessed.

For the purpose of this report, short term is defined as the period over the next 5 years (as per risk criteria of SEQ System Operating Plan) where the supply security in SEQ may be impacted by any proposed temporary lowering of the Wivenhoe Dam operating level over the 2011 wet season.

Long term is defined as a period of up to 50 years in relation to the demand and supply (LOS Yield) balance in the SEQ Water Strategy.

This assessment does not consider the environmental, social and economic impacts of the dam operating levels in relation to flood mitigation for downstream properties and infrastructure.

2 Background

Major flooding occurred in the Brisbane River catchment on 13 January 2011.

This resulted in the Brisbane River peaking at 4.46m at the Port Office in Brisbane City and causing extensive damage to properties and businesses throughout the catchment. The 2011 flood was about 1m lower than the 1974 Flood event of 5.45m at the Port Office, Brisbane City. However, indications are that the social and economic impacts are much more significant given the building and business developments in the catchment over the last 37 years. Flood rebuilding is currently estimated to cost about $5B.

The Minister for Natural Resources, Mines and Energy and the Minister for Trade has written to the Commissioner on 20 January 2011, requesting the Queensland Water Commission provide all necessary assistance to Seqwater in their review of the operation of Wivenhoe and Somerset Dams.

3 Role of Queensland Water Commission

3.1 Background/Context

The Queensland Water Commission (the Commission) is responsible for providing advice to the Minister on matters relating to water supply and demand management for water for SEQ. A key function of the Commission is to provide advice on the desired Levels of Service (LOS) for water supplied in SEQ.

The SEQ Water Strategy defines the LOS objectives to include the expected frequency, duration and severity of restrictions during future droughts based on a total demand of 375 litres/person/day (including residential, non-residential and system losses) of which 230 litres/person/day is attributed to residential demand. The LOS objectives are provided in Appendix A.

The Commission also makes and administers the South East Queensland System Operating Plan (SOP) under the *Water Act 2000* which sets out the rules for operating the SEQ Water Grid to help achieve the LOS objectives.

While the LOS objectives specify the basis for operating the Grid over the long term, the risk criteria of the SOP provide the basis for balancing water security and operating costs over the short term (up to 5 years).

The SOP risk criteria are given below:

Volume of water stored by all key water grid storages	**Probability of reaching 40% and 30% volume of water stored**		
	within 1 year	**Within 3 years**	**Within 5 years**
40%	Less than 0.2%	Not Specified	Less than 5%
30%	Not Specified	Less than 0.5%	Less than 1%

3.2 Report to Seqwater

To support Seqwater's review of the operations of Wivenhoe and Somerset Dams, the Commission has conducted a series of modelling exercises to determine the potential impacts of certain operating arrangements on the security of supply for the region.

Consideration has been given to the ability of the SEQ Water Grid to continue to achieve the desired Level of Service objectives in the short term (up to 5 years) for various scenarios of lowering the deemed full water supply level particularly at Wivenhoe Dam, and also for Hinze and Baroon Pocket Dams.

For completeness two scenarios involving permanent reduction in the full supply volume of Wivenhoe Dam have also been considered, but further investigation is required to understand the full impacts. This assessment is based on sensitivity analysis of the total grid capacity and no detailed assessment has been undertaken.

These analyses are an exercise in assessing water security risk rather than a forecast for the future. Therefore an understanding of the consequences involved for a particular risk profile is important.

Operational and regulatory impacts such as increased pumping costs and the Water Resource Plan have not been assessed. Advice from the responsible agency or entity would need to also be considered.

This report provides an input, amongst other considerations, for Seqwater or other agencies to assist in developing advice to Government on the operating level of Wivenhoe Dam over this 2011 forecast wet season.

4 Short Term Impacts

The potential short term impacts are assessed using hydrological modelling. These are described in sections 4.1 to 4.3.

4.1 Use the SEQ Regional Water Balance Model (Wathnet Model) to assess the SOP risk criteria

The modelling conducted for this report was carried out using the Wathnet Model[1] which assesses the likelihood of reaching particular water storage volumes. Under the current operating arrangements and policies, the volumes of interest are:

- 60% of the Grid 12 volume, when full desalination production is triggered; and
- 40% of the Grid 12 volume, when full production of purified recycled water from the Western Corridor Recycled Water Project is triggered, to augment water supplies in Wivenhoe Dam and medium level restrictions would be introduced.

The Grid 12 storages and their corresponding capacities are provided in Appendix B.

Table 1 presents the five scenarios modelled. Scenarios 1 to 4 involved a reduction in water level at Wivenhoe Dam to 87%, 75%, 70% and 50% supply capacity with all other storages set at 100% full supply initially. The fifth scenario also includes a reduction of 50% capacity at Hinze and Baroon Pocket Dams with all other storages set at 100% full supply initially. This allows an assessment of the sensitivity to the security of supply should there be a need to also reduce the full operating levels in the Sunshine Coast (Baroon Pocket Dam) and Gold Coast (Hinze Dam).

For example, a 25% reduction of volume of 291,250 megalitres (ML) from Wivenhoe Dam would correspond to about 3 m drawdown from the full supply level based on the storage capacity data provided in Appendix C.

The key assumptions adopted for these runs were:

- Simulations start at the end of January 2011 with initial dam level (inflows from February 2011)
- Northern Pipeline Interconnector Stage 2 excluded
- Demand forecast as agreed by Government in late 2010 (residential consumption increasing from current levels to 200 litres/person/day by 2018)
- Medium series population growth consistent with SEQ population forecasts
- No desalination above 60% Grid 12 Storages
- Full desalination below 60% Grid 12 Storages

The scenarios do not consider day-to-day operational matters.

[1] Wathnet Model refers to the Generalised Water Supply Headworks Simulation using Network Linear Programming Model.

Table 1: Modelled scenarios

Scenario	%reduction Wivenhoe Dam (from Full Supply)	%reduction from other dams (from Full Supply)	Volume of Water Released (ML)#	%reduction of key Grid 12 Storages (from Full Supply)
1	13*	none	150,000	7.2
2	25	none	291,250	14.0
3	30	none	349,500	16.9
4	50	none	582,500	28.1
5	50	50 (Baroon Pocket) 50 (Hinze Dam)	693,500	33.5

* Scenario 1 was selected as a starting point for the assessment of 150,000 ML (about 12.9%, but rounded up to 13% in the Table).

This is only the total volume and the strategy for release has not been considered. Operational constraints are also not considered for the purpose of this assessment.

The corresponding risk criteria results as compared to the SOP requirements are shown in Table 2.

Table 2: Results of risk criteria

Period	SOP Criteria	Scenarios (Wivenhoe/Baroon Pocket/Hinze capacities)				
		1 (87/100/100)	2 (75/100/100)	3 (70/100/100)	4 (50/100/100)	5 (50/50/50)
Probability of reaching 40% Grid 12 Storage Volume						
1 year	<0.2%	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
5 year	<5%	0.09%	0.15%	0.20%	0.31%	0.49%
Probability of reaching 30% Grid 12 Storage Volume						
3 year	<0.5%	<0.01%	<0.01%	<0.01%	<0.01%	0.01%
5 year	<1%	<0.01%	<0.01%	<0.01%	<0.01%	0.03%

From the above analysis, all scenarios 1 to 5 in Table 2 pass the SOP risk criteria. While this means that the risk associated with the short term security of supply is acceptable, the consequences of each scenario with respect to other factors would need to be examined – see Section 6.

4.2 Forecast the probability of Grid 12 storage levels over the next 5 years

To forecast the probability of the Grid 12 storages reaching a certain level, the Wathnet Model was used, based on stochastic data generation for 117 years of historical information.

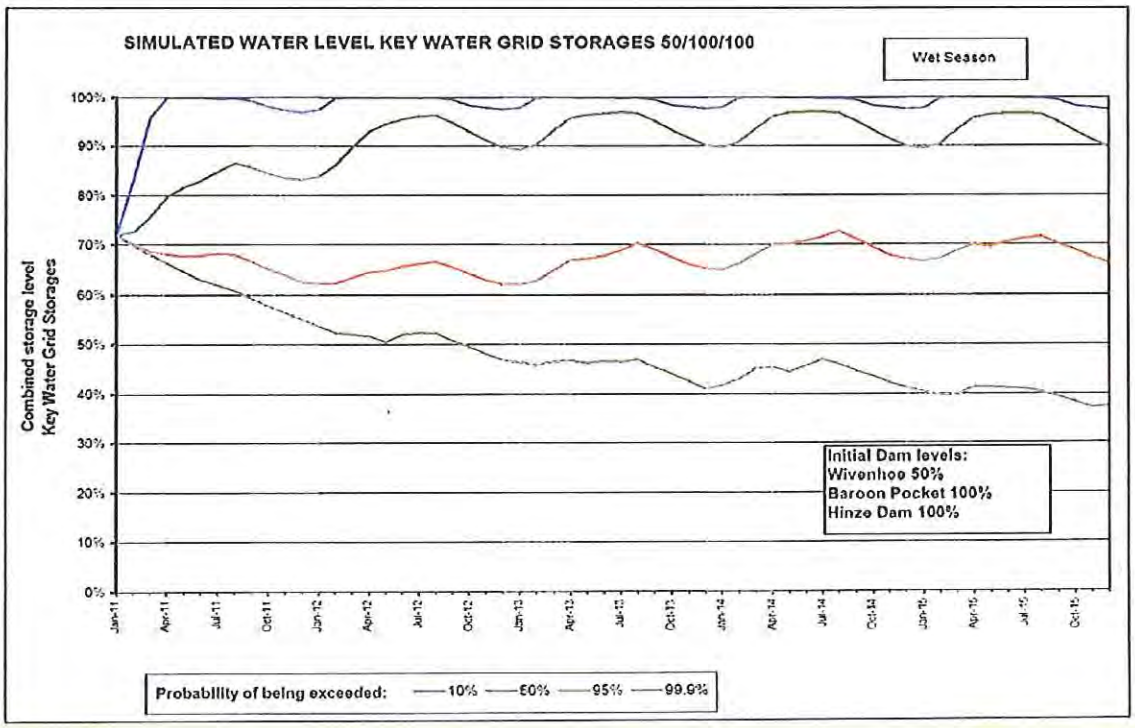
Stochastically generated data provides longer time sequences of hydrologic data that have similar statistical characteristics of that of the historical record. This data provides better information about climate variability and the potential for droughts worse than have occurred on record.

Figure 1 shows the forecast storage level for the Grid 12 storages for Scenario 4 (as described in Section 4.1) with Wivenhoe drawn down to 50% and the rest of the storages at 100% at the start of the simulation in end January 2011. (Note: The plots for Scenarios 1 – 3 would show higher storage levels than those shown in Figure 1).

In this scenario:

- there is a 95% probability that the combined Grid 12 storage level remain above 60% for the next 5 years;
- there is a 99.9% probability that the combined Grid 12 storage level remains above 40% for the next 4 years; and
- there is a 50% probability that the combined Grid 12 storage level will climb back to 90% and remain at this level for the remainder of the 5 year period.

Figure 1: Scenario 4 with Wivenhoe Dam drawn down to 50% - forecast combined Grid 12 storage level showing probabilities of exceedance

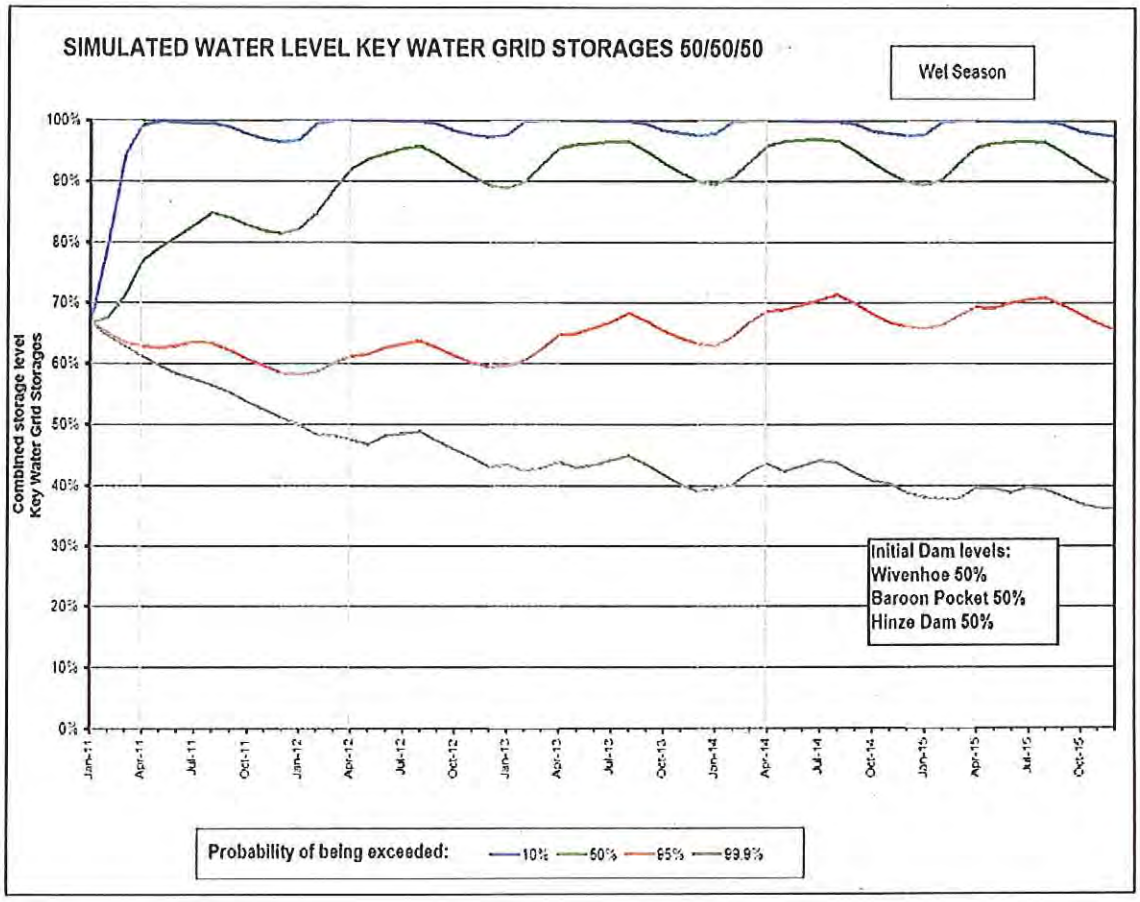


Scenario 5 (as described in Section 4.1) tests the sensitivity of the model findings by starting with Wivenhoe, Baroon Pocket and Hinze Dams all drawn down to 50% and the rest of the Grid 12 storages at 100% at the start of the simulation. This scenario represents the highest risk situation of all the modelled scenarios. The results are still within the bounds of the risk criteria set in the SOP.

In this scenario (Figure 2):

- There is almost a 95% probability that the combined Grid 12 storage level will stay above 60% for the next 5 years.
- There is at least a 95% probability (could be approaching 99.9%) that the combined Grid 12 storage level will stay above 40% for the next 5 years.
- There is a 50% probability that the combined Grid 12 storage level will climb back up to 90% and remain about this level for the next 5 years.

Figure 2: Scenario 5 with Wivenhoe, Baroon Pocket and Hinze Dams all drawn down to 50% - forecast combined Grid 12 storage level showing probabilities of exceedance



4.3 Simulated storage behaviour of Grid 12 storages over the next 6 years for three inflow scenarios (using Waspp Model)

The purpose of these simulations was to assess the potential behaviour of the Grid 12 storages over the next 6 years using three inflow scenarios based on probability of combined inflows into the storages.

For all inflow scenarios, Wivenhoe Dam was assumed to be initially at 75% capacity.

There are various methodologies that could be used for the selection of inflow sequences. For the purpose of this work, it is considered necessary to test scenarios covering a period of relative wet, of average inflow and of the driest years. The annual inflows for the Grid 12 storages from 1890 to 2007 were used in the analysis. Table 5 provides the scenarios corresponding to the 30% (wet), 50% (average) and 100% (dry) exceedance probabilities based on 6 years of cumulative inflow sequence.

The worst 6 years of inflows (100% exceedance probability) was found to correspond to the most recent drought on record from 2001 to 2006 as shown in Scenario 3 (Table 5).

Table 5: Inflow scenarios assessed

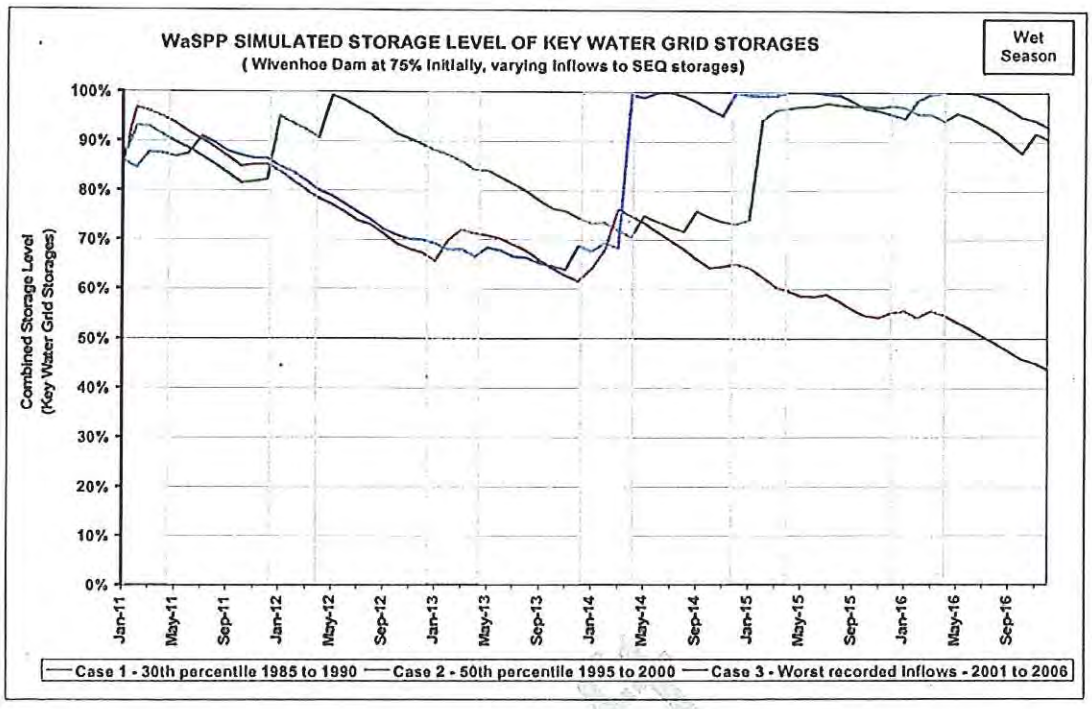
Scenario	Exceedance Probability of Inflows	Continuous Sequence (6 years)	Total Inflow Volume Grid 12 (ML)
1	30%	Jan 1985 – Dec 1990	10,193,300
2	50%	Jan 1995 – Dec 2000	7,243,300
• 3	• 100%	• Jan 2001 – Dec 2006	• 2,752,000

The assumptions adopted in the modelling were:

- 75% initial storage volume at Wivenhoe Dam (all other storages at 100% full) - or Grid 12 storages at 86% capacity
- Demands forecast as agreed by Government in late 2010 (residential consumption increasing from current levels to 200 litres/person/day by 2018)
- Full desalination production when Grid 12 storages drop below 60% capacity, and no desalination above 60%
- Northern Pipeline Interconnector Stage 2, Hinze Dam raising and Wyaralong Dam not included
- Purified Recycled Water introduced into Wivenhoe Dam when Grid 12 storages drop below 40% capacity.

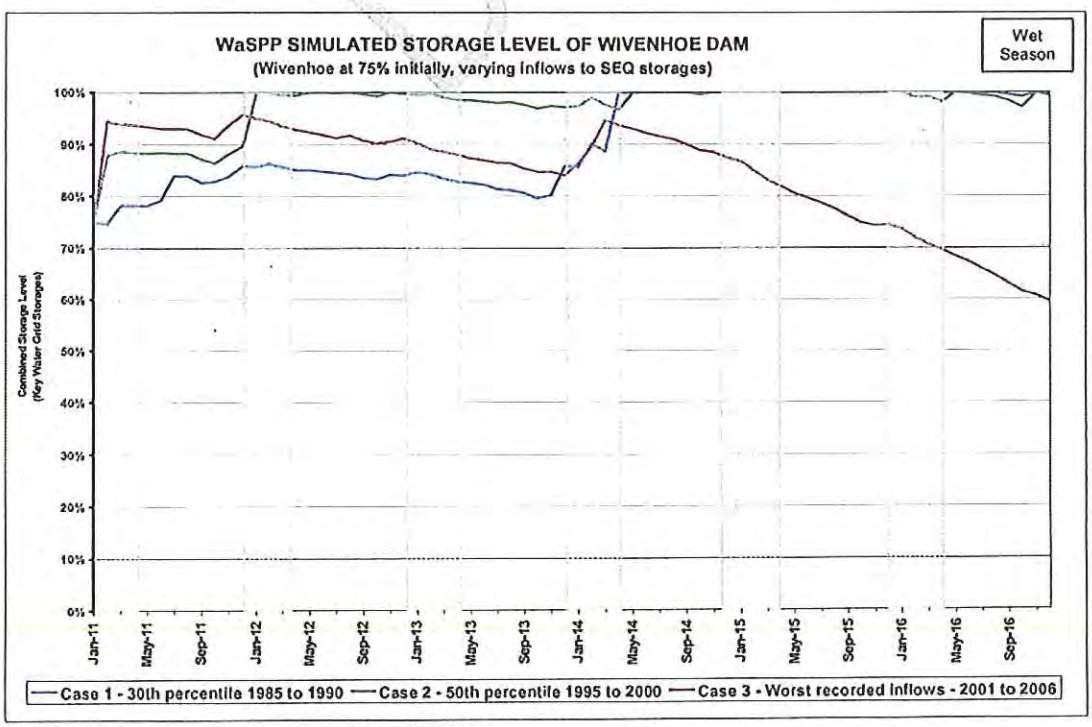
The results of the simulations for the 3 scenarios are shown in Figure 3. The worst case scenario from the historical records shows the lowest combined storage levels after June 2014, but staying above the 40% capacity to the end of 2016. Under this scenario of inflows, Purified Recycled Water is not expected to be introduced into Wivenhoe Dam within the next 5 years. For scenarios 1 and 2, the storage levels generally decreased for the first 3 years before increasing thereafter.

Figure 3: Simulated Grid 12 storage levels for 3 inflow scenarios



The simulated storage level behaviour of Wivenhoe Dam for the three inflow scenarios is indicated in Figure 4. As expected, the simulated level for Wivenhoe Dam reduces significantly due to the worst inflow sequence. With scenarios 1 and 2, Wivenhoe Dam recovers within about 3 years.

Figure 4: Simulated Wivenhoe Dam storage levels for 3 inflow scenarios



5 Long Term Impacts - assessment of the potential impact on the LOS Yield (using Wathnet Model)

To assess the long term Impacts on the LOS yield if Wivenhoe Dam was permanently operated at a reduced water supply capacity, two scenarios involving a 10% and 25% reduction from full supply level were investigated.

This assessment is carried out for completeness only and does not suggest that the dams be operated permanently with a reduced full supply level. Further investigation is necessary to understand the full impacts.

The Regional Water Security Program for SEQ establishes the desired LOS objectives which form a basis for the SEQ Water Strategy and are implemented through the SOP. These objectives provide long term security of water supply and are defined as the:

- desirable maximum frequency, duration and severity of water restrictions, and
- the average amount of water per person that must be supplied in normal times.

These objectives are used to determine the Level of Service (LOS) Yield. The LOS Yield is used, along with the projected demands, to ensure that adequate initiatives are in place to meet demand in the future.

The LOS Yield for the 2010 Infrastructure (capacity to deliver) is assessed to be 485,000 ML/a. This assumes that the desalination plant is providing 125 ML/day and Purified Recycled Water (PRW) 142 ML/day.

To assess the impact on the long term LOS Yield, the Wathnet Model was used.

This assessment was based on the following assumptions:

- 2010 infrastructure, prior to the full operation of Wyaralong Dam and Hinze Dam Stage 3
- PRW production at 52,000 ML/a (142 ML/day) and supplies 34,950 ML/a (96 ML/day) to industry
- Desalination production at 46,000 ML/a (125 ML/day)

5.1 Results – 10% reduction on Full Supply Volume for Wivenhoe Dam

The LOS Yield for the 2010 Infrastructure (capacity to deliver) is assessed to be 485,000 ML/a.

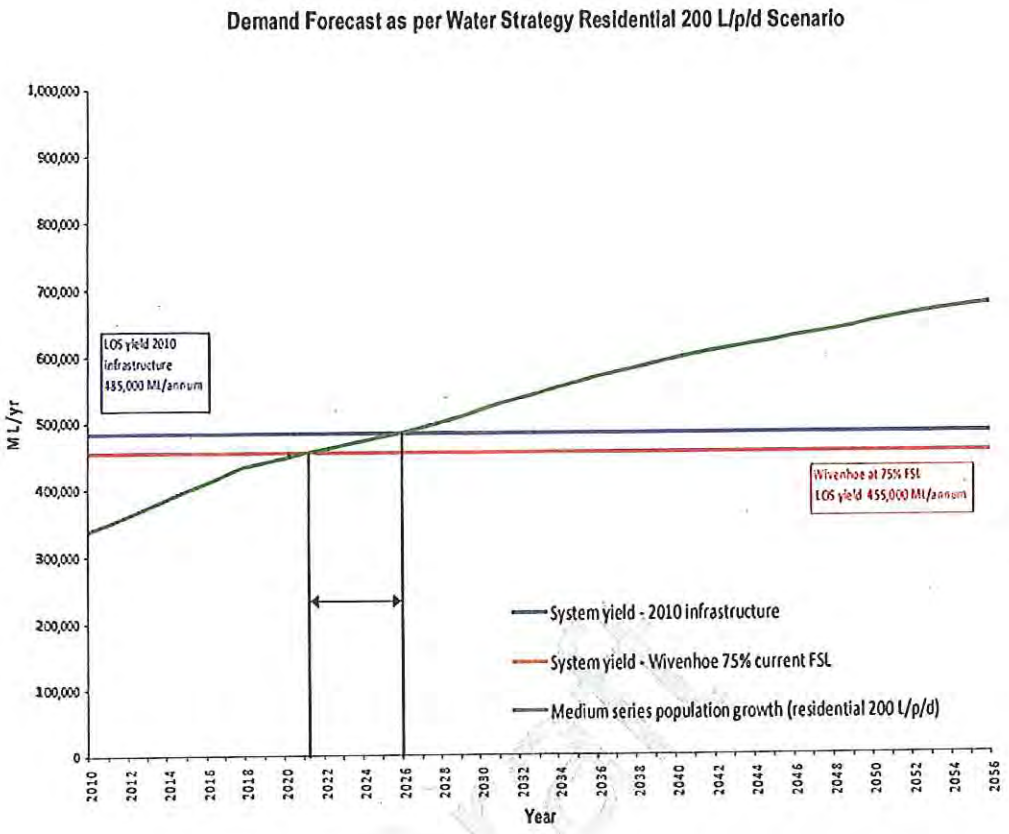
Preliminary modelling work suggests that the impact of a permanent 10% reduction in the full supply volume at Wivenhoe Dam is minimal on the LOS yield as this is within the tolerance of the model. This needs further investigation.

5.2 Results – 25% reduction on Full Supply Volume for Wivenhoe Dam

There is a significant reduction in the LOS yield of 30,000 ML/annum with a scenario where Wivenhoe Dam was permanently operated at 25% lower than the full supply level. The LOS yield has reduced from 485,000 ML/annum to 455,000 ML/annum.

Figure 5 shows that new infrastructure would need to be brought forward by about 5 years to about 2021 from 2026 under medium series population growth.

Figure 5: LOS Yield comparison



5.3 Potential for demand reduction

One of the input factors that impacts on the water supply balance is the level of extractions from the supply storages. The level of extraction depends on the level of demand in South East Queensland (SEQ).

The supply balance and risk assessment modelling conducted for this information paper includes the level of expected demand based on residential water consumption of 200 litres/person/day (l/p/d). This demand scenario is the same as the demand forecast as agreed by Government in late 2010 (residential consumption increasing from current levels to 200 l/p/d by 2018).

The 200 l/p/d demand scenario is the equivalent of total water demand of 870 ML per day for SEQ or 317,550 ML per annum.

The level of total water demand in SEQ for the last three months has been approximately 670 ML/d, which when annualised gives 244,550 ML per annum. On a per person basis this is the equivalent of 150 l/p/d. However, this level of consumption is unlikely to remain at this level.

The late 2010 demand scenario includes a residential demand at approximately 185 l/p/d for 2011, being the equivalent of 800 ML per day for SEQ or 292,000 ML per annum. If demand was to be maintained at this level, this represents a demand saving of 25,550 ML per annum.

A saving of 25,550 ML per annum (difference between 317,550 and 292,000 ML per annum) would significantly offset the LOS yield reduction of 30,000 ML/annum if Wivenhoe Dam was operated at 25% lower than Full Supply Level (FSL) over a long period (Refer to section 5.2).

6 Implications of each scenario

Table 3 provides a general framework for the assessment of the consequences of each scenario based on the following criteria for the short, intermediate and long term periods:

- Security of supply - involves examining the sufficiency, LOS Yield, desalination, and demand and supply balance
- Levers – these are some of the factors that could be reviewed to optimise the security of supply such as Levels of Service, policies and assumptions
- Inputs – these are some of the input factors which could be impacted e.g. allocation/yield, demand and supply
- Pricing – some of the scenarios may impact upon a future review of the Price Path such as through increases in operating costs.

The following observations are made and reflected in Table 3:

Short Term Reduction in Full Supply Capacity

- If releases were made as a temporary measure to reduce the water level in Wivenhoe Dam by 25% of full supply capacity (a release of about 291,250 ML), the Risk Criteria of the SEQ SOP (System Operating Plan) would still be met.
- As the volume released increases, more factors become impacted such as,the increased likelihood of triggering desalination, use of purified recycled water or introduction of restrictions and potentially increased operating costs of the grid.
- The SOP Risk Criteria are satisfied for scenarios with up to 50% of water released from Wivenhoe Dam. However other factors become impacted. This assessment deals only with the volume capacity and does not consider actual availability due to operational constraints.
- Operational costs may be impacted when the storage is drawn down to 50% as the grid operating costs will increase with the need for desalination being triggered more frequently.

Long Term (Permanent) Reduction in Full Supply Capacity at Wivenhoe Dam

- A reduction of 25% in the full supply level would have an impact on the security of supply.
- New infrastructure would need to be brought forward about 5 years to meet the LOS objectives for a 25% drawdown scenario.
- There could be an impact on the future bulk water through an increase in operational costs for a 25% drawdown scenario.

There could potentially be some optimal operating arrangement, indicated as Intermediate Option in Table 3. This could involve a review of the levers such as redefining the LOS objectives based on further investigations, to ensure that the short term operating options do not compromise the long term security of supply.

Table 3: Preliminary Framework for Consideration of Impacts on SEQ Water Strategy for Various Operating Levels of Wivenhoe Dam

Description	Base Case (status quo)	Short Term Scenario (Temporary Wivenhoe Dam drawdown)			Intermediate Option	Long Term Scenario (Permanent Wivenhoe Dam drawdown)	
		13%	25%	50%	Review	[2]10%	25%
Security of supply							
• Sufficiency	✓	✓	✓	✓	Review	✓	×
• LOS Yield	✓	✓	✓	✓		✓	×
• Demand/ Supply Balance	✓	✓	✓	✓		✓	×
• Desalination	✓	✓	If 2001-2006 inflows - may potentially trigger full desalination	If 2001-2006 inflows - may potentially trigger full desalination		✓	×
Levers							
• Levels of Service					Review		
• Policies							
• Assumptions							
Input							
• Allocation[1]/Yield	✓	✓	Allocation - determined by DERM	Allocation - determined by DERM	Review	× (impacted)	×
• Demand	✓	✓	✓	✓		✓	×
• Supply	✓	✓	✓	✓		× (impacted)	×
Pricing							
• Impact on pricing	✓	✓	✓	✓	Review	✓	× new price path is potentially required

Note: ✓ Minimal Impact × Impacted

[1] A permanent change in the full supply level of Wivenhoe Dam would require a review of available entitlements from Wivenhoe Dam under the Water Resource Plan.

[2] Needs further assessment.

QWC-6

7 Peer review of modelling by Department of Environment and Resource Management

The results of this modelling work were reviewed by the Queensland Hydrology Group of the Department of Environment and Resource Management.

The review of the input and results for the Wathnet Model was carried out by Dr John Vitkovsky, Senior Hydrologist, who stated that: "modifications were made to the WathNet SEQ Grid model for the purposes of a sensitivity analysis of the SEQ LOS statistics from lowering the full storage volume of key large storages. There (are) a number of changes to the model that can only be done by someone with intimate knowledge of the lower-level files in the model—and cannot be made using the spreadsheet. However, as long as it is only the SEQ volume LOS statistics that are being reported on and given the modifications made to the spreadsheet the results should be reasonable." Further:

- The model setups for all runs seem correct
- The results seem entirely reasonable and satisfy the SOP Risk Criteria
- The output statistics for both the long-term and forecast model runs seem reasonable (without re-running those scenarios) and are compliant with the LOS and SOP criteria."

For the review of the Waspp Model, Mr Craig Johansen (Principal Hydrologist) has stated that "the results of the scenarios presented for review appeared logical and appropriate based on the rules of the SEQ Water Grid and the understanding (of) the model."

Appendix A – Level of Service Objectives (SEQ Water Strategy)

• During normal operating mode, sufficient water will be available from the SEQ Water Grid to meet an average regional urban demand of 375 litres per person per day (including residential, non-residential and system losses).

• Sufficient investment in the water supply system will occur so that:

-Medium Level Restrictions will not occur more than once every 25 years, on average

-Medium Level Restrictions will only reduce consumption by 15 per cent below the total consumption volume in normal operating mode

-drought response infrastructure will be not be required to be built more than once every 100 years, on average

-combined regional storage reserves do not decline to 10 per cent of capacity more than once every 1000 years, on average

-regional water storages do not reach 5 per cent of combined storage capacity

-Wivenhoe, Hinze and Baroon Pocket dams do not reach minimum operating levels.

• It is expected that Medium Level Restrictions will last longer than six months, no more than once every 50 years on average.

Appendix B - Grid 12 Storages in South East Queensland

As at 27 October 2010

	FULL SUPPLY VOLUME (Megalitres)
Southern	
Little Nerang	6,705
Hinze	161,073
Total Southern	167,778
Central	
North Pine	214,302
Somerset	379,849
Wivenhoe	1,165,238
Lake Kurwongbah	14,370
Leslie Harrison	24,868
Total Central	7,798,627
Northern	
Baroon Pocket	61,000
Cooloolabin	13,800
Ewan Maddock	16,587
Lake MacDonald	8,018
Wappa	4,694
Total Northern	104,099
TOTAL SEQ	**2,070,504**

Appendix C – Wivenhoe Dam Storage Capacity Data

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	VOLUME (ML) COMP
82.00	22161	3665200	
81.75	21916	3499905	
81.50	21668	3445429	
81.25	21419	3391560	
81.00	21166	3338361	
80.75	20918	3285762	
80.50	20677	3233774	
80.25	20431	3182392	
80.00	20182	3131619	
79.75	19932	3081433	
79.50	19735	3031816	
79.25	19508	2982768	
79.00	19285	2934279	
78.75	19061	2886359	
78.50	18831	2839009	
78.25	18613	2792205	
78.00	18390	2745957	
77.75	18173	2700255	
77.50	17956	2655069	
77.25	17746	2610476	
77.00	17535	2566379	
76.75	17332	2522810	
76.50	17118	2479767	
76.25	16930	2437223	
76.00	16724	2395172	
75.75	16531	2353607	
75.50	16337	2312526	
75.25	16147	2271925	
75.00	15964	2231791	
74.75	15763	2192113	
74.50	15612	2152874	
74.25	15443	2114055	
74.00	15265	2075676	
73.75	15105	2037713	
73.50	14943	2000156	
73.25	14782	1963000	
73.00	14626	1926252	
72.75	14464	1889912	
72.50	14285	1853992	
72.25	14121	1818486	
72.00	13955	1783388	
71.75	13800	1748690	
71.50	13642	1714393	
71.25	13484	1680498	
71.00	13323	1646983	
70.75	13167	1613871	
70.50	13009	1581156	
70.25	12851	1548833	
70.00	12693	1516906	
69.75	12529	1485378	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	VOLUME (ML) COMP
69.50	12365	1454267	
69.25	12205	1423557	
69.00	12046	1393246	
68.75	11889	1363332	
68.50	11723	1333815	
68.25	11561	1304714	
68.00	11421	1276013	
67.75	11240	1247714	
67.50	11080	1219815	
67.25	10916	1193301	
67.00	10751	1165238	
66.75	10572	1138550	
66.50	10389	1112278	
66.25	10197	1086644	
66.00	9980	1061414	
65.75	9797	1036697	
65.50	9558	1012440	
65.25	9412	988681	
65.00	9234	965378	
64.75	9058	942515	
64.50	8884	920080	
64.25	8712	898060	
64.00	8541	876532	
63.75	8371	855381	
63.50	8184	834691	
63.25	8027	814418	
63.00	7864	794557	
62.75	7710	775097	
62.50	7558	756014	
62.25	7402	737300	
62.00	7247	719011	
61.75	7115	701052	
61.50	6967	683435	
61.25	6855	666123	
61.00	6745	649112	
60.75	6589	632399	
60.50	6518	615966	
60.25	6403	599809	
60.00	6299	583927	
59.75	6150	568318	
59.50	6085	552976	
59.25	5975	537895	
59.00	5875	523069	
58.75	5775	508516	
58.50	5674	494209	
58.25	5575	480151	
58.00	5467	466310	
57.75	5371	452682	
57.50	5273	439267	
57.25	5175	426047	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	VOLUME (ML) COMP
57.00	5078	413038	
56.75	4985	401055	
56.50	4897	389206	
56.25	4810	377573	
56.00	4721	366152	
55.75	4627	354923	
55.50	4537	343869	
55.25	4445	332991	
55.00	4348	322302	
54.75	4255	311791	
54.50	4144	301454	
54.25	4048	291281	
54.00	3942	281271	
53.75	3837	271417	
53.50	3735	261703	
53.25	3633	252124	
53.00	3524	242668	
52.75	3425	233325	
52.50	3329	224083	
52.25	3212	214930	
52.00	3121	205854	
51.75	3029	196851	
51.50	2932	187908	
51.25	2837	179008	
51.00	2744	170151	
50.75	2654	161325	
50.50	2578	152518	
50.25	2501	143722	
50.00	2427	134931	
49.75	2350	126139	
49.50	2284	117339	
49.25	2179	108523	
49.00	2100	99684	
48.75	2028	90814	
48.50	1957	81902	
48.25	1882	72944	
48.00	1820	63926	
47.75	1754	54842	
47.50	1693	45685	
47.25	1636	36443	
47.00	1590	27109	
46.75	1542	17673	
46.50	1488	8125	
46.25	1444	-1540	
46.00	1393	-11116	
45.75	1355	-20673	
45.50	1312	-30143	
45.25	1265	-39139	
45.00	1214	-47653	
44.75	1174	-56169	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	VOLUME (ML) COMP
44.50	1134	-64195	
44.25	1095	-72209	
44.00	1043	-79727	
43.75	1005	-87157	
43.50	977	-94556	
43.25	944	-101925	
43.00	911	-109306	
42.75	879	-116728	
42.50	825	-123933	
42.25	801	-131057	
42.00	774	-138089	
41.75	744	-145022	
41.50	715	-151858	
41.25	686	-158116	
41.00	659	-164439	
40.75	625	-170529	
40.50	593	-176259	
40.25	575	-181834	
40.00	554	-187424	
39.75	533	-192666	
39.50	512	-197761	
39.25	494	-202504	
39.00	475	-207192	
38.75	456	-211819	
38.50	435	-216014	
38.00	398	-220937	
37.50	338	-225066	
37.00	309	-229460	
36.50	279	-233076	
36.00	252	-236255	
35.50	154	-238769	
35.00	158	-241286	
34.50	153	-243763	
34.00	132	-246078	
33.50	114	-248137	
33.00	96	-249911	
32.50	84	-251364	
32.00	60	-252507	
31.50	55	-253320	
31.00	51	-254055	
30.50	44	-254718	
30.00	39	-255310	
29.50	34	-255827	
29.00	30	-256307	
28.50	19	-256647	
28.00	3	-256712	
27.50	2	-256731	
27.00	0	-256739	
26.50	0	-256739	
26.00	0	-256739	

Level Datum AHD = PM 24781 EL 74.784 m
Compiled using photogrammetric DTM produced in 1990 from 1991 photography
Survey records 25787 FD
Full Supply Level: EL 67.000 m AHD | 1,165,200 ML | 17,750 Ha |
River outlet EL 33.200 m AHD | 2,510 ML | 38 Ha |
Catchment Area 7020 SQ KM
Latitude 27 23 39 Longitude 152 36 05

DEPARTMENT OF PRIMARY INDUSTRIES

BRISBANE RIVER - BASIN 143
WIVENHOE DAM 150.2 KM

STORAGE DATA

A3-110405

19/09/88

seqwater
WATER FOR LIFE

17 February 2011

Lyall Hinrichsen
Acting General Manager
Water Allocation and Planning
Department of Environment and Resource Management
GPO Box 2454
BRISBANE QLD 4001

Dear Mr Hinrichsen,

Revised Interim Program – Moreton Resource Operations Plan

Seqwater notes that the Minister for Natural Resources, Mines and Energy and Minister for Trade announced on 13 February 2011 that, in order to temporarily increase the flood mitigation capacity of Wivenhoe Dam, the water storage level in the dam was to be reduced to and held at 75% of its Full Supply Level (FSL) until the end of the wet season on 31 March 2011.

The announcement followed advice from the SEQ Water Grid Manager on 9 February 2011 that the Grid Manager had no objection to Wivenhoe Dam being drawn down to 75% of its FSL from a water security perspective, and that the temporary draw down is unlikely to impact the Grid Manager's ability to comply with its obligations under the *South East Queensland System Operating Plan* or Grid Contracts.

In light of the Grid Manager's advice, the extreme nature of the January 2011 flood event and Seqwater's modelling, Seqwater recommended to DERM that Wivenhoe Dam's storage level be temporarily reduced to 75% of its FSL to temporarily increase its flood mitigation capacity.

We note the Director-General of DERM agreed to implement the above reduction in the water storage level, in the manner stated in his letter dated 11 February 2011.

On 14 February 2011, the Moreton Resource Operations Plan was amended as contemplated in the Director-General's letter of 11 February 2011, to include a new Section 13(6A) permitting a Resource Operations Licence holder with an approved interim program to submit a revised program to the chief executive for approval.

Seqwater is a Resource Operations Licence holder under the Moreton Resource Operations Plan with an approved interim program, and hereby submits a Revised Interim Program for the approval of the chief executive under Section 13(7) of the Moreton Resource Operations Plan.

The Revised Interim Program, if approved, would authorise releases:

- to effect the initial reduction in the water storage level of Wivenhoe Dam to an 'Interim Security Supply Level' being 75% of its FSL, from 20 February 2011; and
- thereafter, until 31 March 2011, to bring Wivenhoe Dam back to the Interim Security Supply Level where inflows occur after the initial reduction.

In connection with the above releases:

- a duty engineer will be monitoring rainfall as currently occurs in respect of operational releases; and
- Seqwater will provide information regarding release volume and timing to:
  - Somerset Regional Council, Ipswich City Council and Brisbane City Council; and
  - the mid-Brisbane River irrigator community.
- The same information will also be provided to the communication managers of Somerset Regional Council, Ipswich City Council and Brisbane City Council via the Water Grid and will be included on the Water Grid manager and Seqwater websites. Additionally, the

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Water Grid Manager will include release information as part of its daily communication updates and such information will be included in the Water Grid 1800 updates.

Should chief executive approval be given in respect of the Revised Interim Program, Seqwater's releases pursuant to that approved program would not commence until after Seqwater had provided notifications to third parties (including Councils) and the finalization of the other actions referred to in the letter from your Director-General to Seqwater, dated 11 February 2011.

Yours sincerely,

[redacted]

Peter Borrows
Chief Executive Officer

enc

Seqwater Interim Program – Moreton Resource Operations Plan
(Revised 17 February 2011)

The Moreton Resource Operations Plan (the ROP) commenced on 7 December 2009. The Queensland Bulk Water Supply Authority (trading as Seqwater) is the Resource Operations Licence Holder under the ROP for the following Water Supply Schemes:

- Central Brisbane River Water Supply Scheme;
- Pine Valleys Water Supply Scheme; and
- Stanley River Water Supply Scheme.

Where Seqwater, as the ROL holder, is unable to meet requirements of the ROP on its commencement, a structured process is available whereby a statement of programs currently in existence can be prepared and submitted to the Department of Environment and Resource Management (DERM), to be followed by an Interim Program. The box below sets out the relevant provisions under the ROP.

Relevant ROP Requirement

Interim Program

s13(1) The chief executive and the resource operations licence holder must implement requirements of this plan as soon as is practical within the timeframes stated below.
s13(2) Subsections 3 to 11 apply where a resource operations licence holder is unable to meet the requirements of this plan on the day this plan commences.
s13(3) The resource operations licence holder must –
(a) within 2 months of commencement of this plan, submit a statement of programs currently in existence, to the chief executive for approval; and
(b) **within 6 months of commencement of this plan, submit a program for meeting the requirements of this plan to the chief executive for approval, including a timetable and interim methods to be used.**
s13(4) The resource operations licence holder may, where an emergency or operational incident results in an inability to comply with any rules or requirements of this plan, submit an interim program for meeting the requirements of this plan to the chief executive for approval, including timetable and interim methods to be used.
s13(5) Where the submitted program relates to the Water Monitoring Data Collection Standards, the program must include the accuracy of methods currently used.
s13(6) The chief executive, in considering any submitted program, may request additional information.
s13(6A) Despite anything in subsections 2, 3 or 4, a resource operations licence holder with an approved interim program may submit to the chief executive a revised program for consideration under subsection 7.
s13(7) The chief executive, in considering any submitted program, may either–
(a) approve the program with or without conditions;
(b) amend and approved the amended program; or
(c) require the resource operations licence holder to submit a revised program.
s13(8) Within 10 business days of making a decision on a program submitted under this section the chief executive must notify the resource operations licence holder of the decision.
s13(9) Following approval of the program by the chief executive, the resource operations licence holder must–
(a) implement and operate in accordance with the approved program; and
(b) make public details of the approved program on their internet site.
s13(10) Where there is conflict between the provisions of this plan and the provisions of an approved program, the approved program prevails for the time that the approved program is in place.
S13(11) Where this section applies, the resource operations licence holder may continue to operate under the existing program until the program submitted under this section is approved.

Seqwater submitted a Statement of Current Programs to DERM on 5 February 2010, in accordance with Section 13 of the ROP.

Seqwater submitted an Interim Program for the Moreton ROP to DERM in May 2010, as required under s13 of the ROP. After consultation with and at the request of DERM, an amended Interim Program was submitted to DERM on 27 August 2010. A delegate of the Chief Executive approved Seqwater's 27 August 2010 Interim Program on 3 December 2010.

On 14 February 2011, the ROP was amended to permit a Resource Operations Licence Holder to submit a revised program.

Under Section 6A of the ROP, this Revised Interim Program is now submitted to DERM for approval to facilitate the temporary reduction of the water storage level at Wivenhoe Dam to temporarily increase the flood mitigation capacity of the dam.

Seqwater Interim Program – Moreton Resource Operations Plan

Current as at 17 February 2011

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Departmental water monitoring data collection standards 11(1) Where this plan required monitoring by a resource operations licence holder, including measurement, collection, analysis and storage of data, the resource operations licence holder must ensure the monitoring is consistent with the Water Monitoring Data Collection Standards.	Refer ss151-160.	There is currently limited monitoring of listed infrastructure under the ROP, however, a review will be undertaken (due for a staged completion, with final stage completed by 1 March 2012) to ensure monitoring is consistent with the Queensland Government Water Monitoring Data Collection Standards. The following sets out the timeline for the review: North Pine Dam: Review 1 July 2010; Implementation 1 September 2010 Sideling Creek Dam: Review 1 July 2010; Implementation 1 September 2010 Wivenhoe Dam: Review 1 October 2010; Implementation 1 January 2011 Somerset Dam: Review 1 October 2010; Implementation 1 January 2011 Enoggera Dam: Review 1 October 2011; Implementation 1 January 2012 Gold Creek Dam: Review 1 October 2011; Implementation 1 January 2012 Caboolture River: Review 1 January 2012; Implementation 1 March 2012	1 September 2010 - 1 March 2012.
Departmental water monitoring data reporting standards 12(1) Where this plan requires transfer of data or reporting by a resource operations licence holder the resource operational licence holder must ensure the transfer or reporting is consistent with the Water Monitoring Data Collection Standards.	Refer ss161-167.	Seqwater applies the Queensland Government Water Monitoring Data Reporting Standards (Feb 2007) to its current reporting procedures.	Refer ss161-167.
Central Brisbane River and Stanley River Water Supply Schemes – Operating levels for infrastructure 72(3) The resource operations licence holder must not release water from any infrastructure unless the release is necessary to— (a) meet minimum flow rates in section 75; or (b) supply downstream demand.	Not compliant with ROP (releases made for operational purposes and water quality and ecosystem health including fish management)	A. Seqwater will continue to make releases from infrastructure – 1. for consumption; 2. pursuant to the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam;, 3. for operational maintenance of dam infrastructure; 4. where B does not apply, to operationally maintain storage levels, in the absence of a flood event, at or close to FSL; and 5. for fish recovery. B. Seqwater will, between 20 February and 31 March 2011 ("2011 Summer Season") and subject to the operational constraints specified below, make the following releases from infrastructure – (a) the volume necessary to initially reduce Wivenhoe Dam to the Interim Supply Security Level; and (b) volumes necessary to reduce back to the Interim Supply Security Level, where inflows occur during the 2011 Summer Season that take the Wivenhoe Dam level to between the Interim Supply Security Level and the Full Supply Level. The releases specified in (a) and (b) will only be made where releases can be undertaken at a rate such that Burtons Bridge remains trafficable. If, after releases specified in (a) or (b) have commenced, a flood event is declared, the dam will be operated in accordance with the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam. Once the flood event has ended and the dam level is brought back to the Full Supply Level, the releases specified in (a) and (b) will be recommenced. For the purpose of the above, "**Interim Supply Security Level**" means 64.0 m AHD.	Part A: Ongoing Part B: 20 February 2011 – 31 March 2011
Central Brisbane River and Stanley River Water Supply Schemes – Streamflow Requirement 75 When critical water sharing arrangements are not in force, the resource operations licence holder must release a minimum flow of 8.64ML/day from Mount Crosby Weir.	No operational outlet works at Mt Crosby Weir, therefore no managed releases made.	As there are no operable outlet works at Mt Crosby Weir (and cannot be implemented without significant investment, including possible reconstruction of the weir), overflows are dependent upon releases from Wivenhoe and projected water supply demands and local inflows, the latter two components being outside Seqwater control. As a result, Seqwater has very limited control over releases from Mt Crosby Weir on a daily basis. As such, it is proposed that this requirement be deemed as satisfied if a minimum average flow of 8.64ML/day (for any given month) flows over Mt Crosby Weir, rather than a minimum flow of 8.64ML/day (for any given day).	Seqwater would be compliant with a requirement for a minimum average flow of 8.64ML/day for any given month from 1 July 2010. Compliance is not able to be achieved for a minimum flow of 8.64Ml/day for any given day.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocations 76 The resource operations licence holder must— (a) calculate an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group; (b) use the water sharing rules specified in this part to calculate announced allocations throughout the water year; (c) calculate and set the announced allocation for each priority group to take effect on the first day of each water year; (d) following the commencement of a water year— (i) recalculate the announced allocation to take effect no later than 5 business days following the first day of the month; (ii) reset the announced allocation if a recalculation indicates that the recalculated announced allocation would— (A) for medium priority water allocations increase by 10 or more percentage points; (B) for high priority water allocations increase by 5 or more percentage points; or (C) increase to 100 per cent. (e) within 5 business days of setting an announced allocation under subsection 1(c) or the first calendar day of every month when resetting the announced allocation under subsection 1(d)— (i) publish details of the announced allocation; and (ii) make public details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site; (f) not reduce the announced allocation during a water year; (g) round the announced allocation to the nearest whole percentage point (h) not set an announced allocation that is greater than 100 per cent.	Not compliant with ROP (no programs currently in existence – MP customers transferred to Seqwater on ROP gazettal)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocations for Medium Priority Water Allocations 77(1) The announced allocation for medium priority water allocations in the Central Brisbane River Water Supply Scheme is the announced allocation percentage stated in Attachment 5, Table 5, column 2 corresponding to the combined percentage of useable volume in storage of Wivenhoe and Somerset dams stated in Attachment 5, Table 5, column 1. 77(2) the combined percentage of useable volume in storage of Wivenhoe and Somerset dams must be calculated using the following formula— SPUVS = ((UVWivenhoe+UVSomerset)/CUFSV)*100 77(3) The parameters used in the formula for combined percentage of volume in storage are defined in Attachment 5, Table 6.	Not compliant with ROP (no programs currently in existence – MP customers transferred to Seqwater on ROP gazettal) Please note: the volume stored in Split Yard Creek Dam may influence the Announced Allocation.	New Medium Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocation for 'High Priority A' Water Allocations 78 (1) The announced allocation for 'High Priority A' water allocations within the Central Brisbane River Water Supply Scheme must be as follows— (a) 100 per cent when the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is greater than or equal to 25 per cent or (b) when the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is less than 25 per cent, the announced allocation percentage for 'High Priority A' water allocations must be calculated using the following formula— AAHPA=((UV-(AAMP*MPA)+DIVHPA+DIVMP)/HPAA)*100 78(2) The parameters used in the formula for announced allocation are defined in Attachment 5, Table 4. 78(3) For subsection 1 the combined percentage of useable volume in storage	Not compliant with ROP (no programs currently in existence)	New High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
of Wivenhoe and Somerset dams must be calculated using the formula in section 77(2) of this plan.			
Central Brisbane River and Stanley River Water Supply Schemes – Critical Water Sharing Arrangements 80(1) Critical water sharing arrangements are in force when the combined percentage of the volume of water in storage in Wivenhoe and Somerset Dams is less than 15 percent. 80(2) During times when critical water sharing arrangements are in force the resource operations licence holder must— (a) cease making releases from Mount Crosby Weir under section 75 of this plan; (b) when at the start of the water year the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is less than 15 per cent, set the announced allocation for medium priority water allocations in the Central Brisbane River Water Supply Scheme to zero per cent; and 80(3) For subsection 1 the combined percentage of volume of water in storage for Wivenhoe and Somerset Dams must be calculated using the formula in section 77(2) of this plan.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). New Medium Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Seasonal water assignment rules 88(1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total volume of water use in a water year for each zone will not exceed the maximum allowable water use volume in Attachment 5, Table 9 for each zone. 88(2) The resource operations licence holder is responsible for dealing with applications for seasonal water assignment where the resource operations licence holder distributes water to the assignee.	Not compliant with ROP (no programs currently in existence, customers unmetered)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012). Advice will be provided to customers that where two parties wish to enter into a seasonal assignment transaction, that both parties will require a water meter, unless the selling party can demonstrate that they have no active water extraction or usage.	Metering program to be undertaken in close consultation with Mid-Brisbane Irrigators (likely to take until December 2012).
Pine Valleys Water Supply Schemes – Operating Levels for Infrastructure 97(1) The operating levels for the infrastructure in the Pine Valleys Water Supply Scheme are specified in Attachment 6, Table 1. 97(2) The resource operations licence holder must not release or supply water from any infrastructure when the water level in that infrastructure is at or below its minimum operating level. 97(3) The resource operations licence holder must not release water from any infrastructure unless the release is necessary to supply downstream demand and is made in accordance with this plan.	Not compliant with ROP (releases made for operational purposes and for water quality and ecosystem health including fish management)	s97(1): Attachment 6, Table 1 incorrectly specifies the Minimum Operating Level for North Pine Dam as EL 14.2m AHD and Minimum Operating Volume as 2100ML. The correct Minimum Operating Level is EL 12.8m AHD and the correct Minimum Operating Volume is 1310ML. s97(2): Seqwater will continue to release or supply water from North Pine Dam in accordance with the correct Minimum Operating Level of EL 12.8m AHD rather than the incorrect Minimum Operating Level of EL 14.2m AHD as specified in Attachment 6, Table 1. Seqwater requests DERM correct this error in the ROP. s97(3): Seqwater will continue to make releases from infrastructure- 1. for consumption; 2. pursuant to the Manual of Operational Procedures for Flood Mitigation at North Pine Dam; 3. for operational maintenance of dam infrastructure; 4. to operationally maintain storage levels, in the absence of a flood event, at or close to FSL; and 5. for fish recovery.	Ongoing.
Pine Valleys Water Supply Schemes – Announced Allocations 100 The resource operations licence holder must— (a) calculate an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group; (b) use the water sharing rules specified in this part to calculate announced allocations throughout the water year; (c) calculate and set the announced allocation for each priority group to take effect on the first day of each water year; (d) following the commencement of a water year— (i) recalculate the announced allocation to take effect no later than 5 business days following the first day of the month; (ii) reset the announced allocation if a recalculation indicates that the recalculated announced allocation would— (A) for high priority water allocations increase by 5 or more percentage points; or	Not compliant with ROP (no programs currently in existence)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
(B) increase to 100 per cent (e) within 5 business days of setting an announced allocation under subsection 1(c) or the first calendar day of every month when resetting the announced allocation under subsection 1(d) make public details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site for the Pine Valleys Water Supply Scheme; (f) not reduce the announced allocation during a water year; (g) round the announced allocation to the nearest whole percentage point; and (h) not set an announced allocation that is greater than 100 per cent. 101(1) The announced allocation for 'High Priority A' water allocations in the Pine Valleys Water Supply Scheme must be as follows— (a) 100 per cent when the level of water in storage in North Pine Dam is greater than E.L. 29.3m AHD; and (b) When the water level of water in storage in North Pine Dam is equal to or less than E.L. 29.3m AHD the announced allocation percentage for high priority water allocations must be calculated using the following formula— AAHPA=((UV+DIVHPA)/HPAA)*100 101(2) The parameters used in the formula for announced allocations are defined in Attachment 6, Table 2. 102 The total volume of water taken under a water allocation in a water year must not exceed the nominal volume of the water allocation multiplied by the announced allocation and divided by 100.			
Pine Valleys Water Supply Schemes – Critical Water Sharing Arrangements 103(1) Critical water sharing arrangements are in force when the water level in North Pine Dam is equal to or less than E.L. 29.3m AHD. 103(2) During times when critical water sharing arrangements are in force the resource operations licence holder must calculate the announced allocation for high priority water allocations in accordance with section 101(1)(b) of this plan.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). New High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Pine Valleys Water Supply Schemes – Seasonal Water Assignment Rules 110(1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total volume of water use in a water year for each zone will not exceed the maximum allowable water use volume in Attachment 6, Table 3 for each zone. 110(2) The resource operations licence holder is responsible for dealing with applications for seasonal water assignment where the resource operations licence holder distributes water to the assignee.	Not compliant with ROP (no programs currently in existence)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place by 1 July 2010.	1 July 2010.
Resource operations licence holder monitoring and reporting – Monitoring data must be made available 151 The resource operations licence holder must provide any monitoring data required under this chapter to the chief executive upon request and within the time requested.	Not compliant with ROP	Requests for data outside of ROP reporting requirements will be provided within required timeframes. Please note, however, that a standard waiting period of 7-14 days applies to all ad-hoc requests and a longer waiting period may apply depending on the detail of the request.	1 July 2010 (please note waiting periods).
Monitoring requirements – Streamflow and infrastructure water level 152(1) The resource operations licence holder must record water level and volume and stream flow data in accordance with Attachment 9, Table 1. 152(2) Infrastructure inflows may be determined based upon an infrastructure inflow derivation technique supplied by the resource operations licence holder and approved by the chief executive.	Not compliant with ROP (ALERT data available for Baxters Ck and Dayboro WWTP)	152(2) Consistent inflow derivation methodology will be developed by July 2011 for all storages. In the interim, existing methodology inherited from previous asset owners will be used where in existence. Please refer to Attachment 9, Table 1 at end of document.	1 July 2010 – July 2011.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Monitoring requirements – Releases from infrastructure 153(1) This section applies to the following infrastructure— (a) Cressbrook Dam; (b) Mount Crosby Weir; (c) North Pine Dam; (d) Perseverance Dam; (e) Somerset Dam; and (f) Wivenhoe Dam. 153(2) The resource operations licence holder must measure and record for each release of water from infrastructure listed in subsection 1— (a) the daily volume released; (b) the release rate and for each change in release rate— (i) the date and time of the change; and (ii) the new release rate; (c) the reason for each release; and (d) the device used for each release. 153(3) The resource operations licence holder for infrastructure mentioned in subsection 1(c) and 1(f) must record— (a) the inlet level used for each release of water; and (b) the reason for taking water via a particular inlet level.	153(1)(b) No measured releases made 153(1)(c) Operational Log ex SunWater system 153(1)(e) Operational Log ex SunWater system 153(1)(f) Operational Log ex SunWater system 153(2) Data is recorded in Operational Log 153(3) Data is recorded in Operational Log	153(1)(b): No operable outlet works exist at Mount Crosby Weir and cannot be implemented without significant investment. Releases are not made – only overflows, which are monitored and recorded. As such, it is proposed Seqwater report the overflows in compliance with ss153(2) and 153(3) instead of releases since none are made.	1 July 2010 (note: overflows and not releases will be reported for Mt Crosby Weir).
Monitoring requirements – Announced allocations 154 The resource operations licence holder must record details of announced allocation determinations including— (a) the announced allocations for medium and high priority water allocations; (b) the date announced allocations are determined; and (c) the value of each parameter applied for calculating the announced allocation.	Not compliant with ROP (no programs currently in existence)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Monitoring requirements – Water taken by water users 155 The resource operations licence holder must record the total volume of water taken, by each water user for each zone as follows— (a) the total volume of water taken in each quarter; (b) the total volume of water entitled to be taken at any time; and (c) the basis for determining the total volume of water entitlement to be taken at any time.	Only HP water take measured – no meters for measuring MP water take	Full compliance with these requirements for the Central Brisbane River Water Supply Scheme is dependent on the development and implementation of a metering program within the Scheme (anticipated to be an ongoing program which will need to be implemented in close consultation with the Mid-Brisbane irrigators, and will likely take until December 2012). All other schemes will be compliant from 1 July 2010. In the interim water estimations will consist of a quarterly mailout of recording sheets, specifying the requirement for recording volumes of water taken, plus supporting information, with submission of the recording sheets on a quarterly basis. The quarterly mailout will be a prompt for customers to submit their records. Advice will also be given of the Seqwater position that where records are not received that it will be assumed that 25% of the customer's water entitlement has been used for that quarter, and that this will be recorded as such.	1 July 2010 for all schemes except Central Brisbane River Water Supply Scheme (anticipated to take until December 2012, with log sheets to be distributed in the first quarter after approval of the interim program).
Monitoring requirements – Seasonal water assignment of water allocations 156 The resource operations licence holder that approves a seasonal water assignment must record details of seasonal water assignment arrangements including— (a) the name of the assignee, volume and location of water that has been seasonally assigned by an assignor; (b) the name of the assignor, volume and location of the water that has been seasonally assigned to an assignee; and (c) the effective date of seasonal water assignments.	Not compliant with ROP (no programs currently in existence)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012 – please refer to ss88 and 164 for further detail).	1 July 2010 for all schemes except Central Brisbane River Water Supply Scheme (anticipated to take until December 2012).
Monitoring requirements – Critical water sharing arrangements 157 The resource operations licence holder must record details of critical water sharing arrangements including the following— (a) the commencement date(s) and effective period of critical water sharing arrangements; and (b) the effectiveness of the critical water sharing arrangements.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Monitoring requirements – Water Quality 158 the resource operations licence holder must monitor and record water	<u>Somerset Dam</u> Inflow:	Seqwater is currently compliant with the monitoring requirements for Wivenhoe Dam and Mt Crosby Weir (with the exception of tailwater monitoring since the downstream area is estuarine) and will be reported from 1 July	1 January 2011.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
quality data in relation to relevant infrastructure listed in Attachments 5, 6 and 7.	None. Quality monitoring and recording is event-related only. Water quality meters are DERM infrastructure. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Chl, BGA, DO; Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO; Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** Fortnightly – Total Cyano, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. <u>Wivenhoe Dam</u> **Inflow – (Caboonbah):** Fortnightly – Total Cyanobacteria, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. Monthly (SB) – Total Cyanobacteria, EC, TC, Chl a, Fe, Mn, true colour, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Temp., Chl, BGA, DO Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour,TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. <u>North Pine Dam</u> **Inflow:** None. Quality monitoring and recording is event-related only. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Temp., Chl, BGA, DO Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO	2010. North Pine Dam requires some parameter additions to the inflow site on the North Pine River and the addition of a tailwater site to be compliant with the ROP requirements. Seqwater is currently reviewing the North Pine Monitoring Program which will include the requirements under the ROP (scheduled for completion by 1 July 2010) and will be implemented by 1 September 2010 (including training, reporting and scheduling). In the interim, additional parameters will be added to the existing gauging and water quality site on the North Pine River to be sampled on a monthly basis as follows: • Inflow: electrical conductivity, temperature, dissolved oxygen, pH, turbidity, total nutrients, dissolved nutrients • Tailwater: electrical conductivity, temperature, dissolved oxygen, pH, turbidity, total nutrients, dissolved nutrients, total sulphides Somerset Dam requires the addition of an inflow site on the Stanley River. The Somerset Dam Monitoring Program Review is scheduled for completion on 1 October 2010, with implementation (including training, reporting and scheduling) by 1 January 2011. Mt Crosby Weir requires the addition of an tailwater site on the Brisbane River. The Wivenhoe Dam Monitoring Program Review is scheduled for completion on 1 October 2010, with implementation (including training, reporting and scheduling) by 1 January 2011.	

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, Including Methodology	Timetable
	Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** None. **Mt Crosby Weir (also TS sampling)** **Inflow: Kholo:** Fortnightly – total phytoplankton, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Headwater:** Fortnightly – Total Cyano, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Cyano, EC, TC, Chl a, Fe, Mn, true colour, TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** None, estuarine		
Monitoring requirements – Bank condition 159(1) The resource operations licence holder must inspect banks for evidence of collapse or erosion within the ponded areas and downstream of the relevant infrastructure listed in Attachments 5, 6 and 7 following instances of— (a) rapid water level changes; (b) large flows through infrastructure; or (c) other occasions when collapse or erosion of banks may be likely. 159(2) For subsection 1, downstream of the relevant infrastructure means the distance of influence of infrastructure operations.	Not compliant with ROP (inspections undertaken for ponded areas but not stream bank or downstream) No reporting or monitoring currently undertaken for ROP purposes however Dam Safety monitor dam wall and embankments directly surrounding dam storage.	Ponded area bank inspections for erosion are currently being undertaken on a weekly basis. Seqwater will add interim downstream visual bank inspections to weekly surveillance inspections with results collated quarterly and reported (commencing 1 July 2010 and implemented by September 2010). These interim downstream visual inspections will allow the distance of influence of infrastructure for each storage to be determined and an appropriate monitoring and inspection program to be implemented (commencing December 2010 and fully implemented by December 2011).	1 July 2010 – December 2011.
Reporting requirements 161 The resource operations licence holder must provide— (a) quarterly reports; (b) annual reports for the previous water year; (c) operational reports; and (d) emergency reports.	Not compliant with ROP. No reporting.	Refer ss162-167	Refer ss162-167.
Reporting requirements – Quarterly Report 162(1) The resource operations licence holder must submit a quarterly report to the chief executive after the end of each quarter, of every water year. 162(2) The report must contain the following data— (a) stream flow and infrastructure water levels—all records referred to in section 152 of this plan; (b) the total volume of water for each quarter— (i) taken for each zone; (ii) entitled to be taken from each zone; (c) water quality—all records referred to in section 158 of this plan; (d) a summary of bank condition monitoring and incidences of slumping, undertaken in accordance with section 159 of this plan; and (e) the details and status of any programs implemented under section 13 of this plan.	Not compliant with ROP. No reporting.	Seqwater applies the Queensland Government Water Monitoring Data Reporting Standards (Feb 2007) to its current reporting procedures. Commencing 1 July 2010 the following will be implemented: • ROP datasets will be supplied quarterly, as required under the ROP. • ROP Compliance Report will be submitted with the quarterly reporting process, including exceptions to ROP requirements and an update on the Interim Program, as required under the ROP. Results of weekly bank condition monitoring will be collated quarterly and reported, with progressive implementation commencing 1 July 2010 and fully implemented by December 2011. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss152, 158 and 159 for further details.	1 July 2010 – December 2011.
Reporting requirements – Annual Report 163(1) The resource operations licence holder must submit an annual report to the chief executive after the end of the water year. 163(2) The annual report must include—	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to s164 for further details.	1 July 2010 – December 2012

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
(a) water quantity monitoring results required under section 164 of this plan; (b) details of the impact of infrastructure operation on water quality as required under section 164 of this plan; (c) a discussion about any issues that arose as a result of the implementation and application of the rules and requirements of this plan.			
Reporting requirements – Water quantity monitoring – Annual Report 164 The resource operations licence holder must include in the annual report under section 163— (a) A summary of announced allocation determinations, including— (I) an evaluation of the announced allocation procedures and outcomes; and (II) the date and value for the initial announced allocation and for each change made to an announced allocation; (b) instances where critical water sharing arrangements have been implemented— (I) an evaluation of the announced allocation procedures and outcomes; and (II) the commencement date(s) and effective period(s) for each stage of the arrangements and outcomes; (c) records from infrastructure—records referred to in section 153; (d) the total annual volume of water taken by each water user, specified by zone, namely— (I) the total annual volume of supplemented water taken; (II) the total annual volume of supplemented water entitled to be taken; and (III) the basis for determining the volume entitled to be taken; (e) details of seasonal water assignments, namely— (I) the total number of seasonal water assignments arrangements; and (II) the total volume of water seasonally assigned; (f) all details of changes to infrastructure or the operation of the infrastructure that may impact on compliance with rules in this plan; and (g) details of any new monitoring devices used such as equipment to measure stream flow.	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss76, 77, 78, 80, 88, 100, 101, 103, 110, 153, 155, 156 and 157 for further detail. s164(a): New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s164(b): New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s164(c): No operable outlet works exist at Mount Crosby Weir and cannot be implemented without significant investment. Releases are not made – only overflows, which are monitored and recorded. As such, it is proposed Seqwater report the overflows in compliance with ss153(2) and 153(3) instead of releases since none are made. Please refer to s153 for further details. ss164(d-e): Compliance with these requirements for the Central Brisbane River Water Supply Scheme is dependent on the development and implementation of a metering program within the Scheme (anticipated to be an ongoing program and will need to be implemented in close consultation with the Mid-Brisbane Irrigators, timeframe likely to take until December 2012). All other schemes will be compliant from 1 July 2010. ss164(f-g): Seqwater will be compliant with these requirements from 1 July 2010.	ss164(a-b, f-g): 1 July 2010. s164(c): 1 July 2010 (note: overflows rather than releases will be reported for Mt Crosby Weir). Please refer to s153 for further details. s164(d-e): 1 July 2010 – December 2012. Please refer to ss88, 155 and 156 for further details.
Reporting requirements – Impact of infrastructure operation on natural ecosystems – Annual report 165 The resource operations licence holder must include in the annual report under section 163— (a) a summary of environmental considerations made by the resource operations licence holder in making operational and release decisions; (b) a summary of the environmental outcomes of the decision including any adverse environmental impacts; (c) a summary of bank condition and fish stranding monitoring and assessment, including— (I) results of investigations of bank slumping or erosion identified in ponded areas or downstream of infrastructure; (II) results of investigations of fish stranding downstream of infrastructure; and (III) changes to to the operation of infrastructure to reduce instances of bank slumping, erosion or fish stranding; (d) a discussion and assessment of the following water quality issues— (I) thermal and chemical stratification in each water storage associated with infrastructure; (II) contribution of the water storage and its management to	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss 158 and 159 for further details.	1 July 2010 – December 2011.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
the quality of water released; (iii) cumulative effect of successive water storages associated with infrastructure on water quality; (iv) cyanobacteria population changes in response to stratification in each water storage; and (v) any changes to the monitoring program as a result of evaluation of the data.			
Reporting requirements – Operational Report 166 The resource operations licence holder must— (a) notify the chief executive within one business day of becoming aware of any of the following operational incidents— (i) a non-compliance by the resource operations holder with the rules in this plan; and (ii) instances of fish stranding or bank slumping within the impounded areas or downstream of infrastructure listed in Attachment 9, Table 1 or watercourses associated with the operation of the Central Brisbane River, Cressbrook Creek, Pine Valleys and Stanley River water supply schemes; (b) provide to the chief executive a report which includes details of— (i) the incident; (ii) conditions under which the incident occurred; and (iii) any response or activities carried out as a result of the incident; (c) notify the chief executive upon commencement and cessation of critical water sharing arrangements; and (d) notify the chief executive on approval of any seasonal water assignment, including— (i) the name and location of the assignees and assignors; and (ii) the zone or zones where water is being seasonally assigned to and from; (e) notify the chief executive upon making a decision relating to an initial announced allocation and/or its recalculation; (f) transfer to the chief executive— (i) details of any arrangements of addressing circumstances where the resource operations licence holder is unable to supply water allocations under subsection (e); and (ii) relevant supporting information used in making a decision under subsection (e).	Not compliant with ROP. No reporting.	ss166(a)(i), (b): Seqwater will submit operational reports as required, commencing for the 2010/2011 water year. s166(a)(ii): Process for reporting instances of fish standing and bank slumping will be progressively implemented beginning 1 July 2010 with finalisation by December 2011. Ponded area bank inspections for erosion are currently being undertaken on a weekly basis. Seqwater will add interim downstream visual bank inspections to weekly surveillance inspections with results collated quarterly and reported (commencing 1 July 2010 and implemented by September 2010). These interim downstream visual inspections will allow to the distance of influence of infrastructure for each storage to be determined and an appropriate monitoring and inspection program to be implemented (commencing December 2010 and fully implemented by December 2011). s165(c): New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s166(d): Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012 – please refer to ss88 and 164 for further detail). s166(e-f): New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010 – December 2011.
Reporting requirements – Emergency report 167 In an emergency where the resource operations licence holder cannot comply with a rule in this plan as a result of an emergency, the resource operations licence holder must— (a) notify the chief executive upon discovery of the emergency; and (b) provide to the chief executive a report that includes— (i) details of the emergency; (ii) conditions under which the emergency occurred; (iii) any responses or activities carried out as a result of the emergency; and (iv) any rules specified in this plan that the resource operations licence holder is either permanently or temporarily unable to comply with due to the emergency.	Not compliant with ROP. No reporting.	Seqwater will submit emergency reports as required, commencing for the 2010/2011 water year.	1 July 2010.

Attachment 8, Table 1 – Water Allocation Schedule

Relevant ROP Requirement	Programs Currently In Existence	Interim Program, including Methodology	Timetable
Water Allocation Number 137: Brisbane Zone, Any Purpose, 25ML,	The map in Attachment 2(b) of the ROP does not include Somerset		

High Class A Priority, *This authorisation was authorised to continue under section 360ZDP of the *Water Act 2000*.	Dam, where part of this water allocation has always been taken. Due to the boundaries of the Brisbane Zone, this allocation is currently being taken outside of the specified zone in the ROP.	The zone where this entitlement has been issued does not include Somerset Dam, where part of this water allocation has always been taken. Due to the boundaries of the Brisbane Zone, this allocation is currently being taken outside of the specified zone in the ROP.	
Water Allocation Number 139: Mid-Brisbane Zone, Any Purpose, 150ML, Medium Priority, *This authorisation was authorised to continue under section 360ZDP of the *Water Act 2000*.	In accordance with current take of water from the Mid-Brisbane zone.		

Attachment 9 – Resource operations licence holder monitoring: Locations where continuous time series height and flow data and storage water level data are required.

Location	Continuous time series storage water level data	Continuous time series flow data	Programs Currently in Existence	Interim Program, including Methodology	Timetable
Mount Crosby Weir inflow		Y	Not continuous	A daily inflow derivation model is being developed which will incorporate outflow from Wivenhoe Dam, flow from Lockyer Creek and local area, change in Mt Crosby water levels and local irrigation and water supply demands.	1 July 2010.
Mount Crosby Weir headwater level	Y		Continuous	Water level is monitored via ALERT to a 20mm resolution.	1 July 2010.
Mount Crosby Weir tailwater		Y	Not continuous	Downstream of Mt Crosby Weir is tidal and, as such, a downstream gauging station will not provide estimates of river flow. Releases are not made from Mt Crosby Weir and any flow through the fish way and over the weir crest will provide an estimate of the flow from the weir.	Estimate of flow from the weir in place by 30 December 2010.
North Pine Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be available by 1 July 2010.	1 July 2010.
North Pine Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
North Pine Dam tailwater		Y	Not continuous	Water level is monitored continuously at the Dayboro Rd WPS Weir about 1km downstream of North Pine Dam. At present, this is only available via SCADA and is not rated. Until the rating is developed and equipment installed at the site to enable remote monitoring, flow downstream of North Pine Dam can be estimated from the gate and valve openings at the Dam (anticipated for July 2011). A rating can be developed for the Dayboro Rd Weir based on recorded flows and heights.	July 2011.
Somerset Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be in place by 1 July 2010.	1 July 2010.
Somerset Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
Somerset Dam tailwater		Y	Not continuous	Somerset Dam tailwater is affected by levels in Wivenhoe Dam. When full, the water in Wivenhoe back up to the toe of Somerset Dam. As such, a tailwater gauge is considered inappropriate. Outflows from Somerset can be estimated from the recorded openings of the gates, sluices and valves at the dam.	Nil
Wivenhoe Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be available by 1 July 2010.	1 July 2010.
Wivenhoe Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
Wivenhoe Dam tailwater		Y	Not continuous	Please note: Water level is continuously monitored and recorded via ALERT and on-site logger with a resolution of 20mm which is owned by DERM not Seqwater (143035A). The site is rated but can be affected by backwater from Lockyer Creek. Discharge from the dam can also be estimated via the rated gates and valves. Since the gauge is owned by DERM, Seqwater will not undertake monitoring for tailwater at this site.	Seqwater will not undertake monitoring for tailwater at this site since the gauge is owned by DERM (143035A).

CTS No. [CTS No]

Approved Not Approved Noted
Further information required
DG [redacted]
Dated 17/2/11

Department of Environment and Resource Management
DIRECTOR-GENERAL BRIEFING NOTE

TO: **Director-General**

SUBJECT: **Seqwater Revised Interim Program (Sect 13 - Moreton ROP): Arrangements for Releasing Water from Wivenhoe Dam**

TIMEFRAME

- This brief was requested by the Director General for urgent approval.

RECOMMENDATION

It is recommended that the Director-General:

- **Note** that Seqwater has submitted, under section 13(6a) of the Moreton Resource Operations Plan 2009 (Moreton ROP), a revised Interim Program for Central Brisbane River and Stanley River Water Supply Schemes (Attachment 1)
- **Consider** the implications associated with the proposed interim operating arrangements for releasing water from Wivenhoe Dam that are detailed in the revised Interim Program; and if the Director-General agrees -
- **Approve** the revised Interim Program without conditions; and
- **Sign** the attached letter to Seqwater advising of the approval of the revised Interim Program.

BACKGROUND

- Seqwater is the holder of the Resource Operation Licences (ROLs) for the Central Brisbane River and Stanley River Water Supply Schemes (covering Wivenhoe and Somerset dams).
- On 10 February 2011, Seqwater wrote to the Director-General advising that Seqwater recommended that the Wivenhoe Dam's storage level be temporarily reduced to 75 percent of its Full Supply Level (FSL) in order to temporarily increase its flood mitigation capacity. (Attachment 2). Seqwater premised this recommendation on the following factors:
    - Advice from SEQ Water Grid Manager's to Seqwater (see letter from SEQ Water Grid Manager to Seqwater dated 9 February 2011 – Attachment 3) that it had no objection from a water security perspective to Wivenhoe Dam being drawn down to 75 percent of its FSL and that such a draw down, if temporary, would be unlikely to impact its obligations;
    - Modelling by Seqwater of various potential flood events which confirmed that a reduction in Wivenhoe Dam's storage level to 75 percent of its FSL will provide appreciable flood mitigation measures;
    - The extreme nature of the January 2011 event.
- The severe flooding experienced in the Brisbane River system in January 2011 and the ongoing *La Nina* weather patterns have resulted in Seqwater, the holder of the ROLs, to submit a revised Interim Program for the operation of Wivenhoe Dam.
- The Moreton ROP was amended on 14 February 2011 to allow the holder of a ROL with an Interim Program, approved under section 13 of the Moreton ROP, to submit a revised Interim Program for the chief executive's consideration and approval.
- *Consultation:* Extensive consultation has taken place between Seqwater, the SEQ Water Grid Manager and the Department, on behalf the Queensland Government, in determining a strategy for implementing interim arrangements for reducing the risk to Brisbane residents of

Author	Cleared by	Cleared by	Recommended:
Name: Lyall Hinrichsen Position: A/General Manager (Water Allocation and Planning) Tel No [redacted] Date:17/11/2011	Name: Greg Clayton [redacted] Position: Executive Director (Strategic Water Initiatives) Tel No [redacted]	Name: Position: Tel No:	Name: Position: Tel No: Date:
	Name: Position: Tel No:	Name: Position: Tel No:	

File Ref:

- further flooding that could result under the current La Nina weather pattern.
- Crown Law and Legal Services have also been consulted throughout the process.
- Advice was provided on the proposed release regime and its acceptability from a flood management perspective by Mr Bob Reilly and Mr Peter Allen from the Office of the Water Supply Regulator. Their advice is that Burton's Bridge remains trafficable up to a flow at the bridge of 430 m^3/sec. As they understand it, it is the only crossing without an alternative crossing of the Brisbane River. To that extent, there will be alternative routes available for the other crossings that will be inundated at such a release rate.
- *Legislation:* The chief executive has the power under section13(7) of the Moreton ROP to consider any program submitted by the holder of a resource operations licence (including a revised Interim Program), and may either-
  - Approve the program with or without conditions;
  - Amend and approve the amended program; or
  - Require the resource operations licence holder to submit a revised program.

CURRENT ISSUES

- Seqwater submitted a revised Interim Program for the operation of Wivenhoe Dam on 17 February 2011. Under the program, water that would ordinarily be stored in the dam for future water supplies would be released under the arrangements detailed in Attachment 1.The proposal would effectively reduce the water level in Wivenhoe Dam from 100 percent to 75 percent of the full supply volume.
- Seqwater in support of the application for approval by the Chief Executive of the Interim Program have submitted a covering letter explaining why the Interim Program has been submitted (Attachment 1).
- The proposal will have no immediate impact on water availability for irrigators supplied from Wivenhoe Dam. These irrigators are entitled to take 100 percent of their allocation while ever the combined storage volume of Wivenhoe and Somerset Dams exceeds 50 percent at the start of the water year. Even with the reduced water level in Wivenhoe Dam and if future inflows are below average, irrigators could expect to be able to utilise 100 percent of their allocation for a period of time.
- The Moreton ROP does not regulate the manner in which Wivenhoe Dam is operated to mitigate flooding. The strategy and requirements for operating the dam, including flood mitigation and water releases, are outlined in the Dam Operations Manual. The Manual is approved by the State's Dam Safety Regulator, in accordance with the *Water Supply Act 2008*.
- The water releases proposed under the revised Interim Program would otherwise be contrary to section 72 of the Moreton ROP, which prohibits water from being released unless it is required to supply water under water allocations associated with the schemes or for environmental flow needs. The proposed revised Interim program would override this provision in the Moreton ROP until 1 April 2011.
- Provisions of the Moreton ROP relating to the management of operational releases, monitoring and reporting will apply to the releases that are being authorised under the revised Interim Program.

RESOURCE/IMPLEMENTATION IMPLICATIONS

- There are no implications for the Department in implementing the Moreton ROP associated with the approval of the proposed revised Interim Program for the Central Brisbane River and Stanley River Water Supply Schemes.

PROPOSED ACTION

Author	Cleared by	Cleared by	Recommended:
Name: Lyall Hinrichsen Position: A/General Manager (Water Allocation and Planning) Tel No [redacted] Date:17/11/2011	Name: Greg Claydon Position: Executive Director (Strategic Water Initiatives) Tel No [redacted]	Name: Position: Tel No:	Name: Position: Tel No: Date:
	Name: Position: Tel No:	Name: Position: Tel No:	

- If the Director-General approves the revised Interim Program, the Department will ensure that Seqwater complies with the requirements of section 13(9) of the Moreton ROP, which require the holder to:
  - Implement and operate in accordance with the approved program; and
  - Make public details of the approved program on their internet site.

DIRECTOR–GENERAL'S COMMENTS

ATTACHMENTS

- Attachment 1: Covering letter from Seqwater with a revised Interim Program for Central Brisbane River and Stanley River Water Supply Schemes;
- Attachment 2: Seqwater letter to Director-General of 10 February 2011;
- Attachment 3: Letter from SEQ Water Grid Manager to Seqwater dated 9 February 2011

Author	Cleared by	Cleared by	Recommended:
Name: Lyall Hinrichsen Position: A/General Manager (Water Allocation and Planning) Tel No: [redacted] Date:17/11/2011	Name: Greg Claydon Position: Executive Director (Strategic Water Initiatives) Tel No [redacted]	Name: Position: Tel No:	Name: Position: Tel No: Date:
	Name: Position: Tel No:	Name: Position: Tel No:	

Queensland Government

Ref CTS 02576/11

Department of
Environment and Resource Management

Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
CITY EAST QLD 4002

[redacted]

Dear Mr Borrows

Thank you for submitting a revised interim program under section 13(6A) of the Moreton Resource Operations Plan (the ROP) outlining a proposal to make releases from Wivenhoe Dam (the dam) to maintain a 75% full supply level for the remainder of the 2011 summer season (between 20 February 2011 and 31 March 2011).

I advise that I have approved the submitted program under Section 13 (7) (a) of the ROP. I acknowledge that Seqwater will put suitable communications arrangements in place prior to and during the period when releases are being made under the interim program. I also note that the releases will be monitored and managed by Seqwater through suitably qualified personnel.

I also remind you that releases made under the interim program must be in accordance with other provisions of the Moreton ROP, including section 74, which states that the rate of release of water from the dam must occur to minimise the occurrence of adverse environmental impacts, such as bank slumping.

Should you have any further enquiries, please do not hesitate to contact me on telephone [redacted]

Yours sincerely

[redacted]

John Bradley
Director-General

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone + 61 7 3330 6301
Facsimile + 61 7 3330 6306
Website www.derm.qld.gov.au
ABN 46 640 294 485

seqwater
WATER FOR LIFE

30 March 2011

Mr John Bradley
Director-General
Department of Environment & Resource Management
Level 13
400 George Street
Brisbane QLD 4000

Dear John,

Wivenhoe Dam - Interim Supply Security Level

Seqwater's approved interim program under the Moreton Resource Operations Plan obliges Seqwater to maintain the water storage level in Wivenhoe Dam at the Interim Supply Security Level (which is 75% of Full Supply Level) until 31 March 2011.

In view of the impending expiry of this part of Seqwater's interim program, Seqwater has recently sought advice from the Queensland Water Commission and the Water Grid Manager as to whether either agency has any objection from a water supply security perspective to an extension of the above temporary arrangements to 30 June 2011.

The advice received from the Queensland Water Commission and the Water Grid Manager (copies attached) is qualified in this regard.

Accordingly, Seqwater does not propose to submit a revised interim program.

Yours sincerely,

[redacted]

Peter Borrows
Chief Executive Officer

Attach.

Queensland water Commission

Securing our water, together.

Our ref: MB/11/0179

RECEIVED
29 MAR 2011

25 MAR 2011

Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
City East QLD 4002

By email to: [redacted]

Dear Mr Borrows

Thank you for your letter of 22 March 2011 including your request for advice on a proposed extension to the period that Wivenhoe Dam be kept at the Interim Security Supply Level from 1 April 2011 to 30 June 2011.

The Queensland Water Commission has no objection to this proposal as a temporary measure. Our analysis of the total grid capacity shows that the impact on water security by the extension of time is compliant with the South East Queensland System Operating Plan Risk Criteria.

It should be noted that operational and regulatory impacts such as potential increased pumping costs have not been assessed. Advice from the responsible agency or entity would need to also be considered.

If you would like to further discuss these matters or require any information, please contact Mr Tad Bagdon, Acting General Manager, Regional Planning and Policy on [redacted]

Yours sincerely

[redacted]

Ms Karen Waldman
Chief Executive Officer

Queensland Water Commission
PO Box 15087 City East Qld 4002
Ph: +61 7 3227 8207 Fax: +61 7 3227 8227
ABN: 65 242 908 036 web: www.qwc.qld.gov.au

SEQ Water Grid manager

Secure and efficient water through partnership and innovation

TRIM ref: D/11/2127

25 March 2011

Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
City East QLD 4002

[redacted]

Dear Mr Borrows

Maintenance of Wivenhoe Dam at 75% full supply level up to 30 June 2011

I refer to your letter dated 22 March 2011 regarding Seqwater's consideration of extending the period in which Wivenhoe Dam is maintained at 75%, from 31 March 2011 to 30 June 2011.

As requested in your letter, to assist Seqwater in deciding whether it makes a recommendation to the Chief Executive of the Department of Environment and Resource Management, we confirm that temporarily maintaining Wivenhoe Dam at 75% up to 30 June 2011, is unlikely to impact on our ability to manage the Water Grid to achieve the desired levels of service and the System Operating Plan's risk criteria. Please note that this is based on information currently available and may be subject to change.

If you have any questions, please contact me on [redacted] or via email at [redacted]

Yours sincerely

[redacted]

Barry Dennien
Chief Executive Officer

PO Box 16205, City East QLD 4002 Tel: +61 7 3247 3012 Fax: +61 7 3405 0373 www.seqwgm.qld.gov.au
ABN: 14 783 317 630

seqwater
WATER FOR LIFE

31 March 2011

Mr John Bradley
Department of Environment and Resource Management
Director General
GPO Box 2454
BRISBANE QLD 4000

[redacted]

Dear Mr Bradley,

You will recall the Chairman wrote to the Minister on 4 February 2011 with an update on a number of matters, including consideration of a temporary change to the Full Supply Level (FSL) of Wivenhoe Dam, an update on the provision of the reports required under the Flood Mitigation Manuals, and further modelling work that needed to be undertaken to better quantify an assessment of the potential flood mitigation benefits of operating Wivenhoe Dam at a different FSL.

The only current outstanding matter is the detailed modelling work referred to above, which requires the assistance of BCC, and potentially the Bureau of Meteorology, to quantify downstream impacts of flood events, both in terms of river levels and inundation of urban areas, especially in the Brisbane area. The Chairman's letter noted there were three main components to the modelling:

(a) water outflows from Wivenhoe Dam;

(b) the changing Brisbane River levels resulting from those water outflows; and

(c) the extent of inundation resulting from those water outflows.

Seqwater's intention has been to complete this modelling work by 31 March 2011. However, completion of this modelling work by this date is now unachievable, as the Commission of Inquiry has in the intervening period published extraordinarily demanding timetables for delivery of submissions, witness statements and the interviewing of witnesses, the compliance with which you will appreciate Seqwater has had to afford priority.

In order to progress the work, Seqwater has conferred with BCC representatives on a number of occasions to formulate the basis upon which this modelling work might be efficiently completed. Unfortunately, Seqwater's efforts to date have not culminated in agreement by Seqwater and BCC on how these tasks should be completed. This does not mean that BCC is unwilling to co-operate, but rather it reflects the reality that both parties have necessarily been distracted in meeting the requirements of the Commission and other priority regulatory requirements.

Seqwater's initial preference was to obtain the BCC models and GIS information, which are the most up to date and therefore the most accurate, from BCC and then work collaboratively with BCC to complete tasks (b) and (c) above. If BCC does not wish to so collaborate, Seqwater proposes to obtain the BCC models and GIS data from BCC and complete task (b) itself, which would be inefficient and not cost

effective as BCC would still then need to verify Seqwater's data to complete task (c). You will appreciate that the assessment of inundation in the Brisbane area, as noted in (c) above, can be completed most cost effectively and promptly by BCC. Seqwater has therefore sought to enlist BCC's assistance in completing both tasks (b) and (c). If BCC is unable to provide the necessary assistance, Seqwater will complete task (b) itself.

Until BCC's position is known, Seqwater has been using an older, less calibrated, model to develop the river level modelling as described in (b) above. Seqwater has engaged a suitable independent consultant, SKM, to undertake preliminary work, in anticipation of BCC's subsequent participation in the process. Seqwater considers that BCC's involvement is critical as it has the capability to promptly and efficiently model the inundation impacts, which information is essential for the Commission to determine whether a different permanent or temporary FSL should be adopted for Wivenhoe Dam.

In summary, Seqwater has engaged SKM to update and develop the appropriate models to more accurately determine the impact on river levels at various outflow rates from Wivenhoe Dam. This assessment will investigate only a limited number of scenarios in the first instance but should give more robust and reliable estimates than Seqwater is currently able to provide. Seqwater then intends to provide this data to BCC for its use in completing the necessary modelling work. Seqwater will then apply the modelling to other events and will use the modelling as an operational tool in Seqwater's Flood Operation Centre.

I do not wish to convey any suggestion that BCC has been unco-operative, but rather both it and Seqwater have been distracted by the abovementioned more pressing commitments. Seqwater intends to complete the outstanding modelling work and provide it to the Minister and the Commission of Inquiry as soon as possible.

Yours sincerely



Peter Borrows
Chief Executive Officer

List of Emails
(provided where not privileged)

Date	Subject	Notes
25/01/11	Seqwater: Letter from Minister Robertson	
16/02/11	Draft Revised Interim program – for consideration and feedback prior to lodgement	
16/02/11	RE: Draft Revised Interim program – for consideration and feedback prior to lodgement	
16/2/11	FW: Mogill Ferry update	
16/02/11	RE: Draft Revised Interim program – for consideration and feedback prior to lodgement	
16/2/11	PRIVILEGED	LEGAL PROFESSIONAL PRIVILEGE
19/02/11	FW: Technical Situation Report	

List of Briefings
(provided where not privileged)

WAP-00004– CTS 02386/11 PPQ 02386_11.DOC	PRIVILEGED	PARLIAMENTARY PRIVILEGE

[redacted]

Subject: Seqwater: Letter from Minister Robertson
Location: Level 13, 400 George Street, Brisbane

Start: Tue 25/01/2011 1:30 PM
End: Tue 25/01/2011 2:30 PM
Show Time As: Out of Office

Recurrence: (none)

Meeting Status: Accepted

Importance: High

Dear All,

This is a diary entry for the meeting as discussed with your office this morning.

The purpose of this meeting is to ensure that everyone is clear on how to deal with point 1 of the attached letter from Minister Robertson (dated 20/01/11).

Barry & Karen – this meeting was intended for Chairs only, however, Peter Borrows will be attending. You are welcome to attend also.

If you have any questions, or if I can assist at all, please do not hesitate to contact me.

Regards, [redacted]

[redacted]

Executive Assistant to the CEO

Queensland Bulk Water Supply Authority *trading as* Seqwater

Ph [redacted]

Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002

Website | www.seqwater.com.au

<<Letter from Minister Robertson, 20 January 2011.pdf>>

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ole1.bmp (84 KB)


Letter from Minister Robertson...

(Trading as Seqwater).

Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources,
Mines and Energy and
Minister for Trade

20 JAN 2011

Ref CTS 00433/11

Mr Phil Hennessy
Chair
Seqwater
PO Box 16146
City East QLD 4002

CC: Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
CITY EAST QLD 4002

CC: Ms Mary Boydell
Commissioner
Queensland Water Commission
PO Box 15087
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CC: Mr Gary Humphrys
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PO Box 16205
CITY EAST QLD 4002

Dear Mr Hennessy

You will be aware that the Premier recently announced a Commission of Inquiry into Queensland Floods which will consider among other things, compliance with, and the suitability of the operational procedures relating to flood mitigation and dam safety.

The Commission is required to deliver an interim report by 1 August 2011 (on matters associated with flood preparedness to enable early recommendations to be implemented before next summer's wet season); and its final report by 17 January 2012.

However, I am also aware that Seqwater is currently managing the releases from the flood compartment of Wivenhoe and Somerset Dams in South East Queensland, in the context of the company's current Flood Mitigation Manual for those dams. There are three matters I wish to raise with you in this letter:

(1) I note that under the Flood Mitigation Manual for Wivenhoe and Somerset Dams, Seqwater is required to prepare a report on the recent flood event (see clauses 2.9 and 7.4 of the Manual). It is essential that a report (covering the requirements of both clauses 2.9 and 7.4 of the Manual) to the Department of Environment and Resource Management (DERM) is completed within the required timeframe of six weeks from the date of the incident. However in view of the fact that we remain in the middle of the wet season and further significant inflows are possible, I would urge you to complete this review, which should include consideration of the appropriate Full Supply Levels, as a matter of priority and urgency.

Any other changes you propose to the Flood Mitigation Manual, or related matters, eg improved data collection, should be clearly identified in the Review report, along with a timetable to implement them.

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(2) Furthermore, while this review of factors relevant to the operating release strategy and the Full Supply Levels is underway, I would request that you develop a contingency protocol which would ensure that if rainfall, that is likely to result in a flood release from Wivenhoe Dam, is forecast for the catchment then Seqwater will immediately convene a discussion with the Chief Executive Officer of DERM, his dam safety regulatory staff, and other appropriate parties.

(3) I note that the recent preliminary report by Mr Cooper identified a number of improvements that Seqwater could implement to achieve a better outcome in the application of the Draft Communication Protocol between government agencies and local governments. I request that you contact Mr Bob Reilly, General Manager, Office of the Water Regulator of the department on 3224 2898, to progress these as a matter of urgency.

I have also written to the Chair of the Water Grid Manager and the Water Commissioner requesting all necessary assistance be afforded to SEQ Water to ensure the matters raised in this letter are responded to as a matter of priority and with urgency.

Should you have any further enquiries, please do not hesitate to contact Mr John Bradley, Chief Executive of the Department, on [redacted]

Yours sincerely

[redacted]

STEPHEN ROBERTSON MP

[redacted]

From: Peter Borrows [redacted]
Sent: Wednesday, 16 February 2011 3:03 PM
To: Hinrichsen Lyall
Cc: Bradley John; Best Debbie; Claydon Greg; Toni Lake; Peter Borrows; Jim Pruss; Mike Foster
Subject: Draft Revised Interim program - for consideration and feedback prior to lodgement
Attachments: Revised Interim Program - DRAFT 16 Feb2011.DOC

Lyle.

Seqwater notes that the Minister for Natural Resources, Mines and Energy and Minister for Trade announced on 13 February 2011 that, in order to temporarily increase the flood mitigation capacity of Wivenhoe Dam, the water storage level in the dam was to be reduced to and held at 75% of its Full Supply Level (***FSL***) until the end of the wet season on 31 March 2011.

The announcement followed advice from the SEQ Water Grid Manager on 9 February 2011 that the Grid Manager had no objection to Wivenhoe Dam being drawn down to 75% of its FSL from a water security perspective, and that the temporary draw down is unlikely to impact the Grid Manager's ability to comply with its obligations under the *South East Queensland System Operating Plan* or Grid Contracts.

In light of the Grid Manager's advice, the extreme nature of the January 2011 flood event and Seqwater's modelling, Seqwater recommended to DERM that Wivenhoe Dam's storage level be temporarily reduced to 75% of its FSL to temporarily increase its flood mitigation capacity.

We note the Director-General of DERM agreed to implement the above reduction in the water storage level in his letter dated 11 February 2011

Consequently, on 14 February 2011 the Moreton Resource Operations Plan was amended to include a new Section 13(6A) permitting a Resource Operations Licence holder with an approved interim program to submit a revised program to the chief executive for approval.

Seqwater is a Resource Operations Licence holder under the Moreton Resource Operations Plan with an approved interim program, and hereby submits a draft Revised Interim Program for your **consideration and feedback prior to lodgement for chief executive approval** under Section 13(7) of the Moreton Resource Operations Plan. Please note that Seqwater is still seeking approval from its insurers as to the terms of the attached draft revised program prior to lodgement of the program with the chief executive.

The draft Revised Interim Program, if approved, would authorise releases:

- to effect the initial reduction in the level of Wivenhoe Dam to an 'Interim Security Supply Level' being 75% of its FSL, from 14 February 2011 ; and

- thereafter, until 31 March 2011, to bring Wivenhoe Dam back to the Interim Security Supply Level where inflows occur after the initial reduction.

For your information, the above releases would not commence until after program lodgement and approval and after Seqwater has provided notifications to third parties (including Councils) and the other actions referred to in the 11 February 2011 letter from your Department's Director General to Seqwater have been finalised.

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

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Seqwater Interim Program – Moreton Resource Operations Plan
(Revised 16 February 2011)

The Moreton Resource Operations Plan (the ROP) commenced on 7 December 2009. The Queensland Bulk Water Supply Authority (trading as Seqwater) is the Resource Operations Licence Holder under the ROP for the following Water Supply Schemes:

- Central Brisbane River Water Supply Scheme;
- Pine Valleys Water Supply Scheme; and
- Stanley River Water Supply Scheme.

Where Seqwater, as the ROL holder, is unable to meet requirements of the ROP on its commencement, a structured process is available whereby a statement of programs currently in existence can be prepared and submitted to the Department of Environment and Resource Management (DERM), to be followed by an Interim Program. The box below sets out the relevant provisions under the ROP.

Relevant ROP Requirement

Interim Program

s13(1) The chief executive and the resource operations licence holder must implement requirements of this plan as soon as is practical within the timeframes stated below.
s13(2) Subsections 3 to 11 apply where a resource operations licence holder is unable to meet the requirements of this plan on the day this plan commences.
s13(3) The resource operations licence holder must –

(a) within 2 months of commencement of this plan, submit a statement of programs currently in existence, to the chief executive for approval; and
(b) **within 6 months of commencement of this plan, submit a program for meeting the requirements of this plan to the chief executive for approval, including a timetable and interim methods to be used.**

s13(4) The resource operations licence holder may, where an emergency or operational incident results in an inability to comply with any rules or requirements of this plan, submit an interim program for meeting the requirements of this plan to the chief executive for approval, **including timetable and interim methods to be used.**
s13(5) Where the submitted program relates to the Water Monitoring Data Collection Standards, the program must include the accuracy of methods currently used.
s13(6) The chief executive, in considering any submitted program, may request additional information.
s13(6A) Despite anything in subsections (2), (3) or (4), a resource operations licence holders with an approved interim program may submit to the chief executive a revised program for consideration under subsection (7).
[Seqwater needs to confirm that the final ROP amendment text is identical to what is submitted to DERM]
s13(7) The chief executive, in considering any submitted program, may either–

(a) approve the program with or without conditions;
(b) amend and approved the amended program; or
(c) require the resource operations licence holder to submit a revised program.

s13(8) Within 10 business days of making a decision on a program submitted under this section the chief executive must notify the resource operations licence holder of the decision.
s13(9) Following approval of the program by the chief executive, the resource operations licence holder must–

(a) implement and operate in accordance with the approved program; and
(b) make public details of the approved program on their internet site.

s13(10) Where there is conflict between the provisions of this plan and the provisions of an approved program, the approved program prevails for the time that the approved program is in place.
S13(11) Where this section applies, the resource operations licence holder may continue to operate under the existing program until the program submitted under this section is approved.

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Seqwater submitted a Statement of Current Programs to DERM on 5 February 2010, in accordance with Section 13 of the ROP.

Seqwater submitted an Interim Program for the Moreton ROP to DERM in May 2010, as required under s13 of the ROP. After consultation with and at the request of DERM, an amended Interim Program was submitted to DERM on 27 August 2010. A delegate of the Chief Executive approved Seqwater's 27 August 2010 Interim Program on 3 December 2010.

On 14 February 2011, the ROP was amended to permit a Resource Operations Licence Holder to submit a revised program.

Under Section 6A of the ROP, this Revised Interim Program is now submitted to DERM for approval to facilitate the temporary reduction of Wivenhoe Dam to temporarily increase the flood mitigation capacity of the dam.

Draft

Seqwater Interim Program – Moreton Resource Operations Plan

Current as at 16 February 2011

Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Departmental water monitoring data collection standards 11(1) Where this plan required monitoring by a resource operations licence holder, including measurement, collection, analysis and storage of data, the resource operations licence holder must ensure the monitoring is consistent with the Water Monitoring Data Collection Standards.	Refer ss151-160.	There is currently limited monitoring of listed infrastructure under the ROP, however, a review will be undertaken (due for a staged completion, with final stage completed by 1 March 2012) to ensure monitoring is consistent with the Queensland Government Water Monitoring Data Collection Standards. The following sets out the timeline for the review: North Pine Dam: Review 1 July 2010; Implementation 1 September 2010 Sideling Creek Dam: Review 1 July 2010; Implementation 1 September 2010 Wivenhoe Dam: Review 1 October 2010; Implementation 1 January 2011 Somerset Dam: Review 1 October 2010; Implementation 1 January 2011 Enoggera Dam: Review 1 October 2011; Implementation 1 January 2012 Gold Creek Dam: Review 1 October 2011; Implementation 1 January 2012 Caboolture River: Review 1 January 2012; Implementation 1 March 2012	1 September 2010 - 1 March 2012.
Departmental water monitoring data reporting standards 12(1) Where this plan requires transfer of data or reporting by a resource operations licence holder the resource operational licence holder must ensure the transfer or reporting is consistent with the Water Monitoring Data Collection Standards.	Refer ss161-167.	Seqwater applies the Queensland Government Water Monitoring Data Reporting Standards (Feb 2007) to its current reporting procedures.	Refer ss161-167.
Central Brisbane River and Stanley River Water Supply Schemes – Operating levels for infrastructure 72(3) The resource operations licence holder must not release water from any infrastructure unless the release is necessary to— (a) meet minimum flow rates in section 75; or (b) supply downstream demand.	Not compliant with ROP (releases made for operational purposes and water quality and ecosystem health including fish management)	A. Seqwater will continue to make releases from infrastructure – 1. for consumption; 2. pursuant to the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam; 3. for operational maintenance of dam infrastructure; 4. where B does not apply, to operationally maintain storage levels, in the absence of a flood event, at or close to FSL; and 5. for fish recovery. B. Seqwater will, between 14 February and 31 March 2011 (**"2011 Summer Season"**) and subject to the operational constraints specified below, make the following releases from infrastructure – (a) the volume necessary to initially reduce Wivenhoe Dam to the Interim Supply Security Level; and (b) volumes necessary to reduce back to the Interim Supply Security Level, where inflows occur during the 2011 Summer Season that take the Wivenhoe Dam level to between the Interim Supply Security Level and the Full Supply Level. The releases specified in (a) and (b) will only be made where releases can be undertaken at a rate such that Burtons Bridge remains trafficable. If, after releases specified in (a) or (b) have commenced, the level in Wivenhoe Dam exceeds 67.25 m AHD and a flood event is declared, the dam will be operated in accordance with the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam. Once the flood event has ended and the dam level is brought back to the Full Supply Level, the releases specified in (a) and (b) will be recommenced. For the purpose of the above, **"Interim Supply Security Level"** means 64.0 m AHD.	Ongoing
Central Brisbane River and Stanley River Water Supply Schemes – Streamflow Requirement 75 When critical water sharing arrangements are not in force, the resource operations licence holder must release a minimum flow of 8.64ML/day from Mount Crosby Weir.	No operational outlet works at Mt Crosby Weir, therefore no managed releases made.	As there are no operable outlet works at Mt Crosby Weir (and cannot be implemented without significant investment, including possible reconstruction of the weir), overflows are dependent upon releases from Wivenhoe and projected water supply demands and local inflows, the latter two components being outside Seqwater control. As a result, Seqwater has very limited control over releases from Mt Crosby Weir on a daily basis. As such, it is proposed that this requirement be deemed as satisfied if a minimum average flow of 8.64ML/day (for any given month) flows over Mt Crosby Weir, rather than a minimum flow of 8.64ML/day (for any given day).	Seqwater would be compliant with a requirement for a minimum average flow of 8.64ML/day for any given month from 1 July 2010. Compliance is not able to be achieved for a minimum flow of 8.64ML/day for any given day.

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Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocations 76 The resource operations licence holder must— (a) calculate an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group; (b) use the water sharing rules specified in this part to calculate announced allocations throughout the water year; (c) calculate and set the announced allocation for each priority group to take effect on the first day of each water year; (d) following the commencement of a water year— (i) recalculate the announced allocation to take effect no later than 5 business days following the first day of the month; (ii) reset the announced allocation if a recalculation indicates that the recalculated announced allocation would— (A) for medium priority water allocations increase by 10 or more percentage points; (B) for high priority water allocations increase by 5 or more percentage points; or (C) increase to 100 per cent. (e) within 5 business days of setting an announced allocation under subsection 1(c) or the first calendar day of every month when resetting the announced allocation under subsection 1(d)— (i) publish details of the announced allocation; and (ii) make public details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site; (f) not reduce the announced allocation during a water year; (g) round the announced allocation to the nearest whole percentage point (h) not set an announced allocation that is greater than 100 per cent.	Not compliant with ROP (no programs currently in existence – MP customers transferred to Seqwater on ROP gazettal)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocations for Medium Priority Water Allocations 77(1) The announced allocation for medium priority water allocations in the Central Brisbane River Water Supply Scheme is the announced allocation percentage stated in Attachment 5, Table 5, column 2 corresponding to the combined percentage of useable volume in storage of Wivenhoe and Somerset dams stated in Attachment 5, Table 5, column 1. 77(2) the combined percentage of useable volume in storage of Wivenhoe and Somerset dams must be calculated using the following formula— SPUVS = ((UVWivenhoe+UVSomerset)/CUFSV)*100 77(3) The parameters used in the formula for combined percentage of volume in storage are defined in Attachment 5, Table 6.	Not compliant with ROP (no programs currently in existence – MP customers transferred to Seqwater on ROP gazettal) Please note: the volume stored in Split Yard Creek Dam may influence the Announced Allocation.	New Medium Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Announced Allocation for 'High Priority A' Water Allocations 78 (1) The announced allocation for 'High Priority A' water allocations within the Central Brisbane River Water Supply Scheme must be as follows— (a) 100 per cent when the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is greater than or equal to 25 per cent or (b) when the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is less than 25 per cent, the announced allocation percentage for 'High Priority A' water allocations must be calculated using the following formula— AAHPA={(UV-(AAMP*MPA)+DIVHPA+DIVMP)/HPAA)*100 78(2) The parameters used in the formula for announced allocation are defined in Attachment 5, Table 4. 78(3) For subsection 1 the combined percentage of useable volume in storage	Not compliant with ROP (no programs currently in existence)	New High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.

Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
of Wivenhoe and Somerset dams must be calculated using the formula in section 77(2) of this plan.			
Central Brisbane River and Stanley River Water Supply Schemes – Critical Water Sharing Arrangements 80(1) Critical water sharing arrangements are in force when the combined percentage of the volume of water in storage in Wivenhoe and Somerset Dams is less than 15 percent. 80(2) During times when critical water sharing arrangements are in force the resource operations licence holder must— (a) cease making releases from Mount Crosby Weir under section 75 of this plan; (b) when at the start of the water year the combined percentage of useable volume in storage of Wivenhoe and Somerset dams is less than 15 per cent, set the announced allocation for medium priority water allocations in the Central Brisbane River Water Supply Scheme to zero per cent; and 80(3) For subsection 1 the combined percentage of volume of water in storage for Wivenhoe and Somerset Dams must be calculated using the formula in section 77(2) of this plan.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). New Medium Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Central Brisbane River and Stanley River Water Supply Schemes – Seasonal water assignment rules 88(1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total volume of water use in a water year for each zone will not exceed the maximum allowable water use volume in Attachment 5, Table 9 for each zone. 88(2) The resource operations licence holder is responsible for dealing with applications for seasonal water assignment where the resource operations licence holder distributes water to the assignee.	Not compliant with ROP (no programs currently in existence, customers unmetered)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012). Advice will be provided to customers that where two parties wish to enter into a seasonal assignment transaction, that both parties will require a water meter, unless the selling party can demonstrate that they have no active water extraction or usage.	Metering program to be undertaken in close consultation with Mid-Brisbane Irrigators (likely to take until December 2012).
Pine Valleys Water Supply Schemes – Operating Levels for Infrastructure 97(1) The operating levels for the infrastructure in the Pine Valleys Water Supply Scheme are specified in Attachment 6, Table 1. 97(2) The resource operations licence holder must not release or supply water from any infrastructure when the water level in that infrastructure is at or below its minimum operating level. 97(3) The resource operations licence holder must not release water from any infrastructure unless the release is necessary to supply downstream demand and is made in accordance with this plan.	Not compliant with ROP (releases made for operational purposes and for water quality and ecosystem health including fish management)	s97(1): Attachment 6, Table 1 incorrectly specifies the Minimum Operating Level for North Pine Dam as EL 14.2m AHD and Minimum Operating Volume as 2100ML. The correct Minimum Operating Level is EL 12.8m AHD and the correct Minimum Operating Volume is 1310ML. s97(2): Seqwater will continue to release or supply water from North Pine Dam in accordance with the correct Minimum Operating Level of EL 12.8m AHD rather than the incorrect Minimum Operating Level of EL 14.2m AHD as specified in Attachment 6, Table 1. Seqwater requests DERM correct this error in the ROP. s97(3): Seqwater will continue to make releases from infrastructure- 1. for consumption; 2. pursuant to the Manual of Operational Procedures for Flood Mitigation at North Pine Dam; 3. for operational maintenance of dam infrastructure; 4. to operationally maintain storage levels, in the absence of a flood event, at or close to FSL; and 5. for fish recovery.	Ongoing.
Pine Valleys Water Supply Schemes – Announced Allocations 100 The resource operations licence holder must— (a) calculate an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group; (b) use the water sharing rules specified in this part to calculate announced allocations throughout the water year; (c) calculate and set the announced allocation for each priority group to take effect on the first day of each water year; (d) following the commencement of a water year— (i) recalculate the announced allocation to take effect no later than 5 business days following the first day of the month; (ii) reset the announced allocation if a recalculation indicates that the recalculated announced allocation would— (A) for high priority water allocations increase by 5 or more percentage points; or	Not compliant with ROP (no programs currently in existence)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
(B) increase to 100 per cent (e) within 5 business days of setting an announced allocation under subsection 1(c) or the first calendar day of every month when resetting the announced allocation under subsection 1(d) make public details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site for the Pine Valleys Water Supply Scheme; (f) not reduce the announced allocation during a water year; (g) round the announced allocation to the nearest whole percentage point; and (h) not set an announced allocation that is greater than 100 per cent. 101(1) The announced allocation for 'High Priority A' water allocations in the Pine Valleys Water Supply Scheme must be as follows— (a) 100 per cent when the level of water in storage in North Pine Dam is greater than E.L. 29.3m AHD; and (b) When the water level of water in storage in North Pine Dam is equal to or less than E.L. 29.3m AHD the announced allocation percentage for high priority water allocations must be calculated using the following formula— AAHPA=((UV+DIVHPA)/HPAA)*100 101(2) The parameters used in the formula for announced allocations are defined in Attachment 6, Table 2. 102 The total volume of water taken under a water allocation in a water year must not exceed the nominal volume of the water allocation multiplied by the announced allocation and divided by 100.			
Pine Valleys Water Supply Schemes – Critical Water Sharing Arrangements 103(1) Critical water sharing arrangements are in force when the water level in North Pine Dam is equal to or less than E.L. 29.3m AHD. 103(2) During times when critical water sharing arrangements are in force the resource operations licence holder must calculate the announced allocation for high priority water allocations in accordance with section 101(1)(b) of this plan.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). New High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Pine Valleys Water Supply Schemes – Seasonal Water Assignment Rules 110(1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total volume of water use in a water year for each zone will not exceed the maximum allowable water use volume in Attachment 6, Table 3 for each zone. 110(2) The resource operations licence holder is responsible for dealing with applications for seasonal water assignment where the resource operations licence holder distributes water to the assignee.	Not compliant with ROP (no programs currently in existence)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place by 1 July 2010.	1 July 2010.
Resource operations licence holder monitoring and reporting – Monitoring data must be made available 151 The resource operations licence holder must provide any monitoring data required under this chapter to the chief executive upon request and within the time requested.	Not compliant with ROP	Requests for data outside of ROP reporting requirements will be provided within required timeframes. Please note, however, that a standard waiting period of 7-14 days applies to all ad-hoc requests and a longer waiting period may apply depending on the detail of the request.	1 July 2010 (please note waiting periods).
Monitoring requirements – Streamflow and infrastructure water level 152(1) The resource operations licence holder must record water level and volume and stream flow data in accordance with Attachment 9, Table 1. 152(2) Infrastructure inflows may be determined based upon an infrastructure inflow derivation technique supplied by the resource operations licence holder and approved by the chief executive.	Not compliant with ROP (ALERT data available for Baxters Ck and Dayboro WWTP)	152(2) Consistent inflow derivation methodology will be developed by July 2011 for all storages. In the interim, existing methodology inherited from previous asset owners will be used where in existence. Please refer to Attachment 9, Table 1 at end of document.	1 July 2010 – July 2011.

Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
Monitoring requirements – Releases from infrastructure 153(1) This section applies to the following infrastructure— (a) Cressbrook Dam; (b) Mount Crosby Weir; (c) North Pine Dam; (d) Perseverance Dam; (e) Somerset Dam; and (f) Wivenhoe Dam. 153(2) The resource operations licence holder must measure and record for each release of water from infrastructure listed in subsection 1— (a) the daily volume released; (b) the release rate and for each change in release rate— (i) the date and time of the change; and (ii) the new release rate; (c) the reason for each release; and (d) the device used for each release. 153(3) The resource operations licence holder for infrastructure mentioned in subsection 1(c) and 1(f) must record— (a) the inlet level used for each release of water; and (b) the reason for taking water via a particular inlet level.	153(1)(b) No measured releases made 153(1)(c) Operational Log ex SunWater system 153(1)(e) Operational Log ex SunWater system 153(1)(f) Operational Log ex SunWater system 153(2) Data is recorded in Operational Log 153(3) Data is recorded in Operational Log	153(1)(b): No operable outlet works exist at Mount Crosby Weir and cannot be implemented without significant investment. Releases are not made – only overflows, which are monitored and recorded. As such, it is proposed Seqwater report the overflows in compliance with ss153(2) and 153(3) instead of releases since none are made.	1 July 2010 (note: overflows and not releases will be reported for Mt Crosby Weir).
Monitoring requirements – Announced allocations 154 The resource operations licence holder must record details of announced allocation determinations including— (a) the announced allocations for medium and high priority water allocations; (b) the date announced allocations are determined; and (c) the value of each parameter applied for calculating the announced allocation.	Not compliant with ROP (no programs currently in existence)	New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Monitoring requirements – Water taken by water users 155 The resource operations licence holder must record the total volume of water taken, by each water user for each zone as follows— (a) the total volume of water taken in each quarter; (b) the total volume of water entitled to be taken at any time; and (c) the basis for determining the total volume of water entitlement to be taken at any time.	Only HP water take measured – no meters for measuring MP water take	Full compliance with these requirements for the Central Brisbane River Water Supply Scheme is dependent on the development and implementation of a metering program within the Scheme (anticipated to be an ongoing program which will need to be implemented in close consultation with the Mid-Brisbane irrigators, and will likely take until December 2012). All other schemes will be compliant from 1 July 2010. In the interim water estimations will consist of a quarterly mailout of recording sheets, specifying the requirement for recording volumes of water taken, plus supporting information, with submission of the recording sheets on a quarterly basis. The quarterly mailout will be a prompt for customers to submit their records. Advice will also be given of the Seqwater position that where records are not received that it will be assumed that 25% of the customer's water entitlement has been used for that quarter, and that this will be recorded as such.	1 July 2010 for all schemes except Central Brisbane River Water Supply Scheme (anticipated to take until December 2012, with log sheets to be distributed in the first quarter after approval of the interim program).
Monitoring requirements – Seasonal water assignment of water allocations 156 The resource operations licence holder that approves a seasonal water assignment must record details of seasonal water assignment arrangements including— (a) the name of the assignee, volume and location of water that has been seasonally assigned by an assignor; (b) the name of the assignor, volume and location of the water that has been seasonally assigned to an assignee; and (c) the effective date of seasonal water assignments.	Not compliant with ROP (no programs currently in existence)	Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012 – please refer to ss88 and 164 for further detail).	1 July 2010 for all schemes except Central Brisbane River Water Supply Scheme (anticipated to take until December 2012).
Monitoring requirements – Critical water sharing arrangements 157 The resource operations licence holder must record details of critical water sharing arrangements including the following— (a) the commencement date(s) and effective period of critical water sharing arrangements; and (b) the effectiveness of the critical water sharing arrangements.	Not compliant with ROP (no programs currently in existence)	New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010.
Monitoring requirements – Water Quality 158 the resource operations licence holder must monitor and record water	<u>Somerset Dam</u> **Inflow:**	Seqwater is currently compliant with the monitoring requirements for Wivenhoe Dam and Mt Crosby Weir (with the exception of tailwater monitoring since the downstream area is estuarine) and will be reported from 1 July	1 January 2011.

Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
quality data in relation to relevant infrastructure listed in Attachments 5, 6 and 7.	None. Quality monitoring and recording is event-related only. Water quality meters are DERM infrastructure. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Chl, BGA, DO; Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO; Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** Fortnightly – Total Cyano, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **<u>Wivenhoe Dam</u>** **Inflow – (Caboonbah):** Fortnightly – Total Cyanobacteria, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. Monthly (SB) – Total Cyanobacteria, EC, TC, Chl a, Fe, Mn, true colour, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Temp., Chl, BGA, DO Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour,TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **<u>North Pine Dam</u>** **Inflow:** None. Quality monitoring and recording is event-related only. **Headwater:** Real-time telemetered VPS pH, Cond., Turb., Temp., Chl, BGA, DO Fortnightly – Total Phyto, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO	2010. North Pine Dam requires some parameter additions to the inflow site on the North Pine River and the addition of a tailwater site to be compliant with the ROP requirements. Seqwater is currently reviewing the North Pine Monitoring Program which will include the requirements under the ROP (scheduled for completion by 1 July 2010) and will be implemented by 1 September 2010 (including training, reporting and scheduling). In the interim, additional parameters will be added to the existing gauging and water quality site on the North Pine River to be sampled on a monthly basis as follows: • Inflow: electrical conductivity, temperature, dissolved oxygen, pH, turbidity, total nutrients, dissolved nutrients • Tailwater: electrical conductivity, temperature, dissolved oxygen, pH, turbidity, total nutrients, dissolved nutrients, total sulphides Somerset Dam requires the addition of an inflow site on the Stanley River. The Somerset Dam Monitoring Program Review is scheduled for completion on 1 October 2010, with implementation (including training, reporting and scheduling) by 1 January 2011. Mt Crosby Weir requires the addition of an tailwater site on the Brisbane River. The Wivenhoe Dam Monitoring Program Review is scheduled for completion on 1 October 2010, with implementation (including training, reporting and scheduling) by 1 January 2011.	

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
	Monthly (SB) – Total Phyto, EC, TC, Chl a, Fe, Mn, true colour, TSS, H2S, DOC, TOC, NH4, NOX, FRP, TN, TP, silica, Chl a, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** None. <u>Mt Crosby Weir (also TS sampling)</u> **Inflow:** Kholo: Fortnightly – total phytoplankton, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Headwater:** Fortnightly – Total Cyano, EC, TC, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO Monthly – Total Cyano, EC, TC, Chl a, Fe, Mn, true colour, TSS, DOC, TOC, NH4, NOX, FRP, TN, TP, depth probe pH, Cond., Turb., Temp., Chl, BGA, DO. **Tailwater:** None, estuarine		
Monitoring requirements – Bank condition 159(1) The resource operations licence holder must inspect banks for evidence of collapse or erosion within the ponded areas and downstream of the relevant infrastructure listed in Attachments 5, 6 and 7 following instances of— (a) rapid water level changes; (b) large flows through infrastructure; or (c) other occasions when collapse or erosion of banks may be likely. 159(2) For subsection 1, downstream of the relevant infrastructure means the distance of influence of infrastructure operations.	Not compliant with ROP (inspections undertaken for ponded areas but not stream bank or downstream). No reporting or monitoring currently undertaken for ROP purposes however Dam Safety monitor dam wall and embankments directly surrounding dam storage.	Ponded area bank inspections for erosion are currently being undertaken on a weekly basis. Seqwater will add interim downstream visual bank inspections to weekly surveillance inspections with results collated quarterly and reported (commencing 1 July 2010 and implemented by September 2010). These interim downstream visual inspections will allow the distance of influence of infrastructure for each storage to be determined and an appropriate monitoring and inspection program to be implemented (commencing December 2010 and fully implemented by December 2011).	1 July 2010 – December 2011.
Reporting requirements 161 The resource operations licence holder must provide— (a) quarterly reports; (b) annual reports for the previous water year; (c) operational reports; and (d) emergency reports.	Not compliant with ROP. No reporting.	Refer ss162-167	Refer ss162-167.
Reporting requirements – Quarterly Report 162(1) The resource operations licence holder must submit a quarterly report to the chief executive after the end of each quarter, of every water year. 162(2) The report must contain the following data— (a) stream flow and infrastructure water levels—all records referred to in section 152 of this plan; (b) the total volume of water for each quarter— (i) taken for each zone; (ii) entitled to be taken from each zone; (c) water quality—all records referred to in section 158 of this plan; (d) a summary of bank condition monitoring and incidences of slumping, undertaken in accordance with section 159 of this plan; and (e) the details and status of any programs implemented under section 13 of this plan.	Not compliant with ROP. No reporting.	Seqwater applies the Queensland Government Water Monitoring Data Reporting Standards (Feb 2007) to its current reporting procedures. Commencing 1 July 2010 the following will be implemented: • ROP datasets will be supplied quarterly, as required under the ROP. • ROP Compliance Report will be submitted with the quarterly reporting process, including exceptions to ROP requirements and an update on the Interim Program, as required under the ROP. Results of weekly bank condition monitoring will be collated quarterly and reported, with progressive implementation commencing 1 July 2010 and fully implemented by December 2011. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss152, 158 and 159 for further details.	1 July 2010 – December 2011.
Reporting requirements – Annual Report 163(1) The resource operations licence holder must submit an annual report to the chief executive after the end of the water year. 163(2) The annual report must include—	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to s164 for further details.	1 July 2010 – December 2012

Relevant ROP Requirement	Programs Currently In Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
(a) water quantity monitoring results required under section 164 of this plan; (b) details of the impact of infrastructure operation on water quality as required under section 164 of this plan; (c) a discussion about any issues that arose as a result of the implementation and application of the rules and requirements of this plan.			
Reporting requirements – Water quantity monitoring – Annual Report 164 The resource operations licence holder must include in the annual report under section 163— (a) A summary of announced allocation determinations, including— (i) an evaluation of the announced allocation procedures and outcomes; and (ii) the date and value for the initial announced allocation and for each change made to an announced allocation; (b) Instances where critical water sharing arrangements have been implemented— (i) an evaluation of the announced allocation procedures and outcomes; and (ii) the commencement date(s) and effective period(s) for each stage of the arrangements and outcomes; (c) records from infrastructure—records referred to in section 153; (d) the total annual volume of water taken by each water user, specified by zone, namely— (i) the total annual volume of supplemented water taken; (ii) the total annual volume of supplemented water entitled to be taken; and (iii) the basis for determining the volume entitled to be taken; (e) details of seasonal water assignments, namely— (i) the total number of seasonal water assignments arrangements; and (ii) the total volume of water seasonally assigned; (f) all details of changes to infrastructure or the operation of the infrastructure that may impact on compliance with rules in this plan; and (g) details of any new monitoring devices used such as equipment to measure stream flow.	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss76, 77, 78, 80, 88, 100, 101, 103, 110, 153, 155, 156 and 157 for further detail. s164(a): New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s164(b): New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s164(c): No operable outlet works exist at Mount Crosby Weir and cannot be implemented without significant investment. Releases are not made – only overflows, which are monitored and recorded. As such, it is proposed Seqwater report the overflows in compliance with ss153(2) and 153(3) instead of releases since none are made. Please refer to s153 for further details. ss164(d-e): Compliance with these requirements for the Central Brisbane River Water Supply Scheme is dependent on the development and implementation of a metering program within the Scheme (anticipated to be an ongoing program and will need to be implemented in close consultation with the Mid-Brisbane irrigators, timeframe likely to take until December 2012). All other schemes will be compliant from 1 July 2010. ss164(f-g): Seqwater will be compliant with these requirements from 1 July 2010.	ss164(a-b, f-g): 1 July 2010. s164(c): 1 July 2010 (note: overflows rather than releases will be reported for Mt Crosby Weir). Please refer to s153 for further details. s164(d-e): 1 July 2010 – December 2012. Please refer to ss88, 155 and 156 for further details.
Reporting requirements – Impact of infrastructure operation on natural ecosystems – Annual report 165 The resource operations licence holder must include in the annual report under section 163— (a) a summary of environmental considerations made by the resource operations licence holder in making operational and release decisions; (b) a summary of the environmental outcomes of the decision including any adverse environmental impacts; (c) a summary of bank condition and fish stranding monitoring and assessment, including— (i) results of investigations of bank slumping or erosion identified in ponded areas or downstream of infrastructure; (ii) results of investigations of fish stranding downstream of infrastructure; and (iii) changes to to the operation of infrastructure to reduce instances of bank slumping, erosion or fish stranding; (d) a discussion and assessment of the following water quality issues— (i) thermal and chemical stratification in each water storage associated with infrastructure; (ii) contribution of the water storage and its management to	Not compliant with ROP. No reporting.	Seqwater will submit an annual report as required, commencing for the 2010/2011 water year. Collation of data for required reporting is dependent upon the implementation of relevant interim programs for various requirements as specified under the ROP. Refer to ss 158 and 159 for further details.	1 July 2010 – December 2011.

Relevant ROP Requirement	Programs Currently in Existence (as submitted to DERM in February 2010 and confirmed in 2010 Approved Interim Program)	Interim Program, including Methodology	Timetable
the quality of water released; (iii) cumulative effect of successive water storages associated with infrastructure on water quality; (iv) cyanobacteria population changes in response to stratification in each water storage; and (v) any changes to the monitoring program as a result of evaluation of the data.			
Reporting requirements – Operational Report 166 The resource operations licence holder must— (a) notify the chief executive within one business day of becoming aware of any of the following operational incidents— (i) a non-compliance by the resource operations holder with the rules in this plan; and (ii) instances of fish stranding or bank slumping within the impounded areas or downstream of infrastructure listed in Attachment 9, Table 1 or watercourses associated with the operation of the Central Brisbane River, Cressbrook Creek, Pine Valleys and Stanley River water supply schemes; (b) provide to the chief executive a report which includes details of— (i) the incident; (ii) conditions under which the incident occurred; and (iii) any response or activities carried out as a result of the incident; (c) notify the chief executive upon commencement and cessation of critical water sharing arrangements; and (d) notify the chief executive on approval of any seasonal water assignment, including— (i) the name and location of the assignees and assignors; and (ii) the zone or zones where water is being seasonally assigned to and from; (e) notify the chief executive upon making a decision relating to an initial announced allocation and/or its recalculation; (f) transfer to the chief executive— (i) details of any arrangements of addressing circumstances where the resource operations licence holder is unable to supply water allocations under subsection (e); and (ii) relevant supporting information used in making a decision under subsection (e).	Not compliant with ROP. No reporting.	ss166(a)(i), (b): Seqwater will submit operational reports as required, commencing for the 2010/2011 water year. s166(a)(ii): Process for reporting instances of fish standing and bank slumping will be progressively implemented beginning 1 July 2010 with finalisation by December 2011. Ponded area bank inspections for erosion are currently being undertaken on a weekly basis. Seqwater will add interim downstream visual bank inspections to weekly surveillance inspections with results collated quarterly and reported (commencing 1 July 2010 and implemented by September 2010). These interim downstream visual inspections will allow to the distance of influence of infrastructure for each storage to be determined and an appropriate monitoring and inspection program to be implemented (commencing December 2010 and fully implemented by December 2011). s166(c): New Critical Water Sharing Arrangements processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010). s166(d): Procedures for monitoring and approving Seasonal Water Assignments have been developed and will be in place for all schemes from 1 July 2010, however, it should be noted that Seasonal Water Assignments in the Central Brisbane River Water Supply Scheme are connected to implementation of a metering program (anticipated to take until December 2012 – please refer to ss88 and 164 for further detail). s166(e-f): New Medium Priority and High Priority Announced Allocation processes and procedures will be in place by the commencement of the 2010/2011 Water Year (i.e. from 1 July 2010).	1 July 2010 – December 2011.
Reporting requirements – Emergency report 167 In an emergency where the resource operations licence holder cannot comply with a rule in this plan as a result of an emergency, the resource operations licence holder must— (a) notify the chief executive upon discovery of the emergency; and (b) provide to the chief executive a report that includes— (i) details of the emergency; (ii) conditions under which the emergency occurred; (iii) any responses or activities carried out as a result of the emergency; and (iv) any rules specified in this plan that the resource operations licence holder is either permanently or temporarily unable to comply with due to the emergency.	Not compliant with ROP. No reporting.	Seqwater will submit emergency reports as required, commencing for the 2010/2011 water year.	1 July 2010.

Attachment 8, Table 1 – Water Allocation Schedule

Relevant ROP Requirement	Programs Currently in Existence	Interim Program, including Methodology	Timetable
Water Allocation Number 137: Brisbane Zone, Any Purpose, 25ML.	The map in Attachment 2(b) of the ROP does not include Somerset		

High Class A Priority, "This authorisation was authorised to continue under section 360ZDP of the *Water Act 2000*.	Dam, where part of this water allocation has always been taken. Due to the boundaries of the Brisbane Zone, this allocation is currently being taken outside of the specified zone in the ROP.	The zone where this entitlement has been issued does not include Somerset Dam, where part of this water allocation has always been taken. Due to the boundaries of the Brisbane Zone, this allocation is currently being taken outside of the specified zone in the ROP.	
Water Allocation Number 139: Mid-Brisbane Zone, Any Purpose, 150ML, Medium Priority, "This authorisation was authorised to continue under section 360ZDP of the *Water Act 2000*.	In accordance with current take of water from the Mid-Brisbane zone.		

Attachment 9 – Resource operations licence holder monitoring: Locations where continuous time series height and flow data and storage water level data are required.

Location	Continuous time series storage water level data	Continuous time series flow data	Programs Currently in Existence	Interim Program, including Methodology	Timetable
Mount Crosby Weir inflow		Y	Not continuous	A daily inflow derivation model is being developed which will incorporate outflow from Wivenhoe Dam, flow from Lockyer Creek and local area, change in Mt Crosby water levels and local irrigation and water supply demands.	1 July 2010.
Mount Crosby Weir headwater level	Y		Continuous	Water level is monitored via ALERT to a 20mm resolution.	1 July 2010.
Mount Crosby Weir tailwater		Y	Not continuous	Downstream of Mt Crosby Weir is tidal and, as such, a downstream gauging station will not provide estimates of river flow. Releases are not made from Mt Crosby Weir and any flow through the fish way and over the weir crest will provide an estimate of the flow from the weir.	Estimate of flow from the weir in place by 30 December 2010.
North Pine Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be available by 1 July 2010.	1 July 2010.
North Pine Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
North Pine Dam tailwater		Y	Not continuous	Water level is monitored continuously at the Dayboro Rd WPS Weir about 1km downstream of North Pine Dam. At present, this is only available via SCADA and is not rated. Until the rating is developed and equipment installed at the site to enable remote monitoring, flow downstream of North Pine Dam can be estimated from the gate and valve openings at the Dam (anticipated for July 2011). A rating can be developed for the Dayboro Rd Weir based on recorded flows and heights.	July 2011.
Somerset Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be in place by 1 July 2010.	1 July 2010.
Somerset Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
Somerset Dam tailwater		Y	Not continuous	Somerset Dam tailwater is affected by levels in Wivenhoe Dam. When full, the water in Wivenhoe back up to the toe of Somerset Dam. As such, a tailwater gauge is considered inappropriate. Outflows from Somerset can be estimated from the recorded openings of the gates, sluices and valves at the dam.	Nil
Wivenhoe Dam inflow		Y	Not continuous	A new daily inflow model is being developed and will be available by 1 July 2010.	1 July 2010.
Wivenhoe Dam headwater level	Y		Continuous	Compliant.	1 July 2010.
Wivenhoe Dam tailwater		Y	Not continuous	Please note: Water level is continuously monitored and recorded via ALERT and on-site logger with a resolution of 20mm which is owned by DERM not Seqwater (143035A). The site is rated but can be affected by backwater from Lockyer Creek. Discharge from the dam can also be estimated via the rated gates and valves. Since the gauge is owned by DERM, Seqwater will not undertake monitoring for tailwater at this site.	Seqwater will not undertake monitoring for tailwater at this site since the gauge is owned by DERM (143035A).

[redacted]

From: Hinrichsen Lyall
Sent: Wednesday, 16 February 2011 3:37 PM
To: 'Peter Borrows'
Cc: Bradley John; Best Debbie; Claydon Greg; 'Toni Lake'; 'Jim Pruss'; 'Mike Foster'; Poteri Vass; Oneill Leanne
Subject: RE: Draft Revised Interim program - for consideration and feedback prior to lodgement

Thanks Peter,

I note that in the document that you have submitted, the proposed changes have been incorporated into what appears to be the previously approved interim program. Just so I am clear, are the only changes those relating to section 72(3) of the Moreton ROP? While I have not noticed any other changes, I had been advised through our Legal Services team that Seqwater was also intending to submit a number of other "housekeeping" type amendments to the existing plan. If such additional changes have been proposed, it would be useful if these could be highlighted.

Your advice would be appreciated.

Lyall Hinrichsen
Acting General Manager, Water Allocation and Planning
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Peter Borrows [redacted]
Sent: Wednesday, 16 February 2011 3:03 PM
To: Hinrichsen Lyall
Cc: Bradley John; Best Debbie; Claydon Greg; Toni Lake; Peter Borrows; Jim Pruss; Mike Foster
Subject: Draft Revised Interim program - for consideration and feedback prior to lodgement

Lyle.

Seqwater notes that the Minister for Natural Resources, Mines and Energy and Minister for Trade announced on 13 February 2011 that, in order to temporarily increase the flood mitigation capacity of Wivenhoe Dam, the water storage level in the dam was to be reduced to and held at 75% of its Full Supply Level (***FSL***) until the end of the wet season on 31 March 2011.

The announcement followed advice from the SEQ Water Grid Manager on 9 February 2011 that the Grid Manager had no objection to Wivenhoe Dam being drawn down to 75% of its FSL from a water security perspective, and that the temporary draw down is unlikely to impact the Grid Manager's ability to comply with its obligations under the *South East Queensland System Operating Plan* or Grid Contracts.

In light of the Grid Manager's advice, the extreme nature of the January 2011 flood event and Seqwater's modelling, Seqwater recommended to DERM that Wivenhoe Dam's storage level be temporarily reduced to 75% of its FSL to temporarily increase its flood mitigation capacity.

We note the Director-General of DERM agreed to implement the above reduction in the water storage level in his letter dated 11 February 2011

Consequently, on 14 February 2011 the Moreton Resource Operations Plan was amended to include a new Section 13(6A) permitting a Resource Operations Licence holder with an approved interim program to submit a revised program to the chief executive for approval.

Seqwater is a Resource Operations Licence holder under the Moreton Resource Operations Plan

[redacted]

From: Peter Borrows [pborrows@seqwater.com.au]
Sent: Wednesday, 16 February 2011 3:46 PM
To: Bradley John
Subject: FW: Mogill Ferry update

FYI John.

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

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



From: Mike Foster
Sent: Wednesday, 16 February 2011 3:36 PM
To: Peter Borrows; Jim Pruss
Cc: Rob Drury; Bill Andrew
Subject: Mogill Ferry update

Pete,

We have advised the CEO of Stradbroke Ferries (Moggill Ferry) that our releases will fall significantly short of the 2.6m level they are concerned about.

Rob Drury has given the CEO his mobile number for any required updates during the release period.

Cheers Mike

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

seqwater
WATER FOR LIFE

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

[redacted]

From: Peter Borrows [redacted]
Sent: Wednesday, 16 February 2011 3:57 PM
To: Hinrichsen Lyall
Cc: Bradley John; Best Debbie; Claydon Greg; Toni Lake; Jim Pruss; Mike Foster
Subject: RE: Draft Revised Interim program - for consideration and feedback prior to lodgement

Hello Lyall.

Changes are –

- Text in front 2 pages
- Revised Program Table - heading for column 2, date at top of table and the Interim Program and Timetable details for the Central Brisbane River Water Supply Scheme and Pine Valleys Water Supply Scheme

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

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



From: Hinrichsen Lyall [redacted]
Sent: Wednesday, 16 February 2011 3:37 PM
To: Peter Borrows
Cc: Bradley John; Best Debbie; Claydon Greg; Toni Lake; Jim Pruss; Mike Foster; Poteri Vass; Oneill Leanne
Subject: RE: Draft Revised Interim program - for consideration and feedback prior to lodgement

Thanks Peter,

I note that in the document that you have submitted, the proposed changes have been incorporated into what appears to be the previously approved interim program. Just so I am clear, are the only changes those relating to section 72(3) of the Moreton ROP? While I have not noticed any other changes, I had been advised through our Legal Services team that Seqwater was also intending to submit a number of other "housekeeping" type amendments to the existing plan. If such additional changes have been proposed, it would be useful if these could be highlighted.

Your advice would be appreciated.

Lyall Hinrichsen
Acting General Manager, Water Allocation and Planning
Telephone: [redacted]

Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

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+----------+

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3 sheets of A4 paper = 1 litre of water

+----------+

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[redacted]

From: Dan Spiller [redacted]
Sent: Saturday, 19 February 2011 9:47 AM
To: Bradley John; Best Debbie
Cc: Dennien Barry @ SEQWGM
Subject: FW: Technical Situation Report
Follow Up Flag: Follow up
Flag Status: Completed

For info.

A more comprehensive TSR may have addressed some of his questions (and also the status of alternative routes). Bob and I will again offer our assistance to Seqwater next week.

Dan

From: [redacted]
Sent: Friday, February 18, 2011 9:33 PM
To: Dan Spiller
Subject: Re: Technical Situation Report

Dan,
Thank you for your message, I have spoken with Rob and satisfied with his explanation that this release will not have an effect on vessel operations.
Regards
Richard Johnson

Kind regards,

Captain Richard C Johnson
Regional Harbour Master (Brisbane) | Marine Operations (Brisbane)
Maritime Safety Queensland Division | Department of Transport and Main Roads
Floor 1 | Pinkenba Marine Operations Base | MacArthur Avenue East | Pinkenba Qld 4008
Macarthur Avenue East | Pinkenba Qld 4008
P: [redacted]
M
E:
W: www.msq.qld.gov.au
Tomorrow's Queensland: strong, green, smart, healthy and fair – www.towardQ2.qld.gov.au
Please consider the environment before printing this email

From: Dan Spiller [redacted]
Sent: 18/02/2011 05:23 PM ZE11
To: Richard Johnson
Cc: Rob Drury [redacted]
Subject: RE: Technical Situation Report

All,

Seqwater has provided the attached Technical Situation Report for the planned releases, commencing Sunday morning.

The media release from last night is below.

Regards,
Dan

GRID UPDATE
THURSDAY 17 FEBRUARY 2011
DAM RELEASES

Wivenhoe Dam

The controlled gate release to temporarily reduce the level of Wivenhoe Dam to 75 per cent will commence Sunday morning, 20 February 2011.

The release is based on balancing the drinking water supply needs of the community while improving the flood mitigation capability of Wivenhoe for the remainder of the wet season.

It is expected that this controlled release will run for 9 days in order to take best advantage of the current mild weather, falling tides and the limited flows into the Brisbane River from other sources downstream.

Twin Bridges, Savages Crossing and Colleges Crossing will likely be closed to all traffic during this time. Local councils are still being consulted on these impacts however there are alternate routes in place for each of the closures. These include Mt Crosby Weir, which is open as an alternative to Colleges Crossing.

While minor tidal flooding along parts of the Brisbane River may occur over the next few days, the Wivenhoe releases will not impact on this.

Note, while a longer release pattern has been considered it has not been recommended by Seqwater, owing to the need to take best advantage of the current weather, tides and flows into the Brisbane River. Also, in order to keep Colleges Crossing open, the release pattern would need to be effectively doubled and would mean that both Twin Bridges and Savages Crossing would be impacted for at least 18 days and longer if there was rainfall in the Brisbane area or at the dam site.

Members of the public seeking information on potential impacts in their local areas should direct inquiries to their local councils in due course.

Dam updates are issued daily while release gates at Wivenhoe Dam are in operation.

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Rapid assessment of flood mitigation benefits of dams

1. Introduction

During December 2010 – January 2011, a period of extensive and heavy rainfall occurred over a large part of Queensland, in particular across the catchments of the Fitzroy, Burnett and Condamine-Balonne rivers and in South East Queensland. Flooding occurred throughout the Central, South West and South East areas of Queensland.

The rainfall led to rapid rises in river levels in all of the main tributaries in each catchment resulting in extensive flooding of the major river channels as well as surrounding flood plains, towns, mines and agricultural land. Principal regional highways, including the Bruce Highway, as well as rail lines and Rockhampton airport were flooded resulting in disruption to travel, making it difficult to provide basic supplies to residents, and significant rebuilding requirements.

Flooding in the towns of Theodore and Condamine was so extensive that the entire communities had to be evacuated and temporarily housed elsewhere until flood water receded. In Dalby, flooding damage to the town's water treatment plant reduced its ability to provide all but a minimum volume of treated water to the town's residents resulting in water supply restrictions being imposed by Western Downs Regional Council.

The flooding of mine sites, damage to transport infrastructure, and disruption to properties has caused a significant impact on the production and export of coal from Central Queensland in particular. This situation will impact on supplies of coal to many countries, including China, with a commensurate effect on State and National trade figures.

Toowoomba and the towns of Grantham, Helidon and Withcott received damaging life taking floods from intense local events. The Lockyer Valley including Forrest Hill, Laidley and Gatton has experienced severe flooding.

This report has been prepared as a result of the widespread flooding in Central, Southern and South West Queensland in late 2010 and early 2011 where all major dams have filled.

It needs to be recognised that this is a rapid assessment at a time when access to information and the right people with appropriate skills and background were constrained. Thus, further work will be required to verify assessments particularly in catchments like the Herbert. There may also be other mitigation opportunities identified over time that could be investigated.

2. Objective

The objective of this report is to undertake a high level rapid assessment to ascertain:

- the effectiveness of flood mitigation provided by existing dams; and
- assess the potential for raising existing dams or constructing new dams/retention basins to provide improved flood mitigation benefits.

The aim is to provide an overview of the current flood mitigation benefit situation and identify in a very preliminary sense the prospects of major dams/retention basins (larger than urban scale) being constructed to mitigate floods causing significant damage in Queensland.

The work below only identified where the best opportunities appear to be and would need to be followed up by technical, economic and other assessments to assess the feasibility of the dams/retention basins before proceeding further.

3. Flood Mitigation Strategies

There are a range of structural and non-structural strategies that can be implemented to mitigate the consequences of floods. The preferred solution will depend on the individual circumstances of each situation. In summary, these include:

- The construction of dams or other structures to temporarily store floodwaters to reduce the magnitude of flood discharges flowing past the population at risk.
- The construction of levees or diversion structures to mitigate flood risks for populations at risk. (Levees are a relatively common means of protecting the population at risk from the rising river flood levels. However, the population needs to be aware that relying on levees is also associated with a high level of risk. If levees are overtopped or fail prematurely, the population at risk can be suddenly exposed to rapidly rising high flood levels and velocities with little warning and insufficient time to evacuate. Levees need to be well maintained and regularly monitored during flood events. Drainage pumping or discharge flood gates may also need to be installed. There also needs to be recognition that floods greater than the design flood event for the levees can occur and contingency plans need to be prepared for this eventuality.)
- Maximising the ability of flood channels to pass flood discharges. This can be done by dredging and removing debris from flow paths, enlarging channels or removing constrictions such as levees or embankments which restrict flow paths, subject to consideration of ecological and other impacts.
- Appropriate land planning combined with the development and implementation of floodplain management plans so that the population at risk within the flood plain is minimised or at least the risk of their inundation is reduced to acceptable levels.
- Purchasing and relocation of flood affected dwellings (such as has occurred for example in Northey Street in Brisbane).
- The development and implementation of Emergency Action Plans so that the population at risk can react in an appropriate, coordinated manner in the event of a flood emergency for a wide range of potential floods events. The degree of planning should be more detailed for the more frequent events but should be able to be escalated to the much rarer events if they occur. Such flood plans should include:
    - Consultation with emergency planners and other stakeholders and a detailed assessment of the risks of flooding and the consequences of such floods if they were to occur;
    - The provision of accurate real time flood forecasting and flood monitoring systems to enable reliable predictions of the levels and timing of the expected floods;
    - The provision of appropriate, timely warnings to populations at risk so that they can adequately prepare for incoming floods or evacuate out of the areas at risk;
    - Gathering of adequate survey data and preparation of flood maps to enable all potential populations at risk to accurately interpret flood warnings;

- The establishment of emergency excavation centres above flood levels
- Coordination across all levels of government
- Education of the population at risk so they know what to expect and what to do in emergency situations
- The regular exercising and updating of these plans so that they remain relevant and all parties know what to do in the event of a flood emergency.

The ability of a particular option to mitigate flood risks depends on a large number of parameters. Determining the most appropriate approach can involve detailed hydrologic and hydraulic model studies and assessment of the costs and effectiveness.

The degree of flood mitigation actually provided tends to be a trade-off of objectives, although in some circumstances it might be demonstrably justified on a benefit cost basis. For example, Peter Faust Dam at Proserpine was designed to limit the discharge of the 1970 flood (Cyclone Ada of 1970) to a maximum value. Similarly, the upgraded Hinze Dam has been designed to limit the 1 in 100 AEP flood discharge to a nominated discharge and this provides a specific level of flood mitigation downstream.

4. Methodology

The methodology used in this rapid assessment has been to:

1. Classify the type of existing dams into:
    a. Category 1 Dams – i.e. dams designed to provide flood mitigation for urban centres and surrounding areas -;
    b. Category 2 Dams – i.e. dams which have been developed without intentionally providing for flood mitigation but nevertheless provide some mitigation benefit through their existence;
2. Identify the features and characteristics which impact the effectiveness of flood mitigation provided by each of the Category 1 and 2 dams;
3. Identify the communities in Queensland at risk of flooding;
4. Establish a ranking methodology to assess the effectiveness of the two categories of dams in providing flood mitigation benefits;
5. Rank the flood benefits provided by Category 1 and 2 dams to urban centres and surrounding areas.
6. Identify and rank opportunities for mitigating floods either by raising existing dams or constructing new dams.

Presentation of data in the following sections is in the form that is obtainable at short notice, therefore direct comparisons between the flood mitigation potential of dams and detention basins will not always be possible.

5. Dam Categorisation

Attachment 1 categorises major dams in Queensland into dams with and without specific provision for flood mitigation. Possible future flood mitigation sites are also included in Attachment 1.

The potential for a dam or detention basin to provide flood mitigation benefits depends on many factors including hydrology, catchment area commanded by the dam relative to the area upstream of the community at risk, site geology and design of the structure,

downstream population at risk, antecedent conditions, timing of a flood with respect to dam storage levels and the like.

Category 1 Dams

Category 1 dams are dams in Queensland deliberately designed to mitigate floods.

If a dam can temporarily store a relatively large proportion of an incoming flood event, it may be able to discharge the incoming flow at a lower controlled rate to mitigate the downstream impacts. This is the case with Wivenhoe Dam which has 1 450 000 megalitres of flood storage above design full supply level. Any reduction in this flood storage capacity will reduce its ability to mitigate floods. Wivenhoe Dam has been estimated to reduce the peak flood height of the 1974 flood event by about 1.45 m in central Brisbane. The 1974 flood event was estimated to be about a 1 in 60 year event in central Brisbane(Smith 1998).

Some dams are designed with restrictive spillways so that only relatively small discharges can occur. This means inflows must be stored until sufficient head can be built up to drive the discharge through the spillway. This is how Peter Faust Dam near Proserpine and Ross River Dam near Townsville operate. Peter Faust Dam is estimated to reduce the flood discharge of a 1 in 100 year event by about 95%, thus providing significant flood mitigation protection for Proserpine. The dam has a large storage capacity relative to its catchment area.

It also applies for Hinze Dam but only up to the 1 in 100 annual exceedence probability (AEP) flood event. The recent upgrade of Hinze Dam, at a cost of $395 million, incorporated additional flood storage of 79 000 ML, which has the effect of restoring flood immunity on the Nerang flood plain to about a 1 in 100 year event and reduces the flood height of such an event by about half a metre.

Flood detention basins are special types of dams designed specifically to provide flood mitigation with emergency spillways to prevent overtopping. They are normally kept empty to maximise the flood storage volume. When a flood event occurs, initial discharges are through relatively small outlets until a headwater level is reached such that a larger spillway comes into play. There are now a number of these basins across Queensland in areas such as Ipswich, the Gold Coast and Cairns. They are usually designed to protect (relatively small) downstream urban developments. The Biggera Creek Detention Basin on the Gold Coast is estimated to reduce the flood discharge of a 1 in 100 year event by about 92%.

Category 2 Dams

Category 2 dams are dams in Queensland which do not include specific provision for flood mitigation. Nevertheless, such dams can attenuate floods though the constricting effect of spillways which causes water to bank up above the spillway crest and reduce the flood discharge peak passing through the dam. Such flood mitigation is often referred to as the flood routing effect through a dam. (Flood routing is the process of determining progressively the timing, shape, and amplitude of a flood wave as it moves over the dam spillway and to successive points downstream along a waterway.) Additional protection is provided when the dam is drawn down at the start of an event to, in effect, provide additional flood storage.

Despite Category 2 dams not being designed specifically for flood mitigation, the attenuation effect of the routing of floods through the dam can be significant. The available flood discharge reductions at the dam, assuming that the dam is full at the start for the 1 in

100 year flood event, are listed in Attachment 1. Some examples of flood discharge reductions include:

- 32% for Fairbairn Dam on the Nogoa river which would provide significant benefit for Emerald but minor benefits for downstream communities such as Rockhampton. Fairbairn Dam commands 98% of the catchment area upstream of Emerald but only 12% of the catchment area upstream of Rockhampton.
- 49% for Awoonga Dam on the Boyne River which commands 90% of the catchment area upstream of Gladstone.
- 68% for Bjelke Petersen Dam which commands 62% of the catchment area upstream of Cherbourg and 52% of the catchment area upstream of Murgon.
- 38% for Boondooma Dam on the Boyne River in the South Burnett which commands 76% of the catchment area upstream of Proston but notably has not prevented flooding in downstream Mundubbera in the 2010/11 flood.
- 32% for Borumba Dam on Yabba Creek which commands 75% of the catchment area upstream of Imbil but provides little protection to Gympie on the Mary River.
- 21% for Burdekin Falls Dam which commands 85% of the catchment area upstream of Ayr and Home Hill.

North Pine Dam and Leslie Dam have very little flood storage volumes provided above Full Supply Level so that inflows have to be released as soon as they can. Similarly, because of the relatively flat terrain around Beardmore Dam near St George, the dam is operated to minimise headwater rises and discharges are matched to inflows as closely as possible. For this reason, Beardmore Dam has negligible flood mitigation benefit.

6. Effectiveness of Flood Mitigation by Dams

If a dam is to provide a significant degree of flood mitigation, this requirement needs to be specifically addressed during the initial design or during major upgrades.

The effectiveness of a dam in mitigating floods and its economic viability will be impacted by a number of factors including:

1. Suitability of the **dam site** for raising of an existing dam or construction of a new dam to provide flood storage;
2. The **populations at risk**;
3. The ability to **combine flood mitigation and water supply benefits** to improve benefit-cost outcomes;
4. The percentage of the **catchment** upstream of the populations at risk **commanded by the dam** site:
    - If a dam only controls a small proportion of the catchment above a town, then it cannot have any control over floods originating from the remainder of the catchment. e.g. Wivenhoe only controls about 50% of the catchment of the Brisbane River above Brisbane. It cannot control floods originating in Lockyer Creek or the Bremer River. However the release from Wivenhoe Dam may be timed such that the peak discharge from Lockyer Creek is allowed through the system at a different time to reduce the impact of flooding downstream.
    - Locating the dam close to the community it is designed to protect will provide greater flood mitigation benefit. Locations a long way downstream of a dam are likely to receive less flood mitigation from a dam than locations in closer proximity to the dam. One contributing factor is the natural attenuation (flood mitigation) that occurs as flood peaks travel long distances downstream.

5. The **design of the dam** providing the ability to manage the volumes of water stored:
    - Maximising/optimising the ability of the dam to temporarily store water during flood events. The larger the event, the quicker the available flood storage behind the dam is filled and the degree of flood mitigation provided by the dam is reduced. Thus, a dam is likely to provide a greater degree of flood mitigation for a 1 in 5 AEP flood event than a 1 in 100 AEP event or a 1 in 10,000 AEP flood event of similar duration.
    - Installing gated spillways can provide some flexibility to control discharges. (This was the strategy applied to Wivenhoe Dam in combination with the provision of a significant flood storage capacity. The provision of gates, however, does not always provide flood mitigation.)
6. **Operation of the dam**:
    - Drawing down storage at the start of the event would require fine tuned management where water supplies are placed at risk and could only be used in a limited number of cases. If a dam storage is half empty at the start of an event, this storage would mitigate flood risks as it would have to be filled first before any discharge occurs. For example, consider the experience at Emerald in 2010/11 compared with Emerald in 2008 when Fairbairn Dam started out at 35% of capacity at the commencement of the flood. This operating condition is often extremely difficult to manage due to the uncertain and highly variable weather conditions. Some dams such as the Burdekin Falls Dam can discharge for long periods during the wet season and this practice cannot be assured. Other dams like Tinaroo Falls Dam and Koombooloomba Dam, which involve water entitlements that are not fully utilised, may have the capacity to be drawn down during the period prior to the wet season or impending event. However, if the dam operator deliberately draws the storage down at the start of a 'wet season' and the wet season does not eventuate, there is a risk of not having sufficient water available for future seasons.
    - Where gated structures are provided, controlled releases prior to and during flood events may be possible.

7. Communities at Risk

Attachment 2 (Smith 1998) summarises the results of a flood risk survey in 1998 undertaken by Dingle Smith for the Queensland Government. At the time, it was estimated that some 65 000 buildings (residential including multi-dwelling buildings and non-residential buildings) were liable to flooding in a 1 in 100 year event. At the time, a further 40 000 to 50 000 buildings was estimated to be at risk from extreme storm surge events. In Australia, storm surges are generally only a Queensland development planning issue.

A summary of communities with significant numbers of buildings at risk of flood in a 1 in 100 year event are summarised below in Table 1. These account for two thirds of the State's identified flood prone buildings in 1998.

The 1998 statistics were highly qualified as a result of the paucity of data available at the time. It is unlikely that significant changes have occurred since 1998 due to the duration of the Millennium Drought.

The 2010/11 flood has exposed significant additional risks, also included in the above table. In 1999, Emerald was recorded as having a minor flood risk. The 2010/2011 flood indicates that more than 1 000 residential buildings and 95% of businesses (no building numbers available) are at risk. Other towns included Grantham, Helidon, Withcott, Gatton and

Forrest Hill in the Lockyer Valley Regional Council, Chinchilla and Condamine in Western Downs Regional Council, Bundaberg, and Mundubbera in North Burnett Regional Council. Attachment 3 summarises media reports on flood affected areas in Queensland in 2010/11.

Table 1 - Communities with significant numbers of buildings at risk of flood

Local Government	Number of buildings at risk (1 in 100 event) - 1998	Anecdotal update Number of buildings at risk (1 in 100 event) - 2011
Gold Coast	16 650	
Mackay	8 500	
Brisbane	8 000	15 000 to 20 000+
Western Downs (Dalby)	3 300	
Western Downs (Condamine)		100
Ipswich	3 000	3 500
Logan	2 375	
Hinchinbrook	2 175	
Murweh (Charleville)	1 350 + all commercial	
Rockhampton	1 200	1 300 to 1 500
Central Highlands (Emerald)	25	1 000+ plus 95% commercial
Burdekin	1 000	
Cairns	728	
Caboolture	455	
Banana (Theodore)		300
Lockyer Valley (Laidley, Forrest Hill, Gatton, Grantham, Helidon, Withcott)	290(Laidley)	300 (Forrest Hill)
Total	**48 733**	

While the circumstances in smaller regional centres remained relatively unchanged, there has since been substantial flood plain development in major centres such as Brisbane infill developments, the Bohle River and Ross River areas in Townsville, the Lake Placid areas adjacent to the Barron River areas in Cairns and new developments in Mackay.

8. Rapid Assessment Ranking Methodology

The ranking methodology for flood mitigation purposes assumes that the best dams/retention basins either exist or sites for future development or raising have been identified.

Two rankings have been undertaken:

- the flood mitigation benefits from existing structures; and
- the flood mitigation benefits of identified possible future measures including dam raisings, new dams and retention basins.

The ranking methodology is based on the assessment of the combined effects of:

- likelihood of damaging flood events; and the
- benefit from the flood mitigation works.

Tables 2 and 3 summarise the assessment criteria.

Table 2: Likelihood of damaging flood event

Likelihood criteria	Value	Weighting
Exposure to flooding (without flood protection for existing dam, and current situation for future works)		
Less than 1 in 25 year event	3	4
Less than 1 in 50 year event	2	
Less than 1 in 100 year event	1	
Flood exposure (flash flooding in creeks, river flooding, and tidal effects)		
3 flood exposures	3	2
2 flood exposures	2	
1 flood exposure (flash flooding in creeks OR river flooding OR tidal effects)	1	
Time to respond		
Flash flood (less than 12 hours)	3	3
12 to 24 hours	2	
Greater than 24 hours	1	
Flood mapping, warning systems, and emergency action plans		
1 or less in place	3	2
2 in place	2	
3 in place	1	

Table 3: Benefit from Flood Mitigation Works

Benefit criteria	Value	Weighting
Population benefitting		
Population less than 1 000 persons	1	3
Population between 1 000 and 5 000 persons	2	
Population above 5 000 persons	3	
Catchment command		
Less than 40%	1	2
40 to 70%	2	
> 70%	3	
Dam Design (flood routing storage only (category 2 dam), constricted spillway design, gated structure with flood storage)		
Flood routing storage only (category 2 dam)	1	3
Constricted spillway design – flood storage provides substantial reduction of 1 in 100 event flood peak (>30%)	2	
Gated structure with flood storage providing substantial reduction of 1 in 100 event flood peak (>30%) or retention basin	3	
Social and Economic benefit of reduced flooding		
Impacts able to be met by local community with minimal distress	1	3
Some loss of employment and industry losses	2	
Prevention of major population relocations	3	
Significant industry protection against loss of production and job losses		

The benefits of flood mitigation storages have been classified into significant, moderate and minor.

9. Ranked flood mitigation benefits of existing dams

The ranking matrix for existing dams and retention basins is summarised in Figure 1 below.

Figure 1: Ranking of Existing Dams and Retention Basins

Likelihood of Flooding	Benefits from existing dams and retention basins										
	0	1	2	3	4	5	6	7	8	9	10
1											
2											
3											
4				9	17						
5				6, 5 ,25 30, 36	13, 35	36					
6				23, 27, 29	3	32	8 12			28	
7				1, 2, 7 10, 15 22		20	18		24 34		
8				11, 26	33					16	
9										4 , 21	
10											

NUMBER	SITE	COMMUNITY	NUMBER	SITE	COMMUNITY
1	Awoonga Dam	Benaraby/Tannum Sands	19	Leslie	None
2	Baroon Pocket Dam	Kenilworth	20	Leslie Harrison	Redlands
3	Beardmore Dam	St George	21	Loders Ck Detention Basin	Gold Coast
4	Biggera Ck Detention Basin	Gold Coast	22	Maroon	Beaudesert
5	Bjelke Petersen Dam	Murgon	23	Moogerah	Ipswich
6	Boondooma Dam	Mundubbra	24	Peter Faust	Prosepine
7	Borumba Dam	Gympie	25	Storm King	Stanthorpe
8	Burdekin Dam	Home Hill	26	Tallebudgera	Gold Coast
9	Connolly	Warwick	27	Tinaroo	Mareeba
10	Enoggera	Brisbane	28	Somerset/Wivenhoe	Brisbane
11	Ewen Maddock	Sunshine Coast	29	Wuruma	Eidsvold/Mundubbra
12	Fairbairn	Emerald	30	Cania	Monto
13	Fred Haigh	Bundaberg	31	Eungella Dam	None
14	Glenlyon	None	32	Teemburra Dam	Mackay
15	Gold Creek	Brisbane	33	Copperlode Dam	Cairns (Lake Placid)
16	Hinze Dam	Gold Coast	34	Ross River Dam	Townsville
17	Lake Manchester	Brisbane	35	Coolmunda Dam	Inglewood
18	Lenthalls	Hervey Bay	36	Paradise Dam	Bundaberg

Details of the assessment are included in Attachment 4 which also identifies the main communities benefitting from the existence of the dams.

Water storage infrastructure assessed as providing significant flood mitigation benefits for less than 1 in 100 year events include:

- The Biggera Creek and Loders Creek Detention Basins on the Gold Coast;
- Hinze Dam on the Gold Coast;
- Wivenhoe and Somerset Dams;
- Peter Faust Dam protecting Proserpine; and
- Ross River Dam protecting Townsville.

The common feature with all these structures is that they were designed specifically to mitigate flooding and command significant proportions of the catchment area above the communities at risk. The flood discharge reductions available for the 1 in 100 year event are for the Biggera Creek Detention Basin at 92% and Peter Faust Dam at 95%.

Water storage infrastructure assessed as providing moderate flood mitigation benefits for less than 1 in 100 year events include:

- Fairbairn Dam near Emerald;
- Burdekin Dam upstream of Ayr and Home Hill;
- Lenthalls Dam upstream of Hervey Bay;
- Leslie Harrison Dam at Redlands;
- Borumba Dam upstream of Gympie; and
- Copperlode Falls Dam upstream of the Lake Placid areas in Cairns.

None of these structures were designed specifically for flood mitigation purposes. Nevertheless, these dams can provide significant flood mitigation benefits either due to their proximity to urban development or the extent to which they reduce flood flows. The extent to which flood flows are diminished depends on whether or not the flood emanates within their catchment area, the extent to which the dams are drawn down at the time of the flood and the dam design. The flood discharge reductions available for the 1 in 100 year event are as follows:

- Fairbairn Dam 32%;
- Burdekin Dam 21%; and
- Borumba Dam 32%.

Other structures have minor benefits due to the small populations at risk, the design of the dam, or its lack of catchment command.

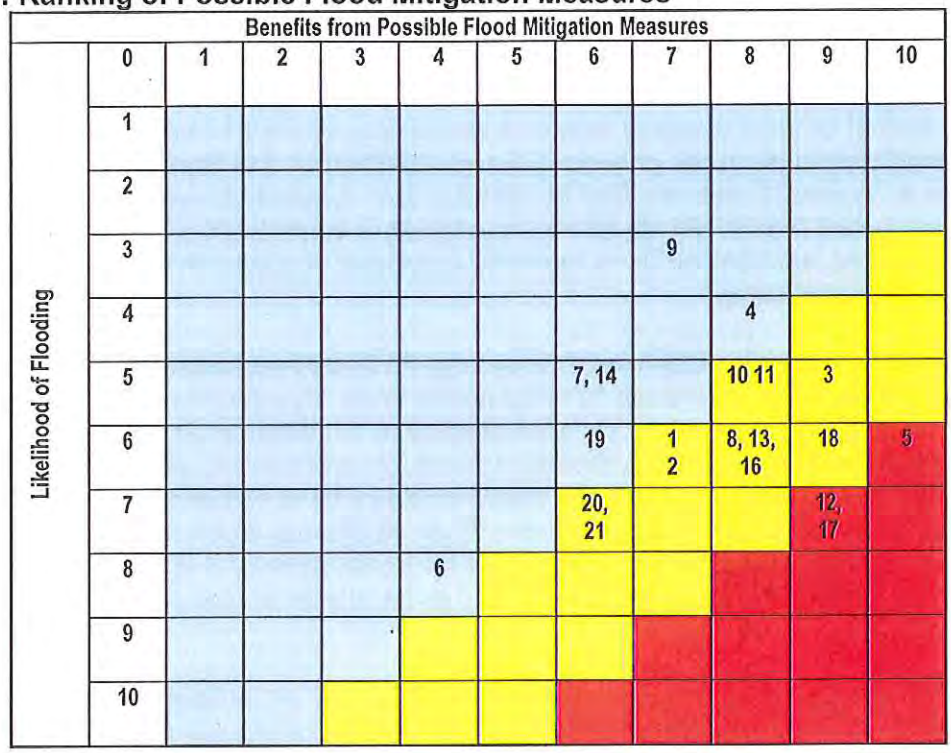
10. Ranked flood mitigation benefits of possible measures

Possible flood mitigation projects have been identified as follows:

- Mitigating floods where the populations at risk exceeds 500; or
- Dams or dam raisings that would be possible to constructed in the next 20 years, subject to full impact approval processes.

The ranking matrix for prospects of major dams/dam raisings/retention basins (larger than urban scale) being constructed to mitigate floods causing significant damage in Queensland is summarised in Figure 2 below. Details of the assessment, including communities which would benefit if the works were constructed, are included in Attachment 5.

Figure 2: Ranking of Possible Flood Mitigation Measures



NUMBER	SITE	COMMUNITY	NUMBER	SITE	COMMUNITY
1	Raising Beardmore Dam	St George	12	Raising Fairbairn	Emerald
2	Barrackdale	St George	13	Nathan Dam	Theodore/Baralaba
3	Linville	Moore	14	Comet River	(with other storages) Rockhampton
4	Emu Creek	Brisbane	15	Connors River Dam	None
5	Raising Wivenhoe	Brisbane	16	Fitzroy Gap	Rockhampton
6	Murphy's Creek	Helidon/Grantham	17	Black's Creek	Mackay
7	Raising Borumba Dam	Gympie	18	Raising Burdekin Falls Dam	Home Hill
8	Traveston Crossing	Gympie	19	Urannah	Home Hill
9	Amamoor Ck	Gympie	20	Wild River	Ingham
10	Raising Paradise	Bundaberg	21	Flaggy Creek	Ingham
11	Upper Burnett Dam	Bundaberg			

The ranking method identifies the raising of Wivenhoe Dam and Fairbairn Dam and the construction of Black Creek Dam as possibly providing substantial additional flood mitigation benefit.

Wivenhoe Dam could be raised to provide additional water supply permitted under the Moreton Water Resource Plan and to provide additional banked water reserves that could be held for use in a water supply crisis. Additional take from Wivenhoe Dam would be possible as the extractions from the dam have effectively been reduced by the system operating plan designed to meet SEQ's level of service objectives. Thus, while likely to be a costly project with a new spillway and subject to more detailed analysis, the benefit-cost of such work could be high and could defer the construction of a future desalination plant.

The construction of dams/retention basins at Linville and on Emu Creek were assessed as providing lesser benefit because of catchment command and the population at risk. An alternative to the raising of Wivenhoe Dam is to construct a series of smaller dams/retention basins in the Brisbane River, Bremer River, and Lockyer Creek systems. This would need to be assessed further but has some potential as flooding to smaller towns would also be mitigated. Potential dam sites have previously been identified in the Bremer (45 000 ML capacity @70 km), Tenthill Creek (46 000 ML @29.8 km), Lockyer Creek (39 000 ML@ 110.1 km), Laidley Creek (24 000 ML @ 50 km) and Ma Ma Creek (24 000 ML @ 21.2 km). Larger structure may be possible for flood retention purposes, however this would need to be subject to further investigation.

The possible raising of **Fairbairn Dam** could only occur for flood mitigation purposes as the Fitzroy catchment has effectively been fully allocated from a water resource planning perspective. (This possibility needs to be discussed with SunWater.) The project costs would be high, however there would be benefits to both urban flood mitigation at Emerald and to the agricultural and mining sectors. An option would be to further assess the benefits of raising Fairbairn Dam and constructing Connors River, Nathan and Comet River Dams to mitigate floods in Rockhampton. While there would be some benefit, it is expected to be small as the total catchment commanded by the three dams above Rockhampton is relatively small at 36%.

Blacks Creek commands a substantial catchment upstream of Mackay which floods relatively frequently. A dam on **Blacks Creek** has the potential to provide substantial flood mitigation benefits as well as provide additional supplies for Mackay. Water supply for Mackay will need to be upgraded within the next 15 years to meet demand, and additional storage reserves would be desirable to improve water supply security. The possible construction of Blacks Creek Dam could meet the water supply needs of Mackay well into the future. Thus, the benefit-cost of this project could be high, subject to further consideration of ecological and other impacts.

A structure on **Murphy's Creek** upstream of Helidon and Grantham has not rated highly due to the lack of catchment command. It would not protect Withcott which appears to have received much of its flooding from Toowoomba and along the Warrego Highway. Other catchments contributing to flooding in these areas and the Lockyer include among others Rocky, Monkey Water Holes, Flagstone, Ma Ma, Tenthill, Sandy and Laidley Creeks.

The **raising of Burdekin Falls Dam** and construction of **Nathan Dam** rate moderately highly because of the protection provided to Ayr/Home Hill and Theodore and the significant benefits provided to the agricultural and mining sectors.

Paradise Dam provides significant flood routing storage. Consideration could be enhancing this benefit with gates, subject to further investigation of design and other factors. (This possibility needs to be discussed with SunWater.)

The T**raveston Dam site** could be constructed to provide flood mitigation benefits for Gympie and possibly Maryborough, however without the conjunctive benefit of water supply would probably be considered costly.

Raising **Borumba Dam** is being investigated by the QWC. The additional flood mitigation potential of Borumba Dam could be considered as part of this investigation.

Beardmore Dam on the Ballonne River is already near bank full height and is not recommended for raising. The **Barrackdale site** already provides a natural constriction and does not have natural foundations for location of a flood retaining structure. A large flood mitigation structure could be constructed at the **Gap Dam site** on the Fitzroy River

immediately upstream of the existing Eden Bann Weir. It could provide substantial flood mitigation benefit for Rockhampton, however a benefit cost assessment is likely to reveal a significant downside in terms of loss of economic production upstream of the site and relocation expenses.

Details available at this time on the Wild River and Flaggy Creek sites in the Herbert River need further confirmation before a recommendation for further study could be made.

ATTACHMENT 1 (information still to be included)

1A - Existing Dams and Retention Basins

	Location / Site Name	Category	Stream name and distance	Catchment area - km2	FSL Volume ML	Dam Crest Volume ML	Percentage Reduction in AEP 1% Flood Peak	Pop'n at Risk
Boyne	Awonga Dam	2	Boyne River @ 22.7 km	2,230	777,000	1,938,100	-37%	Gladstone ~ 10,000
Balonne	Beardmore Dam	2	Balonne River @ 251.4 km	75,160	81,700	230,000	0%	St George ~ 500
Brisbane	North Pine Dam		North Pine River @ 20.0 km	348	214,302		0%	~ 5,000
	Wivenhoe	1	Brisbane River @ 150.4 km	7020	1,150,000	2,600,000	-35%	Brisbane/Ipswich ~ 50,000
	Somerset	1	Stanley River @ 7.4	1,340	380,000	524,000	-40%	Brisbane/Ipswich ~ 50,000
	Baroon Pocket		Obi Obi Creek @	67	61,000	89,500	-63%	~ 500
	Ewen Maddock		Addlington Ck	21	16,590	32,500		
	Hinz		Nerang River @ 36.4	207	161,073			
	Lake Manchester		Cabbage Tree Creek @	74	26,217			
	Moogerah		Reynolds Creek @	228	83,765	90,000		
	Maroon		Burnett Creek @ 23.5	106	44,300			
	Leslie Harrison		Tingalpa Creek @	87	24,800			
Mary	Borumba Dam	2	Yabba Creek @ 31.1 km	465	46,000	120,000	- 32%	Gympie & Maryborough ~ 1,000
Burnett	Paradise	2	Burnett River @ 131.4 km	30,785	300,000			Bundaberg ~ 1,000
	Wuruma		Nogo R / Burnett @ 23 km	2,320	165,000	320,000	-44%	~ 500
	Bjelke Petersen		Barker Creek @ 1.3 km	1640	134,900	418,500	-68%	~ 500
	Boondooma		Boyne River @ 86.7	4,200	204,200	750,000	-38%	~ 500
	Cania		Three Moon Creek @	280	88,580	156,430	-29%	~ 500
	Fred Haigh		Kolan River @ 76.4	1,300	562,000	1,162,610	-70%	
	Lenthalls		Burrum R @34.2	935	28,400			~ 1000
Fitzroy	Fairbairn	2	Nogoa River @ 685.6 km	16,317	1,301,000	4,200,000	-32%	Emerald ~ 1,000
Pr	Peter Faust		Proserpine River @ 57.7 km	260	491,400			

	Teemburra		Teemburra Creek @ 20.5	66	147,500			
	Tinaroo Falls		Barron River @ 101.4	545	438,900	575,000		
Burdekin	Burdekin Falls Dam	2	Burdekin River @ 159.3 km	114,220	1,860,000	9,000,000	-21%	Home Hill and Ayr ~1,000
Burdekin	Eungella Dam		Broken River @ 71.8	142	112,400			
Burdekin	Ross River Dam		Ross River @	750	233,188			
Leichardt	Julius		Leichardt River @ 390.9 km	3650	107,500	265,355		
Leichardt	Moondarra		Leichardt River @ 465.1 km		106,833			
	Callide		Callide Creek @ 61.1 km	520	136,300			
	Kroombit		Kroombit Creek @ 68.8 km		14,600			
	Leslie		Sandy Ck / Condamine River @ 8.4 km	603	106,200			
	Glenlyon		Pike Ck / Duaresq River @ 6.4	1,295	254,000	523,610	-52%	

1B - Possible future flood mitigation sites

	Location / Site Name	Category	Stream name and distance	Catchment area - km2	Flood Storage - megalitres	Flood Volume 1% AEP - megalitres	Comments	Pop'n at Risk
Balonne	Beardmore Dam Raising	2	Balonne River @ 251.4 km	75,160	(81,700)	2,000,000	Estimated from IQQM daily flow sequence	St George ~ 500
	Barrackdale	1	Balonne River @ 323 km	~ 70,000		2,000,000	Estimated from IQQM daily flow sequence	St George ~ 500
Brisbane	Linville	1	Brisbane River @ 282.4 km	2,000	Up to 307,000	615,000	Estimated from IQQM daily flow sequence	Brisbane/Ipswich ~ 50,000
	Emu Creek	1	Emu Creek @ 10.7 km		Up to 200,000	257,000	Estimated from design flood duration and Peak flow – QH correspondence files	Brisbane/Ipswich ~ 50,000
	Raising Wivenhoe	2	Brisbane River @ 150.4 km	7020	(1,150,000) Up to 3,555,000	1,860,000	Flood Study – QH Internal Report 1994	Brisbane/Ipswich ~ 50,000
	Bremer River	1	Bremer River @ 70 km	171	Up to 60,000	82,000	Estimated from IQQM daily flow sequence	Brisbane/Ipswich ~ 10,000
	Murphy's Creek	1	Lockyer Creek 110.1 km	120	Up to 40,000	45,000	Estimated from IQQM daily flow sequence	~ 400
Mary	Raising Borumba Dam	2	Yabba Creek @ 31.1 km	465	(46,000)	448,000	Estimated from IQQM daily flow sequence	Gympie & Maryborough ~ 1,000
	Traveston Crossing	2	Mary River @ 206.7 km	2,110	Up to 1,130,000	763,000	Flood Study – SunWater Report 2007	Gympie & Maryborough ~ 1,000
	Amamoor Ck	1	Amamoor Creek @ 19.2km	130	Up to 290,000	151,000	Estimated from IQQM daily flow sequence	Gympie & Maryborough ~ 1,000
Burnett	Raising Paradise	2	Burnett River @ 131.4 km	30,785	(300,000)	9,840,000	Flood Study – QH Internal Report 1998	Bundaberg ~ 1,000
	Barambah Creek Dam ban ban		Burnett River @ 35.6	5563		1,064,000	Estimated from IQQM daily flow sequence	Bundaberg ~ 1,000
Fitzroy	Raising Fairbairn	2	Nogoa River @ 685.6 km	16,317	1,301,000	2,260,000	Flood Study – QH Internal Report 1995	Emerald ~ 1,000
	Nathan Dam	2	Dawson River @ 315.3 km	23,000	888,000	2,760,000	Flood Study – QH Internal Report 1997	Theodore/Moura ~ 500
	Comet River	1	Comet River @ 123.3 km	10,188	500,000	2,000,000	Flood Study – QH Internal Report 1995	Comet ~ 200
	Connors River Dam	2	Connors River@ 95.7 km	1,320	367,000	389,000	Flood Study – QH Internal Report 1999	Rockhampton ~ 5,000
	Fitzroy Gap	1	Fitzroy River @ 141.2 km	135,000	Up to 10,000,000	16,000,000	Estimate based on flood peak – QH Internal Report 1990	Rockhampton ~ 5,000
Pioneer	Finch Hatton	1	Finch Hatton Creek @ 3.2 km	36	Up to 98,500	65,000	Estimated from IQQM daily flow sequence	Mackay ~ 5,000
	Black's Creek	2	Blacks Creek Dam at 66.1 km	505	Up to 492,000	509,000	Estimated from IQQM daily flow sequence	Mackay ~ 5,000
Burdekin	Raising Burdekin Falls Dam	2	Burdekin River @ 159.3 km	114,220	Up to 8,700,000	13,600,000	Flood Study – QH Internal Report 2001	Home Hill and Ayr ~1,000
	Hells Gate	1	Burdekin River @ 466.7 km	17,860	Up to 5,720,000	4,104,000	Estimated from IQQM daily flow sequence	Home Hill and Ayr ~1,000

	Mt Fullstop	1	Burdekin River @ 483.0 km	17,420	Up to 5,000,000	4,103,000	Estimated from IQQM daily flow sequence	Home Hill and Ayr ~1,000
	Greenvale	1	Burdekin River @ 552.8 km	8,070	Up to 2,430,000	1,438,000	Estimated from IQQM daily flow sequence	Home Hill and Ayr ~1,000
	Urannah	2	Broken River @ 36.0 km	1,100	Up to 1,500,000	797,000	Estimated from IQQM daily flow sequence	Home Hill and Ayr ~1,000
Herbert	Glen Eagle	1	Herbert River @			1,924,000	Estimated from IQQM daily flow sequence	Ingham ~ 500
Herbert	Wild River	2	Wild River @			278,000	Estimated from IQQM daily flow sequence	
Herbert	Millstream	2	Millstream @ 12.4 km			73,000	Estimated from IQQM daily flow sequence	
Barr	Flaggy Creek	1	Flaggy Creek @ 11.7 km	154	Up to 200,000	209,000	Estimated from IQQM daily flow sequence	Cairns – ~ 5,000
Logan	Glendower	2	Albert River @ 60.2 km	295	(86,000)	181,000	Estimated from IQQM daily flow sequence	Beenleigh
Logan	Albert River Dam	2	Albert River @ 26.6 km			412,000	Estimated from IQQM daily flow sequence	Beenleigh

ATTACHMENT 2
FLOOD PRONE TOWNS IN QUEENSLAND (1998 Data)

Flood Warming Legend: Q = Qualitative Data, N = None, P = Predicted flood heights
Lead Time Legend: A is < 12 hours, B is 12 to 24 hours, C is > 24 hours

Basin	Town	Buildings at Risk	Flood Gauge	Flood Height (m)	Max. Height (m)	Flood Warning System	Flood map	Lead time	Levee
Baroon	Mareeba		Y		11.1	Q		A	
	Cairns		Y		9.5	Q		A	
	Daintree	20?	N			N		A	
Condamine	Killarney		y		8.1	Q		A	
Balonne	Emu Vale		Y		7.3	N		A	
	Warwick	115+	Y	6.2	9.1	Q		A	
	Allora		Y		7.6	N		A	
	Cambooya	20(est)	N			N		A	
	Leyburn		Y	4.6	5.5	Q		A	
	Tummaville		Y	10.4	11.2	Q		A	
	Cecil Plains		Y		9.3	Q		A	
	Oakey		N			N		A	
	Dalby	840+	Y	3.5	4.5	P		A	
	Jandowae		N			N		A	
	Chinchilla		Y	8.0	8.9	Q		A	
	Condamine		y	10.7	14.3	P		A	
	Miles	3?	Y	11.0	13.4	Q		A	
	Yuleba?		N			N		A	
	Wallumbilla		N			N		A	
	Surat	6	Y	12.2	11.7	P		A	
	Roma	40+	Y	6.6	7.3	Q		A	
	Muckadilla		N			N		A	
	Mitchell		Y	7.6	8.1	Q		A	
	Amby		N			N		A	
	St George		Y	12.1	13.1	P		A	
	Dirranbandi	150?	Y		5.3	P		C	Y
	Hebel		Y		2.3	P		C	
	Bollon	3+	Y	1.0	1.5	Q		A	
	Mungallala?		N			N		A	
Border Rivers	Inglewood		Y	10.1	12.5	Q		A	
	Yelarbon		N			N		A	
	Goondiwindi?		Y		10.6	P		C	Y
Moonie	Thallon		Y	5.3	5.4	Q		C	
Warrego	Augathella	65	Y	5.5	7.3	P	Y	A	
	Charleville	1150	Y	5.5	8.5	P	Y	B	
	Wyandra		Y	8.7	10.0	P		C	
	Cunnamulla?		Y	10.3	10.2	P		C	Y
Paroo	Eulo		Y		6.0	P		C	
	Hungerford		Y		3.0	P		C	
Bulloo	Adavale		Y	4.2	5.0	N		A	
	Quilpie?		Y	5.9	7.9	Q		B	
	Thargomindah		Y	6.0	6.8	P		C	
South Coast	Nerang/Latimer		Y		10.2	Q		A	
	Mudgeeraba		Y			Q		A	
	Gold Coast			1.8	3.0	P	Y	A	
Logan/Albert	Canungra		N			N		A	
	Beaudesert		Y	13.0	13.9	Q		A	
	Boonah		Y	7.0	8.5	Q		A	
	Beenleigh		Y	9.0	13.7	Q		B	
	Logan City	3600	Y			Q	Y	B	
	Waterford		Y	9.0	13.0	P		B	

	Eagleby		Y	7.0	7.6	Q		B	
Brisbane-Bremer	Harrisville		Y		8.3	Q		A	
	Amberley		Y		10.2	Q		A	
	Peak Crossing		N			N		A	
	Ipswich		Y	7.4	24.6	P		A	
	Rosewood		Y		7.6	Q		A	
	Walloon		Y		8.7	Q		A	
	Mulgowie		Y	7.1	8.6	Q		A	
	Laidley		Y	8.0		Q		A	
	Helidon		Y		7.5	Q		A	
	Grantham		N			N		A	
	Gatton	20?	Y	7.0	16.3	Q		A	
	Lowood		Y	21.0	26.4	Q		B	
	Cooyar		N			N		A	
	Linville		Y		12.2	Q		A	
	Toogoolawah		N			Q		A	
	Kilcoy		N			Q		A	
	Woodford		Y	10.7	11.7	Q		A	
	Moggill		Y		20.0	P		B	
	Brisbane City	6000+	Y		8.4	P	Y	B	
Pine-Caboolture	Dayboro		N			N		A	
	Bald Hills		N			N		A	
	Strathpine		N			N		A	
	Samford		N			N		A	
	Caboolture		N			N		A	
	Burpengary	120						A	
Sunshine Coast	Nambour		Y		9.3	N		A	
	Maroochydore	225+	N		3.5	N		A	
	Coolum		N			N		A	
	Kawana		N			N		A	
	Tewantin		Y			Q		B	
	Noosaville		Y			Q		B	
	Boreen Point		Y			Q		B	
Mary	Kenilworth		Y	10.1	17(Est)	Q		A	
	Imbil		Y	8.5	11.7	N		A	
	Kadanga		Y			N		A	
	Coorah		Y	9.1	10.7	N		A	
	Gympie	200	Y	12.0	25.5	P		B	
	Woolooga		Y	9.0	12.5	N		A	
	Maryborough		Y	7.6	12.3	P		B	
Burrum / Gregory	Pacific Haven		N	~4	6.2	N	Y	A	
	Howard		N	1	13.4	N		A	
Burnett	Goomeri		N			N		A	
	Abercorn		Y		9.6	Q		A	
	Mundubbera		Y	18.3	23.6	Q		A	
	Gayndah		Y	16.3	19.7	Q		A	
	Bundaberg		Y	6.7	10.3	P		B	
Fitzroy	Injune		N			N		A	
	Taroom		Y	7.6	14.8	P		B	
	Theodore		Y	12.2	14.1	P		B	
	Baralaba		Y			P		B	
	Biloela?		N			N		A	
	Goovigen	2.0	N			N		A	

	Rolleston		Y	7.0		N		A	
	Emerald?		Y	17.1	15.7	Q		B	
	Yaamba		Y	16.8	17.3	P		C	
	Rockhampton	900	Y	7.0	10.1	P		C	
	Nebo?		N			N		A	
	Moranbah?		N			N		A	
	Dysart?		N			N		A	
Pioneer	Finch Hatton		Y	4.6	6.5	Q		A	
	Mirani		Y		16.5	Q		A	
	Mackay	7500	Y	7.3	9.1	P		A	
Proserpine	Proserpine		Y		8.4	Q		B	
Don Elliot	Bowen		Y		7.5	P		B	
	Guthalunga		N			N		A	
Burdekin	Sellheim		Y	18.0	21.8	Q		A	
	Alpha		Y	8.3	10.3	Q		A	
	Clare		Y		18.4	Q		B	
	Home Hill/Ayr		Y	12.1	12.6	P		A	
Haughton	Giru		Y	2.5	2.5	P		B	
Ross-Bohle	Townsville?		N			N		A	
Herbert	Ingham	1450	Y		15.2	P		A	
	Halifax		Y		5.4	P		A	
Tully	Euramo		Y	8.5	9.4	P		B	
Johnstone	Innnisfail	315	Y	6.0	8.1	P		A	
	Mourilyan	64	N			N		A	
	Babinda		N			N		A	
	Gordonvale?		N			N		A	
Cooper	Muttaburra?		Y	8.2	8.7	Q		A	
	Aramac		Y	5.4	5.5	N		A	
	Longreach		Y	5.4	6.0	P		C	
	Stonehenge		Y		6.9	P		C	
	Jundah		Y	4.6	8.4	P		C	
	Jericho	20	Y	3.0	3.2	Q		A	
	Barcaldine		Y		9.0	Q		B	
	Tambo?		Y	5.8	5.8	Q		A	
	Blackall	45	Y	5.5	6.9	Q		A	
Diamantina	Winton		N			N			
Georgina	Camooweal		N			N			
	Urandangle		Y	7.0	7.5	Q			
	Boulia		Y	6.1	6.0	Q			
Gulf Rivers	Hugenden?		Y	4.9	5.5	N			
	McKinlay		N			N			
	Richmond		Y		11.5	Q			
	Cloncurry	25+	Y	11.0		N		A	
	Mt Isa	12+	N			N		A	
	Normanton		Y	7.0	8.8	Q		C	
	Burketown?		N			N		C	
	Georgetown		N			N			
	Einasleigh		N			N			

ATTACHMENT 3
MEDIA REPORTS SUMMARY
QUEENSLAND AREAS AFFECTED BY 2010/2011 FLOODING

Allora
- 12 flooded houses and 1 business.

Brisbane
- More than 15,000 properties in 50 Brisbane suburbs have been affected by floodwaters that peaked at 4.46 meters (14.6 feet) on 13 January.

Bundaberg
- About 400 homes and businesses affected
- 100 homes and two dozen businesses had water above the floorboards.
- About 400 people were evacuated overnight.

Condamine
- The town's 150 residents were evacuated.

Chinchilla
- More than 50 homes and business have been evacuated.

Dalby
- About 200 homes in the regional hub of Dalby have been flooded above their floorboards.
- On 27 December, 100 properties were inundated and 160 people evacuated. (Dalby and Chinchilla, forcing the evacuation of about 250 properties)

Emerald
- 2500 people have been evacuated.

Forest Hill
- More than 300 people, Forest Hill's entire population, were rescued by Black Hawk helicopters.

Gatton
- Residents downstream from the Lockyer Creek area were urged to immediately evacuate on Monday, 10 January 2011.

Grantham
- Parts of the tiny Queensland town, home to 370 people, were literally washed away by flash flooding on Monday, 10 January 2011.
- 12 residents were forced to leave their homes overnight.

Gympie
- Flooding about 80 properties and the CBD.
- About 30 homes have been evacuated and 100 businesses have been swamped by floodwaters at Gympie.

Helidon
- 100 people evacuated.

Ipswich
- As many as 3000 homes had to be evacuated.

Killarney
- 1 house and 8 businesses went under.

Laidley

- Residents were told to get out as rapidly rising water threatened the Lockyer Valley community west of Brisbane.

Maryborough

- up to 20 businesses were inundated.

Mundubbera

- 37 houses evacuated.

Rockhampton

- 2000 affected 200 inundated, 180 evacuated.

Stanthorpe

- (11/01/20111) - About 12 homes were inundated when the creek peaked last night, and further inundations were expected as the creek continued to rise today.
- Two evacuation centres were established to accommodate about 50 displaced residents.

Theodore

- The entire township of 350 residents evacuated.

Warwick

- 50 houses and 15 businesses were flooded.

Withcott

- Hundreds of people had to be evacuated from Withcott on 10 January 2011 after flash flooding left the entire town partly submerged.

Ninety-two state schools, 14 TAFE campuses and about 80 kindergarten and childcare centres were impacted.

More than 30,000 properties were flooded in south-east Queensland from the 10th to the 14th January 2011.

ATTACHMENT 4: Ranking of Existing Dams and P tention Basins

Existing Sites: Likelihood of damaging flood event

			Flood frequency			Flood exposure			Time to respond			Flood mapping, warning systems and emergency action plans				
Number	Location/Site Name	Benefited Community	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Total Likeli-hood	Adjusted Likelihood (out of 10)
1	Awoonga Dam	Benaraby/Tannum Sands	2	4	8	2	2	4	2	3	6	2	2	4	22	7
2	Baroon Pocket Dam	Kenilworth	3	4	12	2	2	4	1	3	3	2	2	4	23	7
3	Beardmore Dam	St George	3	4	12	1	2	2	1	3	3	1	2	2	19	6
4	Biggera Ck Detention Basin	Gold Coast	3	4	12	3	2	6	3	3	9	2	2	4	31	9
5	Bjelke Petersen Dam	Murgon	2	4	8	1	2	2	2	3	6	2	2	4	20	6
6	Boondooma Dam	Mundubbra	2	4	8	1	2	2	1	3	3	1	2	2	15	5
7	Borumba Dam	Gympie	3	4	12	1	2	2	2	3	6	1	2	2	22	7
8	Burdekin Dam	Home Hill	3	4	12	1	2	2	1	3	3	2	2	4	21	6
9	Connolly	Warwick	1	4	4	1	2	2	1	3	3	2	2	4	13	4
10	Enoggera	Brisbane	3	4	12	1	2	2	2	3	6	2	2	4	24	7
11	Ewen Maddock	Sunshine Coast	3	4	12	1	2	2	2	3	6	3	2	6	26	8
12	Fairbairn	Emerald	3	4	12	1	2	2	1	3	3	1	2	2	19	6
13	Fred Haigh	Bundaberg	2	4	8	2	2	4	1	3	3	1	2	2	17	5
14	Glenlyon	None	0	4	0	0	2	0	0	3	0	0	2	0	0	0
15	Gold Creek	Brisbane	3	4	12	1	2	2	2	3	6	2	2	4	24	7
16	Hinze Dam	Gold Coast	3	4	12	3	2	6	2	3	6	1	2	2	26	8
17	Lake Manchester	Brisbane	1	4	4	1	2	2	2	3	6	1	2	2	14	4
18	Lenthalls	Hervey Bay	3	4	12	2	2	4	2	3	6	1	2	2	24	7
19	Leslie	None	0	4	0	0	2	0	0	3	0	0	2	0	0	0
20	Leslie Harrison	Redlands	3	4	12	2	2	4	2	3	6	1	2	2	24	7
21	Loders Ck Detention Basin	Gold Coast	3	4	12	3	2	6	3	3	9	2	2	4	31	9
22	Maroon	Beaudesert	3	4	12	1	2	2	2	3	6	2	2	4	24	7
23	Moogerah	Ipswich	1	4	4	1	2	2	3	3	9	2	2	4	19	6
24	Peter Faust	Prosepine	3	4	12	2	2	4	2	3	6	1	2	2	24	7
25	Storm King	Stanthorpe	2	4	8	1	2	2	1	3	3	2	2	4	17	5
26	Tallebudgera	Gold Coast	3	4	12	1	2	2	3	3	9	1	2	2	25	8
27	Tinaroo	Mareeba	3	4	12	1	2	2	1	3	3	2	2	4	21	6
28	Somerset/Wivenhoe	Brisbane	3	4	12	2	2	4	1	3	3	1	2	2	21	6
29	Wuruma	Eidsvold/Mundubbra	3	4	12	1	2	2	1	3	3	2	2	4	21	6
30	Cania	Monto	2	4	8	1	2	2	1	3	3	2	2	4	17	5
31	Eungella Dam	None	0	4	0	0	2	0	0	3	0	0	2	0	0	0
32	Teemburra Dam	Mackay	1	4	4	2	2	4	3	3	9	1	2	2	19	6
33	Copperlode Dam	Cairns (Lake Placid)	3	4	12	3	2	6	2	3	6	1	2	2	26	8
34	Ross River Dam	Townsville	3	4	12	2	2	4	2	3	6	1	2	2	24	7
35	Coolmunda Dam	Inglewood	2	4	8	1	2	2	1	3	3	2	2	4	17	5
36	Paradise Dam	Bundaberg	2	4	8	1	2	2	1	3	3	1	2	2	15	5

ATTACHMENT 4 continued: Ranking of Existing Dams and Retention Basins

Benefit existing dams and retention basins

			Population benefiting			Catchment Command			Dam Design			Social and Economic Benefit				
Number	Location/Site Name	Benefited Community	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Total Benefit	Adjusted Benefit (out of 10)
1	Awoonga Dam	Benaraby/Tannum Sands	1	3	3	1	2	2	1	3	3	1	3	3	11	3
2	Baroon Pocket Dam	Kenilworth	1	3	3	1	2	2	1	3	3	1	3	3	11	3
3	Beardmore Dam	St George	1	3	3	1	2	2	1	3	3	2	3	6	14	4
4	Biggera Ck Detention Basin	Gold Coast	2	3	6	3	2	6	3	3	9	3	3	9	30	9
5	Bjelke Petersen Dam	Murgon	1	3	3	2	2	4	1	3	3	1	3	3	13	4
6	Boondooma Dam	Mundubbra	1	3	3	1	2	2	1	3	3	1	3	3	11	3
7	Borumba Dam	Gympie	1	3	3	1	2	2	1	3	3	1	3	3	11	3
8	Burdekin Dam	Home Hill	2	3	6	3	2	6	1	3	3	2	3	6	21	6
9	Connolly	Warwick	1	3	3	1	2	2	1	3	3	1	3	3	11	3
10	Enoggera	Brisbane	1	3	3	1	2	2	1	3	3	1	3	3	11	3
11	Ewen Maddock	Sunshine Coast	1	3	3	1	2	2	1	3	3	1	3	3	11	3
12	Fairbairn	Emerald	2	3	6	3	2	6	1	3	3	2	3	6	21	6
13	Fred Haigh	Bundaberg	1	3	3	1	2	2	1	3	3	2	3	6	14	4
14	Glenlyon	None	0	3	0	0	2	0	0	3	0	0	3	0	0	0
15	Gold Creek	Brisbane	1	3	3	1	2	2	1	3	3	1	3	3	11	3
16	Hinze Dam	Gold Coast	3	3	9	2	2	4	3	3	9	3	3	9	31	9
17	Lake Manchester	Brisbane	1	3	3	2	2	4	1	3	3	1	3	3	13	4
18	Lenthalls	Hervey Bay	2	3	6	2	2	4	1	3	3	2	3	6	19	6
19	Leslie	None	0	3	0	0	2	0	0	3	0	0	3	0	0	0
20	Leslie Harrison	Redlands	2	3	6	2	2	4	1	3	3	1	3	3	16	5
21	Loders Ck Detention Basin	Gold Coast	2	3	6	3	2	6	3	3	9	3	3	9	30	9
22	Maroon	Beaudesert	1	3	3	1	2	2	1	3	3	1	3	3	11	3
23	Moogerah	Ipswich	1	3	3	1	2	2	1	3	3	1	3	3	11	3
24	Peter Faust	Prosepine	2	3	6	2	2	4	2	3	6	3	3	9	25	8
25	Storm King	Stanthorpe	1	3	3	1	2	2	1	3	3	1	3	3	11	3
26	Tallebudgera	Gold Coast	1	3	3	1	2	2	1	3	3	1	3	3	11	3
27	Tinaroo	Mareeba	1	3	3	1	2	2	1	3	3	1	3	3	11	3
28	Somerset/Wivenhoe	Brisbane	3	3	9	2	2	4	3	3	9	3	3	9	31	9
29	Wuruma	Eidsvold/Mundubbra	1	3	3	1	2	2	1	3	3	1	3	3	11	3
30	Cania	Monto	1	3	3	1	2	2	1	3	3	1	3	3	11	3
31	Eungella Dam	None	0	3	0	0	2	0	0	3	0	0	3	0	0	0
32	Teemburra Dam	Mackay	3	3	9	1	2	2	1	3	3	1	3	3	17	5
33	Copperlode Dam	Cairns (Lake Placid)	2	3	6	1	2	2	1	3	3	1	3	3	14	4
34	Ross River Dam	Townsville	3	3	9	2	2	4	2	3	6	3	3	9	28	8
35	Coolmunda Dam	Inglewood	1	3	3	2	2	4	1	3	3	1	3	3	13	4
36	Paradise Dam	Bundaberg	2	3	6	3	2	6	1	3	0	2	3	6	18	5

ATTACHMENT 5: Ranking of Possible Flood Mitig. .on Measures

Possible Sites: Likelihood of damaging flood event

			Flood frequency			Flood exposure			Time to respond			Flood mapping, warning systems and emergency action plans				
Number	Location/Site Name	Benefited Community	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Total Likelihood	Adjusted Likelihood (out of 10)
1	Raising Beardmore Dam	St George	3	4	12	1	2	2	1	3	3	1	2	2	19	6
2	Barrackdale	St George	3	4	12	1	2	2	1	3	3	1	2	2	19	6
3	Linville	Moore	2	4	8	2	2	4	1	3	3	1	2	2	17	5
4	Emu Creek	Brisbane	1	4	4	2	2	4	1	3	3	1	2	2	13	4
5	Raising Wivenhoe	Brisbane	3	4	12	2	2	4	1	3	3	1	2	2	21	6
6	Murphy's Creek	Helidon/Grantham	2	4	8	1	2	2	3	3	9	3	2	6	25	8
7	Raising Borumba Dam	Gympie	2	4	8	1	2	2	1	3	3	1	2	2	15	5
8	Traveston Crossing	Gympie	3	4	12	1	2	2	1	3	3	1	2	2	19	6
9	Amamoor Ck	Gympie	1	4	4	1	2	2	1	3	3	1	2	2	11	3
10	Raising Paradise	Bundaberg	2	4	8	2	2	4	1	3	3	1	2	2	17	5
11	Upper Burnett Dam	Bundaberg	2	4	8	2	2	4	1	3	3	1	2	2	17	5
12	Raising Fairbairn	Emerald	3	4	12	1	2	2	1	3	3	3	2	6	23	7
13	Nathan Dam	Theodore/Baralabah	3	4	12	1	2	2	1	3	3	1	2	2	19	6
14	Comet River	(with other storages) Rockhampton	2	4	8	1	2	2	1	3	3	1	2	2	15	5
15	Connors River Dam	None	0	4	0	0	2	0	0	3	0	0	2	0	0	0
16	Fitzroy Gap	Rockhampton	3	4	12	2	2	4	1	3	3	1	2	2	21	6
17	Black's Creek	Mackay	3	4	12	2	2	4	2	3	6	1	2	2	24	7
18	Raising Burdekin Falls Dam	Home Hill	3	4	12	2	2	4	1	3	3	1	2	2	21	6
19	Urannah	Home Hill	3	4	12	2	2	4	1	3	3	1	2	2	21	6
20	Wild River	Ingham	2	4	8	2	2	4	3	3	9	1	2	2	23	7
21	Flaggy Creek	Ingham	2	4	8	2	2	4	3	3	9	1	2	2	23	7

ATTACHMENT 5 continued: Ranking of Possible Flood Mitigation Measures

Possible Sites: Benefit from flood mitigation works

			Population benefiting			Catchment Command			Dam Design			Social and Economic Benefit				
Number	Location/Site Name	Benefited Community	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Value	Weighting	Total	Total Benefit	Adjusted Benefit (out of 10)
1	Raising Beardmore Dam	St George	1	3	3	3	2	6	3	3	9	2	3	6	24	7
2	Barrackdale	St George	1	3	3	3	2	6	3	3	9	2	3	6	24	7
3	Linville	Moore	3	3	9	1	2	2	3	3	9	3	3	9	29	9
4	Emu Creek	Brisbane	3	3	9	1	2	2	2	3	6	3	3	9	26	8
5	Raising Wivenhoe	Brisbane	3	3	9	3	2	6	3	3	9	3	3	9	33	10
6	Murphy's Creek	Helidon/Grantham	1	3	3	1	2	2	2	3	6	1	3	3	14	4
7	Raising Borumba Dam	Gympie	2	3	6	1	2	2	2	3	6	2	3	6	20	6
8	Traveston Crossing	Gympie	2	3	6	3	2	6	3	3	9	2	3	6	27	8
9	Amamoor Ck	Gympie	2	3	6	1	2	2	3	3	9	2	3	6	23	7
10	Raising Paradise	Bundaberg	2	3	6	3	2	6	3	3	9	2	3	6	27	8
11	Upper Burnett Dam	Bundaberg	2	3	6	2	2	4	3	3	9	2	3	6	25	8
12	Raising Fairbairn	Emerald	2	3	6	3	2	6	3	3	9	3	3	9	30	9
13	Nathan Dam	Theodore/Baralaba h	1	3	3	2	2	4	3	3	9	3	3	9	25	8
14	Comet River	(with other storages) Rockhampton	2	3	6	1	2	2	3	3	9	1	3	3	20	6
15	Connors River Dam	None	0	3	0	0	2	0	0	3	0	0	3	0	0	0
16	Fitzroy Gap	Rockhampton	2	3	6	3	2	6	3	3	9	2	3	6	27	8
17	Black's Creek	Mackay	3	3	9	1	2	2	3	3	9	3	3	9	29	9
18	Raising Burdekin Falls Dam	Home Hill	2	3	6	3	2	6	3	3	9	3	3	9	30	9
19	Urannah	Home Hill	2	3	6	1	2	2	3	3	9	1	3	3	20	6
20	Wild River	Ingham	2	3	6	1	2	2	3	3	9	1	3	3	20	6
21	Flaggy Creek	Ingham	2	3	6	1	2	2	3	3	9	1	3	3	20	6

Department of Environment and Resource Management
Director-General and Minister Robertson
Agenda

Meeting	DG meeting with Minister Robertson and key Ministerial staff
Location	Minister's Boardroom, 61 Mary Street
Date	Friday 7 January 2011
Time	3:00pm to 4:00pm

ITEM	SUBJECT	TIME
1.	**CABINET & LEGISLATION MATTERS** a) Review of Forward Cabinet Timetable (see CLLO Status Report)	
2.	**HOT ISSUES** [redacted] b) Update on status of gauging stations – Graeme Milligan/Leslie Shirreffs [redacted]	
FUTURE ITEMS	o	

Last update: 07/01/11 – 10:00am

Department of Environment and Resource Management
Director-General and Minister Robertson
Agenda

Meeting	DG meeting with Minister Robertson and key Ministerial staff
Location	Minister's Boardroom, 61 Mary Street
Date	Friday 28 January, 2011
Time	3:00 – 4:00pm

ITEM	SUBJECT	TIME
1.	**CABINET & LEGISLATION MATTERS** a) Review of Forward Cabinet Timetable (see CLLO Status Report)	11:00 – 11:10
2.	**HOT ISSUES** [redacted] d) Flooding impacts on Valuations CTS 00597/11 (Neil Bray and Chris Robson) [redacted] f) Flood-line mapping - CTS00997/11 (Steve Jacoby and Chris Robson) [redacted]	
	FUTURE ITEMS o	

Last update: 28/01/11 – 10:55am

Department of Environment and Resource Management
Director-General and Minister Robertson
Agenda

Meeting	DG meeting with Minister Robertson and key Ministerial staff
Location	Minister's Boardroom, 61 Mary Street
Date	Friday 11 February, 2011
Time	3:00 – 4:00pm

ITEM	SUBJECT	TIME
1.	**CABINET & LEGISLATION MATTERS**	
	a) Review of Forward Cabinet Timetable (see CLLO Status Report)	
2.	**HOT ISSUES**	
	a) Impacts on Land from flooding (Christine Williams / Paul Lawrence)	15 min
	b) Briefing: Environment Roadmap / Line of Recovery (Terry Wall / Clive Cook)	20 min
	c) Flood Commission of Inquiry (John Bradley)	10 min
	[redacted]	10 min 5 min 10min
	FUTURE ITEMS	
	o	

Last update: 11/02/11 – 10:50am

[redacted]

From: Dan Spiller [redacted]
Sent: Monday, 11 October 2010 11:58 AM
To: Bradley John
Subject: Fwd:
Attachments: cidimage001.png@01C92F65.8EFAC010; ATT00001..htm

Begin forwarded message:

From: Mike Foster [redacted]
Date: 11 October 2010 11:42:06 AM GMT+10:00
To: Dan Spiller [redacted]

Dan

Releases are currently within river bank

Releases have no reached the designated minor flood levels as determined by the BOM and local councils.

At this stage still very much a minor event. No impact on localised flooding at this stage.

Cheers Mike

Mike Foster

Manager Strategic Relations & Communication

Queensland Bulk Water Supply Authority *trading as* Seqwater

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[redacted]

From: Mike Foster [redacted]
Sent: Monday, 11 October 2010 12:24 PM
To: Bradley John
Cc: spiller daniel @ SEQWGM; Rob Drury
Subject: Seqwater update as requested

John/Dan

Seqwater operates in accordance with the gazetted flood operations manual

Manual designed to ensure the structural safety of the dam and the mitigate downsteam impacts

The process includes advising councils of any impending impacts on their infrastructure (bridges, roads). Current releases have resulted in the closure of bridges in Ipswich and Somerset Regional Council areas including Town Bridges, Savages Crossing and Colleges Crossing.

Wivenhoe

Currently releasing 23,500 ML/day from Wivenhoe.

Releases have not reached the designated minor flood levels as determined by the BOM and local councils. Current releases are within river banks

At this stage still very much a minor event. Any impact on localised flooding, if at all. would be minor.

If further larger releases are required other bridges may be impacted and these include Burtons Bridge, Kholo Bridge and Mt Crosby Weir and Fernvale Bridge in a planned sequence. At this stage it is very unlikely based on current inflows and projected forecasts that Mt Crosby and Fernvale Bridge will be impacted.

North Pine

Four gates currently operating and releasing approx 52,000Ml/day. In March this year were releasing almost 40,000 ML/day.

Moreton Regional has been advised and has closed Young's Crossing

All impacted Council have been contacted and advised of current releases by Seqwater prior to releases occurring.

Cheers Mike

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

seqwater
WATER FOR LIFE

Ph (07) [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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[redacted]

From: Mike Foster [redacted]
Sent: Monday, 11 October 2010 12:25 PM
To: Bradley John
Cc: spiller daniel @ SEQWGM
Subject: RE: Flooding

Releases have NOT reached

From: Bradley John [redacted]
Sent: Monday, 11 October 2010 12:14 PM
To: Mike Foster
Cc: Spiller Daniel (SEQWGM)
Subject: Flooding

Mike

In your statement below you have a typo – should it be Releases have NOW or NOT reached the designated.....

> "Releases have no reached the designated minor flood levels as determined by the BOM and local councils."

Dan

Can you pls send me through any stuff you have on this (ie. if preparing a note),

John Bradley
Director-General
Department of Environment and Resource Management
Telephone [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

> **From:** Mike Foster [redacted]
> **Sent:** Monday, 11 October 2010 12:00 PM
> **To:** Bradley John
> **Subject:** FW:
>
> fyi

> **From:** Mike Foster
> **Sent:** Monday, 11 October 2010 11:42 AM
> **To:** Dan Spiller
> **Subject:**
>
> Dan

Releases are currently within river bank

Releases have no reached the designated minor flood levels as determined by the BOM and local councils.

At this stage still very much a minor event. No impact on localised flooding at this stage.

Cheers Mike

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

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+--+

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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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[redacted]

From: Edmonds Rebecca on behalf of Bradley John
Sent: Monday, 11 October 2010 12:36 PM
To: 'Nicole Scurrah'
Cc: [redacted] 'Kimberley Gardiner'; Bradley John
Subject: Seqwater update as requested

Good afternoon all

Please find following Seqwater update as requested.

Thanks
John B

From: Mike Foster [redacted]
Sent: Monday, 11 October 2010 12:24 PM
To: Bradley John
Cc: spiller daniel @ SEQWGM; Rob Drury
Subject: Seqwater update as requested

John/Dan

Seqwater operates in accordance with the gazetted flood operations manual

Manual designed to ensure the structural safety of the dam and the mitigate downsteam impacts

The process includes advising councils of any impending impacts on their infrastructure (bridges, roads). Current releases have resulted in the closure of bridges in Ipswich and Somerset Regional Council areas including Town Bridges, Savages Crossing and Colleges Crossing.

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releases occurring.

Cheers Mike

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

Ph [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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[redacted]

From: Joshua Cooney [redacted]
Sent: Tuesday, 12 October 2010 9:30 PM
To: Bradley John
Subject: RE: note comments in the blogs on Development approvals.

this is good to feed in public conscious leading in waterways report card later this month.

Heavy rainfall again a factor this year. Getting a briefing from waterways people tomorrow.

From: Bradley John [redacted]
Sent: Tuesday, 12 October 2010 3:27 PM
To: Lane John
Cc: Joshua Cooney
Subject: note comments in the blogs on Development approvals.

http://www.couriermail.com.au/news/breaking-news/lord-mayor-and-deputy-premier-warn-that-brisbanes-big-wet-could-lead-to-a-repeat-of-the-disastrous-74-floods/comments-e6freonf-1225937571453

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

+--+

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

+--+

[redacted]

From: Lane John
Sent: Wednesday, 13 October 2010 2:39 PM
To: Bradley John
Cc: Cooney Joshua @ Ministerial; Roberts Tony; Wall Terry; Ellwood Dean; Brown Damien; Turner Lynne; Murphy Kelly; Sultmann Sel; Smyth Louise
Subject: RE: Protecting our Coastal Communities Update

John

Will do.

FYI, Dave Robinson has advised the following:

The Rockhampton Regional Council plans to release a DVD *Natural Disasters Happen – Don't be a Statistic* this week.

The video will be available for download from the Council web site. Copies are being posted out to all homes in storm tide threat areas in the Capricorn Coast.

The video advises on how to prepare for cyclones, storm tides, floods and bush fires, and shows the Council storm tide maps (available at http://seamless.rrc.qld.gov.au/Council_Services/Disaster_Management) and a simulation of a storm tide at Kinka Beach.

The Bureau of Meteorology/Department of Community Safety Cyclone Pre-Season Seminar series will be held in Rockhampton tomorrow. (Coastal Unit will not be attending this Seminar)

For your information.

David Robinson
Director, Coastal Unit, Queensland Climate Change Centre of Excellence
Telephone [redacted]
www.derm.qld.gov.au

Cheers

John Lane | Director, Environment Planning
Environment and Natural Resource Policy Division
T:
E: [redacted]

Department of Environment and Resource Management
Level 9 400 George Street, Brisbane Q 4000
GPO Box 2454 , Brisbane, QLD 4001

Contact us at www.derm.qld.gov.au

From: Bradley John
Sent: Wednesday, 13 October 2010 2:25 PM
To: Lane John
Cc: Cooney Joshua @ Ministerial; Roberts Tony; Wall Terry; Ellwood Dean; Brown Damien; Turner Lynne
Subject: FW: Protecting our Coastal Communities Update

Hi John

Further to recent discussions re: Queensland Coastal Plan – and approach to Strategic Communications development as per your meeting outcomes recently circulated.

I wanted to make you aware of the recent paper which went to SDMG from DCS about the POCC work program.

Specifically – note the proposed way forward where DCS intends to start sharing with Local Governments the DEM outcomes so council's can start managing flood evacuation plans.

It is not clear to me from this WHEN DCS intends to provide that info back to relevant Councils.

I realise there might be different time scales (2100 vs short term) involved but the release of this POCC work obviously needs to be carefully integrated into our communications strategy on QCP – both in terms of the sequence of timing and key messages.

Can you pls involve DCS as part of the process you undertake to prepare our comms strategy for QCP?

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Edmonds Rebecca
Sent: Wednesday, 13 October 2010 9:48 AM
To: Bradley John
Subject: Protecting our Coastal Communities Update

Deeg,

As requested...

Bec

Bec Edmonds
Office of the Director-General
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

[redacted]

From: Dan Spiller [redacted]
Sent: Wednesday, 13 October 2010 6:19 PM
To: Geoff Stead; Bradley John
Cc: Banks Shelley @ SEQWGM; Dennien Barry @ SEQWGM; coote aleisha @ SEQWGM
Subject: RE: urgent Min request

The releases were not a surprise.

The trigger levels and release procedures are the same as they were when SEQ Water was owned by Councils, and similar to those used to manage inflows in 1999.

Seqwater has been in regular contact with Council officers regarding the releases plans, including a teleconference with Brisbane City Council's emergency team on Sunday. No objections were raised.

We are updating the HIB to include these points.

Dan

-----Original Message-----
From: Geoff Stead [redacted]
Sent: Wednesday, 13 October 2010 5:55 PM
To: Dan Spiller; Barry Dennien
Subject: urgent Min request

Can you check urgently whether the rules the dam releases are operating under now are the same as those used under SEq water when it was owned by the council. Thanks Geoff

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Bureau of Meteorology and SEQwater experts agree that Wivenhoe Dam releases will have almost no impact beyond normal high tide levels in the Brisbane River and its feeder creeks today.

In fact, Wivenhoe is protecting low-lying Brisbane suburbs with its flood mitigation capacity.

The dam reduced by one-third the natural flow into the Brisbane River from this week's downpour across the region.

Current releases from Wivenhoe are approximately one-third of what would have naturally come down the river without the dam in place to store flood water.

Releases from Wivenhoe are being made in accordance with the approved flood release manual. This flood management plan is signed off by the Dam Safety Regulator and gazette.

The trigger levels and release procedures are the same as those used by SEQ Water was owned by councils and similar to those used to manage the last multi-gate release in 1999.

Prior to this week's opening of the spill gates at Wivenhoe, SEQwater was in regular contact with Council officers regarding the releases plans, including a teleconference with Brisbane City Council's emergency team on Sunday. No objections to the planned release were raised.

Levels in the Brisbane River today are expected to be within normal expectations on a high tide after a major wet weather event.

[redacted]

From: Geoff Stead [redacted]
Sent: Wednesday, 13 October 2010 6:45 PM
To: Stephen Robertson
Cc: Nicole Scurrah; Bradley John; Lance McCallum; Tim Watts; spiller daniel @ SEQWGM; Dennien Barry @ SEQWGM; Lyons Michael @ SEQWGM; coote aleisha @ SEQWGM; Banks Shelley @ SEQWGM; Premiers Office - Media Unit
Subject: draft MR

Attachments: Water-Brisbane-Wivenhoe 131010.docx



Water-Brisbane-Wi
venhoe 131010...

Hi all, this is where I am with the response to Brisbane flooding claims. I believe it should be sent direct to CM from SEQwater. There have been no other media enquiries only a small mention on Ch10 so far.
The same MR could go out more generally if needed in the morning. G

<<Water-Brisbane-Wivenhoe 131010.docx>>

[redacted]

From: Megan Saunders [redacted]
Sent: Wednesday, 13 October 2010 6:50 PM
To: Geoff Stead; Stephen Robertson
Cc: Nicole Scurrah; Bradley John; Lance McCallum; Tim Watts; spiller daniel @ SEQWGM; Dennien Barry @ SEQWGM; Lyons Michael @ SEQWGM; coote aleisha @ SEQWGM; Banks Shelley @ SEQWGM; Premiers Office - Media Unit
Subject: Re: draft MR

Also would be good to have barry or dan on standby in the am. M

From: Geoff Stead
To: Stephen Robertson
Cc: Nicole Scurrah; Bradley John ; Lance McCallum; Tim Watts; Dan Spiller ; [redacted]; Michael Lyons ; Aleisha Coote ; Shelley Banks ; Premiers Office - Media Unit
Sent: Wed Oct 13 18:45:14 2010
Subject: draft MR

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[redacted]

From: Megan Saunders [redacted]

Sent: Wednesday, 13 October 2010 6:47 PM

To: Geoff Stead; Stephen Robertson

Cc: Nicole Scurrah; Bradley John; Lance McCallum; Tim Watts; spiller daniel @ SEQWGM; Dennien Barry @ SEQWGM; Lyons Michael @ SEQWGM; coote aleisha @ SEQWGM; Banks Shelley @ SEQWGM; Premiers Office - Media Unit

Subject: Re: draft MR

Yes thanks geoff. Agree with approach and if possible having min ready to do radio in am. M

From: Geoff Stead
To: Stephen Robertson
Cc: Nicole Scurrah; Bradley John ; Lance McCallum; Tim Watts; Dan Spiller ; [redacted]; Michael Lyons ; Aleisha Coote ; Shelley Banks ; Premiers Office - Media Unit
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[redacted]

From: Dan Spiller[redacted]
Sent: Thursday, 14 October 2010 9:23 AM
To: Bradley John
Subject: FW: are you able to check this for accuracy?

For info.

-----Original Message-----
From: Dan Spiller
Sent: Thursday, 14 October 2010 9:14 AM
To: 'Tim Watts'; Lance McCallum
Cc: Barry Dennien
Subject: RE: are you able to check this for accuracy?

-----Original Message-----
From: Tim Watts [mailto[redacted]
Sent: Thursday, 14 October 2010 9:00 AM
To: Dan Spiller
Cc: Barry Dennien; Lance McCallum
Subject: are you able to check this for accuracy?

Dan...

The dam safety regulator does not undertake flood modelling - its main role is to assess and manage the risk of catastrophic dam failure. This means ensuring that dams can pass floods without collapsing.

BOM is the point of truth - and public notification - for flood modelling as they have the best information about rainfall and tides. Seqwater provides information on releases to BOM, as one of the inputs to modelling and flood notifications.

BOM modelling predicts that today's high tide (just before 2:30) will be lower than yesterday's high tide. If this prediction is correct, there would not be flooding.

BOM modelling takes
into account the impact of releases from Wivenhoe. However, there are many variables which are hard to quantify and might impact on the actually water level at high tide:
- Around half the catchment of the Brisbane R is below Wivenhoe
am, and it is difficult to precisely predict run-off from this part of the catchment
- The actual height that the tide reaches can vary with onshore
wind and other factors
- Wivenhoe is 200km away from the mouth of the river and there are
a lot of environmental variables

Council undertakes its own flood modelling. Some differences in the predictions of these kind of models is normal, as there are so many variables. Issuing flood warnings is a council responsibility and this is why BCC does their own flood modelling.

The Flood Manual that governs the release of water from Wivenhoe was put together in consultation with councils and State agencies.

While the drinking water storage part of Wivenhoe is 100% full, the flood storage part is about one third full. Wivenhoe contains 500 000ML of flood water that must be released - this is more than North Pine, Maroon and Hinze Dam put together. Failure to release flood water from Wivenhoe puts Brisbane at greater risk of significant flooding - particularly with more rain predicted to be on the way. It should not be forgotten that the 1974 floods occurred after two significant rain events close together.

Tim Watts
Policy Advisor

Office of the Minister for Natural Resources, Mines and Energy and Minister for Trade
Phone: [redacted]
Mobile
Fax: [redacted]

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[redacted]

From: Barry Dennien [redacted]
Sent: Thursday, 14 October 2010 10:17 AM
To: Bradley John; spiller daniel @ SEQWGM; Lyons Michael @ SEQWGM; Geoff Stead; Tim Watts; Ken Smith (ken.smith@premiers.qld.gov.au); Denner Scott @ SEQWGM
Subject: FW: Tide levels in Brisbane [SEC=UNCLASSIFIED]

Guys

Good news we are on track to meet the forecast lower level in the river today.

Barry

From: Jeff Perkins [redacted]
Sent: Thursday, 14 October 2010 10:12 AM
To: Barry Dennien
Cc: [redacted] Peter Baddiley
Subject: Tide levels in Brisbane [SEC=UNCLASSIFIED]

Hi Barry,

The URL below will take you to the latest version of the attached image showing the tide level at the Brisbane City gauge. We have provided access to our model results to SEQWATER flood operations centre and I suggest that if you wish to see the results then I would talk with the current duty engineer which I think is John Tibaldi.

From my perspective the measured tides are matching well with the flood model predictions.

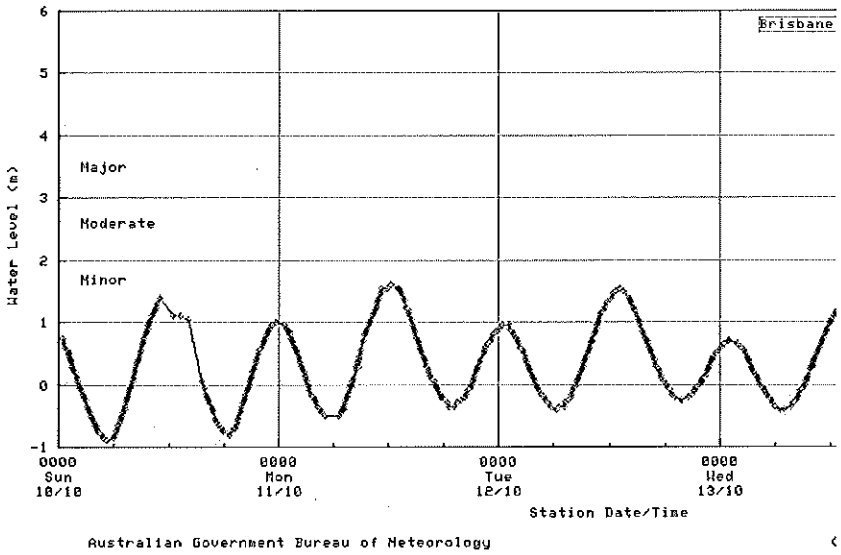
cheers

Jeff

Jeff Perkins
Supervising Hydrologist
Seasonal Streamflow Forecasting, Extended Hydrological Prediction
Climate and Water Division

Australian Government Bureau of Meteorology
Level 21, 69 Ann Street QLD 4001
Phone: [redacted]

http://www.bom.gov.au/fwo/IDQ65389/IDQ65389.540198.plt.shtml



Jeff Perkins
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[redacted]

From: Robson Chris
Sent: Thursday, 14 October 2010 1:50 PM
To: Williams Lynette; Reilly Bob
Cc: Hogan Stephenie; Bradley John; Wall Terry; Ellwood Dean
Subject: RE: Prem

Most appropriate contact for the development of the protocol is Bob Reilly (and Peter Allen) - he attended this morning's meeting referred to below in Ken's email and also right now with Minister Robertson and the water entities, on basis of his role as dam safety regulator.

Chris Robson
Deputy Director-General
Water and Corporate Services
Telephone: [redacted]
Mobile:
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Williams Lynette
Sent: Thursday, 14 October 2010 1:41 PM
To: Robson Chris
Cc: Hogan Stephenie; Bradley John
Subject: FW: Prem

Hi Chris

Steph took a call from Bruce on this a few minutes ago.

For the moment Bruce has WEO as the immediate contacts until we advise the most appropriate contact

Ta
Lynette

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 1:14 PM
To: 'Megan Saunders'; Nicole Scurrah; Chris Taylor
Cc: Bradley John; 'Jim McGowan'; 'Bruce Grady'
Subject: RE: Prem

Yes of course. I will get John Bradley and Jim McGowan to work with the water authorities to finalise, based on an assessment of this and previous incidents.

John...Can you work with DCS, more specifically EMQ's Bruce Grady on protocol which should specifically cover the incident we have been dealing with on SEQ Water/Council. Might also cover or relate to other disaster related incidents.

Happy to discuss.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone
Mobile
Email: [redacted]
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Please consider the environment before printing this email (3 sheets of paper = 1 litre of water)

From: Megan Saunders [redacted]
Sent: Thursday, 14 October 2010 1:08 PM
To: Ken Smith; Nicole Scurrah; Chris Taylor
Subject: Prem

Prem was quoted on radio saying there needed to be a protocol...can we action?

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 12:55 PM
To: Nicole Scurrah; Chris Taylor; Megan Saunders
Subject: FW: Brisbane River Flood Models

See confirmation of results from the technical meeting this morning, involving BCC, SEQ Water and BOM.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
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Mobile
Email:
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From: Peter Borrows [mailto:
Sent: Thursday, 14 October 2010 12:29 PM
To: Ken Smith; Dennien Barry; Reilly Bob; Allen Peter
Subject: Brisbane River Flood Models

FYI

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

cid:image003.png@01CB0654.C

Ph
Level 3, 240 Margaret St, Brisbane City QLD 4000
PO Box 16146, City East QLD 4002
Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 14 October 2010 12:25 PM
To: Peter Borrows
Subject: FW: Discussions from this morning

Peter,
Comments as per this morning.

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.BI

Ph
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, 14 October 2010 11:42 AM
To:
Cc:
Subject: Discussions from this morning

As we discussed this morning, we agreed on the following points

- Brisbane City Council, Seqwater and the Bureau of Meteorology do not have any disagreement on the technical assessment of river levels or models to determine those levels
- Results of those assessments do not show that there should be any flooding in the Brisbane area however Brisbane City Council have undertaken precautionary actions to ensure procedures are in place in case of any unexpected impacts
- BCC, Seqwater and the BoM are continuing sharing of data and information and will continually improve this for future events.

Rob

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[redacted]

From: Bruce Grady [redacted]
Sent: Thursday, 14 October 2010 2:04 PM
To: Bradley John
Cc: Jim McGowan
Subject: FW: Prem
Follow Up Flag: Follow up
Flag Status: Completed

John, I understand you are in Nth Qld. Following Kens e-mail and phone call I have spoken to your office and arrangements are in place to talk with Chris Robson to progress this. We will set up an urgent meeting including the BoM to develop a position and then engage with BCC (Ken has spoken with Colin Jensen). The objective will be to establish a set of arrangements that will require a level of engagement and agreement by the key players around the risk and its consequence and the nature of the public warnings/announcements required. I will keep you posted of any developments.

Regards

Bruce Grady
A/Chief Officer
Emergency Management Queensland

[redacted]

telephone
mobile
fax [redacted]

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 1:14 PM
To: 'Megan Saunders'; Nicole Scurrah; Chris Taylor
Cc: 'Bradley John'; Jim McGowan; Bruce Grady
Subject: RE: Prem

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Happy to discuss.

Regards

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Mobile
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Sent: Thursday, 14 October 2010 12:29 PM
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Subject: Brisbane River Flood Models

FYI

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Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

Ph [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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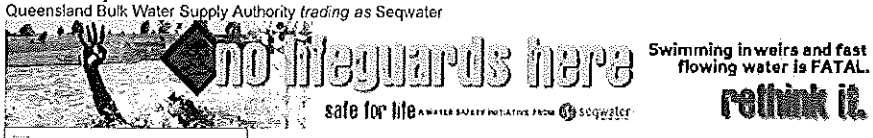

cid:image001.png@01CA24E1.8E

Ph [redacted]
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[redacted]

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Sent: Thursday, 14 October 2010 1:14 PM
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Cc: Bradley John; 'Jim McGowan'; 'Bruce Grady'
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Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [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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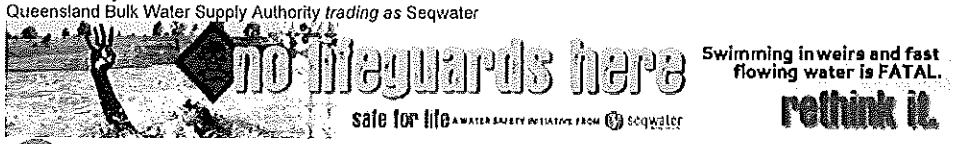



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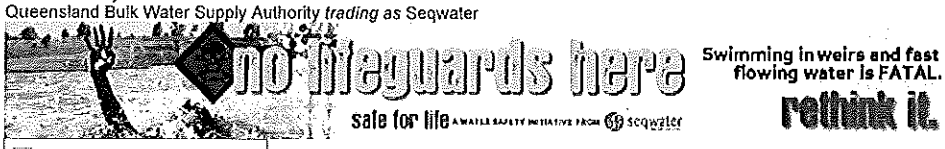
Water Delivery
Queensland Bulk Water Supply Authority *trading as* Seqwater



cid:image001.png@01CA24E1.B[redacted]

Ph [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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[redacted]

From: Robson Chris
Sent: Thursday, 14 October 2010 2:45 PM
To: Reilly Bob; Williams Lynette
Cc: Hogan Stephenie; Bradley John; Wall Terry; Ellwood Dean
Subject: RE: Prem

Bob

I understand this to be about information and organisational and public communication re flood modelling and predicted impacts on property and community activities and assets, .

I expect Mike Shapland from EMQ will have or will shortly be contacting you to initiate the process re the protocol. You may need to involve John Ruffini given his team's role in the floed operations centre.

Chris Robson
Deputy Director-General
Water and Corporate Services
Telephone [redacted]
Mobile: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Reilly Bob
Sent: Thursday, 14 October 2010 2:16 PM
To: Robson Chris; Williams Lynette
Cc: Hogan Stephenie; Bradley John; Wall Terry; Ellwood Dean
Subject: RE: Prem

Hi everyone

The Minister also raised the desirability of the protocol.

I am happy to get work underway—but should it focus on the flooding issue or have a wider focus—see Ken Smith's email below.

Thanks

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Robson Chris
Sent: Thursday, 14 October 2010 1:50 PM
To: Williams Lynette; Reilly Bob
Cc: Hogan Stephenie; Bradley John; Wall Terry; Ellwood Dean
Subject: RE: Prem

Most appropriate contact for the development of the protocol is Bob Reilly (and Peter Allen) - he attended this morning's meeting referred to below in Ken's email and also right now with Minister Robertson and the water entities, on basis of his role as dam safety regulator.

Chris Robson
Deputy Director-General
Water and Corporate Services
Telephone: [redacted]
Mobile: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Williams Lynette
Sent: Thursday, 14 October 2010 1:41 PM
To: Robson Chris
Cc: Hogan Stephenie; Bradley John
Subject: FW: Prem

Hi Chris

Steph took a call from Bruce on this a few minutes ago.

For the moment Bruce has WEO as the immediate contacts until we advise the most appropriate contact

Ta
Lynette

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 1:14 PM
To: 'Megan Saunders'; Nicole Scurrah; Chris Taylor
Cc: Bradley John; 'Jim McGowan'; 'Bruce Grady'
Subject: RE: Prem

Yes of course. I will get John Bradley and Jim McGowan to work with the water authorities to finalise, based on an assessment of this and previous incidents.

John...Can you work with DCS, more specifically EMQ's Bruce Grady on protocol which should specifically cover the incident we have been dealing with on SEQ Water/Council. Might also cover or relate to other disaster related incidents.

Happy to discuss.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone [redacted]
Mobile
Email:
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From: Megan Saunders [redacted]
Sent: Thursday, 14 October 2010 1:08 PM
To: Ken Smith; Nicole Scurrah; Chris Taylor
Subject: Prem

Prem was quoted on radio saying there needed to be a protocol...can we action?

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 12:55 PM
To: Nicole Scurrah; Chris Taylor; Megan Saunders
Subject: FW: Brisbane River Flood Models

See confirmation of results from the technical meeting this morning, involving BCC, SEQ Water and BOM.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone [redacted]
Mobile
Email:
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Please consider the environment before printing this email (3 sheets of paper = 1 litre of water)

From: Peter Borrows [redacted]
Sent: Thursday, 14 October 2010 12:29 PM
To: Ken Smith; Dennien Barry; Reilly Bob; Allen Peter
Subject: Brisbane River Flood Models

FYI

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

seqwater
WATER FOR LIFE

Ph [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
Sent: Thursday, 14 October 2010 12:25 PM
To: Peter Borrows
Subject: FW: Discussions from this morning

Peter,
Comments as per this morning.

Rob

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

Seqwater_No-Lifeguards-Here_email_strap

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Ph [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, 14 October 2010 11:42 AM
To: [redacted]
Cc:
Subject: Discussions from this morning

As we discussed this morning, we agreed on the following points

- Brisbane City Council, Seqwater and the Bureau of Meteorology do not have any disagreement on the technical assessment of river levels or models to determine those levels
- Results of those assessments do not show that there should be any flooding in the Brisbane area however Brisbane City Council have undertaken precautionary actions to ensure procedures are in place in case of any unexpected impacts
- BCC, Seqwater and the BoM are continuing sharing of data and information and will continually improve this for future events.

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@01CA24E1.8E

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[redacted]

From: Reilly Bob
Sent: Friday, 15 October 2010 7:25 AM
To: Bradley John
Cc: Robson Chris; Ellwood Dean
Subject: FW: Letter to Lord Mayor regarding possible flooding in Brisbane.docx

Attachments: Letter to Lord Mayor regarding possible flooding in Brisbane.docx



Letter to Lord Mayor regarding...

Hi John

A copy of the draft Premier's letter is attached.

I have organised a meeting for 8am today comprising ourselves, Emergency Management, Grid Manager, Seqwater, Bureau of Meteorology and Premiers.

Given the timings in the Premier's draft letter, we are going to work up a draft protocol (Emergency Management has already started work on it), so that it is ready for discussions with Brisbane City Council early next week.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management Lvl 3 41 George Street, Brisbane Q 4000 GPO Box 2454, Brisbane Q 4001 -----Original Message-----

For reply please quote: *ODDGG/PV – TF/10/ - DOC/10/*

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

Dear Campbell

I refer to recent advice to the Brisbane community in relation to the possible flooding impacts associated with the release of water from the Wivenhoe Dam.

Regrettably, when the community is in need of important information that effects their wellbeing, conflicting institutional advice, such as differential flood modelling by SEQ Water, the Bureau of Meteorology and the Brisbane City Council, is of great concern.

As you are aware, as we move to a La Nina weather pattern, there is likely to be significant rainfall across Queensland including southeast Queensland, over the summer months. This may be exacerbated by cyclones which have the potential to disperse huge volumes of water in very short periods of time.

I therefore believe it is important to develop a Protocol between the State Government and the Brisbane City Council to ensure a process for the development of consistent and robust information which the community will rely upon in times of such emergencies. Accordingly, I seek your urgent nomination of a senior officer to work with the Department of Community Safety (Emergency Management Queensland), the Department of Environment and Resource Management, SEQ Water, the Bureau of Meteorology and other water entities to develop and finalise the Protocol.

I expect this group to meet early next week and provide a draft Protocol for our consideration by the end of next week. Should you or your officers require further information, please contact Mr Ken Smith, Director-General, Department of the Premier and Cabinet on [redacted]

Yours sincerely

ANNA BLIGH MP
PREMIER OF QUEENSLAND

[redacted]

From: Bruce Grady [redacted]
Sent: Friday, 15 October 2010 7:11 AM
To: Bradley John
Subject: Re: Prem

John. There is a meeting with your people and the BoM at 8.00 this morning. Everything is going fine. I will drop you a copy of a draft letter frm the Premier to the Lord Mayor. Spoke to Ken last night and we will hold any direct engagement with BCC until the letter has gone. Thanks
Bruce Grady
A/Chief Officer
Emergency Management Queensland
Department of Community Safety
Mob [redacted]
Ph: [redacted]
Sent via Blackberry

From: Bradley John [redacted]
Sent: Friday, October 15, 2010 07:05 AM
To: Bruce Grady
Cc: Jim McGowan; Robson Chris [redacted] Reilly Bob [redacted] Dennien Barry @ SEQWGM [redacted]
Subject: RE: Prem

Bruce

Thanks for your advice on this and for getting this underway.

I will touch basa with Chris Robson and Bob Reilly later in the day for an update but if you see any issues of concern, please don't hesitate to contact me- particularly if any engagement issues with BCC or water entities.

regards

John Bradley
Director-General
Department of Environment and Resource Management
Telephone:
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Bruce Grady [redacted]
Sent: Thursday, 14 October 2010 2:04 PM
To: Bradley John
Cc: Jim McGowan
Subject: FW: Prem

John, I understand you are in Nth Qld. Following Kens e-mail and phone call I have spoken to your office and arrangements are in place to talk with Chris Robson to progress this. We will set up an urgent meeting including the BoM to develop a position and then engage with BCC (Ken has spoken with Colin Jensen). The objective will be to establish a set of arrangements that will require a level of engagement and agreement by the key players around the risk and its consequence and the nature of the public warnings/announcements required. I will keep you posted of any developments.

Regards

Bruce Grady
A/Chief Officer
Emergency Management Queensland

[redacted]

telephone [redacted]
mobile
fax

From: Ken Smith [redacted]
Sent: Thursday, 14 October 2010 1:14 PM
To: 'Megan Saunders'; Nicole Scurrah; Chris Taylor
Cc: 'Bradley John'; Jim McGowan; Bruce Grady
Subject: RE: Prem

Yes of course. I will get John Bradley and Jim McGowan to work with the water authorities to finalise, based on an assessment of this and previous incidents.

John...Can you work with DCS, more specifically EMQ's Bruce Grady on protocol which should specifically cover the incident we have been dealing with on SEQ Water/Council. Might also cover or relate to other disaster related incidents.

Happy to discuss.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone [redacted]
Mobile
Email:

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Subject: Prem

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Sent: Thursday, 14 October 2010 12:55 PM
To: Nicole Scurrah; Chris Taylor; Megan Saunders
Subject: FW: Brisbane River Flood Models

See confirmation of results from the technical meeting this morning, involving BCC, SEQ Water and BOM.

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone
Mobile
Email: [redacted]

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From: Peter Borrows [redacted]
Sent: Thursday, 14 October 2010 12:29 PM
To: Ken Smith; Dennien Barry; Reilly Bob; Allen Peter
Subject: Brisbane River Flood Models

FYI

Regards, Peter.

Peter Borrows
Chief Executive Officer
Queensland Bulk Water Supply Authority *trading as* Seqwater

cid:image003.png@01CB0654.C3

Ph [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
Sent: Thursday, 14 October 2010 12:25 PM
To: Peter Borrows
Subject: FW: Discussions from this morning

Peter,
Comments as per this morning.

Rob

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

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Ph [redacted]
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PO Box 37, Fernvale QLD 4306
Website | www.seqwater.com.au

From: Rob Drury
Sent: Thursday, 14 October 2010 11:42 AM
To: [redacted]
Cc:
Subject: Discussions from this morning

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- Results of those assessments do not show that there should be any flooding in the Brisbane area however Brisbane City Council have undertaken precautionary actions to ensure procedures are in place in case of any unexpected impacts
- BCC, Seqwater and the BoM are continuing sharing of data and information and will continually improve this for future events.

Rob

Robert Drury
Dam Operations Manager
Water Delivery
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[redacted]

From: Reilly Bob
Sent: Friday, 15 October 2010 11:50 AM
To: Bradley John; Ellwood Dean
Cc: Robson Chris
Subject: FW: Outcomes of Flood Information/Communications Protocol meeting of 15 October 2010

Hi John, Dean

Outcomes of today's meeting on the flood information/communication protocol are below.

The consensus of the group was that the flow of technical information between the various agencies (including the Council) is working alright, but that there is an issue around communication strategies/protocols.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Reilly Bob
Sent: Friday, 15 October 2010 10:24 AM
To: [redacted]
Cc: Allen Peter; [redacted]
Subject: Outcomes of Flood Information/Communications Protocol meeting of 15 October 2010

Hi everyone

Attendees: DERM, Seqwater, SEQ Grid Manger, DPC, BOM, Police, Emergency Management Queensland

Outcome of the meeting were:

1. DPC (Brad Smith) will seek direction on whether the protocol should cover all Councils affected by releases from Wivenhoe dam, and whether the focus should be solely on Wivenhoe releases or flooding more generally. Brad will also advise when the Premier's letter is sent and provide an electronic copy of it to the people in this email group. *(Subsequently, Brad has advised that: all councils affected by Wivenhoe releases should be covered, and that the protocol should only cover releases from Wivenhoe, not flooding generally)*
2. BOM (Peter Baddiley) will advise whether BOM wishes to be a signatory to the protocol, or whether their role will be primarily described in an Appendix. Drafting of the protocol will proceed on the basis that it will be primarily in an Appendix.

3. EMQ (Mike Shapland/Irina Stankovska) will draft the protocol. They will circulate a revised version by 1pm Friday (15 October 2010), with comments back to EMQ by 1pm Monday (18 October 2010). EMQ will then circulate a revised draft Monday (18 October 2010) afternoon for discussion at the group's next meeting at 8am on Tuesday 19 October 2010.

Next meeting: Floor 3 Mineral House Conference Room, 8am, 19 October 2010. (The meeting's aim will be to refine the draft protocol so that it is sufficiently advanced for discussion with Council(s) on 20 October 2010, if needed).

(Please circulate these minutes to other members of your organisation, as appropriate. Please note that I will not be in the office on Monday 18 October 2010, but any queries can be directed to Peter Allen)

Thanks for coming at short notice and a special thanks to Irina/Mike for having a draft protocol for us to make some preliminary comments on at today's meeting.

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

[redacted]

From: Reilly Bob
Sent: Tuesday, 19 October 2010 5:18 PM
To: Robson Chris; Bradley John
Subject: FW: Protocols - final drafts
Attachments: Protocol_Release of water from dams (2).doc; Protocol_Weather related events.doc

Hi Chris, John

Previously, I mantioned that a draft protocol would be available for review/comments on late Tuesday. The attached draft has been prepared by Emergency Management Queensland (EMQ) with input from a range of agencies. As EMQ has apparently been asked to provide a copy to Ken Smith this evening, I have attached a copy for your information/comment. Please note that it covers both Wivenhoe and Somerset dams, rather than just Wivenhoe. This is because the dams are operated as one system, and Somerset Council would also wish to see the arrangements for Somerset as that dam's flood release operations directly affects them. (John—the last Appendix covers the form we discussed last Friday. I think it needs some more work, but please let me know if we are on the right track or not).

So far, the councils have not advised us of their representatives so that we can negotiate the draft with them.

Separately, Ken Smith has apparently asked EMQ to start work on a wider protocol covering all SEQ councils and all weather-related events. A draft of that is also attached. DPC is unclear whether it will ultimately subsume the one for Wivenhoe/Somerset dams, but we are currently working on the assumption that it will not.

Bureau of Meteorology is still deciding whether it wishes to be a signatory through their Minister to one or both protocols.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Michael Shapland [redacted]
Sent: Tuesday, 19 October 2010 4:32 PM
To: Irina Stankovska; [redacted] Dennien Barry @ SEQWGM; Reilly Bob; [redacted] Denner Scott @ SEQWGM; Rob Drury; [redacted] Dennien Barry @ SEQWGM; [redacted] Allen Peter; Bruce Grady
Cc: [redacted]
Subject: Protocols - final drafts

Please find attached two draft protocols on the issue of communication of;

- A flooding information from releases - Wivenhoe and Somerset Dams,
- B natural hazards affecting the community.

Final checks will be made here this afternoon.

Mike

Mike Shapland MBE | Director, Disaster Management
Emergency Management Queensland | Department of Community Safety
Level 3, Block E, Emergency Services Complex, Kedron, Queensland
T: [redacted]

From: Irina Stankovska
Sent: Monday, 18 October 2010 17:30
To: Michael Shapland; [redacted] com.au; Reilly Bob; [redacted] Scott Denner; Rob Drury; [redacted]
Cc: [redacted]
Subject: Release of Water from Wivenhoe Dam' protocol - final draft

Good Afternoon Gentlemen

Please find attached the final draft of the 'Release of Water from Wivenhoe Dam' protocol, for tomorrow's meeting.

Kind Regards

Irina Stankovska I A/Program Officer (SDCG, DDMG & LDMG) I Disaster Management Governance Unit I Emergency Management Queensland I Department of Community Safety I ☎ [redacted]
I 🖷 I GPO Box 1425 BRISBANE QLD 4001 I State Disaster Management Group Email: [redacted] State Disaster Coordination Group Email: [redacted]
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Protocol for the communication of flooding information from releases - Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the processes to be followed by the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies, South East Queensland Water and the Bureau of Meteorology, which will ensure the provision of consistent and robust information to the community, concerning potential flooding impact during 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 disaster resilient communities.

BACKGROUND

Wivenhoe Dam controls only half of the Brisbane River catchment above Brisbane City. Other factors will influence inundation levels from the river.

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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, which ascertain the structural safety of the dam while minimising downstream impacts.

In the event of a major impact on communities, whole-of-government disaster management arrangements in Queensland ensure the collaborative and effective coordination of planning, services, resources and information for all hazards. The Queensland arrangements are based on disaster management groups at local, district and state level, supported by disaster coordination centres.

Local, district and state disaster management and hazard-specific plans document how a community or group intends to deal with disasters. They outline arrangements and structures for disaster management, or the hazard, identify the need for appropriate resourcing, and provide direction on coordination and 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 differing levels of government.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both the Flood Mitigation Manual and this Protocol;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events;
- Public inconvenience is a legitimate consideration of any risk assessment;
- Agreed regular communications within government and to the public, in relation to the impacts of floodwater releases from Wivenhoe Dam, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;
- If the flood release strategies are followed, then the Queensland Government, rather than the dam owner, assumes legal liability for any consequences.

PROCESS OF COMMUNICATION

There are three stages in the process of communication

- Technical assessment
- Activation of Disaster Management Arrangements
- Public communications

Technical Assessment

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.

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.

The process is as follows:

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

2. 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.

3. Seqwater discusses and models implications of the necessary water release from Wivenhoe Dam and/or Somerset Dam in accordance with the Flood Mitigation Manual.

4. Seqwater calculates the releases according to dam levels and predicted weather events.

5. 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.

6. BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

7. Councils identify flood inundation areas and assess impacts for their communities.

8. Following agreement, Seqwater advises the SEQ Water Grid Manager of the results, according to their Emergency Response Plan.

If, during this continuous process, there is agreement that the situation is likely to result in significant public safety issues, the SEQ Water Grid Manager will coordinate the production of a joint Technical Situation Report (TSR) - appendix C.

Activation of Disaster Management Arrangements

Once the TSR has been issued, the Disaster Management arrangements will be activated in the following way:

1. SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG DERM, and the local governments;

2. DG DCS will inform the State Disaster Management Group (SDMG), and it will activate the State Disaster Coordination Centre (SDCC);

3. Councils will activate their Local Disaster Management Groups (LDMGs);

4. The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs);

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

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

7. In the case of a disaster event, the Crisis Communications Network, chaired by the Department of Premier and Cabinet (DPC), may be activated at the direction of the SDMG Chair to coordinate public messaging agreed by BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol.

Public Communications Issues

SEQ Water Grid Communications Unit will coordinate the input and liaise with the following, or their representatives over pubic safety messages (depending on the severity of the event):

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

- DCS Media Director.

The BoM, Seqwater and Local Governments are to maintain continual discussions, to ensure that conflicting predictions are not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Before the information is released to the public, it must be ascertained that agencies share technical information and agree in principal not to differ. Agencies must exchange public releases.

After confirmation, harmonised public communications messages will be released by agreed spokesperson from the following agencies:

- **SEQ Water Grid Manager -** concentrating on the technical aspects of release timings and duration of effects. SEQ Water operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated) and the SEQ Water Grid Communications Unit;

- **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 release and safety for residents;

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

- **Department of Premier and Cabinet (extreme events only) -** concentrating on uniting front and filtering consistent information 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 and may range from once a day to once an hour.

Questions from the Public

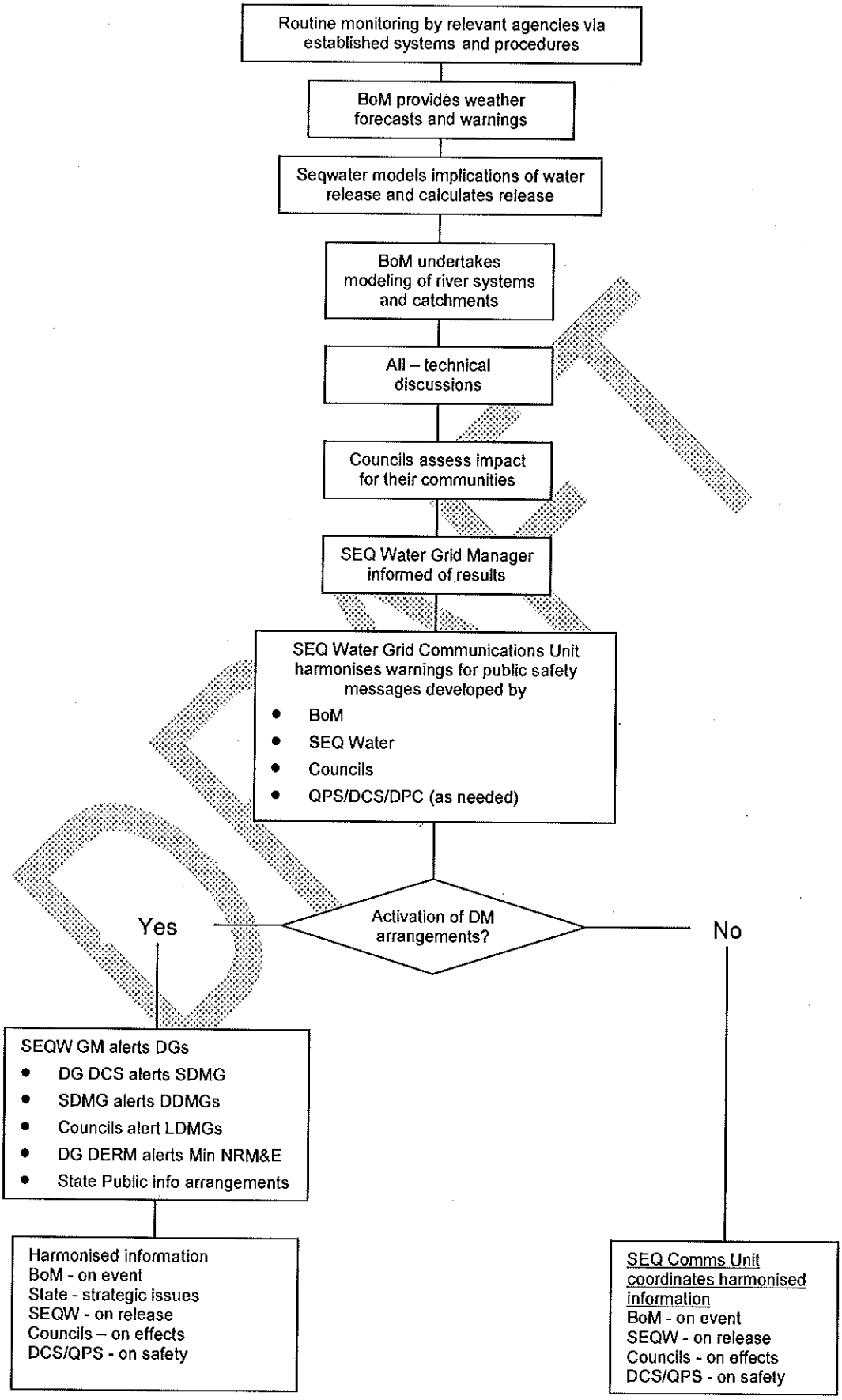
All questions from the public should be directed to the relevant local government. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintence

This protocol will be reviewed annually by agencies involved and exercised, during the years when operational floodwater release does not occur, under DDMG arrangements.

Appendix A

Release of water from Wivenhoe and Somerset Dams



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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Seqwater (Queensland Bulk Water Supply Authority) 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 Dam.

  It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

- 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, 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.

- 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.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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
Flood Mitigation Dams

Bureau of Meteorology
Statement

Signature Date Time

Seqwater
Statement

Signature Date Time

Local Government
Statement

Signature Date Time

[redacted]

From: Bruce Grady [redacted]
Sent: Tuesday, 19 October 2010 5:39 PM
To: Ken Smith
Cc: Bradley John
Subject: Protocol/s
Attachments: Protocol_Release of water from dams (2).doc; Protocol_Weather related events.doc

Ken

Attached are two draft protocols. One is specific to the release of water from Somerset/Wivenhoe and relates to Somerset, Ipswich and Brisbane Councils. The second is a more general version applicable to a range of risks/hazards but based on the same principles. The second also has as an Appendix the Somerset/Wivenhoe scenario as an example of a specific threat attached to the general protocol.

There is some tidying up for the second document as there is some repetition but I think they cover off on the key issues.

The documents have been produced by a team with reps from DERM, BoM, DPC, SEQWater,QPS and EMQ.

The team is on standby to meet again tomorrow should there be feedback requiring further amendment. Many thanks to John for the input and guidance from the DERM team.

Let me know any feedback which we can incorporate in the final draft. Propose to have a final consultation draft by tomorrow. Guidance on how you would like to progress consultation would be appreciated

Regards

Bruce Grady
A/Chief Officer
Emergency Management Queensland

[redacted]

telephone: [redacted]
mobile:
fax:

This correspondence is for the named persons only. It may contain confidential

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

Protocol for the communication of flooding information from releases - Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the processes to be followed by the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies, South East Queensland Water and the Bureau of Meteorology, which will ensure the provision of consistent and robust information to the community, concerning potential flooding impact during 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 disaster resilient communities.

BACKGROUND

Wivenhoe Dam controls only half of the Brisbane River catchment above Brisbane City. Other factors will influence inundation levels from the river.

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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, which ascertain the structural safety of the dam while minimising downstream impacts.

In the event of a major impact on communities, whole-of-government disaster management arrangements in Queensland ensure the collaborative and effective coordination of planning, services, resources and information for all hazards. The Queensland arrangements are based on disaster management groups at local, district and state level, supported by disaster coordination centres.

Local, district and state disaster management and hazard-specific plans document how a community or group intends to deal with disasters. They outline arrangements and structures for disaster management, or the hazard, identify the need for appropriate resourcing, and provide direction on coordination and 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 differing levels of government.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both the Flood Mitigation Manual and this Protocol;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events;
- Public inconvenience is a legitimate consideration of any risk assessment;
- Agreed regular communications within government and to the public, in relation to the impacts of floodwater releases from Wivenhoe Dam, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;
- If the flood release strategies are followed, then the Queensland Government, rather than the dam owner, assumes legal liability for any consequences.

PROCESS OF COMMUNICATION

There are three stages in the process of communication

- Technical assessment
- Activation of Disaster Management Arrangements
- Public communications

Technical Assessment

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.

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.

The process is as follows:

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

2. 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.

3. Seqwater discusses and models implications of the necessary water release from Wivenhoe Dam and/or Somerset Dam in accordance with the Flood Mitigation Manual.

4. Seqwater calculates the releases according to dam levels and predicted weather events.

5. 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.

6. BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

7. Councils identify flood inundation areas and assess impacts for their communities.

8. Following agreement, Seqwater advises the SEQ Water Grid Manager of the results, according to their Emergency Response Plan.

If, during this continuous process, there is agreement that the situation is likely to result in significant public safety issues, the SEQ Water Grid Manager will coordinate the production of a joint Technical Situation Report (TSR) - appendix C.

Activation of Disaster Management Arrangements

Once the TSR has been issued, the Disaster Management arrangements will be activated in the following way:

1. SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG DERM, and the local governments;

2. DG DCS will inform the State Disaster Management Group (SDMG), and it will activate the State Disaster Coordination Centre (SDCC);

3. Councils will activate their Local Disaster Management Groups (LDMGs);

4. The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs);

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

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

7. In the case of a disaster event, the Crisis Communications Network, chaired by the Department of Premier and Cabinet (DPC), may be activated at the direction of the SDMG Chair to coordinate public messaging agreed by BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol.

Public Communications Issues

SEQ Water Grid Communications Unit will coordinate the input and liaise with the following, or their representatives over pubic safety messages (depending on the severity of the event):

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

- DCS Media Director.

The BoM, Seqwater and Local Governments are to maintain continual discussions, to ensure that conflicting predictions are not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Before the information is released to the public, it must be ascertained that agencies share technical information and agree in principal not to differ. Agencies must exchange public releases.

After confirmation, harmonised public communications messages will be released by agreed spokesperson from the following agencies:

- **SEQ Water Grid Manager** - concentrating on the technical aspects of release timings and duration of effects. SEQ Water operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated) and the SEQ Water Grid Communications Unit;

- **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 release and safety for residents;

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

- **Department of Premier and Cabinet (extreme events only)** - concentrating on uniting front and filtering consistent information 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 and may range from once a day to once an hour.

Questions from the Public

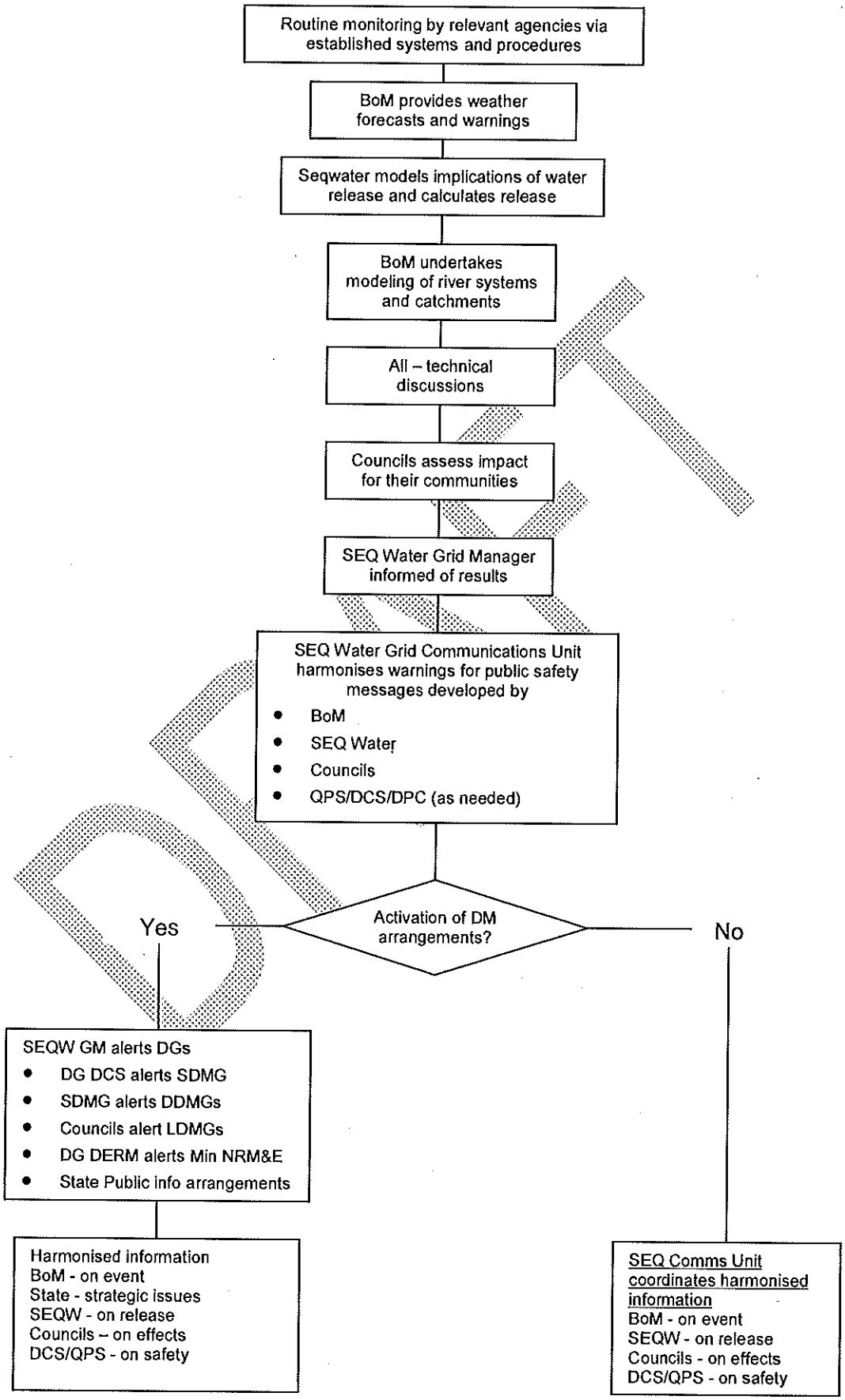
All questions from the public should be directed to the relevant local government. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintence

This protocol will be reviewed annually by agencies involved and exercised, during the years when operational floodwater release does not occur, under DDMG arrangements.

Appendix A

Release of water from Wivenhoe and Somerset Dams



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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Seqwater (Queensland Bulk Water Supply Authority) 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 Dam.

  It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

- 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, 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.

- 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.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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
Flood Mitigation Dams

Bureau of Meteorology
Statement

Signature Date Time

Seqwater
Statement

Signature Date Time

Local Government
Statement

Signature Date Time

Protocol For Public Communication of Natural Hazards Affecting The Community

OBJECTIVE

The purpose of this protocol is to outline the processes to be followed by local governments, relevant Queensland Government agencies, the Bureau of Meteorology and other key stakeholders, which will ensure the provision of consistent and robust information to the community, concerning impacts of weather related events.

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 disaster resilient communities.

BACKGROUND

Whole-of-government disaster management arrangements in Queensland ensure the collaborative and effective coordination of planning, services, resources and information for all hazards. The Queensland arrangements are based on disaster management groups at local, district and state level, supported by disaster coordination centres.

Local, district and state disaster management and hazard-specific plans document how a community or group intends to deal with disasters. They outline arrangements and structures for disaster management, or the hazard, identify the need for appropriate resourcing, and provide direction on coordination and 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 differing levels of government.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout this Protocol;
- Public inconvenience is a legitimate consideration in any risk assessment;
- Agreed regular communications within government and to the public in relation to natural disaster events are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;

PROCESS OF COMMUNICATION

There are three stages in the process of communication

- Technical assessment
- Activation of Disaster Management Arrangements
- Public communications

Technical Assessment

The process is as follows:

1. All relevant agencies routinely monitor weather events via established systems and procedures.

2. BoM provides weather forecasts and warnings (e.g. Tropical Cyclone, Severe Weather, Severe Thunderstorm, Flood).

3. In the event of a potential natural hazard event, BoM, the hazard-specific primary agency and local government, severally and together, will;

    a. model the potential event,
    b. assess the potential consequences, and
    c. agree on the situation,
    d. continuously re-assess the situation.

4. If, during this continuous process, there is agreement that the situation is likely to result in significant public safety issues, the hazard-specific primary agency will coordinate the production of a joint Technical Situation Report (TSR) - appendix A.

Decision-making

Once the TSR has been issued, the hazard-specific primary agency is responsible for activating the disaster management arrangements in the following way:

- Local governments will activate their Local Disaster Management Groups (LDMGs);

- The hazard-specific primary agency will alert:
    - local governments,
    - the Director-General (DG) of the Department of Community Safety (DCS), and
    - other appropriate DGs.

- DG DCS will
    - alert the State Disaster Management Group (SDMG);
    - activate the State Disaster Coordination Centre (SDCC);

- The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs).

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

- If warranted by the scale of the event, respective DGs will inform Ministers and the Premier.

- In the case of an extreme event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the Chair, SDMG to coordinate public messaging.

Public Communications

At levels below the activation of the Crisis Communications Network, the hazard-specific primary agency will arrange appropriate media-specific discussions with public communications officials from relevant agencies:

These discussions will ensure that:

- agencies share technical information and agree in principal not to differ;
- conflicting predictions are not released to the public at any time;
- the information released to the public by all agencies is consistent; and
- agencies exchange public releases.

After confirmation, harmonised public communications messages will be released by:

- **Bureau of Meteorology** - concentrating on Warnings, together with factual information on observed and forecast weather conditions, rainfalls and water levels, disseminated to the BoM website, agencies and the media.

- **The hazard specific primary agency** - concentrating on the technical aspects of the hazard and duration of effects.

- **Local Governments /Local Disaster Management Groups** - concentrating on the effects of the hazard and safety issues for residents;

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 a uniting front and filtering consistent information 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. Timing of media releases will be dependent on the event, and may range from once a day to once an hour.

Questions from the Public

All questions from the public should be initially directed to the relevant local government.

Any hazard-specific questions should be directed to the hazard-specific primary agency.

Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintence

This protocol will be reviewed annually by agencies involved and exercised, during the years when operational use does not occur, under DDMG arrangements.

Appendix A

Technical Situation Report
Flood Mitigation Dams

Bureau of Meteorology
Statement

Signature Date Time

Seqwater
Statement

Signature Date Time

Local Government
Statement

Signature Date Time

Appendix B

Specific arrangements for the release of flood water from Wivenhoe/Somerset Flood Mitigation Dams.

General

Wivenhoe Dam controls only half of the Brisbane River catchment above Brisbane City. Other factors will influence inundation levels from the river.

The operational strategy for water release from Wivenhoe and Somerset Dam 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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, that ensure the structural safety of the dam while minimising downstream impacts.

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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Queensland Bulk Water Supply Authority (QBWSA) as 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 Dam.

  It consults BoM regarding inflows to Wivenhoe and Somerset Dam and expected flood heights along the Brisbane River downstream of Wivenhoe and Somerset Dam.

  It initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

- 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, 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.

- 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 advisor support and general community safety advice on flooding issues, during non-operational times.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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.

Technical Assessment

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.

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.

The process is as follows:

1. Routine monitoring of weather events and dam levels by relevant agenies via established systems and procedures.

2. 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 Somerset Dams catchments, BoM and Seqwater discuss modelled inflows to Wivenhoe and Somerset Dam and downstream flood levels.

3. Seqwater discusses and models implications of the necessary water release from Wivenhoe and Somerset in accordance with the Manual.

4. Seqwater calculates the releases according to dam levels and predicted weather events.

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

6. BoM participates in technical discussions with Seqwater, Brisbane City Council,

Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

7. Councils assess the flood inundation and impacts for their communities.

Following agreement, Seqwater advises the Grid Manager of the results, according to their Emergency Response Plan and coordinate the production of a joint Technical Situation Report (TSR) - appendix C.

Decision-making

SEQ Water Grid Manager will coordinate media-specific discussions and input and confer with the following or their representatives over pubic safety messages (depending on the severity of the event):

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

The BoM, Seqwater and Local Governments are to continually discuss, to ensure that conflicting predictions are not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Before the information is released to the public, it must be ensured that agencies share technical information and agree in principal not to differ. Agencies must exchange public releases.

After confirmation, harmonised public communications messages will be released by:

- **SEQ Water Grid Manager** - concentrating on the technical aspects of release timings and duration of effects. Seqwater operational staff are to ensure that technical information is communicated to the Seqwater Grid Emergency Response Team (if activated) and the Seqwater Grid Communications Unit;

- **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 release and safety for residents;

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

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

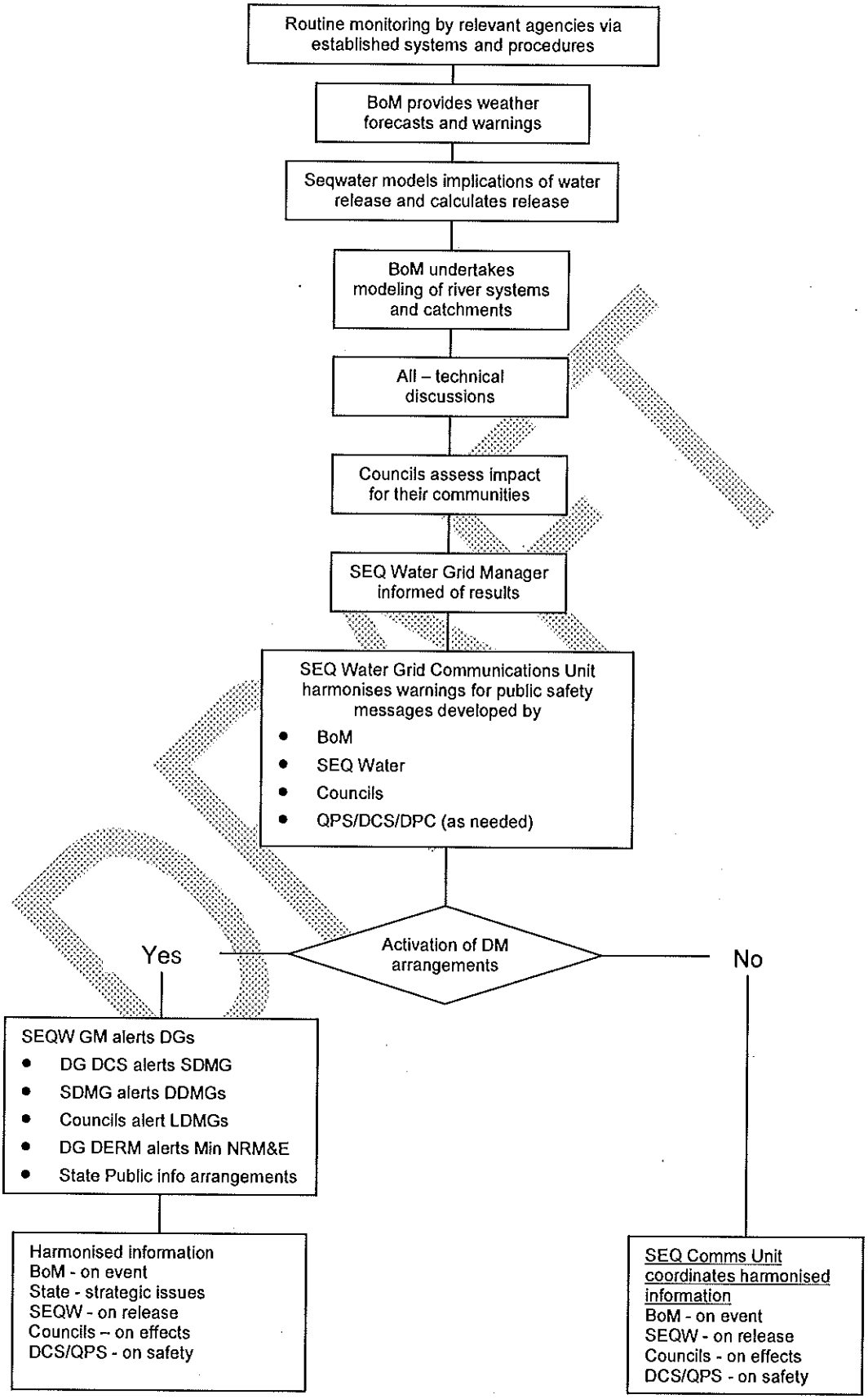
The SEQ Water Grid Manager releases event specific information to the public as frequently as required by the severity and scope of the event.

Questions from the Public

All questions from the public should be directed to the relevant local government. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

DRAFT

Release of water from Wivenhoe and Somerset Dams



[redacted]

From: Ken Smith [redacted]
Sent: Wednesday, 20 October 2010 9:17 AM
To: 'Bruce Grady'
Cc: Bradley John; Patrick Vidgen; Sue Orreal; Brad Smith
Subject: RE: Protocol/s

Bruce

As discussed, Sue Orreal from my office will forward my comments on the protocol. It is now important to progress discussions with local government with respect to both docs.

My comments are on the Wivenhoe and Somerset document, but should be carried forward to the general protocol where relevant.

Thanks

Regards

Ken Smith
Director-General
Department of the Premier and Cabinet
Phone [redacted]
Mobile
Email:

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Please consider the environment before printing this email (3 sheets of paper = 1 litre of water)

From: Bruce Grady [redacted]
Sent: Tuesday, 19 October 2010 5:39 PM
To: Ken Smith
Cc: Bradley John
Subject: Protocol/s

Ken

Attached are two draft protocols. One is specific to the release of water from Somerset/Wivenhoe and relates to Somerset, Ipswich and Brisbane Councils. The second is a more general version applicable to a range of risks/hazards but based on the same principles. The second also has as an Appendix the Somerset/Wivenhoe scenario as an example of e specific threat attached to the general protocol.

There is some tidying up for the second document as there is some repetition but I think they cover off on the key issues.

The documents have been produced by e team with reps from DERM, BoM, DPC, SEQWater,QPS and EMQ.

The team is on standby to meet again tomorrow should there be feedback requiring further amendment. Many thanks to John for the input and guidance from the DERM team.

Let me know any feedback which we can incorporate in the final draft. Propose to have a final consultation draft by tomorrow. Guidance on how you would like to progress consultation would be appreciated

Regards

Bruce Grady
A/Chief Officer
Emergency Management Queensland

[redacted]

telephone:
mobile:
fax:

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[redacted]

From: Robson Chris
Sent: Tuesday, 19 October 2010 7:33 PM
To: Reilly Bob; Bradley John
Subject: RE: Protocols - final drafts
Attachments: Protocol_Release of water from dams (2)cr.doc

Bob

I have made some suggestions/comments as highlighted in yellow re the Wivenhoe/Somerset releases document.

As a general comment I found the section re Communications unclear re who would be the key spokesperson for an event - it seemed to be shared depending on whether the information to be provided was technical or about public and property risk and even in that case seemed to be either the Council or local disaster management group or possibly QPS. I suggest the focus in that part of the Protocol needs to be on public and property risk and safety and for this identify who will be the primary spokesperson who can then point to nominated others if need be re technical matters.

Chris Robson
Deputy Director-General
Water and Ecosystem Outcomes
Telephone: [redacted]
Mobile: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Reilly Bob
Sent: Tuesday, 19 October 2010 5:18 PM
To: Robson Chris; Bradley John
Subject: FW: Protocols - final drafts

Hi Chris, John

Previously, I mentioned that a draft protocol would be available for review/comments on late Tuesday. The attached draft has been prepared by Emergency Management Queensland (EMQ) with input from a range of agencies. As EMQ has apparently been asked to provide a copy to Ken Smith this evening, I have attached a copy for your information/comment. Please note that it covers both Wivenhoe and Somerset dams, rather than just Wivenhoe. This is because the dams are operated as one system, and Somerset Council would also wish to see the arrangements for Somerset as that dam's flood release operations directly affects them. (John---the last Appendix covers the form we discussed last Friday. I think it needs some more work, but please let me know if we are on the right track or not).

So far, the councils have not advised us of their representatives so that we can negotiate the draft with them.

Separately, Ken Smith has apparently asked EMQ to start work on a wider protocol covering all SEQ councils and all weather-related events. A draft of that is also attached. DPC is unclear whether it will ultimately subsume the one for Wivenhoe/Somerset dams, but we are currently working on the assumption that it will not.

Bureau of Meteorology is still deciding whether it wishes to be a signatory through their Minister to one or both protocols.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Michael Shapland [redacted]
Sent: Tuesday, 19 October 2010 4:32 PM
To: Irina Stankovska; [redacted] Dennien Barry @ SEQWGM; Reilly Bob; [redacted] Denner Scott @ SEQWGM; Rob Drury; [redacted] Dennien Barry @ SEQWGM; [redacted] Allen Peter; Bruce Grady
Cc: [redacted]
Subject: Protocols - final drafts

Please find attached two draft protocols on the issue of communicatien of;

- A flooding information from releases - Wivenhoe and Somerset Dams,
- B natural hazards affecting the community.

Final checks will be made here this afternoon.

Mike

Mike Shapland MBE | Director, Disaster Management
Emergency Management Queensland | Department of Community Safety
Level 3, Block E, Emergency Services Complex, Kedron, Queensland
T: [redacted]

From: Irina Stankovska
Sent: Monday, 18 October 2010 17:30
To: Michael Shapland; [redacted] Reilly Bob; [redacted] Scott Denner; Rob Drury; [redacted]
Cc: [redacted]
Subject: Release of Water from Wivenhoe Dam' protocol - final draft

Good Afternoon Gentlemen

Please find attached the final draft of the 'Release of Water from Wivenhoe Dam' protocol, for tomorrow's meeting.

Kind Regards

Irina Stankovska I A/Program Officer (SDCG, DDMG & LDMG) I Disaster Management Governance Unit I Emergency Management Queensland I Department of Community Safety I ☎ 3247 8419 I ☏ 94419 I 🖳 I GPO Box 1425 BRISBANE QLD 4001 I State Disaster Management Group Email: [redacted] I State Disaster Coordination Group Email: [redacted] I 🖧 Please consider the environment before printing this e-mail I

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[redacted]

From: Sue Orreal [redacted]
Sent: Wednesday, 20 October 2010 9:23 AM
To: [redacted]
Cc: Bradley John; Patrick Vidgen; Brad Smith; Ken Smith
Subject: FW: Protocol/s
Importance: High
Attachments: Protocol_Release of water from dams (2).doc; Protocol_Weather related events.doc

Good morning Bruce
Please find the Director-General's comments and amendments in Track Changes to the first attachment "Protocol Release of water from dams".

Regards
Sue

Sue Orreal
Director
Office of the Director-General
Department of the Premier & Cabinet
[redacted]
Executive Building | Level 15 | 100 George Street | Brisbane
PO Box 15185 | City East | Queensland 4002 |
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From: Bruce Grady [redacted]
Sent: Tuesday, 19 October 2010 5:39 PM
To: Ken Smith
Cc: Bradley John
Subject: Protocol/s

Ken

Attached are two draft protocols. One is specific to the release of water from Somerset/Wivenhoe and relates to Somerset, Ipswich and Brisbane Councils. The second is a more general version applicable to a range of risks/hazards but based on the same principles. The socond also has as an Appendix the Somerset/Wivenhoe scenario as an example of a specific threat attached to the general protocol.

There is some tidying up for the second document as there is some repetition but I think they cover off on the key issues.

The documents have been produced by a team with reps from DERM, BoM, DPC, SEQWater,QPS and EMQ.

The team is on standby to meet again tomorrow should there be feedback requiring further amendment. Many thanks to John for the input and guidance from the DERM team.

Let me know any feedback which we can incorporate in the final draft. Propose to have a final consultation draft by tomorrow. Guidance on how you would like to progress consultation would be appreciated

Regards

Bruce Grady
A/Chief Officer
Emergency Management Queensland

[redacted]
telephone [redacted]
mobile
fax

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Protocol for the communication of flooding information from releases - Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the processes to be followed by the Brisbane, Ipswich and Somerset Councils, relevant Queensland Government agencies, South East Queensland Water and the Bureau of Meteorology, which will ensure the provision of consistent and robust information to the community, concerning potential flooding impact during 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 disaster resilient communities.

BACKGROUND

Wivenhoe Dam controls approximately half of the Brisbane River catchment above Brisbane City. Other factors will influence inundation levels from the river. (Comment: very broad can we be more specific?)

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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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, which ascertain the structural safety of the dam while minimising downstream impacts.

In the event of a major impact on communities, whole-of-government disaster management arrangements in Queensland ensure the collaborative and effective coordination of planning, services, resources and information for all hazards. The Queensland arrangements are based on disaster management groups at local, district and state level, supported by disaster coordination centres.

Local, district and state disaster management and hazard-specific plans document how a community intends to deal with disasters. They outline arrangements and structures for disaster management, or the hazard, identify the need for appropriate resourcing, and provide direction on coordination and communications.

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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 state and local governments.

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GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both the Flood Mitigation Manual and this Protocol;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events;
- Impact on the community upstream or downstream is a legitimate consideration of any risk assessment;
- Agreed regular and consistent communications within government and to the public, in relation to the impacts of floodwater releases from Wivenhoe Dam, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;
- If the flood release strategies are followed, then the Queensland Government, rather than the dam owner, assumes legal liability for any consequences.

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PROCESS OF COMMUNICATION

There are three stages in the process of communication

- Technical assessment
- Activation of Disaster Management Arrangements
- Public communications

Technical Assessment

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.

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.

The process is as follows:

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

2. 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.

3. Seqwater discusses and models implications of the necessary water release from Wivenhoe Dam and/or Somerset Dam in accordance with the Flood Mitigation Manual.

4. Seqwater calculates the releases according to dam levels and predicted weather events.

5. 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.

6. BoM participates in technical discussions with Seqwater, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

7. Councils identify flood inundation areas and assess impacts for their communities.

8. Following agreement, Seqwater advises the SEQ Water Grid Manager of the results, according to their Emergency Response Plan.

If, during this continuous process, there is agreement that the situation is likely to result in significant public safety issues, the SEQ Water Grid Manager will coordinate the production of a joint Technical Situation Report (TSR) - appendix C.

Activation of Disaster Management Arrangements

Once the TSR has been issued, the Disaster Management arrangements will be activated in the following way:

1. SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG DERM, and the local governments;

2. DG DCS will inform the DG DPC the Chair of the State Disaster Management Group (SDMG), and it will activate the State Disaster Coordination Centre (SDCC);

3. Councils will activate their Local Disaster Management Groups (LDMGs);

4. The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs);

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

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

7. DG DPC will inform the Premier (DG DPC)

8. In the case of a disaster event, the Crisis Communications Network, chaired by the Department of Premier and Cabinet (DPC), may be activated at the direction of the SDMG Chair to coordinate public messaging agreed by BoM, Seqwater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol.

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Public Communications Issues

SEQ Water Grid Communications Unit will coordinate the input and liaise with the

following, or their representatives over pubic safety messages (depending on the severity of the event):

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

The BoM, Seqwater and Local Governments are to maintain continual discussions, to ensure that conflicting predictions are not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Before the information is released to the public, it must be ascertained that agencies share technical information and agree on a simple position. Agencies must exchange public releases.

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After confirmation, harmonised public communications messages will be released by agreed spokesperson from the following agencies:

- **SEQ Water Grid Manager -** concentrating on the technical aspects of release timings and duration of effects. SEQ Water operational staff are to ensure that technical information is communicated to the SEQ Water Grid Emergency Response Team (if activated) and the SEQ Water Grid Communications Unit;

- **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 release and safety for residents;

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

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

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

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Questions from the Public

All questions from the public should be directed to the relevant local government. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager Communications Unit. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintence

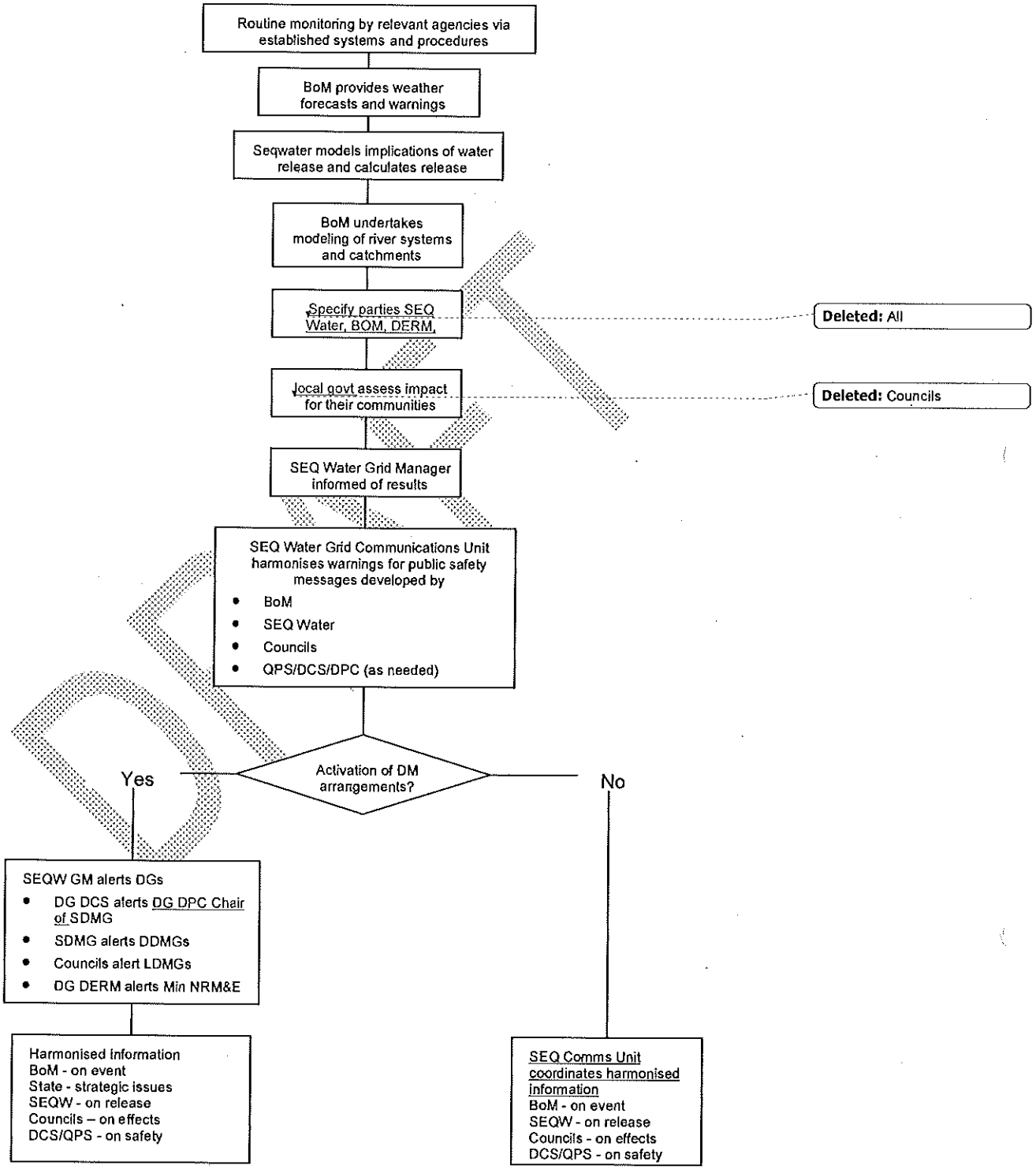
This protocol will be reviewed annually by agencies involved and exercised, during the years when operational floodwater release does not occur, under

DDMG arrangements.

DRAFT

Appendix A

Release of water from Wivenhoe and Somerset Dams



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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Seqwater (Queensland Bulk Water Supply Authority) 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 Dam.

  It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

- 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, 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.

- 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.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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
Flood Mitigation Dams

Bureau of Meteorology
Statement

Signature Date Time

Seqwater
Statement

Signature Date Time

Local Government
Statement

Signature Date Time

Protocol For Public Communication of Natural Hazards Affecting The Community

OBJECTIVE

The purpose of this protocol is to outline the processes to be followed by local governments, relevant Queensland Government agencies, the Bureau of Meteorology and other key stakeholders, which will ensure the provision of consistent and robust information to the community, concerning impacts of weather related events.

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 disaster resilient communities.

BACKGROUND

Whole-of-government disaster management arrangements in Queensland ensure the collaborative and effective coordination of planning, services, resources and information for all hazards. The Queensland arrangements are based on disaster management groups at local, district and state level, supported by disaster coordination centres.

Local, district and state disaster management and hazard-specific plans document how a community or group intends to deal with disasters. They outline arrangements and structures for disaster management, or the hazard, identify the need for appropriate resourcing, and provide direction on coordination and 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 differing levels of government.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout this Protocol;
- Public inconvenience is a legitimate consideration in any risk assessment;
- Agreed regular communications within government and to the public in relation to natural disaster events are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;

PROCESS OF COMMUNICATION

There are three stages in the process of communication

- Technical assessment
- Activation of Disaster Management Arrangements
- Public communications

Technical Assessment

The process is as follows:

1. All relevant agencies routinely monitor weather events via established systems and procedures.

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2. BoM provides weather forecasts and warnings (e.g. Tropical Cyclone, Severe Weather, Severe Thunderstorm, Flood).

3. In the event of a potential natural hazard event, BoM, the hazard-specific primary agency and local government, severally and together, will;

   a. model the potential event,
   b. assess the potential consequences, and
   c. agree on the situation,
   d. continuously re-assess the situation.

4. If, during this continuous process, there is agreement that the situation is likely to result in significant public safety issues, the hazard-specific primary agency will coordinate the production of a joint Technical Situation Report (TSR) - appendix A.

Decision-making

Once the TSR has been issued, the hazard-specific primary agency is responsible for activating the disaster management arrangements in the following way:

- Local governments will activate their Local Disaster Management Groups (LDMGs);
- The hazard-specific primary agency will alert:
  - local governments,
  - the Director-General (DG) of the Department of Community Safety (DCS), and
  - other appropriate DGs.
- DG DCS will
  - alert the State Disaster Management Group (SDMG);
  - activate the State Disaster Coordination Centre (SDCC);
- The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs).
- The Queensland Police Service (QPS) will consider initiating disaster management actions as provided for under the *Disaster Management Act 2003.*
- If warranted by the scale of the event, respective DGs will inform Ministers and the Premier.
- In the case of an extreme event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the Chair, SDMG to coordinate public messaging.

Public Communications

At levels below the activation of the Crisis Communications Network, the hazard-specific primary agency will arrange appropriate media-specific discussions with public communications officials from relevant agencies:

These discussions will ensure that:

- agencies share technical information and agree in principal not to differ;
- conflicting predictions are not released to the public at any time;
- the information released to the public by all agencies is consistent; and
- agencies exchange public releases.

After confirmation, harmonised public communications messages will be released by:

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- **Bureau of Meteorology** - concentrating on Warnings, together with factual information on observed and forecast weather conditions, rainfalls and water levels, disseminated to the BoM website, agencies and the media.

- **The hazard specific primary agency** - concentrating on the technical aspects of the hazard and duration of effects.

- **Local Governments /Local Disaster Management Groups** - concentrating on the effects of the hazard and safety issues for residents;

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 a uniting front and filtering consistent information 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. Timing of media releases will be dependent on the event, and may range from once a day to once an hour.

Questions from the Public

All questions from the public should be initially directed to the relevant local government.

Any hazard-specific questions should be directed to the hazard-specific primary agency.

Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

Protocol Maintence

This protocol will be reviewed annually by agencies involved and exercised, during the years when operational use does not occur, under DDMG arrangements.

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Appendix A

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Appendix B¶
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Technical Situation Report
Flood Mitigation Dams

Bureau of Meteorology
Statement

Signature Date Time

Seqwater
Statement

Signature Date Time

Local Government
Statement

Signature Date Time

Appendix B

Specific arrangements for the release of flood water from Wivenhoe/Somerset Flood Mitigation Dams.

General

Wivenhoe Dam controls only half of the Brisbane River catchment above Brisbane City. Other factors will influence inundation levels from the river.

The operational strategy for water release from Wivenhoe and Somerset Dam 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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, that ensure the structural safety of the dam while minimising downstream impacts.

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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

- Queensland Bulk Water Supply Authority (QBWSA) as 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 Dam.

  It consults BoM regarding inflows to Wivenhoe and Somerset Dam and expected flood heights along the Brisbane River downstream of Wivenhoe and Somerset Dam.

  It initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

- 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, and their broader communities. This should include the interpretation of BoM flood warnings

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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.

- 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 advisor support and general community safety advice on flooding issues, during non-operational times.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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.

Technical Assessment

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.

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.

The process is as follows:

1. Routine monitoring of weather events and dam levels by relevant agenies via established systems and procedures.
2. 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 Somerset Dams catchments, BoM and Seqwater discuss modelled inflows to Wivenhoe and Somerset Dam and downstream flood levels.
3. Seqwater discusses and models implications of the necessary water release from Wivenhoe and Somerset in accordance with the Manual.
4. Seqwater calculates the releases according to dam levels and predicted weather events.
5. BoM undertakes modelling of the Brisbane River catchment and its river systems using Seqwater advice of actual and projected Wivenhoe and Somerset Dam releases when these are, or are expected, to occur.
6. BoM participates in technical discussions with Seqwater, Brisbane City Council,

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Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

7. Councils assess the flood inundation and impacts for their communities.

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Following agreement, Seqwater advises the Grid Manager of the results, according to their Emergency Response Plan and coordinate the production of a joint Technical Situation Report (TSR) - appendix C.

Decision-making

SEQ Water Grid Manager will coordinate media-specific discussions and input and confer with the following or their representatives over pubic safety messages (depending on the severity of the event):

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

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The BoM, Seqwater and Local Governments are to continually discuss, to ensure that conflicting predictions are not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Before the information is released to the public, it must be ensured that agencies share technical information and agree in principal not to differ. Agencies must exchange public releases.

After confirmation, harmonised public communications messages will be released by:

- **SEQ Water Grid Manager** - concentrating on the technical aspects of release timings and duration of effects. Seqwater operational staff are to ensure that technical information is communicated to the Seqwater Grid Emergency Response Team (if activated) and the Seqwater Grid Communications Unit;

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- **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;

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- **Local Governments /Local Disaster Management Groups** - concentrating on the effects of release and safety for residents;

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

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

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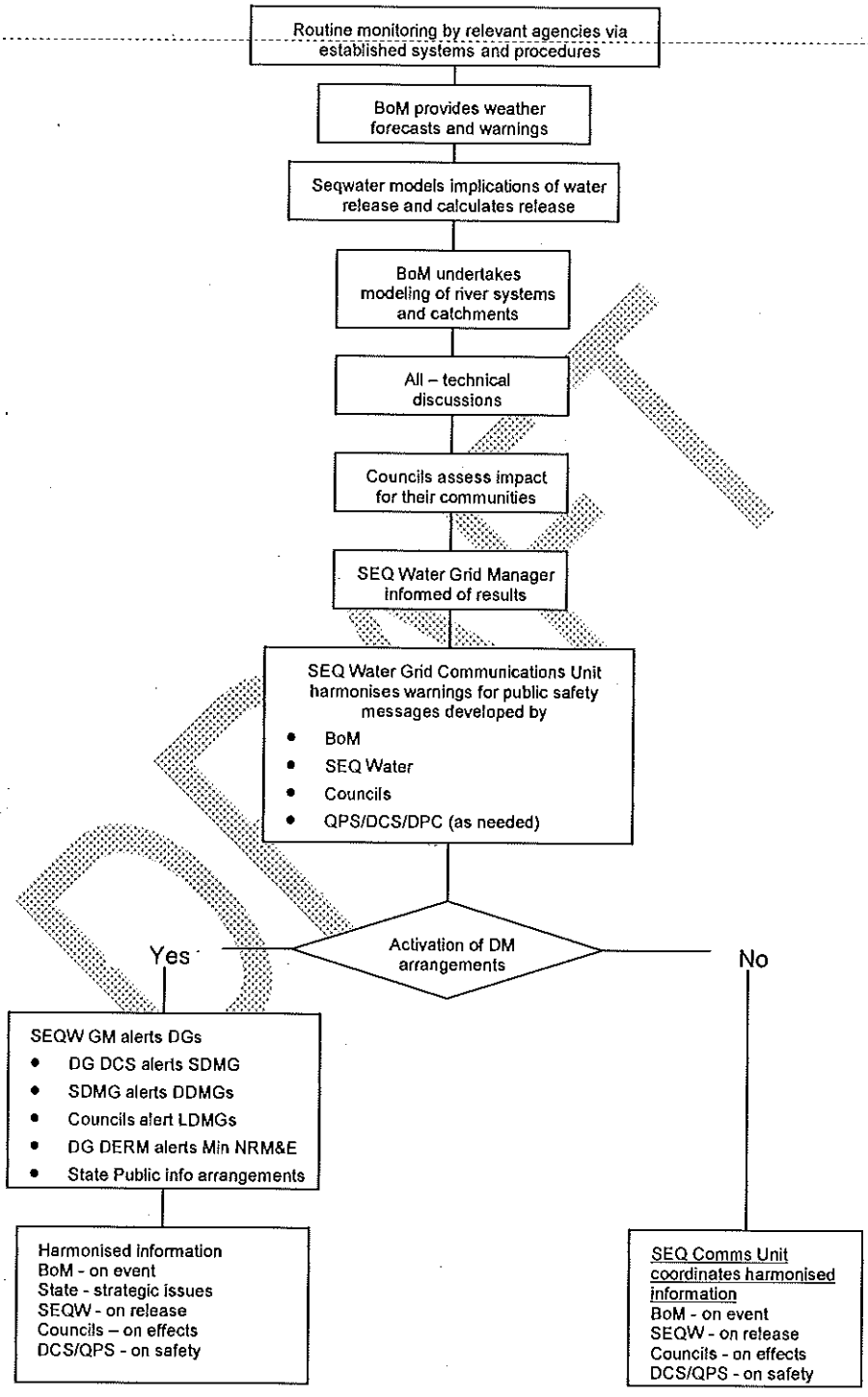
The SEQ Water Grid Manager releases event specific information to the public as frequently as required by the severity and scope of the event.

Questions from the Public

All questions from the public should be directed to the relevant local government. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager. Any queries about disaster management should be addressed by the relevant local and district disaster management groups.

DRAFT

Release of water from Wivenhoe and Somerset Dams



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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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required. ¶
¶
Queensland Bulk Water Supply Authority (QBWSA) as 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 Dam. ¶
¶
It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.¶
¶
Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.¶
¶
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, and their broader comm ... [81]

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the Brisbane, Ipswich and Somerset Councils

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South East Queensland Water and

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during release of floodwater from Wivenhoe and Somerset Dams

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to make provisions for harmonised communication strategy that will

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– communication strategy, point of truth, community resilience.

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release of information to the public, which will assist with building

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Wivenhoe Dam controls only half of the Brisbane River catchment above Brisbane City. There are other factors that influence the river.

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Therefore, the degree to which it provides flood mitigation is limited.

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The operational strategy for water release from Wivenhoe Dam 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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the

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provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe Dam are based on sound engineering principles, that ensure the structural safety of the dam while minimising downstream impacts.

There are whole

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and resources for comprehensive disaster management

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and coordination, and identify the need for appropriate resourcing

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Effective management of any disaster relies on strong coordination arrangements, consultative decision making, collaboration and shared responsibility achieved through supporting relationships, trust and teamwork between individuals, agencies and the community.

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both the Flood Mitigation Manual and

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The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events;

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

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the impacts of flood water releases from Wivenhoe Dam

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If the flood release strategies are followed, then the Queensland Government, rather than the dam owner, assumes legal liability for any consequences.

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ROLES AND RESPONSIBILITIES (possibly an Appendix)

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 South East Queensland Water (SEQ Water), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

Queensland Bulk Water Supply Authority (QBWSA) as SEQ Water operates Wivenhoe Dam 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 Dam.

It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

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, and their broader communities. This should include the interpretation of river height forecasts into expected areas and depths of inundation.

DERM consults with the stakeholders prior to the approval of any updates to the Flood Mitigation Manual, and arranges for the review and approval of the manual prior to its use. DERM also approves any necessary variations to the manual if required during the course of a flood event.

Queensland Police Service (QPS) assumes a legislative role to provide disaster management at a district level including provision of necessary community advice for public safety.

Emergency Management Queensland (EMQ) provides general community safety advice on flooding issues.

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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 (basically property damage and human safety) from the releases.

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The objectives of the Flood Mitigation Manual in order of importance are:

Ensure the structural safety of the dams;
Provide optimum protection of urbanised areas from inundation;
Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;
Retain the storage at Full Supply Level at the conclusion of the Flood Event;
Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

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A fundamental principle

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is that all floodwater should be released from the dams within seven days of the flood event peaking in Wivenhoe Dam. This ensures the dam can cope with closely spaced major rain events.

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and dam levels by relevant agenies

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heavy rain and runoff in the Wivenhoe and Somerset Dams catchments

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and

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ater discuss modelled inflows to Wivenhoe Dam and downstream flood levels.

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Seqwater discusses and models implications of the necessary water release from Wivenhoe in accordance with the Manual.

Seqwater calculates the releases according to dam levels and predicted weather events.

BoM undertakes modelling of the Brisbane River catchment and its river systems using Seqw

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a procedure for communicating intelligence and public releases as per template, Apendix C.

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Technical agencies agree on

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ater advice of actual and projected Wivenhoe Dam releases when these are, or are expected, to occur.

BoM participates in technical discussions with SEQ Water, Brisbane City Council, Ipswich City Council and Somerset Regional Council as necessary, to share modelling results and establish agreement on predicted flood levels and timing, to be released to the public in Flood Warnings.

Councils assess the flood inundation and impacts for their communities, manage the immediate response according to the Disaster Management arrangements and communicate information to the public.

Following agreement, Seqwater advises the Grid Manager of the results, according to their Emergency Response Plan.

The SEQ Water Grid Manager releases event specific information to the public as frequently as required by the severity and scope of the event.

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SEQ Water discusses and models implications of the necessary water release from Wivenhoe in accordance with the Manual.

SEQ Water calculates the impact according to dam levels and predicted weather events, and approves the release in consultation with DERM.

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(including major floods and events that trigger the Emergency Action Plans)

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If warranted by any release of water that will lead to significant public safety issues

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SEQ Water Grid Manager

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DERM

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, and the Councils;

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DG DERM

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the

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for Natural Resources, Mines and Energy;

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DG DCS will alert the State Disaster Management Group (SDMG);

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The SDMG will activate the State Disaster Coordination Centre (SDCC);

Councils will activate their Local Disaster Management Groups (LDMGs);

The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs), who will take action as appropriate.

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

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The

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State's Public information arrangement may

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Issues

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Following agreement on modelling, results are passed to the SEQ Water Grid Manager.

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SEQ Water Grid Manager will coordinate the input and confer with the following or their representatives over pubic safety messages (depending on the severity of the event):
BoM;
Seqwater
DCS Media Director;
QPS Media Director;
Councils' Media Directors.

The BoM, Seqw

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ater and Local Governments are to

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meet via teleconferences

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continually discuss, to ensure that

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Where differences arise, officers of the agencies concerned will liaise and consult to ensure that

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. Before the information is released to the public, it must be ensured that

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agencies share technical information and agree in principal not to differ.

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must

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Agreement is reached between all concerned parties on any flooding impacts on communities that are likely to result;

Agreement between the parties on how the advice will be communicated, covering both content and process, is reached;

Disaster management arrangements are activated as necessary.

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a disaster event, the Crisis Communications Network, chaired by DPC, may be activated at the direction of the SDMG Chairperson to coordinate public messaging agreed by BoM,

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ater, SEQ Water Grid Manager, QPS, relevant Councils and DCS as per this protocol.

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Timings of media releases...Agreed spokespersons from BoM, Councils and SEQ Water Grid Manager.

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Media specific discussions between stakeholders must unfold before any public release.

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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 South East Queensland Water (Seqwater), Brisbane City Council (BCC), Ipswich City Council (ICC) and Somerset Regional Council (SRC), as required.

Queensland Bulk Water Supply Authority (QBWSA) as 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 Dam.

It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

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, 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.

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 advisor support and general community safety advice on flooding issues, during non-operational times.

SEQ Grid Manager Barry Dannien to email me a paragraph.

[redacted]

From: Robson Chris
Sent: Thursday, 21 October 2010 6:21 PM
To: Bradley John; 'Adrian Jeffreys'; 'Tim Watts'; [redacted]
Subject: FW: Protocol for release of flood waters from Wivenhoe and Somerset dams
Attachments: Protocol_Release of water from dams 21 Oct.doc

John/Adrian

Note this draft has been provided by EMQ today at officer level as below to Somerset, Ipswich and Brisbane local governments, for advice and comment, with offer for state officials to meet at any time tomorrow with the Council reps to discuss.

Chris Robson
Deputy Director-General
Water and Ecosystem Outcomes
Telephone: [redacted]
Mobile: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Reilly Bob
Sent: Thursday, 21 October 2010 10:05 AM
To: Robson Chris
Cc: 'Peter Borrows'; Dennien Barry @ SEQWGM
Subject: Protocol for release of flood waters from Wivenhoe and Somerset dams

Hi Chris

DPC has asked EMQ to lead the engagement with Councils on this matter. As indicated in the email below, a copy of the draft Protocol will shortly be sent to the Ipswich, Somerset and Brisbane City Councils with a request that we meet tomorrow (Friday) with them. The Premier has asked for a copy of the draft Protocol, so you may wish to advise the DG.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Michael Shapland [redacted]
Sent: Thursday, 21 October 2010 9:59 AM
To: Peta Robertson
Cc: Irina Stankovska; Reilly Bob
Subject: Protocol for release of flood waters from Wivenhoe and Somerset dams

Peta, As discussed, can we send the email below plus attachment from Bruce's email to the addresses of those council representative below, copy to Bob Reilly and myself?

Mike

You will know of the recent debate over a protocol on information for the release of water from Wivenhoe and Somerset dams.

Attached is draft protocol that covers both technical and public communication aspects.

In view of the interest in the subject I would appreciate an indication of council's response on Friday 2 October.

Officers from the Department of Community Safety, Environment and Resource Management and Seqwater will be available to respond to points of clarification from 8 am. Friday 22 October. Should you wish to meet to discuss the protocol, the conference room on level 3, 41 George Street has be made available at 0800.

I would be grateful if you would copy Bob Reilly and Mike Shapland into any reply.

Regards,

Bruce Grady.

Mike Shapland MBE | Director, Disaster Management
Emergency Management Queensland | Department of Community Safety
Level 2, Block E, Emergency Services Complex, Kedron, Queensland

[redacted]

Brisbane City Council	Vicki	Pethybridge	[redacted]
Ipswich City Council	Tony	Trace	
Somerset Regional Council	Tony	Jacobs	

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All reasonable precautions will be taken to respect the privacy of individuals in accordance with the Information Privacy Act 2009 (Qld

Protocol for the Communication of Flooding Information during Floodwater Releases - Wivenhoe and Somerset Dams

OBJECTIVE

The purpose of this protocol is to outline the processes 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 impact during 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 disaster resilient communities.

BACKGROUND

Wivenhoe Dam controls approximately half of the Brisbane River catchment above Brisbane City. Other factors such as storm surges, tides, creek flooding, flooding from Brisbane River below Wivenhoe Dam, including Lockyer Creek and the Bremer River, will influence inundation levels in Brisbane.

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.

The Flood Mitigation Manual is approved and gazetted by the Department of Environment and Resource Management (DERM), in accordance with the provisions of the *Water Supply (Safety and Reliability) Act 2008*.

The Flood Mitigation Manual was developed to ensure that operational decisions at Wivenhoe and Somerset Dams are based on sound engineering principles, which ensure the structural safety of the dam, while minimising downstream impacts.

In the event of a major impact on communities, Queensland 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.

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.

GENERAL DECISION MAKING - GUIDING PRINCIPLES

- Protection of public safety is paramount throughout both the Flood Mitigation Manual and this Protocol;
- The Flood Mitigation Manual is used to determine how Wivenhoe and Somerset Dams will be operated during flood events;
- Impact on the community upstream or downstream is a legitimate consideration of any risk assessment;
- Agreed regular and consistent communications within government and to the public, in relation to the impacts of floodwater releases from Wivenhoe Dam, are essential;
- Decision-making chains regarding the communications strategy and disaster management should remain flexible;

PROCESS OF COMMUNICATION

There are three stages in the process of communication:

- Monitoring and Assessment
- Briefing and Activation
- Public Communications

Monitoring and Assessment

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.

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.

Communications with the public on floodwater releases are based on a continuous process of 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.

- Seqwater discusses and models implications of the inflows on the necessary floodwater release from Wivenhoe Dam and/or Somerset Dam.

- Seqwater calculates the releases according to dam levels and predicted weather events in accordance with the Flood Mitigation Manual. Seqwater shares predicted floodwater releases with BoM and with the 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, 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 an agreement on what to tell the public about predicted flood levels and timings.

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

- Following a decision to release floodwater, or a significant change in the severity and scope of the event, Seqwater coordinates the completion of the *Flood Release Operations and Impact Report* (FROIR - Appendix C) and provides the Report to the SEQ Water Grid Manager according to their Emergency Response Plan, in order to inform the public communications process.

If, during this continuous process, it becomes apparent to either BoM, local governments or Seqwater that the situation is likely to result in significant public safety issues, the SEQ Water Grid Manager, based on the Report, will commence the public communications process and engage with the disaster management arrangements as appropriate.

Briefing and Activation

Consideration will be given to the activation of the Disaster Management arrangements, if not already activated:

1. SEQ Water Grid Manager will alert the Director-General (DG) of the Department of Community Safety (DCS), DG DERM, and the local governments;

2. 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;

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

4. The SDCC and LDMGs will inform the relevant District Disaster Coordinators (DDCs);

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

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 the Department of Premier and Cabinet (DPC), may be activated at the direction of the SDMG Chair to coordinate public messaging agreed by 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 this protocol.

Public Communications Issues

SEQ Water Grid Communications Unit will coordinate the input and liaise with the following or their representatives over pubic safety messages:

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

The BoM, Seqwater and Local Governments are to maintain continual discussions, to ensure that conflicting information is not released to the public at any time. Where differences arise, officers of the agencies concerned will liaise and consult to ensure that the information released to the public by all agencies is consistent. Agencies must exchange public releases.

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;

- **SEQ Water Grid Manager -** concentrating on the technical aspects of release timings and duration of effects as lead technical 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) and the SEQ Water Grid Communications Unit;

- **Local Governments /Local Disaster Management Groups -** concentrating on the effects of release and safety for their local communities and residents.

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 and may range from once a day to once an hour.

Questions from the Public

All questions from the public should be directed to the relevant local government in the first instance. Any questions relating to the release of water should be directed to the SEQ Water Grid Manager Communications Unit. Any queries about disaster

management should be addressed by the relevant local and district disaster management groups.

Protocol Maintenance

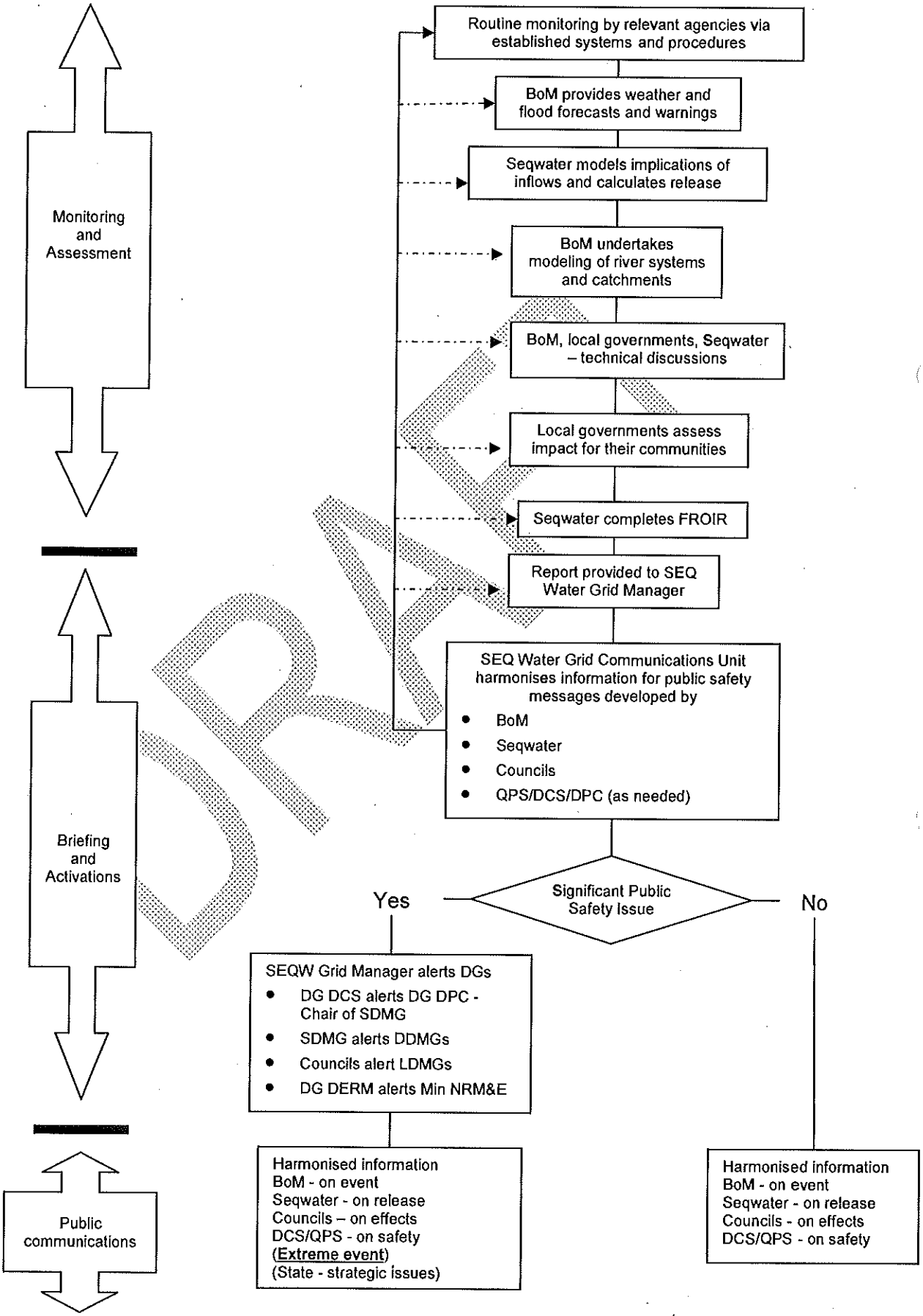
This protocol will be reviewed annually by agencies involved and exercised, during the years when operational floodwater release does not occur, under DDMG arrangements.

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



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 South East Queensland Water (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 Dam.

  It consults BoM regarding inflows to Wivenhoe Dam and expected flood heights along the Brisbane River downstream of Wivenhoe Dam.

  Seqwater initiates proposed changes to the Flood Mitigation Manual, undertaking consultation with Councils and other stakeholders.

  Seqwater coordinates the production of the FROIRs.

- 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.

- 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.

- SEQ Water Grid Communications Unit coordinates the general harmonisation, but not specific detail of public messaging with BoM, SEQ Water Grid, BCC 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

FLOOD RELEASE OPERATIONS AND IMPACT REPORT

OPREP Number		Date of OPREP release		Time of OPREP release	

Next OPREP due	Date		Time		or Event	

This report is as at the time of assessment, and may be out of date quickly, depending on 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.

The initial step in the process is for Seqwater to 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 in the time specified, it is assumed it is not being provided.

DRAFT

Seqwater status of inflows and dam operations

(to include informatian an the current and/or predicted levels of Somerset and Wivenhoe Dams ond the probable or planned releose strategy with assessment as governed under the Manual of Operational Procedures for Flaad Mitigatian at Wivenhoe Dam and Somerset Dam)

This is Seqwaters 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 (eg 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	

DRAFT

Brisbane City Council (BCC) assessment

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

This is an assessment as above 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)

Somerset Regional Council (SRC) assessment (if required)

(both ICC and SRC requirements are the same as for BCC)

Collated and distributed by Seqwater

Seqwater Contact Officer signature	
Seqwater Contact Officer name	
Seqwater Contact Officer position title	
Seqwater contact details	

DRAFT

[redacted]

From: Robson Chris
Sent: Thursday, 21 October 2010 6:21 PM
To: Bradley John; 'Adrian Jeffreys'; 'Tim Watts'; [redacted]
Subject: FW: Protocol for release of flood waters from Wivenhoe and Somerset dams
Attachments: Protocol_Release of water from dams 21 Oct.doc

John/Adrian

Note this draft has been provided by EMQ today at officer level as below to Somerset, Ipswich and Brisbane local governments, for advice and comment, with offer for state officials to meet at any time tomorrow with the Council reps to discuss.

Chris Robson
Deputy Director-General
Water and Ecosystem Outcomes
Telephone: [redacted]
Mobile: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Reilly Bob
Sent: Thursday, 21 October 2010 10:05 AM
To: Robson Chris
Cc: 'Peter Borrows'; Dennien Barry @ SEQWGM
Subject: Protocol for release of flood waters from Wivenhoe and Somerset dams

Hi Chris

DPC has asked EMQ to lead the engagement with Councils on this matter. As indicated in the email below, a copy of the draft Protocol will shortly be sent to the Ipswich, Somerset and Brisbane City Councils with a request that we meet tomorrow (Friday) with them. The Premier has asked for a copy of the draft Protocol, so you may wish to advise the DG.

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: [redacted]
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Michael Shapland [redacted]
Sent: Thursday, 21 October 2010 9:59 AM
To: Peta Robertson
Cc: Irina Stankovska; Reilly Bob
Subject: Protocol for release of flood waters from Wivenhoe and Somerset dams

Peta, As discussed, can we send the email below plus attachment from Bruce's email to the addresses of those council representative below, copy to Bob Reilly and myself?

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You will know of the recent debate over a protocol on information for the release of water from Wivenhoe and Somerset dams.

Attached is draft protocol that covers both technical and public communication aspects.

In view of the interest in the subject I would appreciate an indication of council's response on Friday 2 October.

Officers from the Department of Community Safety, Environment and Resource Management and Seqwater will be available to respond to points of clarification from 8 am. Friday 22 October. Should you wish to meet to discuss the protocol, the conference room on level 3, 41 George Street has be made available at 0800.

I would be grateful if you would copy Bob Reilly and Mike Shapland into any reply.

Regards,

Bruce Grady.

Mike Shapland MBE | Director, Disaster Management
Emergency Management Queensland | Department of Community Safety
Level 2, Block E, Emergency Services Complex, Kedron, Queensland

[redacted]

Brisbane City Council	Vicki	Pethybridge	[redacted]	☐
Ipswich City Council	Tony	Trace		☐
Somerset Regional Council	Tony	Jacobs		☐

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[redacted]

From: Robson Chris
Sent: Thursday, 28 October 2010 6:36 PM
To: Bradley John
Cc: Reilly Bob
Subject: FW: Wivenhoe flood protocol

John

FYI

Bob advised BCC were not supportive of the draft Protocol in its current focus solely on dam flood releases as they believe it needs to also cover off on river in-bank high flow and lower level flood events that do not normally trigger a Disaster Management Plan but do effect business and community services that use or are dependent on the Brisbane River, such as operation of the City Cats. The dam flood operations releases would be part of the Protocol - this request seems reasonable. BCC advised they would co-operate re technical assessments /monitoring of such events.

The sticking point is the communication co-ordination - appears BCC to make announcements as it sees fit.

I understand EMQ will be briefing Ken Smith on progress.

Chris Robson
Deputy Director-General
Water and Ecosystem Outcomes
Telephone: [redacted]
Mobile:
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Level 13, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Please note I have recently moved offices to 400 George Street.

From: Reilly Bob
Sent: Thursday, 28 October 2010 4:46 PM
To: Robson Chris
Subject: FW: Wivenhoe flood protocol

Hi Chris

FYI

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone:
Email: [redacted]
www.derm.qld.gov.au

Department of Environment and Resource Management
Lvl 3 41 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Michael Shapland [redacted]
Sent: Thursday, 28 October 2010 1:55 PM
To: Brad Smith; Bruce Grady
Cc: Reilly Bob
Subject: Wivenhoe

Meeting with BCC and ICC took pace today.

The protocol will be redrafted as a result. Major amendments will:

- Broaden the protocol to floods in the Brisbane river including those influenced by Dam floodwater releases
- Emphasise the ability of any agency to initiate public communications

A redrafted version will be circulated within State government agencies by late COB today, before being sent to the councils for further comment.

Brad, grateful if you keep Ken Smith in the picture.

Mike

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

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Bradley John

From: Bradley John
Sent: Wednesday, 20 October 2010 1:09 PM
To: spiller daniel @ SEQWGM
Cc: Robson Chris; Reilly Bob
Subject: Re: Cabinet deliverables

Thanks Dan

Can you pls doe me a favour

1) MTN needed cob tomorrow

2) Re Letter from Min....

Bob can you coordinate this liaising with Dan, Seqwater, Sunwater before sending up by Monday COB?

Two letters for Min to sign - 1 would be to

A) DG DERM asking OWSR to coordinate Flood Risk management strategy update for QUeensland storages

B) Letter from Min to Dam Owners operators asking them to provide every support to OWSR as they undertake the review

C) This will need to be followed by letter from OWSR to say review to cover

* current approach in flood ops manual to managing full or overflowing storages, ie ensuring they HAVE a plan and framework

* confirming dam operators have clear rules around communication with community about flood risk from operational releases.

* asking operators that if there is any concern about ability to manage downstream flood risk - ask operators to assess if manuel is sufficiently conservative. Specifically, would additional flood risk mitigation benefits merit operating storage at lower levels to create freeboard given current outlook for wet season

* Ask operators to advise of any proposed changes or confirming current procedures will be retained

3) Yes pls to press release

Thanks
John B

----- Original Message -----
From: Dan Spiller <Daniel.Spiller@seqwgm.com.au>
To: Bradley John
Sent: Wed Oct 20 12:34:33 2010
Subject: Cabinet deliverables

John,

Further to our conversation:

- I will draft a Matter to Note for lodgement by 10am Friday. I will consult with Treasury about it (they have major concerns about avoiding any risk of asset impairment). I will get a draft to you tomorrow. (Timing will depend upon input from WaterSecure, due tomorrow.)

- I will draft a letter to Seqwater. Are you happy for me to consult Seqwater

in advance to ensure that the letter covers what they would want to look at? For example, I think they asked to drop the level in Leslie Harrison Dam last year. Alternatively, or as well, could I speak to John Ruffini and Bob Reilly?

· Do you want us to draft an indicative media release for next week? If so, are you happy for Michael Lyons to involved, or should we limit it to Barry and I?

Thanks,

Dan

Daniel Spiller

Director, Operations

SEQ Water Grid Manager

Phone: (07) 3405 0364 | Fax: (07) 3405 0373 | Mobile: 0403 607 857

Email: daniel.spiller@seqwgm.com.au <mailto:daniel.spiller@seqwgm.qld.gov.au>

Visit: Level 15, 53 Albert Street Brisbane

Post: PO Box 16205, City East QLD 4002

ABN: 14783 317 630

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Edmonds Rebecca

From: Reilly Bob
Sent: Thursday, 21 October 2010 6:03 AM
To: Bradley John
Subject: RE: Cabinet deliverables

Hi Dan

Further to our conversation yesterday, my dam safety measure will be dealt with through the DERM process (apparently).

Regards

Bob

Bob Reilly
General Manager, Office of the Water Supply Regulator
Telephone: 07 3224 2898 Mobile: 0408 985 852 Facsimile: 07 3224 7999
Email: bob.reilly@derm.qld.gov.au
www.derm.qld.gov.au

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Bradley John

From: Bradley John
Sent: Saturday, 15 January 2011 10:34 AM
To: 'Lance.McCallum@ministerial.qld.gov.au'; spiller daniel @ SEQWGM
Cc: 'tim.watts@ministerial.qld.gov.au'; Dennien Barry @ SEQWGM
Subject: Re: Urgent - Cabinet in confidence

Thanks Lance - we have anticipated the need for something like this - seqwgm work underway - I will talk to SEQWGM when out of SDMG now on.

Regards
John B

From: Lance McCallum [mailto:Lance.McCallum@ministerial.qld.gov.au]
Sent: Saturday, January 15, 2011 10:30 AM
To: spiller daniel @ SEQWGM; Bradley John
Cc: Tim Watts <Tim.Watts@ministerial.qld.gov.au>
Subject: Urgent - Cabinet in confidence

John/Dan

The Minister has asked that preparation be done over the weekend that will enable him to go to the Emergncy Cabinet meeting on Monday with a position on how the Govt is going to handle the issues of reviewing operational decisions made by SEQwater and SEQWGM in relation to releases from the dams.

I understand that in further to the recent independent review of the Wivenhoe operations manual the WGM is also undertaking further work by compiling a list of the operational experts who authored the manual.

Happy to discuss further.

Thanks, Lance.

Edmonds Rebecca

From: Elaina Smouha [elainamir@gmail.com]
Sent: Saturday, 15 January 2011 1:42 PM
To: Bradley John
Cc: Dennien Barry @ SEQWGM; spiller daniel @ SEQWGM; pborrows@seqwater.com.au; Reilly Bob
Subject: Cabinet in confidence - discussion points
Attachments: Public inquiry strategy - brief.docx

John

Attached are some discussion points for our 2pm teleconference about Monday's Emergency Cabinet meeting.

Regards

Elaina

Discussion points for teleconference

What is the objective?

a) Ensuring public transparency
b) To answer the State's questions on the performance of Wivenhoe Dam operations
c) Preparation for a public inquiry
d) Normal and logical course of conduct after the occurrence of a major flood event – Review requirement under the Flood Mitigation Manual

Background

1) Design of Dam – Storages/Spillway upgrade (Responsible: Seqwater)
2) How does Wivenhoe Dam work as a flood mitigator? Stats on how much did Wivenhoe Dam knock off the flood peak? **[Priority to get out to the public]** (*Responsible: Seqwater*)
3) Development of Flood Mitigation Manual (*Responsible: Seqwater/DERM*)
    a. Four strategies
    b. History of Flood Mitigation Manual updates and peer review
4) Responsibility under the *Water Supply (Safety and Reliability) Act 2008* (*Respansible: DERM*)
    a. What is the formal reporting process following a major flood event?
5) "The Event" – operation of Wivenhoe Dam (*Responsible: Seqwater*)
    a. Event report under the Flood Mitigation Manual
6) "The Event" – management of the Water Grid emergency under the SEQ Water Grid Emergency Response Plan (*Responsible: SEQ Water Grid Manager*)
7) What next?
    a. SWOT
        i. Community feedback
        ii. A significant (from a national perspective)

Seqwater report

Flood Mitigation Manual requires a report to the Chief Executive after a significant flood event, on the effectiveness of the operational procedures:

- Get more comprehensive report from Brian Cooper? – review appropriateness of trigger levels – take into account the accuracy of rainfall forecasts provided by BOM at the time – reliability of weather forecasts.
- Set up expert panel for Flood Mitigation Manual review
- Communication Protocol and incorporation into the Flood Mitigation Manual (revisit in the next fortnight)

Seqwater to procure review.

Urgent accelerated review due to anticipated further rainfall.

Bradley John

From: Bradley John
Sent: Sunday, 16 January 2011 7:41 PM
To: 'Lance.McCallum@ministerial.qld.gov.au'; spiller daniel @ SEQWGM
Cc: 'tim.watts@ministerial.qld.gov.au'; Dennien Barry @ SEQWGM
Subject: Re: Urgent - Cabinet in confidence

Lance

I am sorry for the delay on the brief requested for tonight for Minister - Barry and his team have been working hard all day on this among their other issues - but have had challenges with input from seqwater.

Seqwater has struggled to provide their input in a congent form and so Barry, Dan and others are still there awaiting for some stuff and finalising it at the end of a very long week.

We think we are about 60 to 90 minutes away at this point. I will forward it to you and Minister as soon asap and we will talk through at 9 am.

John B

From: Bradley John
Sent: Saturday, January 15, 2011 10:33 AM
To: 'Lance.McCallum@ministerial.qld.gov.au' <Lance.McCallum@ministerial.qld.gov.au>; spiller daniel @ SEQWGM
Cc: 'tim.watts@ministerial.qld.gov.au' <tim.watts@ministerial.qld.gov.au>; Dennien Barry @ SEQWGM
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From: Bradley John
Sent: Sunday, 16 January 2011 10:33 PM
To: Robertson Stephen @ Ministerial
Cc: 'Lance McCallum (lance.mccallum@ministerial.qld.gov.au)'; 'Tim Watts'
Subject: FW: Cabinet in confidence - Ministerial brief - Flood event and Wivenhoe Dam
Attachments: Letter_from_Stephen_Robertson_MP_RE__Release_of_Water_from_Key_Storages[1].pdf; Letter_to_Minister_-_flood_management[1].docx; BrianCooperCV09122010.pdf; Brian Cooper - final report.docx; Brian Cooper - final report attachment.xlsx; Seqwater Ministerial_Briefing_Note_January_17_2011_Final_Draft_for_distribution[1].docx; Seqwater Jan_2011_Flood_Event_Ver_1_draft_for_distribution[1].docx; FINAL Ministerial_Brief_-_Wivenhoe_Operations[3].docx; Talking points_Wivenhoe Dam releases.docx

Minister and Lance

Apologies for the late hour at which this arrives. SEQWGM will bring hard copies of the assembled folders including all attachments to the 9 am Meeting.

If you DID have time to peruse anything before the meeting I recommend the document "Seqwater Ministerial Briefing Note" which contains some new information of interest.

We will see you at 9 am in your offices at 61 Mary Street,

thanks
John B

From: Elaina Smouha [mailto:elainamir@gmail.com]
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) 3247 4484 | Mobile: 0459 802 675 | Fax: (07) 3405 0373
Email: elaina.smouha@seqwgm.com.au
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

Edmonds Rebecca

From: Dan Spiller [Daniel.Spiller@seqwgm.com.au]
Sent: Monday, 17 January 2011 8:31 AM
To: 'Geoff Stead'
Cc: Bradley John
Subject: Talking points_Wivenhoe Dam releases
Attachments: Talking points_Wivenhoe Dam releases.docx

Geoff,

Updated version including notes about review.

Dan

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SEQ Water Grid

Talking Points

TRIM reference: D/11/	Enquiry received:
Purpose: Wivenhoe Dam release	

Impacts of Wivenhoe and Somerset dams

- Wivenhoe and Somerset dams reduced the flood peak by 2.5 metres in the City and 5.5 metres at Moggill.
- Without the dams, up to 13,000 more houses would have been flooded. They prevented up to $1.6 billion of damages.
- Without the dams, major flooding would have lasted for three days.
- Wivenhoe and Somerset dams controlled 2.6 million megalitres of floodwater. This is 1.1 million megalitres more than in 1974.
- The dams controlled these floodwaters, providing time for peak flows from the Lockyer and Bremer to pass.
- Total flow in the Brisbane River in 1974 was 9,500 cubic metres per second. The estimated flow from this event would have been 13,000 cubic metres per second if Wivenhoe did not exist.

Operation of Wivenhoe and Somerset dams

- The dams were operated strictly in accordance with the approved Operational Procedures.
- The Operational Procedures were developed by Australia's best hydrologists, including:
    - Professor Colin Apelt, Head of Department, Department of Civil Engineering, University of Queensland
    - Mr Eric Lesleighter, Principal Hydraulic Engineer and Chief Engineer Water Resources, Snowy Mountains Engineering Corporation.
- Professor Apelt is Chair of the Brisbane City Council flood taskforce.

Flood report

- There is a regulatory requirement that Seqwater prepare a flood report.
- By regulation. the report will be submitted within six weeks of the gates closing.

- The report will be a comprehensive summary of all procedures, actions, outcomes and processes during the event. It will consider factors impacting on the protection of urban areas.
- The report will be reviewed by the Dam Safety Regulator and independent experts.
- The report and its review will be submitted to the Government and inform a review of the Operational Procedures.
- The review of Operational Procedures will utilise an expert panel o, including representatives of the Bureau of Meteorology and Councils.

Rainfall forecasts

- Dam operations were based on forecasts provided by the Bureau of Meteorology.
- The rainfall during the event exceeded all forecasts.
- Rainfall was local and intense, as demonstrated by the tragic events in Toowoomba.
- It is unreasonable to expect that dam operators could foresee these events.

Pre-emptive releases

- The dam has been designed for both water supply and flood mitigation.
- Detailed Operational Procedures have been developed by leading hydrologists over many years, with a review as recently as 2009. The procedures are based on the current full supply level.
- Water was released from the dam on 20 of the 25 days leading up to this event.
- A total of 1,450 million megalitres was released between October 2010 and this event.
- These releases isolated some residents and inconvenienced many more.
- The clear decision making process in the Manual was set down since 1992 and was reviewed in 2009 to reflect the installation of the Wivenhoe Spillway upgrade. That review included independent experts from the Bureau of Meteorology, Sunwater, Brisbane City Council and the Department of Environment and Resource Management.
- It is a manual which reflects safe operating practices based on detailed hydrological analysis and technical assessments of dam safety.

Peak releases

- Outflows from Wivenhoe Dam peaked on Tuesday 11 January 2011 at 397,000 ML.
- The impact of these releases was minimised by closing down releases quickly once inflows into the dam had peaked.
- The release rate was higher for three hours, but not sustained.
- These releases accounted for only part of the increase in river levels. The Bureau of Meteorology has stated that, even at their peak, outflows from Wivenhoe Dam contributed slightly more than half the flood arriving in Brisbane (Courier Mail, 14 January).

Large releases earlier

- Releasing large volumes of water over the weekend would have had major impacts on the rural communities of the Brisbane Valley. Bridges would have been cut and communities would have been isolated with little notice.
- Over the weekend, neither rainfall forecasts nor the rain on the ground indicated with certainty that urban areas would be impacted.

Increases to above 200% (level of fuse plugs)

- Wivenhoe Dam is not designed to overtop. If it did, the dam would fail and the resulting damage and loss of life would be at least 100 to 1,000 times greater than that currently being experienced.
- To ensure that this never occurs, the dam has been designed with plugs that automatically open when it reaches more than 200% of full supply volume.
- Once opened, the rate of release through these plugs cannot be varied.
- The plugs continue to release water at this rate until the dam reaches full supply level.
- The plugs would take four to six months of dry weather to repair, rendering the flood storage compartment useless.

Changes to dam operations

- The dam spillway was upgraded in 2007, increasing its release capacity in extreme floods. This upgrade is designed to ensure the structural integrity of the dam during floods significantly worse than the current event.

- A further upgrade of the spillway is scheduled to occur by 2035, in order to comply with ANCOLD upgrade. This upgrade is for even more extreme floods. It would have had no impact on the management of the current flood.
- Options to increase the full supply level have been investigated. Had they been implemented, these options would have reduced the flood compartment, resulting in higher releases earlier.

Bradley John

From: Bradley John
Sent: Monday, 24 January 2011 8:21 AM
To: Matthews Helen; Claydon Greg
Cc: Watson Doug; Anderson Danielle
Subject: RE: Attachments for Urgent Cab Sub

Helen

Min Robertson is ok with the Submission

John Bradley

Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Matthews Helen
Sent: Monday, 24 January 2011 7:20 AM
To: Bradley John; Claydon Greg
Cc: Watson Doug; Anderson Danielle
Subject: RE: Attachments for Urgent Cab Sub

Hi John,

I am just reading and printing up the submission now. I will run it down to Minister Robertson's office when they open.

Greg – pls get in touch with me when you have attachment 1 available.

Kind regards
Helen Matthews
Cabinet and Parliamentary Services
Department of Environment and Resource Management
Level 3, 400 George Street BRISBANE QLD 4001
Ph: 3330 5134 (Please dial full number if calling from outside 400 George St)

helen.matthews@derm.qld.gov.au
cllo@derm.qld.gov.au

From: Bradley John
Sent: Monday, 24 January 2011 7:17 AM
To: Bradley John; Claydon Greg; Matthews Helen
Cc: Watson Doug; Anderson Danielle
Subject: Attachments for Urgent Cab Sub

Helen, Greg

Thanks for assisting with this.

As per my email below last night, we will need

A) **An Execution Copy of the Submission** prepared by the CLLO and delivered to Min Robertson's office ASAP this morning including Attachments.

B) **25 copies of the signed Submission and three (3) attachments to the Submission** (as listed in the Attachments at end) being

1. Rockhampton Flood Management Study undertaken by Camp Scott Furphy Pty Ltd (1992);

GREG C IS ARRANGING FOR THIS - EXEC SUMMARY ONLY NEEDS TO BE ATTACHED TO SUB

2. Report by Seqwater titled Provision of Contingency Storage in Wivenhoe and Somerset Dams prepared in March 2007

PLEASE PRINT THE EXEC SUMMARY AND CONTENTS PAGES (ie up to page xi) from the attached weblink.

http://www.qwc.qld.gov.au/planning/pdf/support-docs/provision-of-contingency-storage-in-wivenhoe-and-somerset-da.pdf

3. Seqwater's Manual of operational procedures for flood mitigations at Wivenhoe Dam and Somerset Dam

SEE ATTACHED PDF - THERE IS NO EXEC SUMMARY - SO WE WILL NEED TO ATTACH THE FULL DOCUMENT, 2-SIDED COLOUR COPIED

<< File: WD-SD-Rev 7 -FINAL_Uncontrolled Copy.pdf >>

Greg - we will also need a referral letter from the Premier to the Commission, but I will send you a separate email on that.

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

Department of Environment and Resource Management
100 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001
-----Original Message-----
From: Bradley John
Sent: Sunday, 23 January 2011 7:50 PM
To: Sfiligoj Don; Claydon Greg
Subject: Urgent - Sorry for Rush - for Cabinet

-- Cabinet in Confidence --

Don, Greg

As discussed tonight with Greg and as per text to Don - thnaks for your help

Greg - could you pls arrange the Exec Summary of the Rocky Flood Study and for copies of this exec summs of other 2 documents for CLLO - they will need about 25 copies I think

Don - can you pls format -may be some tweaks from Min R in the morning - but otherwise we will get signing copy to Stephen ASAP

Any queries please give me a buzz.

Thanks
John B

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From: Bradley John
Sent: Sunday, 23 January 2011 7:47 PM
To: 'Ken Smith'; Bronwen Griffiths
Cc: 'anthony.crack@premiers.qld.gov.au'
Subject: FW: Cabinet on Monday

Ken, Anthony, Bron

Current version as it is yet to be considered by Stephen - fyi

Will try to get it to you asap tomorrow

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To: 'Stephen Robertson'; 'Lance McCallum'
Subject: RE: Cabinet on Monday

Min R

CLLO is leaving now to hand-deliver execution copy to your office

John Bradley

Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

Department of Environment and Resource Management 400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

-----Original Message-----
From: Stephen Robertson [mailto:Stephen.Robertson@ministerial.qld.gov.au]
Sent: Monday, 24 January 2011 8:20 AM
To: Lance McCallum
Cc: Bradley John
Subject: RE: Cabinet on Monday

I'm ok with the sub

-----Original Message-----
From: Lance McCallum
Sent: Sunday, 23 January 2011 7:44 PM
To: 'John.Bradley@derm.qld.gov.au'; Stephen Robertson
Cc: Tim Watts; Geoff Stead
Subject: Re: Cabinet on Monday

Thanks John

----- Original Message -----
From: Bradley John <John.Bradley@derm.qld.gov.au>
To: Bradley John <John.Bradley@derm.qld.gov.au>; Stephen Robertson
Cc: Lance McCallum; Tim Watts; Geoff Stead
Sent: Sun Jan 23 19:43:43 2011
Subject: RE: Cabinet on Monday

Min R

As requested - pls find attached a copy of the draft Cab Sub for tomorrow. I got later advice from Cab Sec to do it in a Coversheet format rather than Oral Submission format so you will see this reflected here.

I will get our CLLO team to prepare a signature copy and our teams to copy Exec Summaries as you requested.

Pls advise if any concerns thanks

John B

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From: Bradley John
Sent: Saturday, 22 January 2011 4:30 PM
To: 'Stephen.Robertson@ministerial.qld.gov.au'
Cc: 'Lance.McCallum@ministerial.qld.gov.au';
'tim.watts@ministerial.qld.gov.au'; 'geoff.stead@ministerial.qld.gov.au'
Subject: Re: Cabinet on Monday

Min R,

Will do. Submission will be in Cab Sec's Oral Sub Format - have alerted Cab Sec.

Thanks
John B

----- Original Message -----
From: Stephen Robertson
[mailto:Stephen.Robertson@ministerial.qld.gov.au]
Sent: Saturday, January 22, 2011 02:54 PM
To: Bradley John
Cc: Lance McCallum <Lance.McCallum@ministerial.qld.gov.au>; Tim Watts <Tim.Watts@ministerial.qld.gov.au>; Geoff Stead <Geoff.Stead@ministerial.qld.gov.au>
Subject: Cabinet on Monday

Gents

I met with the Premier today to discuss the 2007 report on the possible raising of wivenhoe and somerset dams for additional drinking water. She agrees that we should get on the front foot. Accordingly I would like a walk-in submission prepared for Monday that attaches both the executive summaries wivenhoe/somerset report and the 1992 rockhampton flood study recommending they be sent to both the commission of inquiry and the reconstruction task force.

John, can you also prepare covering letters to be signed by the Premier on Monday and can u also check the TOR for the task force that they should be considering such reports and if amendment is necessary plse recommend changes

Geoff can u also start organizing a media release on the the forwarding of these documents -remember cabinet is sitting much later than usual so you have time up your sleeve.

Thanks

Stephen Robertson

+--+
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
+--+

Bradley John

From: Bradley John
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To: Bradley John; 'Stephen.Robertson@ministerial.qld.gov.au'
Cc: 'Lance.McCallum@ministerial.qld.gov.au'; 'tim.watts@ministerial.qld.gov.au'; 'geoff.stead@ministerial.qld.gov.au'
Subject: Draft Letter of Referral to Justice Cate Holmes

Attachments: Draft Referral Letter to Justice Cate Holmes.doc



Draft Referral Letter to Justi...

Min R

Please find attached a draft letter of Referral to Justice Holmes, not intended to be attached to the Submission itself (unless you have a different view)

Pls note it has been drafted for the Premier's signature based on your email on Saturday and we are just confirming address details. Any changes from you or your office would be welcome.

Regards

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

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John B

----- Original Message -----
From: Stephen Robertson [mailto:Stephen.Robertson@ministerial.qld.gov.au]
Sent: Saturday, January 22, 2011 02:54 PM
To: Bradley John
Cc: Lance McCallum <Lance.McCallum@ministerial.qld.gov.au>; Tim Watts <Tim.Watts@ministerial.qld.gov.au>; Geoff Stead <Geoff.Stead@ministerial.qld.gov.au>
Subject: Cabinet on Monday

Gents

I met with the Premier today to discuss the 2007 report on the possible raising of wivenhoe and somerset dams for additional drinking water. She agrees that we should get on the front foot. Accordingly I would like a walk-in submission prepared for Monday that attaches both the executive summaries wivenhoe/somerset report and the 1992 rockhampton flood study recommending they be sent to both the commission of inquiry and the reconstruction task force.

John, can you also prepare covering letters to be signed by the Premier on Monday and can u also check the TOR for the task force that they should be considering such reports and if amendment is necessary plse recommend changes

Geoff can u also start organizing a media release on the the forwarding of these documents -remember cabinet is sitting much later than usual so you have time up your sleeve.

Thanks

Stephen Robertson

Bradley John

From: Bradley John
Sent: Sunday, 30 January 2011 2:20 PM
To: Lance McCallum; Tim Watts
Cc: Best Debbie
Subject: FW: Ministerial Brief - Water Grid Operational Status
Attachments: Ministerial Brief - Water Grid operational status.pdf

FYI – as requested by Minister I understand.

John Bradley
Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Best Debbie
Sent: Sunday, 30 January 2011 11:22 AM
To: Bradley John
Subject: FW: Ministerial Brief - Water Grid Operational Status

John
I have just seen this brief which is for the Minister's information prior to Cabinet. I would assume you have not seen it yet. If you are okay with the brief I could forward to Lance and Tim.
Debbie

From: Jade Simmons [mailto:Jade.Simmons@seqwgm.com.au]
Sent: Friday, 28 January 2011 5:45 PM
To: Best Debbie; Claydon Greg
Cc: spiller daniel @ SEQWGM
Subject: Ministerial Brief - Water Grid Operational Status

Dear Debbie and Greg,

Please find attached a Briefing Note for the Minister in relation to the Water Grid's operational status post flood. This brief was requested late yesterday.

While this item (CTS 01190/11) has been forwarded through MECS late this afternoon as per standard processes, we would like to ensure the Minister receives it before Cabinet on Monday 31 January 2011.

If you would please assist us to get this to the Ministers Office before this point, we would be grateful.

Kindest regards
Jade Simmons
Senior Correspondence Officer
SEQ Water Grid Communications Unit
SEQ Water Grid Manager
Phone: (07) 3247 4462 | Fax: (07) 3405 0373
Email: jade.simmons@seqwgm.com.au
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002

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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.
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.

Bradley John

From: Bradley John
Sent: Monday, 24 January 2011 7:21 AM
To: Matthews Helen
Subject: RE: Attachments for Urgent Cab Sub

Thanks a lot

John Bradley

Director-General
Department of Environment and Resource Management
Telephone: 07 3330 6298
Email: John.Bradley@derm.qld.gov.au
www.derm.qld.gov.au

Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001

From: Matthews Helen
Sent: Monday, 24 January 2011 7:20 AM
To: Bradley John; Claydon Greg
Cc: Watson Doug; Anderson Danielle
Subject: RE: Attachments for Urgent Cab Sub

Hi John,

I am just reading and printing up the submission now. I will run it down to Minister Robertson's office when they open.

Greg – pls get in touch with me when you have attachment 1 available.

Kind regards
Helen Matthews
Cabinet and Parliamentary Services
Department of Environment and Resource Management
Level 3, 400 George Street BRISBANE QLD 4001
Ph: 3330 5134 (Please dial full number if calling from outside 400 George St)

helen.matthews@derm.qld.gov.au
cllo@derm.qld.gov.au

From: Bradley John
Sent: Monday, 24 January 2011 7:17 AM
To: Bradley John; Claydon Greg; Matthews Helen
Cc: Watson Doug; Anderson Danielle
Subject: Attachments for Urgent Cab Sub

Helen, Greg

Thanks for assisting with this.

As per my email below last night, we will need

A) **An Execution Copy of the Submission** prepared by the CLLO and delivered to Min Robertson's office ASAP this morning including Attachments.

B) **25 copies of the signed Submission and three (3) attachments to the Submission** (as listed in the Attachments at end) being

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Email: John.Bradley@derm.qld.gov.au
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Department of Environment and Resource Management
400 George Street, Brisbane Q 4000
GPO Box 2454, Brisbane Q 4001
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From: Bradley John
Sent: Sunday, 23 January 2011 7:50 PM
To: Sfiligoj Don; Claydon Greg
Subject: Urgent - Sorry for Rush - for Cabinet

-- Cabinet in Confidence --

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As discussed tonight with Greg and as per text to Don - thnaks for your help

Greg - could you pls arrange the Exec Summary of the Rocky Flood Study and for copies of this exec summs of other 2 documents for CLLO - they will need about 25 copies I think

Don - can you pls format -may be some tweaks from Min R in the morning - but otherwise we will get signing copy to Stephen ASAP

Any queries please give me a buzz.

Thanks
John B

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From: Bradley John

Sent: Sunday, 23 January 2011 7:47 PM
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Cc: 'anthony.crack@premiers.qld.gov.au'
Subject: FW: Cabinet on Monday

Ken, Anthony, Bron

Current version as it is yet to be considered by Stephen - fyi

Will try to get it to you asap tomorrow

John B

Bradley John

From: Bradley John
Sent: Thursday, 27 January 2011 10:54 PM
To: 'paul.low@dip.qld.gov.au'
Cc: 'Wil.Brown@dip.qld.gov.au'
Subject: Re: That letter from Lm to Prem on flooding

Thanks Paul, Wil

JB

From: Paul Low [mailto:Paul.Low@dip.qld.gov.au]
Sent: Thursday, January 27, 2011 10:50 PM
To: Bradley John
Cc: Wil Brown <Wil.Brown@dip.qld.gov.au>
Subject: Fw: That letter from Lm to Prem on flooding

Hi John - I noted in earlier email exchange with Nicole that you hadn't seen inwards from LM either.

Wil got hold of it for me - pls see attached.

Will cnll tomorrow re:background to Premiers draft response sent to you, I and Graeme and the rationale for nominating DIP as first contact point

Regards

Pnul

----- Original Message -----
From: Wil Brown
To: Paul Low
Sent: Thu Jan 27 13:35:26 2011
Subject: That letter from Lm to Prem on flooding

Paul

Gen just brought me out that letter you were looking for. I only have the incoming not the outgoing (so there is no response from the premier about you and your role as CEO GMQ)

I know you said you didn't want this for BOM but if you change your mind I can bring it over anytime.

Kind regards
Wil
-----Original Message-----
From: p502431@dip.qld.gov.au [mailto:p502431@dip.qld.gov.au]
Sent: Thursday, 27 January 2011 1:16 PM
To: Wil Brown
Subject: Scan Data from p502431

Number of Images: 1
Attachment File Type: PDF

Device Name: ApeosPort-II C4300
Device Location: Dept. of Local Govt Planning Sport

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Subject: RE: Cabinet on Monday

Also I took the liberty of adding in a non-redacted copy of the Flood Mitigation Manual but can remove if you don't wish it included.

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Min R

As requested - pls find attached a copy of the draft Cab Sub for tomorrow. I got later advice from Cab Sec to do it in a Coversheet format rather than Oral Submission format so you will see this reflected here.

I will get our CLLO team to prepare a signature copy and our teams to copy Exec Summaries as you requested.

Pls advise if any concerns thanks

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Attachments: Flood Documents Cab Sub.doc



Flood Documents Cab Sub.doc (1...

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Sent: Saturday, 22 January 2011 8:40 PM
To: 'ken.smith@premiers.qld.gov.au'; 'Anthony.Crack@premiers.qld.gov.au'; 'Bronwen.Griffiths@premiers.qld.gov.au'
Subject: Re: Cabinet on Monday

Ken
Will do thanks
John B

----- Original Message -----
From: Ken Smith [mailto:Ken.Smith@premiers.qld.gov.au]
Sent: Saturday, January 22, 2011 08:33 PM
To: Bradley John; Anthony Crack <Anthony.Crack@premiers.qld.gov.au>; Bronwen Griffiths <Bronwen.Griffiths@premiers.qld.gov.au>
Subject: Re: Cabinet on Monday

Dear John

As Anthony has outlined, please progress subs for for circulation Monday morning, given Cabinet meeting at 2.30pm. These can be Class A, but better than orals to ensure Cabinet is aware of issues and can refer to papers to inform their discussion.

----- Original Message -----
From: Bradley John <John.Bradley@derm.qld.gov.au>
To: Ken Smith
Cc: Bronwen Griffiths; Anthony Crack
Sent: Sat Jan 22 16:18:03 2011
Subject: Fw: Cabinet on Monday

Ken
Cc Bron, Anthony

For info in relation to cabinet agenda for Monday.

We will use an oral submission format - copies for min, cab sec and premier? - and also provide cab sec with copies of exec summaries referred to for distribution to fuill cabinet.

Can you, Bron or Anthony pls let me know if I have any process stuff wrong?

Thanks
John B

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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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If you have received this email in error, please notify the author and delete this message immediately.

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To: Bradley John
Cc: Lance McCallum <Lance.McCallum@ministerial.qld.gov.au>; Tim Watts <Tim.Watts@ministerial.qld.gov.au>; Geoff Stead <Geoff.Stead@ministerial.qld.gov.au>
Subject: Cabinet on Monday

Gents

I met with the Premier today to discuss the 2007 report on the possible raising of wivenhoe and somerset dams for additional drinking water. She agrees that we should get on the front foot. Accordingly I would like a walk-in submission prepared for Monday that attaches both the executive summaries wivenhoe/somerset report and the 1992 rockhampton flood study recommending they be sent to both the commission of inquiry and the reconstruction task force.

John, can you also prepare covering letters to be signed by the Premier on Monday and can u also check the TOR for the task force that they should be considering such reports and if amendment is necessary plse recommend changes

Geoff can u also start organizing a media release on the the forwarding of these documents -remember cabinet is sitting much later than usual so you have time up your sleeve.

Thanks

Stephen Robertson

Bradley John

From: Bradley John
Sent: Saturday, 22 January 2011 4:18 PM
To: 'ken.smith@premiers.qld.gov.au'
Cc: 'Bronwen.Griffiths@premiers.qld.gov.au'; 'anthony.crack@premiers.qld.gov.au'
Subject: Fw: Cabinet on Monday

Ken
Cc Bron, Anthony

For info in relation to cabinet agenda for Monday.

We will use an oral submission format - copies for min, cab sec and premier? - and also provide cab sec with copies of exec summaries referred to for distribution to fuill cabinet.

Can you, Bron or Anthony pls let me know if I have any process stuff wrong?

Thanks
John B

----- Original Message -----
From: Stephen Robertson [mailto:Stephen.Robertson@ministerial.qld.gov.au]
Sent: Saturday, January 22, 2011 02:54 PM
To: Bradley John
Cc: Lance McCallum <Lance.McCallum@ministerial.qld.gov.au>; Tim Watts <Tim.Watts@ministerial.qld.gov.au>; Geoff Stead <Geoff.Stead@ministerial.qld.gov.au>
Subject: Cabinet on Monday

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Stephen Robertson

CTS No. xxxxx/10

Advisor .....☐ Ok Dated / / ☐ Approved ☐ Not Approved ☐ Noted ☐ Further information required Minister..... Dated / /

SEQ Water Grid Manager and Seqwater
MINISTERIAL BRIEFING NOTE

TO: **Minister for Natural Resources, Mines and Energy and Minister for Trade**

SUBJECT: **January 2011 flood event and Wivenhoe Dam operations**

REQUESTED BY

- The Ministers Office requested this brief by 16 January 2011.

TIMEFRAME

- Noting of this brief is required prior to the Emergency Cabinet meeting to be held on 17 January 2011.

RECOMMENDATION

It is recommended that the Minister:

- **note** Seqwater's Ministerial briefing note setting out background information on Wivenhoe Dam, the January 2011 flood event and Seqwater's Flood Mitigation Manual.
- **note** the advice on the benefits of pre-emptive releases from Wivenhoe Dam in response to the Minister's request.
- **note** Mr Brian Cooper's independent compliance review of the operation of Wivenhoe Dam against the Flood Mitigation Manual for the January 2011 flood event.
- **approve** key media responses on the flood event and Wivenhoe Dam.
- **approve** that Mr Barry Dennien, Chief Executive Officer, SEQ Water Grid Manager, speak to the media in accordance with the key media responses.

BACKGROUND

- From 13 December 2010 to 11 January 2011, South East Queensland experienced unprecedented rainfall, which resulted in the January 2011 flood event. Wivenhoe Dam played a significant role in mitigating the downstream flood peak.
- **Attachment A** contains Seqwater's Ministerial briefing note setting out background information on Wivenhoe Dam, Wivenhoe Dam's flood mitigation and operations, Seqwater's Flood Mitigation Manual, the regulatory context of the Flood Mitigation Manual and Seqwater's proposed procedure for the preparation of its comprehensive Flood Mitigation Manual report to the Chief Executive, Department of Environment and Resource Management, on Wivenhoe Dam operations for the January 2011 flood event.
- After the Wivenhoe Dam release in October 2010, by way of a letter dated 25 October 2010 at **Attachment B,** the Minister requested the SEQ Water Grid Manager to procure urgent advice as to whether South East Queensland's water security situation would provide "*an opportunity to reduce the volume stored in key dams as a means of reducing the severity, frequency and duration of flooding in downstream areas.*"
- The Minister also sought the SEQ Water Grid Manager's "*confirmation that these options would not significantly impact upon our current water security, measured as the probability of needing to reintroduce Medium Level Restrictions over the next five to ten years.*"
- As a result, the SEQ Water Grid Manager requested that Seqwater provide a report assessing the options requested by the Minister.

Author	Cleared by	Cleared by	Recommended:
Name: Barry Dennien Position: Chief Executive Officer, SEQ Water Grid Manager Tel No: 0419 725 708 Date: 16 January 2011	Name: Position: Tel No: Name: Position: Tel No:	Name: Position: Tel No: Name: Position: Tel No:	Name: John Bradley Director-General, DERM Tel No: 3330 6298 Date:

- **Attachment C** contains the SEQ Water Grid Manager's letter to the Minister dated 24 December 2010, in response to the pre-emptive Wivenhoe Dam release advice sought, based on Seqwater's advice. This letter stated that "*Seqwater has advised that releasing water to below Full Supply Level may provide some benefits in terms of reduced community and operational impacts during minor inflow events, such as has occurred over the past month. For medium and major flood events, it considers that pre-emptive releases will provide negligible benefits...Informed by this advice, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it has no in-principle objection to minor releases from Wivenhoe, Somerset and North Pine dams to minimise the operational and community impacts of gate releases.*"
- It should be noted that while seeking advice from Seqwater on pre-emptive dam releases, the SEQ Water Grid Manager continued to provide the Department of Environment and Resource Management with progress reports.
- On 11 January 2011, the Minister requested the SEQ Water Grid Manager to procure an urgent independent review of Seqwater's operation of Somerset and Wivenhoe Dams in accordance with the Flood Mitigation Manual, for the period 13 December 2010 to 11 January 2011.
- Mr Brian Cooper was engaged to conduct the independent review and his report and curriculum vitae are contained in **Attachment D.**
- Mr Brian Cooper concludes that the "*strategies as set out in the Flood Mitigation Manual have been followed, allowing for the discretion given to making variations in order to maximise flood mitigation effects. The actions taken and decisions made during the Flood Event appear to have been prudent and appropriate in the context of the available knowledge available to those responsible for flood operations and the way events unfolded.*"

CURRENT ISSUES

- The purpose of this Ministerial brief is to provide the Minister with background information on the January 2011 flood event and the operation of Wivenhoe Dam, in preparation for an Emergency Cabinet meeting scheduled on 17 January 2011.
- This Ministerial brief provides information that may assist in responding to questions raised, or anticipated to be raised, by the public and media.
- **Attachment E** contains key media responses based on factual information from Seqwater's Ministerial briefing note.

RESOURCE/IMPLEMENTATION IMPLICATIONS

- Any recommendations regarding the Flood Mitigation Manual, improvements to the structu or operation of Wivenhoe Dam, resourcing etc. will arise after any relevant flood event debriefs and Seqwater's Flood Mitigation Manual report to the Chief Executive, Department of Environment and Resource Management.

PROPOSED ACTION

- In accordance with the Flood Mitigation Manual, Seqwater will submit a comprehensive report to the Chief Executive, Department of Environment and Resource Management, containing details of the procedures used, the reasons for such and other pertinent information for the operation of Wivenhoe Dam during the January 2011 flood event.
- This report is required to be submitted within six weeks of completion of the flood event.

Author	Cleared by	Cleared by	Recommended:
Name: Barry Dennien Position: Chief Executive Officer, SEQ Water Grid Manager Tel No: 0419 725 708 Date: 16 January 2011	Name: Position: Tel No: Name: Position: Tel No:	Name: Position: Tel No: Name: Position: Tel No:	Name: John Bradley Director-General, DERM Tel No: 3330 6298 Date:

OTHER INFORMATION

- *Consultation:* In preparing the Ministerial briefing note at **Attachment A**, Seqwater consulted with Mr Peter Allen and Mr Bob Reilly from the Office of the Water Supply Regulator, Department of Environment and Resource Management. The SEQ Water Grid Manager provided information on the Minister's request for advice on pre-emptive releases from Wivenhoe Dam and the independent compliance review from Mr Brian Cooper.
- *Legislation:* The Flood Mitigation Manual is a requirement of, and approved by the Chief Executive, Department of Environment and Resource Management, under the *Water Supply (Safety and Reliability) Act 2008.*
- *Key Communication Messages:* The information contained in this Ministerial brief may be used to formulate public messaging regarding the flood event and the operation of Wivenhoe Dam. Communicating the benefits of Wivenhoe Dam for flood mitigation may present positive communication opportunities.

MINISTER'S COMMENTS

ATTACHMENTS

- **Attachment A: Seqwater Ministerial briefing note**
- **Attachment B: Letter from Minister Robertson to the SEQ Water Grid Manager dated 25 October 2010**
- **Attachment C: Letter from the SEQ Water Grid Manager to Minister Robertson dated 24 December 2010**
- **Attachment D: Flood Mitigation Manual compliance review report by Mr Brian Cooper and curriculum vitae of Mr Brian Cooper**
- **Attachment E: Key media responses**

Author	Cleared by	Cleared by	Recommended:
Name: Barry Dennien Position: Chief Executive Officer, SEQ Water Grid Manager Tel No: 0419 725 708 Date: 16 January 2011	Name: Position: Tel No:	Name: Position: Tel No:	Name: John Bradley Director-General, DERM Tel No: 3330 6298 Date:
	Name: Position: Tel No:	Name: Position: Tel No:	

Ministerial Briefing Note

17 January 2010

Flood Event January 2011

1. BACKGROUND INFORMATION ON WIVENHOE DAM

2. WIVENHOE DAM FLOOD MITIGATION AND FLOOD OPERATIONS

2.1 What were the benefits provided by Wivenhoe Dam during the current event?

2.2 Why was Wivenhoe Dam only allowed to rise up to 191% and not 230%?

2.3 What is the role of the erodible fuse plug embankments?

2.4 Why weren't pre-emptive releases undertaken prior to the start of the flood event?

2.5 Is there a detailed record of the events associated with the current flood?

3. THE MANUAL OF OPERATIONAL PROCEDURES FOR FLOOD MITIGATION AT WIVENHOE DAM AND SOMERSET DAM

3.1 What is the Manual of Flood Mitigation and how was it developed?

3.2 What is contained in the Manual?

4. REGULATORY CONTEXT

5. SEQWATER REPORT

1 BACKGROUND INFORMATION ON WIVENHOE DAM

Wivenhoe Dam was completed in 1984 and has two main functions;

- A 1,165,000 ML storage providing an urban water supply for Brisbane;
- Flood mitigation in the Brisbane River by providing a dedicated flood storage volume of 1,450,000 ML (this flood storage was increased in 2005 to 1,966,000 ML with the dam at the point of failure).

In accordance with the Queensland Regulatory program for dam spillway upgrades, a further upgrade of Wivenhoe Dam is scheduled to occur prior to 2035 but only for dam safety reasons in the event of a probable maximum flood and has no impact on the current event.

Wivenhoe Dam is in excellent condition with four Comprehensive Dam Safety reviews undertaken in the last 14 years, the latest in 2010.

2 WIVENHOE DAM FLOOD MITIGATION AND FLOOD OPERATIONS

2.1 What were the benefits provided by Wivenhoe Dam during the current event?

The following graphs demonstrate the significant benefits of Wivenhoe Dam in mitigating the current flood event, with reductions in flood peak from Wivenhoe Dam not existing of up to 2.5 metres in the City area and up to 5.5 metres in the Moggill area further upstream.

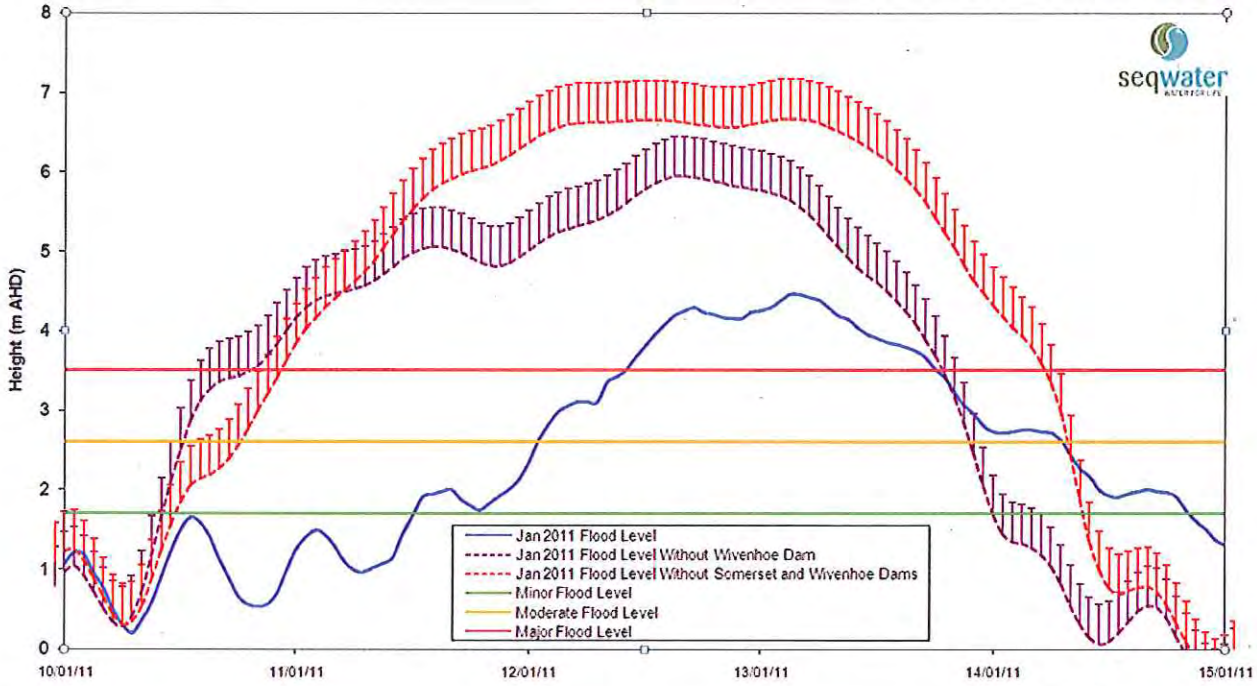
This equates to significant reduction in the potential for loss of life as well as saving in damages in the order of up to $1.6 billion based on current damage curves. Up to 13,000 more properties would have been impacted by the event without the Dam. (Source: Flood Damage Tables provided to Seqwater by the Brisbane City Council).

The time at which flood levels remained elevated above major levels has also been reduced by up to 3 days by the dam. This has significant benefits to impact on the population of the city, property damage and the recovery operation.

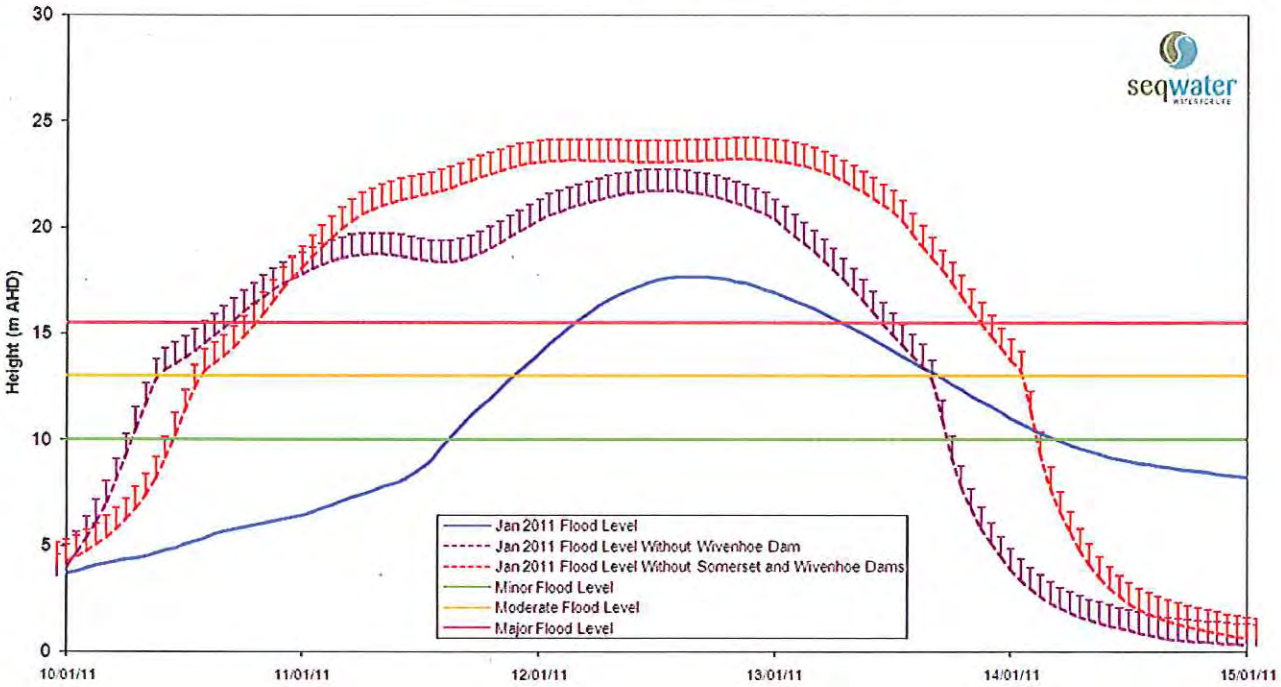
Depending on the nature of the event, the presence of Wivenhoe Dam could also potentially increase flood warning times to impacted areas. How these times may have been increased during the current event is presently difficult to quantify, but discussions will be held with BOM on this issue at a later date.

In addition, the strategy adopted to quickly close off releases once the peak in the dam had been reached and rain stopped falling certainly reduced the predicted flood peak by at least one metre in the lower Brisbane River area. This was carried out because the releases had stopped the dam from rising and careful monitoring allowed rapid reduction of releases while ensuring fuse plug initiation did not occur.

JANUARY 2011 BRISBANE FLOOD
Assessment of Flood Levels at Brisbane City



JANUARY 2011 BRISBANE FLOOD
Assessment of Flood Levels at Moggill



2.2 Why was Wivenhoe Dam only allowed to rise up to 191% and not 230%?

Wivenhoe Dam mitigates downstream flooding by storing incoming flood water during a rainfall event and releasing these waters at a reduced flow rate downstream to reduce flood impacts. The timing of the releases is also manipulated so that the aim is for outflows from the dams to impact on downstream areas only after the peak inflows from the downstream major tributaries have passed. However this aim cannot always be achieved in practice. This is because some large floods, such as the one currently being experienced, have the potential to overflow the dam's flood storage compartment. **Should this occur, the dam would fail and the resulting damage and loss of life would be at least 100 to 1000 times greater than that currently being experienced.**

Therefore the basis of all flood operation decision making is to ensure the dam never fails. This is the reason that the dam's flood storage compartment would never be intentionally fully filled as any additional inflows after this point would result in a dam failure. At any one time, there will always be uncertainty about what rain is going to occur. Hence, we cannot use all of the flood capacity as we would not be able to release sufficient water to cater for large inflows.

2.3 What is the role of the erodible fuse plug embankments?

Another factor that impacts on flood release decision making in large events are the levels at which the erodible fuse plugs are triggered. The fuse plugs act as a safety valve to rapidly increase dam outflows if the structural safety of the dam is in danger. Loss of one or more fuse plugs severely limits the ability of the dam to mitigate the effects of future flood events that may occur prior to the fuse plug or plugs being reinstated. Reinstatement of a fuse plug following an event would take a minimum of 4 to 6 months and would require an extended period of relatively dry weather.

2.4 Why weren't pre-emptive releases undertaken prior to the start of the flood event?

In the 25 days leading up to the current event, three flood events impacting on Wivenhoe Dam were experienced, with gate releases being made on all but five of those days. The total outflow from these events was around 700,000ML.

During these events, requests were received from Councils and residents impacted by bridge closures downstream of the dam to curtail releases as soon and as quickly as possible. Additionally the 2 January end date of the flood event prior to the current event meant that significant drain down of the dam prior to the onset of the current event that commenced on 6 January 2011, was not possible without major bridge inundation downstream of the dam and without exceeding minor flood levels in the lower Brisbane River.

Additionally, a flood event was also experienced in October 2010 that resulted in a release of 750,000ML from the dam. Accordingly drain down below the dam full supply level prior to the start of the first December event would not have been possible without significant bridge inundation and without exceeding minor flood levels (as defined by BOM and BCC) in the lower Brisbane River.

Regardless, significant drain down prior to the current event would have had little impact on the peak level in Wivenhoe Dam as shown in the table below. The reason for this is that this total event inflow volume of 2,600,000 ML is well in excess of the useable flood storage combined with the available water supply storages shown in the table.

The specific impact on the Lower Brisbane River of these reduced dam levels requires the use of a complex hydraulic model. The results of this modelling would still contain a degree of uncertainty as illustrated by the difficulties in estimating the final flood peak in Brisbane during the event. This is because the rapid closure of the gates after peak inflow was achieved resulted in significant water level reductions downstream and this is difficult to model accurately.

JANUARY 2011 FLOOD			
Starting Level		Peak Height	Capacity
%	m AHD	m AHD	%
100	67.0	74.97	191
95	66.5	74.93	191
90	65.8	74.88	190
75	64.0	74.63	187
50	60.0	74.11	180

It should be noted that the possible reductions shown above are based up a unique dual peaked flood hydrograph with a volume of about 2,600,000 ML which occurred during this event. A hydrograph with the same volume but a different distribution could result in a significantly lower reduction in peak water levels.
Flood operations at the dam are also highly dependent upon the flood inflow volume and a slight variation in the flood volume could significantly reduce the benefits associated with draining down the dam prior to a flood event.

2.5 Is there a detailed record of the events associated with the current flood?

A preliminary report has been prepared and is attached to this briefing.

3 THE MANUAL OF FLOOD MITIGATION AT WIVENHOE DAM AND SOMERSET DAM

3.1 What is the Manual of Flood Mitigation and how was it developed?

The Manual of Flood Mitigation for Wivenhoe and Somerset dams in its current form was developed in 1992 during an extensive hydrological study of the Brisbane and Pine Rivers catchments by DPI, Water Resources. The final reports were subject to extensive internal review by the Water Resources Group before being reviewed by an independent review panel comprising Professor Colin Apelt, Head of Department, Department of Civil Engineering, University of Queensland and Mr Eric Lesleighter, Principal Hydraulic Engineer and Chief Engineer Water Resources, Snowy Mountains Engineering Corporation. Subsequently, the Manual was extensively reviewed during the Brisbane Valley Flood Damages Minimisation Study in 2006, with the latest comprehensive review of the Manual undertaken in 2009. Both of these reviews have included expert review panels comprising key stakeholders, with the most recent review involving representatives from DERM, BOM, BCC and SunWater.

The Manual of Flood Mitigation is prepared by Seqwater as the owner of the dam and approved and gazetted by the Chief Executive of DERM in accordance with the Water Supply Act 2008. The manual defines flood objectives procedures; roles and responsibilities; and staffing and operational requirements for flood events impacting on Wivenhoe and Somerset dams.

3.2 What is contained in the Manual?

The primary objectives of the procedures contained in the Manual are, in order of importance:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers primarily, this involves minimising inundation of the seven bridges below the dam upstream of Moggill);
- Retain the storage at Full Supply Level at the conclusion of the Flood Event.

- Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

During an event, the operation of the dam transitions between the following four operating strategies depending of the circumstances at the time. These procedures associated with these strategies are explained in detail in the Manual.

- **Strategy W1** – Primary consideration is given to Minimising Disruption to Downstream Rural Life.
- **Strategy W2** – Transition Phase moving from Minimising Disruption to Protecting Downstream Urban Areas.
- **Strategy W3** – Primary consideration is to Protect of Urban Areas from Inundation.
- **Strategy W4** – Primary consideration is to protecting the structural safety of the Dam.

In addition to these strategies, historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. Accordingly for each flood event, the aim is always to empty stored floodwaters within seven days after the flood peak has passed through the dams.

4 REGULATORY CONTEXT

Operational procedures for flood mitigation for a dam are contained in the Flood Mitigation Manual approved under sections 370 to 374 of the *Water Supply (Safety and Reliability) Act 2008* (Water Supply Act). Under section 370 of the Water Supply Act, Seqwater as the owner and operator of Wivenhoe and Somerset Dams is required to prepare a Flood Mitigation Manual. The Chief Executive (CE) of DERM (or his delegate) approves the Flood Mitigation Manual, and the approval is notified in the Queensland Government Gazette. Approval can be for a period of up to five years, after which the approval needs to be renewed. There are no decision-making criteria specified in the Water Supply Act for the CE to take into account when approving the Flood Mitigation Manual.

The Flood Mitigation Manual requires, amongst other matters:

1. Flood operations to be conducted in accordance with manual's provisions, unless Seqwater considers that it is necessary to depart from the procedures of the Flood Mitigation Manual to meet the flood mitigation objectives of the Flood Mitigation Manual. The Flood Mitigation Manual sets out a consultation and approval process through Seqwater's Chair and the CE for departures from the Flood Mitigation Manual. This discretion was not exercised in the January 2011 flood event.
2. Flood operations to be under the control of CE-approved engineers (who are highly qualified and experienced)
3. Annual reporting on the preparedness and status of the flood control system for flood operations, and the training of the personnel who manage the flood events.
4. Reporting on the flood operations during flood events.
5. Reviews after flood events such as the January 2011 event, and a Seqwater report containing details of the procedures used, the reasons for such and other pertinent information. Seqwater must forward this report to the CE within six weeks of the completion of a flood event.

Section 374 of the Water Supply Act protects the CE and Seqwater from liability for complying with the Flood Mitigation Manual. It states:

> *(1) The chief executive or a member of the council does not incur civil liability for an act done, or omission made, honestly and without negligence under this part.*
>
> *(2) An owner of a dam who observes the operational procedures in a flood mitigation manual, approved by the chief executive, for the dam does not incur civil liability for an act done, or omission made, honestly and without negligence in observing the procedures.*

During November 2010, Commonwealth, State and local government agencies developed a *Protocol for Communication of Flooding Information for the Brisbane River Catchment – including Floodwater Releases from Wivenhoe and Somerset Dams* to "*ensure the provision of consistent and robust information to the community*". This is separate from the Flood Mitigation Manual, is not legally binding and is not subject to regulatory approval/review.

Some DERM staff, because of their specialist skills, work in the Flood Operations Centre that Seqwater activates to manage such events in accordance with the Flood Mitigation Manual. The Flood Operations Centre is not involved in any of the regulatory decisions concerning the dams or are members of the Office of the Water Supply Regulator,

Department of Environment and Resource Management, which undertakes the CE's regulatory functions.

5 SEQWATER REPORT

It is recommended that the process and content for reports required for this event be:

- In the short term, utilise this report attached to this briefing note as the basis for communications and discussion.
- Prepare any Interim Reports as agreed to provide information and input as required.
- Seqwater prepare a Comprehensive Report as per the existing regulatory requirements of the Act and the gazetted manual and any requirements of the Dam Safety Regulator. This would be done within 6 weeks of the closure of the current event as per the manual. This timeframe is subject to any new mobilisation of the Flood Operations Centre. The Table of Contents would include:
    - Introduction
    - Flood Event Summary
    - Mobilisation and Staffing
    - Event Rainfall
    - Inflow and Release Details
    - Data Collection System Performance
    - Data Analysis Performance
    - Communication
    - Flood Management Strategies and Manual Compliance
    - Improvements in data collection systems, practices and processes.
    - improvements by interacting agencies
    - Review of factors impacting on the protection of urban areas
    - Recommendations & Conclusions
- The report would then be reviewed by the Dam Safety Regulator in conjunction with any peer review they require. The review should cover:
    - Were the provisions of the manual complied with?
    - What improvements to either facilities e.g. stream gauges, or work practices, are desirable to improve Sewater's ability to predict inflows into the dams.
    - Are improvements to either Seqwater's facilities or work practices desirable to improve Seqwater's ability to manage events? For example, investigations to raise the dam to improve its flood storage capacity, If so, what are they and their implications

- Are changes to the facilities or work practices of other organisations desirable to improve Seqwater's abilities to manage these events?
- whether it is worth investigating increasing the flood capacity of Wivenhoe
- whether the Brisbane River crossings which act, under some situations as a constraint on the releases from Wivenhoe, should be replaced by bridges. For example if the smallest could pass , for example, 2,500 cumecs, then this could enable higher releases under some circumstances.
- Whether the policy of draining the flood compartment within 7 days should be modified.
- Given the manual's order of priorities i.e. protection of the dam etc, are any changes in the flood release strategies for either dam desirable? If so, what are they, and their implications

- Based on this review, a review of the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam would occur utilising an expert panel of review including representatives of DERM, Seqwater, BoM, affected Local Governments and other stakeholders as necessary.

seqwater

WATER FOR LIFE

JANUARY 2011 FLOOD EVENT

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1 INTRODUCTION

Wivenhoe Dam was constructed by the Queensland Government between 1977 and 1984. The dam is a 56 m AHD high and 2.3 kilometre long earth and rock embankment separated into two parts by a concrete gravity spillway. The spillway is controlled by 5 radial gates, each 12.0 metres wide by 16.0 m AHD high. Two saddle dam embankments are located on the left side of the reservoir.

The dam spillway capacity was upgraded in 2005. This was done primarily through the construction of a 164 metre wide secondary spillway through the right abutment of the existing dam. This spillway contains three erodible earth fill fuse plug embankments that are initiated at different dam levels in excess of EL 75.6.

The dam has two main functions by providing:

- A 1,165,000 ML storage at full supply level (FSL EL 67.0) providing an urban water supply for Brisbane and surrounding areas;

- Flood mitigation in the Brisbane River by providing a dedicated flood storage volume of 1,450,000 ML up to EL77 (this flood level was increased as part the 2005 upgrade to allow a water level of EL80m and a temporary flood storage volume of 1,966,000 ML with all fuse plugs initiated and the dam at the point of failure).

The dam has an EXTREME hazard classification under ANCOLD guidelines because of the significant development downstream in the Brisbane and Ipswich metropolitan areas, with the population at risk in the event of a dam failure numbering in the hundreds of thousands.

In accordance with the Queensland Regulatory program for dam spillway upgrades, a further upgrade of Wivenhoe Dam for dam safety reasons only is scheduled to occur prior to 2035 to enable the dam to safely pass the Probable Maximum Flood. This work will involve the reconstruction of Saddle Dam 2 as a fuse plug spillway.

Wivenhoe Dam is in excellent condition. Comprehensive Dam Safety reviews undertaken in accordance with ANCOLD guidelines have been undertaken in 1997 (Gutteridge, Haskins & Davey Pty Ltd), 2003 (Wivenhoe Alliance), 2006 (NSW Department of Commerce), 2009 (GHD) and September 2010 (Seqwater). The reports concluded that the design of the dam is in accordance with modern day standards and that there are no significant outstanding design or construction issues that require investigation.

2 WIVENHOE DAM FLOOD MITIGATION AND FLOOD OPERATIONS

2.1 Flood Mitigation

The Brisbane River catchment covers an area of approximately 14,000 square kilometres of which about half is below Wivenhoe Dam. Maximum overall flood mitigation effect is achieved by operating Wivenhoe Dam in conjunction with Somerset Dam. Although Somerset and Wivenhoe Dam reduce flooding in Brisbane City, major flooding can still occur. The Lockyer-Laidley Valley drains into the Brisbane River through Lockyer Creek that enters the Brisbane River just downstream of Wivenhoe Dam near Lowood. Another major tributary, the Bremer River, flows into the Brisbane River at Moggill. Wivenhoe Dam has no control over inflows into the Brisbane River from both these major tributaries.

Wivenhoe Dam mitigates downstream flooding by storing incoming flood water during a rainfall event and releasing these waters at a reduced flow rate downstream to minimise flood impacts. The timing of the releases is also manipulated so that the aim is for outflows from the dams to impact on downstream areas only after the peak inflows from the downstream major tributaries have passed. However, this aim cannot always be achieved in practice. This is because some large floods, such as the one currently being experienced, have the potential to overflow the dam's flood storage compartment. **Should this occur, the dam would fail and the resulting damage and loss of life would be at least 100 to 1000 times greater than that currently being experienced.**

Therefore the basis of all flood operation decision making is to ensure the dam never fails. This is the reason that the dam's flood storage compartment would never be intentionally fully filled as additional inflows after this point would result in a dam failure. Similarly, there will be uncertainty on future rainfall that could occur which could not be releases if there was insufficient flood storage which could not be stored or released.

Another factor that impacts on flood release decision making in large events are the levels at which the erodible fuse plugs are triggered. Loss of one or more fuse plugs severely limits the ability of the dam to mitigate the effects of future flood events that may occur prior to the fuse plug or plugs being reinstated. Reinstatement of a fuse plug following an event would take a minimum of 4 to 6 months and would require an extended period of relatively dry weather.

2.2 Flood Operations

A real time flood monitoring and forecasting system has been established in the Wivenhoe and Somerset Dam catchments. This system employs radio telemetry to collect, transmit and receive rainfall and stream flow information. The system consists of around 230 field stations that automatically record rainfall and/or river heights at selected locations in the dam catchments. Most of these field stations are owned by Seqwater with the remainder belonging to other agencies.

The rainfall and river height data is transmitted to Seqwater's Flood Operations Centre in real time. Once received in the Flood Operations Centre, the data is processed using a Real Time Flood Model (RTFM) to estimate likely dam inflows and evaluate a range of possible inflow scenarios based on forecast and recorded rainfall in the dam catchments. The RTFM is a suite of hydrologic computer programs that utilise the real time data to assist in the operation of the dams during flood events.

Seqwater engineers use the RTFM for flood monitoring and forecasting during flood events to operate the dams in accordance with a Manual of Flood Mitigation (the origin of and objectives and procedures contained in the Manual of Flood Mitigation are explained in the following section of this document). Releases of water from the dams are optimised to minimise the impacts of flooding in accordance with the objectives and procedures contained in a Manual of Flood Mitigation.

The RTFM and data collection network performed well During the January 2011 event, with no failures experienced that compromised the ability of Seqwater to operate the dam.

3 MANUAL OF FLOOD MITIGATION FOR WIVENHOE AND SOMERSET DAMS

The Manual of Flood Mitigation for Wivenhoe and Somerset Dams, in its current form, was developed in 1992 during an extensive hydrological study of the Brisbane and Pine Rivers catchments by DPI, Water Resources. The final reports were subject to extensive internal review by the Water Resources Group before being reviewed by an independent review panel comprising Professor Colin Apelt, Head of Department, Department of Civil Engineering, University of Queensland and Mr Eric Lesleighter, Principal Hydraulic Engineer and Chief Engineer Water Resources, Snowy Mountains Engineering Corporation.

Subsequently, the Manual was extensively reviewed during the Brisbane Valley Flood Damages Minimisation Study in 2006, with the latest comprehensive review of the Manual undertaken in 2009. Both of these reviews have included expert review panels comprising key stakeholders, with the most recent review involving representatives from DERM, BOM, BCC and SunWater.

The Manual of Flood Mitigation is prepared by Seqwater as the owner of the dam and approved and gazetted by the Chief Executive of DERM in accordance with the Water Supply Act 2008. The manual defines flood objectives procedures; roles and responsibilities; and staffing and operational requirements for flood events impacting on Wivenhoe and Somerset dams.

The primary objectives of the procedures contained in the flood manual are, in order of importance:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers primarily, this involves minimising inundation of the seven bridges below the dam upstream of Moggill);
- Retain the storage at Full Supply Level at the conclusion of the Flood Event.
- Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

During an event, the operation of the dam transitions between the following four operating strategies depending of the circumstances at the time. These procedures associated with these strategies are explained in detail in the Manual.

- **Strategy 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.

- **Strategy 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.

- **Strategy 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.

- **Strategy W4** – Primary consideration is to protecting the structural safety of 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 flood releases to avoid fuse plug initiation if at all possible as this would compromise flood mitigation capacity in the short to medium term.

In addition to these strategies, historical records show that there is a significant probability of two or more flood producing storms occurring in the Brisbane River system within a short time of each other. Accordingly for each flood event, the aim is always to empty stored floodwaters within seven days after the flood peak has passed through the dams.

4 JANUARY 2011 FLOOD EVENT

4.1 Background

In the 25 days leading up to the current event, three flood events impacting on Wivenhoe Dam were experienced, with gate releases being made on all but five of those days. The total outflow from these events was around 700,000ML. The details of these events are as follows:

EVENT	EVENT START DATE	EVENT END DATE	VOLUME RELEASED (ML)
1	13/12/2010	16/12/2010	70,000
2	17/12/2010	24/12/2010	150,000
3	26/12/2010	02/01/2010	470,000

During these events, requests were received from Councils and residents impacted by bridge closures downstream of the dam to curtail releases as soon and as quickly as possible. Additionally the 2 January end date of the flood event prior to the current event meant that significant drain down of the dam prior to the onset of the current event that commenced on 6 January 2011, was not possible without major bridge inundation downstream of the dam and without exceeding minor flood levels in the lower Brisbane River.

Additionally, a flood event was also experienced in October 2010 that resulted in a release of 750,000ML from the dam. Accordingly drain down below the dam full supply level prior to the start of the first December event would not have been possible without significant bridge inundation and without exceeding minor flood levels (as defined by BOM and BCC) in the lower Brisbane River.

Regardless, significant drain down prior to the current event would have had little impact on the peak level in Wivenhoe Dam as shown in the table below. The reason for this is that this total event inflow volume of 2,600,000 ML is well in excess of the useable flood storage combined with the available water supply storages shown in the table.

The specific impact on the Lower Brisbane River of these reduced dam levels requires the use of a complex hydraulic model. The results of this modelling would still contain a degree of uncertainty as illustrated by the difficulties in estimating the final flood peak in Brisbane during the event. This

is because the rapid closure of the gates after peak inflow was achieved resulted in significant water level reductions downstream and this is difficult to model accurately.

JANUARY 2011 FLOOD			
Starting Level		Peak Height	Capacity
%	m AHD	m AHD	%
100	67.0	74.97	191
95	66.5	74.93	191
90	65.8	74.88	190
75	64.0	74.63	187
50	60.0	74.11	180

It should be noted that the possible reductions shown above are based on a dual peaked flood hydrograph with a volume of about 2,600,000 ML which occurred during this event. A hydrograph with the same volume but a different distribution could result in a significantly lower reduction in peak water levels.
Flood operations at the dam are also highly dependent upon the flood inflow volume and a slight variation in the flood volume could significantly reduce the benefits associated with draining down the dam prior to a flood event.

4.2 Event Decision Making

The following table contains a summary of the key decisions points associated with the current event. As at 16 January 2011, the event remains in progress.

DATE AND TIME	FLOOD EVENT MILESTONE
07:00 06/01/2011 (Thursday)	Rainfall is experienced in the dam catchments that will result in flood releases, however Wivenhoe releases are delayed for 24 hours to allow Lockyer Creek flood flows to pass downstream and prevent the isolation of the community dependent of Burtons Bridge. The forecast is for 150mm over the next 24 hours.
15:00 07/01/2011 (Friday)	Wivenhoe releases commence, with operational strategy W1 in use. Rainfall for the next four days is estimated to be between 140mm and 300mm, with a forecast for rain easing on Tuesday 11 January 2011. All bridges downstream of the dam with the exception of Fernvale Bridge and Mt Crosby Weir Bridge are expected to be inundated for a number of days.

06:00 09/01/2011 (Sunday)	Moderate to heavy rain periods forecast until Tuesday, but both Wivenhoe and Somerset dam levels were falling slowly, with Somerset at 1.27 m AHD above FSL and Wivenhoe 1.58 m AHD above FSL.
15:30 09/01/2011 (Sunday)	Following significant rain during the day a meeting of Duty Engineers is held. The QPF issued at 16:00 indicates 50mm to 80mm over the next 24 hours. Based on this forecast, it is anticipated that dam levels can be held to a maximum of 3.50 m AHD above FSL in Somerset and 5.5 m AHD above FSL in Wivenhoe. However, by 19:00 it was apparent that both Fernvale Bridge and Mt Crosby Weir Bridge would be inundated by the combined dam releases and Lockyer Creek flows and that the operational strategy had progressed to W2.
06:30 10/01/2011 (Monday)	Rainfall continued during the night and based on rainfall on the ground it was apparent the operational strategy had progressed to W3.
06:30 10/01/2011 (Monday)	Rainfall continued during the day but based on rainfall on the ground, operational strategy W3 remained in use. However it was apparent that any further heavy rain would result in progression of the operational strategy to W4.
08:00 11/01/2011 (Tuesday)	Rainfall continued during the night with isolated heavy falls in the Wivenhoe Dam catchment area and based on rainfall on the ground it was apparent the operational strategy would soon progress to W4 with Wivenhoe Dam exceeding 8.00 m AHD above FSL. The objective now was to limit outflows and subsequent flood damage to urban areas, while ensuring the structural safety of the dam.
11:00 11/01/2011 (Tuesday)	Rapid inflows were experienced in Wivenhoe Dam, with the dam rising almost a metre in eight hours. Releases were increased until the dam level stabilised in accordance with Strategy W4. Computer models were not reflecting actual dam inflows due to intense point rainfalls in the immediate catchment around the dam. Falls are estimated to be similar to those experienced at both Toowoomba and Upper Lockyer the previous day and are falling outside and between existing rain gauges.
21:00 11/01/2011 (Tuesday)	Wivenhoe Dam peaked. Peak release of 7450 cumecs with a level of 0.7 metres below fuse plug trigger.

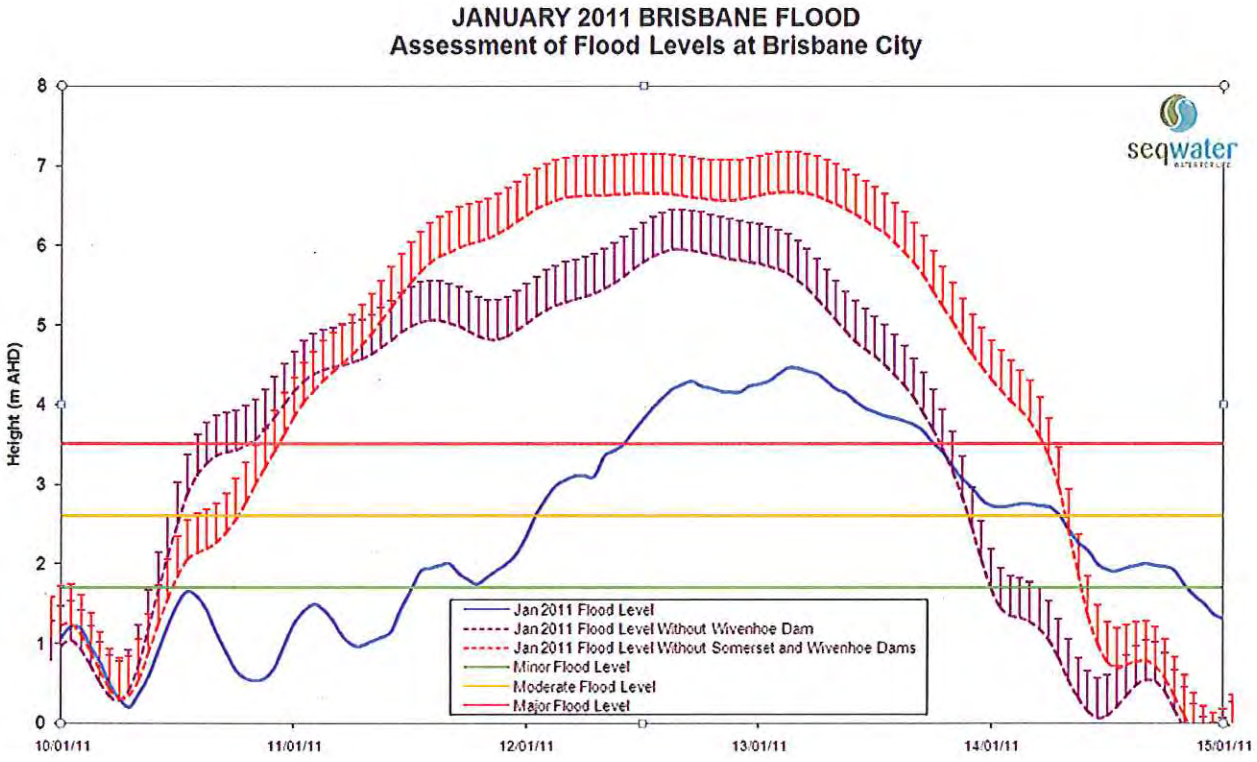
22:00 11/01/2011 (Tuesday)	Wivenhoe Dam releases were closed off as quickly as possible over the next 11 hours, while ensuring water levels in the dam did not rise further and initiate a fuse plug embankment.
08:00 12/01/2011 (Wednesday)	Minimum possible release level reached, with inflows matching outflows. Further reductions in release rate would likely cause the dam level to rise.
21:00 13/01/2011 (Thursday)	The 7 day dam drain down is commenced as Lockyer Creek and Bremer River peaks pass the Lower Brisbane area. Maximum release target is the limit of damaging floods in Brisbane being 3500 cumecs.
09:00 17/01/2011 (Monday)	Drain down continues, with released expected to cease on Wednesday 19 January 2011 unless further rainfall is experienced.

4.3 Flood Mitigation Benefits of Wivenhoe Dam

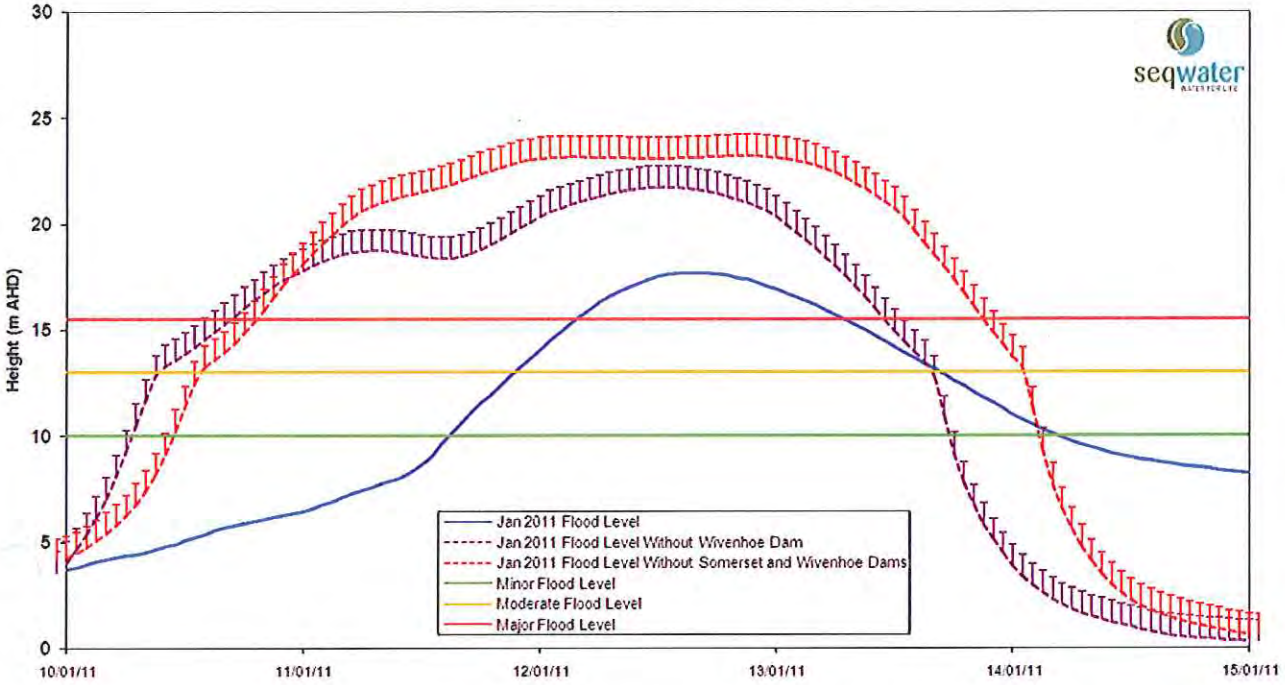
The following graphs demonstrate the significant benefits of Wivenhoe Dam in mitigating the current flood event, with reductions in flood peak of up to 2.5 metres in the City area and up to 5.5 metres in the Moggill area further upstream.

This equates to significant reduction in the potential for loss of life as well as saving in damages in the order of up to $1.6 billion based on current damage curves. Up to 13,000 more properties would have been impacted by the event without the Dam.

The time at which flood levels remained elevated above major levels has also been reduced by up to 3 days by the dam. This has significant benefits to impact on the population of the city, property damage and the recovery operation.



JANUARY 2011 BRISBANE FLOOD
Assessment of Flood Levels at Moggill



The strategy adopted to quickly close off releases once the peak in the dam had been reached and rain stopped falling certainly reduced the predicted flood peak by at least one metre in the lower Brisbane River area. This was carried out because the releases had stopped the dam from rising and careful monitoring allowed rapid reduction of releases while ensuring fuse plug initiation did not occur.

This notion is supported by BOM.

5 EVENT REVIEW

Under the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam that are approved and gazetted by the Department of Environment and Resource Management, there is a regulatory requirement that a report must be prepared as per the below wording:

"Seqwater must prepare a report after each Flood Event. The report must contain details of the procedures used, the reasons therefore and other pertinent information. Seqwater must forward the report to the Chief Executive within six weeks of the completion of the Flood Event."

Such a report was prepared for the flood events of February and March 2010 and copies are available. A copy of the Table of Contents of that report is included as Appendix 1. For this event, the report would be a comprehensive summary of all procedures, actions, outcomes and processes during the event.

It is recommended that the process and content for reports required for this event be:

- In the short term, utilise this report attached to this briefing note as the basis for communications and discussion.
- Prepare any Interim Reports as agreed to provide information and input as required.
- Seqwater prepare a Comprehensive Report as per the existing regulatory requirements of the Act and the gazetted manual and any requirements of the Dam Safety Regulator. This would be done within 6 weeks of the closure of the current event as per the manual. This timeframe is subject to any new mobilisation of the Flood Operations Centre. The Table of Contents would include:
    - Introduction
    - Flood Event Summary
    - Mobilisation and Staffing
    - Event Rainfall
    - Inflow and Release Details
    - Data Collection System Performance
    - Data Analysis Performance
    - Communication
    - Flood Management Strategies and Manual Compliance

- Improvements in data collection systems, practices and processes.
- improvements by interacting agencies
- Review of factors impacting on the protection of urban areas
- Recommendations & Conclusions

- The report would then be reviewed by the Dam Safety Regulator in conjunction with any peer review they require. The review should cover:
  - Were the provisions of the manual complied with?
  - What improvements to either facilities e.g. stream gauges, or work practices, are desirable to improve Sewater's ability to predict inflows into the dams.
  - Are improvements to either Seqwater's facilities or work practices desirable to improve Seqwater's ability to manage events? For example, investigations to raise the dam to improve its flood storage capacity, If so, what are they and their implications.
  - Are changes to the facilities or work practices of other organisations desirable to improve Seqwater's abilities to manage these events?
  - whether it is worth investigating increasing the flood capacity of Wivenhoe
  - whether the Brisbane River crossings which act, under some situations as a constraint on the releases from Wivenhoe, should be replaced by bridges. For example if the smallest could pass , for example, 2,500 cumecs, then this could enable higher releases under some circumstances.
  - Whether the policy of draining the flood compartment within 7 days should be modified.
  - Given the manual's order of priorities i.e. protection of the dam etc, are any changes in the flood release strategies for either dam desirable? If so, what are they, and their implications
- Based on this review, a review of the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam would occur utilising an expert panel of review including representatives of DERM, Seqwater, BoM, affected Local Governments and other stakeholders as necessary.

Appendix A

FINAL REPORT – FLOOD EVENTS AT WIVENHOE, SOMERSET AND NORTH PINE DAMS FOR FEBRUARY AND MARCH 2010

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Date	Time	TSR	Wivenhoe Dam Release (m^3/s)				Gate No.	Opening	Storage Level		Rainfall
			Regulators	Hydro	Gates	Total		(m)			(mm)
12/12/2010	1400	W1									
13/12/2010	1300	W2		10	290	300					
15/12/2010	1800	W3									
16/12/2010	1600	W4			0						
17/12/2010	1200	W5									Large storms yesterday pm and night; 20-50 forecast tonight
17/12/2010	1800	W6	Closed		Opening Op. Initiated						20-50 forecast o/n
	1830			13		50	63	3	0.5		
18/12/2010	0700	W7									40-50 since 16/12/2010
19/12/2010	0700	W8				350	350	3	3.5		20-30 upper Brisbane R.
19/12/2010	1800	W9				300	300	3	3		
20/12/2010	0700	W10									
20/12/2010	0900	W11								68 expected this afternoon	
20/12/2010	0900	W12									
21/12/2010	0730	W13				peak 1,280 (0500)				peak 68.24 (0400); currently 68.22 (112% cap.) falling slowly	
22/12/2010	0830	W14								currently @ 67.61 (107% cap.) falling slowly	none since 300 on 20/12/2010
22/12/2010	1600	W15			Closing sequence					to finish just>FSL	
23/12/2010	0800	W16			All gates expected to be closed by 1500					When gates closed, will be 67.2 (0.2m > FSL) & 50mm <gate opening trigger level	
23/12/2010	1430	W17				350		3	3.5	67.23	10-30 in CA over last 24 hrs.; further heavy rain expected to start on 29/12/2010
24/12/2010	0630	W18			All gates expected to be closed by 1300					67.07 expected when all gates closed	little or no rainfall
24/12/2010	1330	W19	4,200Ml/day from reg. & Hydro		Radial gate ops ceased @ 1300			3 zero			
25/12/2010	0930	W20									10-20 over last 24 hrs

26/12/2010	0800 W21					Rel. minor over last 24 hrs.
27/12/2010	0800 W22					40-50 over dam CA last 24 hrs.
28/12/2010	0700 W23	347 (initially) then back to 46				20-40 over dam CA's ;ast 24 hrs
29/12/2010	0700 W24				69.26 (@ 0600) - aim is to return to FSL by 2/1/2011	No/very little in last 24 hrs.
30/12/2010	0700 W25	Wivenhoe+Lockyer = 1,600m^3/s			69.33 peak yesterday @ 1200 (2.3m > FSL) 69.07 this am	No/very little in last 24 hrs.
31/12/2010	0700 W26 W27	Wivenhoe+Lockyer = 1,600m^3/s			68.4 @ 0500	No/very little in last 24 hrs.
6/01/2011	1200 W28	Commence opening RG @ 1800 & ramp up to 300m^3/s by 2200			67.31 @ 0700	20-30 widespread with up to 50 on dam CA's
7/01/2011	0700 W29				67.64 @ 0600	30-50 with isolated falls up to 75; signif. Rain on Lock. Ck.
7/01/2011	1500 W30	Release started 1500 to be incr. slowly to ~1,200m^3/s by 1400 tomorrow				
8/01/2011	0700 W31	~890		All (5) RG's open	68.45 @ 0600 rising steadily	Widespread rain 20-40 over dam CA's since 0900 yesterday; further high rainfall predicted for next 4 days
9/01/2011	0700 W32 W33		1,343		Currently 68.58 (falling slowly)	For last 12 hrs. av. of 40 for Somerset CA & <10 for Wivenhoe CA
9/01/2011	2100 W34		1,400		Currently @ 69.1;	Very heavy rainfall -totals for 24 hrs 100 - 300; Severe weather warning for heavy rainfall

	W35					
	W36					
	W37					
11/01/2011	0630 W38	2,750 since 1930 on 10/1/2011		All (5) gates	73.51 rising @ 25mm/hr.	20-60 last 12 hrs in Lockyer CA; 30 in Bremer R.; Isol. Falls of 125 in upper Brisbane R. & widespread falls of 40 - 70 in Somerset CA
11/01/2011	1200 W39		3,970		74.1 (179.5% cap.) rising @ 25mm/hr.	

Comments	Crossing Closures
45,000Ml from Somerset; WL|Somerset to peak at 99.7 on 13/12/2010; 150m^3/s expected through Brisbane; 30,000Ml expected into Wivenhoe from upper Brisbane R.; peak WL in Wivenhoe expected to be 67.6; Releases expected from Wivenhoe on afternoon of 13/12/2010 ramping up to 300m^3/s; Reg. will be closed & Gate 3 opened to 3m to get WL back to 67.25; Incr. release will impact on 3 crossings; Dam Regulator informed	
138m^3/s from Somerset;	Gate release will impact on 3 crossings
Releases from Wivenhoe will cease on 16/12/2010; Hydro will continue during fish recovery ops.	
Gate closed 1000	
Decision to commence a release tonight was made this am by Duty Flood Engineers to provide as much notice to impacted Councils as possible; 60,000Ml needs to be released from Wivenhoe & Somerset to maintain FSL	
Need to release >60,000Ml from Wivenhoe & Somerset to achieve FSL	
Releases could increase to 300m^3/s;	Would impact Twin Bridges, Savages Crossing, Colleges Crossing
100,000Ml to be drained in next 4 days; Q|Brisbane R. to be maintained at 300-350m^3/s;Transfer from Somerset via 2 reg.; Wivenhoe Q incr. to 150m^3/s o/n; Will incr. further to 300m^3/s as Q|Lock.Ck. Subside over next 24 hrs.; Q|Lock.Ck. Currently 130m^3/s	Twin Bridges & Savages Crossing currently closed; Colleges Crossing to be impacted in afternoon
12,000Ml/day from Somerset; Release expected until 22/12/2010;	Twin Bridges, Savages Crossing, Colleges Crossing currently closed
Somerset rel. steady (Q|reg.=140m^3/s); Q|Wivenhoe to be maintained at 300m^3/s (Lock.Ck. Permitting) to allow Burtons Bridge to remain open; WL|Wivenhoe expected to incr. to 67.4 over next 2 days;	Twin Bridges, Savages Crossing and Colleges Crossing are closed; closing of Burtons Bridge and Kholo Bridge will be considered if more rain or inflows
Somerset risen to 100.2 - sluice gate releases to be made until am of 22/12/2010 when FSL expected; WL|Wivenhoe at 68 expected this pm; Q|Wivenhoe expected to be >1,200m^3/s - discuss with impacted Cncls.- strategy decision by 10000; Wivenhoe inflows excl. Q|Somerset peak tomorrow at 1800m^3/s	Both Burtons and Kholo bridges likely to be inundated
Inflow to Somerset to peak today at 700m^3/s; Somerset & Wivenhoe currently storing 140,000Ml above FSL; further inflows occurring; releases to be incr. o/n to ~1,200m^3/s; various Cncls. Given heads up; BOM advised	Wivenhoe releases reduced slightly to keep Burtons Bridge open - then incr. releases after Somerset RegnlCncl inform residents affected by Burtons Bridge
Same as W11	
410m^3/s from Somerset sluice gates; Somerset peaked @100.43 (1300 on 20/12/2010), currently @ 100.23 (114% of cap.); 110,700Ml Inflow to Somerset,67,500Ml discharged into Wivenhoe; Wivenhoe inflow (excl. Somerset releases) = 157,900Ml, 103,000Ml released; Total Inflow to both dams ~310,000Ml; Continued gate operations may be necessary if forecast rainfall results in subsequent river rises	Kholo Bridge is also expected to be inundated by mid-morning ; In accordance with the adopted operational strategy these bridges should be back in service by late Thursday and all bridges (with the possible exception of Twin Bridges) should be trafficable for Christmas providing no further rainfall occurs.
410m^3/s from Somerset sluice gates; Somerset currently @ 99.68 (108% cap.); 121,500Ml inflow to Somerset, 103,000Ml released to Wivenhoe; Gate Ops. @ Wivenhoe; High tides expected to coincide with peak levels in Brisbane R.	Burtons Bridge & Kholo Bridge expected to be back in service by 23-24/12/2010; All bridges expected to be trafficable by Xmas provided no further rain
BOM aware of all releases	Gate closing sequence to allow bridges to be accessible
1 sluice open @ Somerset to be closed @ 0900 - WL will be 0.1m> FSL; Est. Inflow to Somerset 135,000ML, majority discharged into Wivenhoe; Gate closure ops @ Wivenhoe in progress; Wivenhoe inflow (excl. Somerset inflow) = 204,000Ml; A total of 324,000Ml has been released; Contd. gate ops may be necessary if forecast rain results in river rises; Gate closure ops sequence to be reviewed	Projected crossing openings: Burtons Bridge – 18:00 Thursday 23 December 2010. Savages Crossing – 19:00 Thursday 23 December 2010 Kholo Bridge – 21:00 Thursday 23 December 2010 Colleges Crossing – 08:00 Friday 23 December 2010
Somerset gate ops ceased @ 0900, WL @ 99.1; Gate closure sequence extended to pm of 24/12/2010; Contd. Gate ops may be necessary if forecast rainfall gives incr. river levels	Projected crossing openings: Burtons Bridge – 18:00 Thursday 23 December 2010, Kholo Bridge - 21:00 Thursday 23 December 2010; Other bridges expected to remain closed until Xmas Day
Gate ops @ Somerset ceased yesterday, reg. to be opened to bring lake to FSL; Gate ops continuing @ Wivenhoe -1 gate incr. every 5-6 hrs to ensure Brisbane R. Q not incr. due to incr. Lock. Ck. Outflows & maintain Burtons Bridge open;	Twin Bridges, Savages Crossing and Colleges Crossing are currently closed and should remain so for some time due in part to current outflows into the Brisbane River from Lockyer Creek that will peak in excess of 200 cumecs late today.
Flood Centre to monitor o/n & consider options tomorrow am based on inflows & rainfall; further gate ops may be necessary in coming days	Twin Bridges, Savages Crossing and Colleges Crossing may still be affected by flows from the Lockyer.
Somerset WL incr. from 99.18 yesterday @ 0600 to 99.33 @ 0730 today; 99.5 tomorrow if no gate ops.; Wivenhoe currently 4,200Ml through hydro & reg.; 15,00Ml expected just from upper Brisbane R. in next few days; WL cont. to fall in Lock. Ck; Small rises expected in Bremer & Warrill systems; WL in Wivenhoe incr. to 67.28 @ 600	Twin Bridges, Savages and Colleges Crossing remain impacted by Wivenhoe releases and Lockyer and local runoff. Burtons and Kholo Bridges would be currently unaffected. Kholo will no doubt still be closed by Council regarding repairs.

BOM issued severe weather warning @ 0 445; Somerset WL incr. to 99.46 (0.46m> FSL) - 2 regs. To be opened today (140m^3/s); Wivenhoe WL incr. to 67.37 (0.37m > FSL); RG to be opened later today following discussions with local authorities; further gate ops may be necessary if rainfall incr. river levels	Crossings downstream of the dam are currently impacted primarily by non-controlled river flows only (no RG releases from Wivenhoe). Lockyer Creek outflows into the Brisbane River are currently in the order of 60m^3/s. Twin Bridges, Savages and Colleges Crossings will be inundated but the plan is to release around 300-350m^3/s depending on flows downstream so as to not impact Burtons Bridge.
BOM continues with severe weather warning & widespread rainfall over dam CA's; 2 regs. @ Somerset giving 139m^3/s release, lake contd. To rise to 99.6 (0.6m> FSL); RG ops @ Wivenhoe commenced yesterday @ 0900, WL contd. To rise to 67.57 (0.57m > FSL);Q|Wivenhoe reduced o/n because of incr. Q|Lockyer to ensure Burtons Bridge remains open; RG @ Wivenhoe wound back as Q|Lockyer incr. > 250m^3/s; Q|Lockyer expected to peak>500m^3/s later today/tomorrow - will innundate Burtons Bridge;When this happens, Q|Wivenhoe will be incr. to get WL back to FSL; further gate ops may be necessary in coming days	Twin Bridges, Savages Crossing and Colleges Crossing currently closed; Burtons Bridge is currently open, but will be closed later today/tomorrow; Kholo Bridge remains unserviceable due to flood damage; No current expectation that either Mt Crosby Weir Bridge or Fernvale Bridge will be impacted by the current event; An updated estimate of the time of closure of Burtons Bridge this afternoon will be provided to Council
Sever weather warning no longer current; Somerset release through regs' ~ 208m^3/s;WL|Somerset incr. to 99.96 (0.96m>FSL) - inflows decreasing; RG opening dependent on Q|Lockyer; Wivenhoe WL currently @ 68.55 (1.55m > FSL); Inflows to Wivenhoe decr.	RG discharge dropped back to 46m3/s to ensure Burtons Bridge can remain open; Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Bridge and Kholo Bridge are currently closed; No current expectation that either Mt Crosby Weir Bridge or Fernvale Bridge will be impacted by the current event; Lockyer Creek outflows being closely monitored and may come close to impacting upon the Mt Crosby Weir Bridge; England Creek access is not impacted yet
Further 2 sluices opened @ Somerset; WL @ Somerset 99.83 & falling slowly, 2 sluices to be closed @ 1200; Intended to incr. Wivenhoe releases so Q|Wivenhoe+Q|Lockyer maintained @ 1,600m^3/s (similar Q to mid Oct &mid Dec 2010)	Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Bridge and Kholo Bridge are currently closed; no current expectation that Mt Crosby Weir Bridge or Fernvale Bridge will be impacted by current event. At this stage, estimated that the flow at Burtons Bridge will fall below the bridge deck on Sunday morning.
2 sluices @ Somerset remain open (405m^3/s) - FSL expected by 6/1/2011; RG closing sequence expected to start mid tomorrow- RG expected to be closed on 2/1/2011	
WL @ Somerset 99.01 (falling from peak of 100.0 - 1200 28/12/2010) - currently 2 regs;	Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Bridge and Kholo Bridge are currently closed
	Twin Bridges, Savages Crossing, Colleges Crossing, Burtons Bridge and Kholo Bridge are currently closed due to inundation
	Not included
Somerset @ 99.34 (0.34m > FSL) & rising slowly; Wivenhoe 67.31 (0.31m > FSL) & rising slowly; Gates will be opened in next 24 hrs; Lockyer Ck peak of about 100m3/s Friday afternoon	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. Gate release would limit mid-Brisbane Q to 400m^3/s ((Burtons capacity 450m^3/s).
100-200mm rain forecast for SE Qld next 5 days; Somerset WL @ 99.58 (0.59m > FSL) rising slowly - currently releasing 35m^3/s; Wivenhoe WL @ 67.64 (0.64m > FSL & > gate trigger level) rising slowly; u/s of dam river levels peaked @ Linville and Gregors Ck gauges; A peak of about 470 cumecs is expected from Lockyer Creek by mid-afternoon; 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 Q|Wivenhoe may be as high as 1,200m^3/s	Q|Lockyer may be of sufficient magnitude to inundate Burtons Bridge; 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, may also later impact upon Burtons Bridge & Kholo Bridge; 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
Somerset releasing 35m^3/s; 50,000Ml into Somerset; Gate release @ Wivenhoe - strategy to be reviewed tomorrow (dependent on further rainfall)	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
Somerset WL @100.42 & rising (0500) - 1 open sluice gate; Water temp. held in Wivenhoe - strategy may need to be reviewed (depend. On confidence in estimates of Wivenhoe inflows); Intended to ramp Wivenhoe up to 1,200m^3/s by 1200 - likely to be incr. next week; since 2/1/2011, ~200,000Ml has flowed into Wivenhoe (incl. Somerset releases), further 180,000Ml expected based on recorded rainfall; ~ 50,000Ml released via reg. & hydro (@50m^3/s)	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.
Somerset currently @ 100.27 - 60mm rain in last 2 hrs will cause significant inflow later today; 405m^3/s being released into Wivenhoe; maintain combined Q of 1,600m^3/s in mid-Brisbane R.	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. Cncls advised of Wivenhoe op. strategy
Not included	
Somerset @ 101.68 rising quickly; 5 sluice gates open releasing ~1,100m^3/s; WL expected to reach 103.5 by am 11/1/2011; River levels u/s Wivenhoe rising fast; Q|Brisbane R. @ Gregors Ck @ 6,700m^3/s; Wivenhoe expected to reach 73.0 by 11/1/2011 - need to incr. Q|Wivenhoe am of 10/1/2011 - crank up to 2,600m^3/s by am 11/1/2011; Attempt to keep combined Q < 3,500m^3/s - < limit of urban damages in the City	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

Not included
Not included
Not included

Somerset WL @ 103.27 & falling slowly ; currently 1,400m^3/s released to Wivenhoe- to be reduced to 500m^3/s later in the day - to ensure flood mitigation of Somerset & Wivenhoe are maximized; BOM provided advice on flash flooding in Lockyer Ck.; WL in Wivenhoe.will reach 74 by evening; May need to increase Q further - may result inQ| lower Brisbane R. >5,000m^3/s

Somerset @ 103.3 & rising; Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing; If no further rain, can hold @ 74.8 - aim is to prevent fuse plug triggering, situation assessed every 3 hrs.; 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.

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; 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.

SEQ Water Grid

Talking Points

TRIM reference: D/11/	Enquiry received:
Purpose: Wivenhoe Dam release	

Impacts of Wivenhoe and Somerset dams

- Wivenhoe and Somerset dams reduced the flood peak by 2.5 metres in the City and 5.5 metres at Moggill.
- Without the dams, up to 13,000 more houses would have been flooded. They prevented up to $1.6 billion of damages.
- Without the dams, major flooding would have lasted for three days.
- Wivenhoe and Somerset dams controlled 2.6 million megalitres of floodwater. This is 1.1 million megalitres more than in 1974.
- The dams controlled these floodwaters, providing time for peak flows from the Lockyer and Bremer to pass.
- Total flow in the Brisbane River in 1974 was 9,500 cubic metres per second. The estimated flow from this event would have been 13,000 cubic metres per second if Wivenhoe did not exist.

Operation of Wivenhoe and Somerset dams

- The dams were operated strictly in accordance with the approved Operational Procedures.
- The Operational Procedures were developed by Australia's best hydrologists, including:
    - Professor Colin Apelt, Head of Department, Department of Civil Engineering, University of Queensland
    - Mr Eric Lesleighter, Principal Hydraulic Engineer and Chief Engineer Water Resources, Snowy Mountains Engineering Corporation.
- Professor Apelt is Chair of the Brisbane City Council flood taskforce.

Rainfall forecasts

- Dam operations were based on forecasts provided by the Bureau of Meteorology.
- The rainfall during the event exceeded all forecasts.

- Rainfall was local and intense, as demonstrated by the tragic events in Toowoomba.
- It is unreasonable to expect that dam operators could foresee these events.

Pre-emptive releases

- The dam has been designed for both water supply and flood mitigation.
- Detailed Operational Procedures have been developed by leading hydrologists over many years, with a review as recently as 2009. The procedures are based on the current full supply level.
- Water was released from the dam on 20 of the 25 days leading up to this event.
- A total of 1,450 million megalitres was released between October 2010 and this event.
- These releases isolated some residents and inconvenienced many more.
- The clear decision making process in the Manual was set down since 1992 and was reviewed in 2009 to reflect the installation of the Wivenhoe Spillway upgrade. That review included independent experts from the Bureau of Meteorology, Sunwater, Brisbane City Council and the Department of Environment and Resource Management.
- It is a manual which reflects safe operating practices based on detailed hydrological analysis and technical assessments of dam safety.

Peak releases

- Outflows from Wivenhoe Dam peaked on Tuesday 11 January 2011 at 397,000 ML.
- The impact of these releases was minimised by closing down releases quickly once inflows into the dam had peaked.
- The release rate was higher for three hours, but not sustained.
- These releases accounted for only part of the increase in river levels. The Bureau of Meteorology has stated that, even at their peak, outflows from Wivenhoe Dam contributed slightly more than half the flood arriving in Brisbane (Courier Mail, 14 January).

Large releases earlier

- Releasing large volumes of water over the weekend would have had major impacts on the rural communities of the Brisbane Valley. Bridges would have been cut and communities would have been isolated with little notice.
- Over the weekend, neither rainfall forecasts nor the rain on the ground indicated with certainty that urban areas would be impacted.

Increases to above 200% (level of fuse plugs)

- Wivenhoe Dam is not designed to overtop. If it did, the dam would fail and the resulting damage and loss of life would be at least 100 to 1,000 times greater than that currently being experienced.
- To ensure that this never occurs, the dam has been designed with plugs that automatically open when it reaches more than 200% of full supply volume.
- Once opened, the rate of release through these plugs cannot be varied.
- The plugs continue to release water at this rate until the dam reaches full supply level.
- The plugs would take four to six months of dry weather to repair, rendering the flood storage compartment useless.

Changes to dam operations

- The upgrade required to meet ANCOLD standards would have had no impact on this event. It will be completed for even bigger floods.
- Options to increase the full supply level have been investigated. Had they been implemented, these options would have reduced the flood compartment, resulting in higher releases earlier.

Queensland Government

Ref CTS 19311/10

25 OCT 2010

RECEIVED
28 OCT 2010

Mr Gary Humphrys
Chair
SEQ Water Grid Manager
PO Box 16205
CITY EAST QLD 4002

Office of the
Minister for Natural Resources, Mines and Energy and Minister for Trade

Dear Mr Humphrys

I write in relation to seeking advice regarding options to and benefits of releasing water from key storages in anticipation of major inflows over the coming summer.

I understand that the key Water Grid storages are at 100 per cent of storage capacity going into the traditional wet season, with forecasts of higher than median rainfall and the prospect of multiple flood events.

I am also advised that our water supply is more secure than ever before, due to storages being full, key Water Grid projects completed and ongoing water efficiency.

I seek your urgent advice about whether this water security provides an opportunity to reduce the volume stored in key dams as a means of reducing the severity, frequency and duration of flooding in downstream areas.

In doing so, I note that recent releases from Wivenhoe Dam have resulted in significant inconvenience and isolation for residents in some downstream areas. With the catchments saturated, I understand that even quite minor rainfall events will result in further water releases and further inconvenience for these residents.

By end November 2010, I would appreciate your advice as to the available options and the likely benefits. At a minimum, you should review the operation of Wivenhoe, North Pine and Leslie Harrison dams. At least for Leslie Harrison Dam, this would be a return to standard operating procedures prior to the drought, when the dam was routinely drawn down to 95 per cent of capacity to minimise the impacts of storms on downstream residents.

I also seek your confirmation that these options would not significantly impact upon our current water security, measured as the probability of needing to reintroduce Medium Level Restrictions over the next five to ten years.

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Queensland Government

Office of the
Minister for Natural Resources, Mines and Energy and Minister for Trade

I emphasise that this is only a temporary measure, reflecting that dams are full prior to the commencement of the traditional wet season. I expect that your advice will include a clear date or trigger beyond which dams will be allowed to fill to their full supply level.

Thank you in advance for your assistance.

Should you have any further enquiries, please feel welcome to contact Mr John Bradley, Director General, Department of Environment and Resource Management on 3330 6298.

Yours sincerely

STEPHEN ROBERTSON MP

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TRIM ref: D/10/7953

24 December 2010

Hon Stephen Robertson MP
Minister for Natural Resources, Mines and Energy
and Minister for Trade
PO Box 15216
Brisbane Qld 4001

Dear Minister

I am pleased to respond to your letter of 25 October 2010 regarding options to and benefits of releasing water from key storages in anticipation of major inflows over the current wet season. Our advice follows, based on discussions with Seqwater.

Only four of the dams in South East Queensland region are gated, with the ability to release significant amounts of water in anticipation of major inflows. These are Wivenhoe, Somerset, North Pine and Leslie Harrison dams.

Detailed operational procedures have been approved for each of the gated dams. The dams will continue to be operated in accordance with these procedures. These procedures generally relate to the management of the dams and should be managed above Full Supply Level. This advice relates to the water security aspect of the management of the dams below Full Supply Level.

Based on information currently available, Seqwater has advised that releasing water to below Full Supply Level may provide some benefits in terms of reduced community and operational impacts during minor inflow events, such as has occurred over the past month. For medium and major flood events, it considers that pre-emptive releases will provide negligible benefits.

Informed by this advice, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it has no in-principle objection to minor releases from Wivenhoe, Somerset and North Pine dams to minimise the operational and community impacts of gate releases. Specifically, it has advised that it has no in-principle objection to:

- Wivenhoe and Somerset dams being drawn down to 95 per cent of their combined Full Supply Level
- North Pine Dam being drawn down to 97.5 per cent of its Full Supply Level.

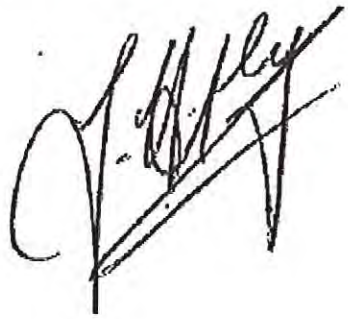
The SEQ Water Grid Manager has assessed the water security implications of the release to be negligible, having no impact on our ability to meet the risk criteria specified in the System Operating Plan or our ability to meet our supply obligations to Grid Customers. From a water security perspective, the Queensland Water Commission has also confirmed that it does not have any objections to the potential release.

Please note that these arranges are intended to apply for the current wet season only, taking into account the level of storages and the rainfall forecasts over coming months.

For future wet seasons, the SEQ Water Grid Manager will continue to work with Seqwater to investigate the optimal arrangements. In particular, we propose to further investigate options that may reduce the frequency or duration of intermediate level flows (between 1,900 and 3,500 cubic metres per second). In addition, we recommend that the investigations with the Queensland Water Commission to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply be expanded to include options involving the release of the additional water once major inflows are forecast.

I trust that this advice is sufficient. If you have any questions, please do not hesitate to contact Mr Dan Spiller, Director Operations, by telephone on 3405 0364 or by email on dan.spiller@seqwgm.com.au.

Yours sincerely



Gary Humphrys
Chair

ATTACHMENT

Wivenhoe and Somerset dams

Wivenhoe Dam can store up to 1.15 million litres (ML) of drinking water. In addition, it has the capacity to store an additional 1.45 ML of flood water.

While large, the flood compartment can be filled within days. For example, following heavy rainfall in October 2010 Wivenhoe Dam received inflows equivalent to almost half of the flood storage compartment capacity in just a few days.

Several factors influence flood release strategies for Wivenhoe and Somerset dams.

First, rain events that have caused flooding have historically been prolonged events over several days, often with a second event occurring several days to a week after the first. As a result, the operational procedures for the dam are designed to ensure that all water held in the flood compartments is released within seven days of a rain event, ensuring that the flood compartment is available for any future inflows.

Secondly, the dam only controls flood waters from part of the Brisbane River catchment area. About 50 per cent of the catchment area of the Brisbane River is upstream of the Wivenhoe Dam wall, and can be potentially controlled by it. No flood mitigation structures exist for most of the potential run-off from the other 50 per cent of the catchment area.

Third, the Bureau of Meteorology has had limited success in plotting rainfall distribution accurately to assess where most flooding risk lies above or below the dam wall. Historical floods have demonstrated that flooding can occur from both. For example, the 1974 flood flows primarily occurred below the dam wall whilst the 1890's event occurred above the dam wall. As a result, when releasing water from Wivenhoe Dam it is very important to predict and monitor below the dam wall flows so as to understand combined river flows that cause flood impacts.

Taking these factors into account, the flood release strategy for Wivenhoe and Somerset dams has a hierarchy of objectives:

- Ensure the structural safety of the dam
- Provide optimum protection of urbanised areas from inundation
- Minimise disruption to rural life
- Retain full supply level after a flood event
- Minimise impacts to flora and fauna during the drain down phase.

Within this framework, flood releases from Wivenhoe Dam typically fall into two categories of flood events based on the impact they cause when combined with below the dam wall catchment runoff:

- Larger events typically involving combined river flows greater than 3,500 cubic meters per second measured at Moggill. These events would have flood impacts on

urban areas in Brisbane. This scale of release has not been required since Wivenhoe Dam was completed.

- Smaller events with combined river flows of less than 1,900 cubic meters per second measured at the Mt Crosby weir which can inundate up to seven rural bridges isolating up to 50 households and causing inconvenience to many more. There has been six of these events since 1984, when Wivenhoe Dam was completed.

Our assessment of the benefits of lowering dam storage levels to reduce flooding impacts is below for these two event types.

Large events

Seqwater has advised that releases of greater than 3,500 cubic metres per second (m3/s) from Wivenhoe Dam are likely to impact on urban areas in Brisbane. Events of this nature have not been experienced since Wivenhoe Dam was completed in 1984.

Seqwater has advised that:

- pre-emptive releases are likely to have negligible impacts on the extent of these impacts
- any impacts would require releases of at least 250,000 ML. This is equivalent to a release of about 16 per cent of the combined storage capacity of Wivenhoe and Somerset dams.

A pre-emptive release of this scale is not recommended, based on information currently available. The potential water security impacts are considered to be more significant than the negligible benefits. These potential security impacts include costs associated with the earlier or avoidable operation of the desalination facility at capacity, as well as the increased probability of triggering the implementation of a drought response plan.

More detailed investigation of opportunities to actively manage flood storage is recommended, including options to increase flood supply level on a temporary basis. These investigations need to be led by Seqwater, and involve the Bureau of Meterology, Councils and the SEQ Water Grid Manager.

In particular, t has been identified that it is worth investigating the impacts on downstream flooding for intermediate level flows (flows between 1900 and 3500 cm^3/s).

Seqwater will undertake extensive investigations for the Queensland Water Commission in early 2011 to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply. We will recommended that the scope of this work be widened to consider the benefits of pre-lowering storage levels based on mid range rainfall events and the reduced impacts to river levels and subsequent property impacts. It is noted that predicting rainfall intensity and location, even as events are about to occur has not been accurate, however the Bureau of Meteorology is improving its methods.

Smaller events

Pre-emptive releases from Wivenhoe Dam may reduce the impacts of minor gate releases (strategies W1A to W1E in the operational procedures).

Minor gate releases may result in the closure of up to six bridges, isolating up to 50 dwellings and inconveniencing many more. As stated in existing flood management plans, releases should be managed to minimise the impacts on these residents. Over the immediate term, Councils have requested that bridge closures be avoided over the Christmas to New Year period, if at all possible. In addition:

- There are resource implications involved in the activation of the flood control centre. Under flood management plans, the centre must be staffed by suitability qualified officers at all times during gate releases. There are currently only four quality duty engineers, who have staffed the flood centre for much of period since the initial release in October.
- Gate releases during the Christmas holiday period would result in closure of dams to water based activities, impacting on up to 150,000 people who are expected to use the recreational facilities over the holiday period.

The Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released from Wivenhoe and Somerset dams to 95 per cent of storage capacity at any time until end March 2010.

Under this recommendation, storage levels could potentially be reduced by up to about 77,250 ML. This is equivalent to the amount of water released between 13 and 16 December 2010, through a single gate.

Pre-emptive releases will be managed so as to minimise the likelihood of gate releases due to small storms and local rainfall. Storage capacity will usually be reduced through a combination of:

- Extended gate releases, especially for strategy W1C. For comparison, up to 130,000 ML/day was released during in November and mid December 2010. At this rate, the additional releases could occur in about half a day.
- Ongoing gate releases of up to 30,000 ML/day, which do not isolate any residents but can inundate some lower bridges that cause inconvenience.
- Ongoing valve release of up to about 4,300 ML/day, which can be maintained without inundate any bridges.

Actual releases would be decided by Seqwater based on operational considerations and in accordance with its statutory and regulatory obligations.

Water security impacts

The water security impacts of releases will be zero if the dams fill over the remainder of the wet season. Current forecasts indicate that there is a high probability of this occurring:

- Heavy rainfall is forecast over the Christmas holiday period, as noted above.
- Over the remainder of the wet season, advice from the Bureau of Meteorology is that sea surface temperatures are likely to remain at levels typical of a La Niña event into the first quarter of 2011, with the majority of the models indicating the event will gradually weaken over the coming months.

The water security impacts will be minimal, even if there were no further inflows to the dams. Modelling indicates that the reduction would have a minimal impact on the probability of key water Grid storages falling to 40 per cent of capacity over the next five years.

North Pine and Leslie Harrison dams

North Pine and Leslie Harrison dams do not have flood mitigation potential. Once the dams have reached Full Supply Level, all water flows into the dam must be released to protect the structural safety of the dam.

Seqwater has advised that, without major releases, there are negligible benefits to reducing volumes stored in North Pine or Leslie Harrison dams for the purposes of reducing the extent or duration of any downstream flooding impacts.

For North Pine Dam, there may be some operational and community benefits to minor releases to below Full Supply Level in some circumstances. Any gate operation at North Pine Dam results in inundation of Youngs Crossing Road, which isolates a number of residents. These impacts are currently being minimised by releasing from North Pine Dam at night. With further rainfall forecast, Seqwater may choose to reduce the level to below Full Supply Level in order to reduce the frequency of night releases or the likelihood of releases being required during the day.

For this dam, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released to 97.5 per cent of storage capacity at any time until end March 2010.

For Leslie Harrison Dam, gate operations do not impact on public roads and generally only inconvenience the general public during large flood events. There is no scope to reduce this inconvenience through small pre-emptive releases. Accordingly, no in-principle approval be made for pre-emptive releases from this dam.

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brian cooper consulting

12 January 2011

Mr. Barry Dennien
CEO, SEQ Water Grid Manager
PO Box 16205
City East QLD 4002

Dear Barry,

This letter report:

- presents my final findings on a review of the operation of Wivenhoe Dam (including controlled releases) for compliance against the Flood Mitigation Manual for the period 12 December 2010 to date (Flood Event), and;
- provides advice on the prudence and appropriateness of the decisions and actions taken during the Flood Event regarding the operation of Wivenhoe Dam in light of the Flood Mitigation Manual's requirements and the circumstances of the Flood Event.

The report follows on from my preliminary report sent to you earlier today. The findings and advice are provided on the basis of information provided by SEQ Water Grid Manager which comprised the Flood Mitigation Manual and Technical Situation Reports. The latter were daily (sometimes twice daily) reports for the subject period. They gave a log of rainfall over the dam catchments and the downstream river (Lockyer Ck. and Bremer R.) catchments; inflows to Somerset and Wivenhoe Dams; storage levels; releases from the dams; details of the operation of gates and other outlets (gate openings/discharges); proposed changes in operating strategies and impacts on the various access crossings downstream of Wivenhoe Dam. In reviewing the Technical Situation Reports, I prepared a spreadsheet (see separate attachment of Excel spreadsheet *Tech Reports – Summary*, summarising the reports so that a timeline of the Flood Event could be seen at a glance. This provided a good overview of the Flood Event as it unfolded and showed what information may or may not have been included in a particular report. The Queensland Director Dam Safety (Water Supply) informed me that the Flood Operation Logs contain much more detailed information including details of the communications that were carried out and some of the more detailed information that is not necessarily included in the Technical Situation Reports. I have been provided with a draft of the "*Protocol for the Communication of Flooding Information for the Brisbane River Catchment – Including Floodwater Releases from Wivenhoe and Somerset Dams*" developed in October/November last year and currently being used. The Technical Situation Reports appear to have been an outcome of that Protocol.

The various requirements and required actions detailed in the Flood Mitigation Manual are summarised in the Table given in Attachment A. The Table also gives my comments (where appropriate) on whether there is evidence from the information presented to me, that there is satisfactory compliance with these requirements and actions.

The main aspects of the Flood Mitigation Manual are the various strategies for operating Wivenhoe Dam and Somerset Dam as well as a number of requirements relating to flood operations personnel, flood preparedness and flood training.

At Wivenhoe Dam there are four main strategies for operating the dam (W1 to W4) and at Dam there are three (S1 to S3). These strategies are hierarchical and are based on a number of flood objectives. These in descending order of importance, are:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;
- Retain the storage at Full Supply Level (FSL) at the conclusion of the Flood Event, and;
- Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

Normal procedures require a return to FSL within 7 days of the flood event peak passing through the dams so that the potential effects of closely spaced Flood Events can be allowed for.

It is apparent from the Technical Situation Reports that emphasis has been given to communicating changes in flood operations strategies with local authorities and the Bureau of Meteorology (BOM).

Until the last day or so, Wivenhoe Dam has been below EL74.0 and accordingly, would be operating under Strategy W1 i.e. make releases such that bridges downstream of the dam do not have to be closed prematurely. For a few days at the end of December and for the last day or so before yesterday's big rise, Strategy W2 would be in place (restrain releases from Wivenhoe Dam such that Brisbane River flows are maintained within the upper limit of non-damaging floods at Lowood (3,500 m3/s)). At various times during the Flood Event some of the downstream bridges have been closed. However, it is evident that action has been taken to vary dam releases such that various bridges could be re-opened as soon as possible. This appears to have been done in accordance with the flood operating strategies. The operations then moved onto Strategy W4 when the storage in Wivenhoe Dam reached about EL 73.5 (before the W4 trigger level of EL 74) when yesterday's heavy rain came on and it was assessed that there was a chance that the first (central) fuse plug could be triggered. It was then a matter of juggling the radial gate openings in an attempt to circumvent any fuse plug triggering. A graph of storage levels for Wivenhoe and Somerset Dams (from information taken from the Technical Situation Reports) showing the limits for the various Wivenhoe Dam flood strategies is given in Attachment A. It is apparent from this graph, that the appropriate flood operation strategies were adopted. The Technical Situation Reports indicate that proposed changes in strategy were appropriately communicated with appropriate authorities in accordance with the new Communication Protocol.

Summary:

The Technical Situation Reports comply with the requirements of the new Communication Protocol. However, I feel that there could be more consistency in the information presented. There seem to be gaps in information presented such as storage levels (see spreadsheet and graph in Attachment A). It would be useful to specify the minimum information required to be presented in the Technical Situation Reports (storage levels, inflows, recent/current rainfall, forecast rainfall, releases from dams, estimated flows from downstream tributaries, current flood operating strategy for each dam and proposed change in strategy, gate and regulator operations, state of downstream road crossings etc). Most of the minimum information is already given, but not in a consistent manner. As a means of reviewing processes followed during a flood, it would be useful to present a timeline of the flood event showing graphs of storage levels and other data that can be easily presented in a graphical manner.

I am informed by the Queensland Director Dam Safety (Water Supply) that the various requirements of the Flood Mitigation Manual relating to requirements for flood operations personnel, flood preparedness and flood training have been adhered to. There are a number of other requirements however, that I am not able to say whether they were satisfied as I had insufficient information. These requirements (see Table in Attachment A) should be subject to a separate audit.

It appears to me that the decision to implement Strategy W4 was a prudent one. While it would cause some damage in the Brisbane River downstream, its implementation, considering forecast rainfalls and projected flows in Lockyer Ck. And the Bremer River, would allow reduction of the storage level in

Wivenhoe Dam. This reduction in storage level would hopefully provide a sufficient buffer that would minimise the chance of a fuse plug triggering in the auxiliary spillway. Triggering of the first (central) fuse plug would cause a sudden increase of flow of some 2,000m^3/s from Wivenhoe Dam. This increase in flow would cause significantly more flooding in the lower Brisbane River than that caused by early implementation of Strategy W4.

Conclusions:

The strategies as set out in the Flood Mitigation Manual have been followed, allowing for the discretion given to making variations in order to maximise flood mitigation effects. The actions taken and decisions made during the Flood Event appear to have been prudent and appropriate in the context of the available knowledge available to those responsible for flood operations and the way events unfolded.

There are a number of requirements where there was insufficient time given the urgency of this review, to source the necessary information for me to demonstrate compliance. However, satisfaction or otherwise of these requirements would have had little impact on the operation of the two dams during this particular Flood Event. It is intended that they be audited when time permits, after the Flood Event.

There are aspects of the Technical Situation Reports that could be improved and these have been discussed above.

Regards,



Brian Cooper

ATTACHMENT A

Action Requirements extracted from the Flood Mitigation Manual:

Action	Comment
The Flood Mitigation Manual contains the operational procedures for Wivenhoe Dam and Somerset Dam for the purposes of flood mitigation and must be used for the operation of the dams during flood events.	Appears to have been done
Sufficient numbers of suitably qualified personnel are available to operate the dams if a Flood Event occurs.	Director of Dam Safety is satisfied
The level of flooding as a result of emptying stored floodwaters after the peak has passed is to be less than the flood peak unless accelerated release is necessary to reduce the risk of overtopping.	See Note 1
A regular process of internal audit and management review must be maintained by Seqwater to achieve improvements in the operation of the RTFM.	See Note 1
Seqwater must maintain a log of the performance of the data collection network. The log must include all revised field calibrations and changes to the number, type and locations of gauges. Senior Flood Operations and Flood Operations Engineers are to be notified of all significant changes to the Log.	See Note 1
Seqwater must maintain a log of the performance of the RTFM. Any faults to the computer hardware or software are to be noted and promptly and appropriately attend to.	See Note 1
Seqwater must ensure that all available data and other documentation is appropriately collected and catalogued for future use.	See Note 1
Seqwater must ensure that information relevant to the calibration of its field stations is shared with appropriate agencies.	See Note 1
Seqwater must liaise and consult with these agencies with a view to ensuring all information relative to the flood event is consistent and used in accordance with agreed responsibilities: • Bureau of Meteorology (issue of flood warnings for Brisbane River basin); • Department of Environment and Resource Management (review of flood and discretionary powers); • Somerset Regional Council (flood level information for upstream of Somerset Dam and upstream and downstream of Wivenhoe Dam); • Ipswich City Council (flood level information for Ipswich), and; • Brisbane City Council (flood level information for Brisbane City).	Required also by draft of Communications Protocol. Technical Situation Reports infer compliance
Seqwater must report to the Chief Executive by 30 September each year on the training and state of preparedness of operations personnel.	See Note 1
Seqwater must provide a report to the Chief Executive by 30 September each year on the state of the Flood Monitoring and Forecasting System and Communication Networks.	See Note 1

Action	Comment
After each significant flood event, Seqwater must report to the Chief Executive on the effectiveness of the operational procedures contained in this manual.	It is too early for this action to be implemented. Will be implemented when the Flood Event is finished
Prior to the expiry of the approval period, Seqwater must review the Manual pursuant to provisions of the Act.	It is too early for this action to be implemented
Strategies are changed in response to changing rainfall forecasts and stream flow conditions to maximise the flood mitigation benefits of the dams.	Technical Situation Reports indicate that this is done
When determining dam outflows within all strategies, peak outflow should generally not exceed peak inflow.	Information from Seqwater indicates that the requirement was satisfied
Protocol for use of discretionary powers (i.e. who gets told)	Director of Dam Safety is satisfied – I don't know whether Seqwater CEO or Chairperson approved – See Note 1

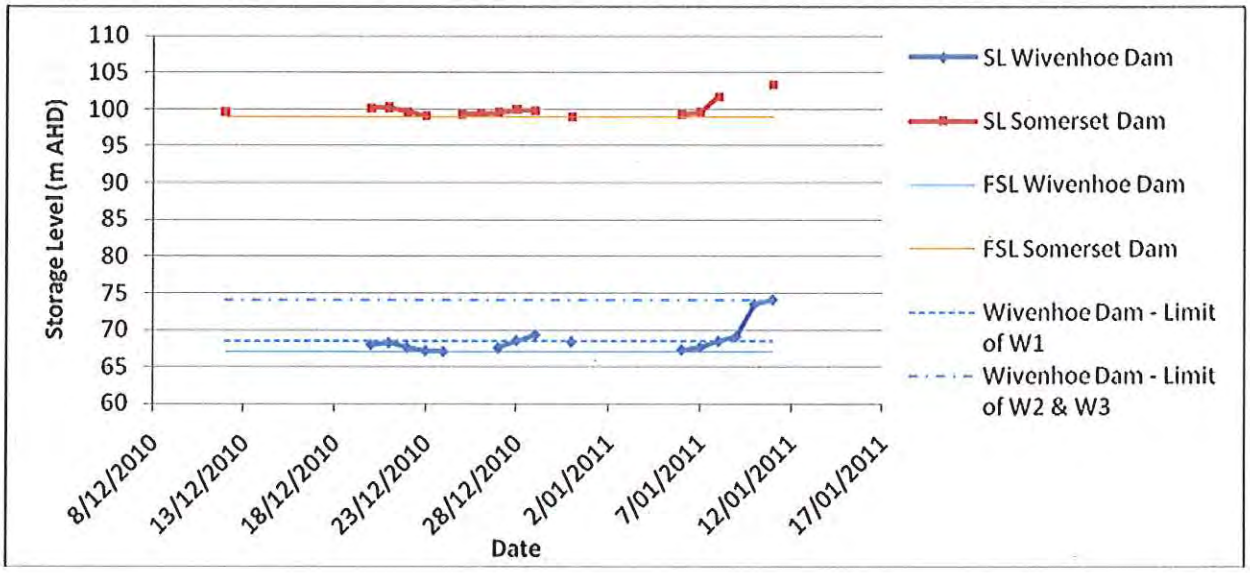
Note1: For a number of the above actions, given the short time frame for the review on compliance of actual flood operations with the Flood Mitigation Manual, it was not possible to source some of the information required to confirm that requirements had been fulfilled. These actions will be audited separately, when time permits.

Action	Comment
Flood Strategies for Wivenhoe Dam:	
The intent of Strategy W1 is to not to submerge the bridges downstream of the dam prematurely (see Appendix I). The limiting condition for Strategy W1 is the submergence of Mt Crosby Weir Bridge that occurs at approximately 1,900 m^3/s . For situations where flood rains are occurring on the catchment upstream of Wivenhoe Dam and only minor rainfall is occurring downstream of the dam, releases are to be regulated to limit, as much as appropriate in the circumstances, downstream flooding.	Technical Situation Reports indicate that every attempt was made to keep the specified road crossings open
The intent of Strategy W2 is limit the flow in the Brisbane River to less than the naturally occurring peaks at Lowood and Moggill, while remaining within the upper limit of non-damaging floods at Lowood (3,500 m^3/s). In these instances, the combined peak river flows should not exceed those shown in the following table:	Technical Situation Reports indicate that Wivenhoe Dam releases were made considering concurrent flows in the Bremer River & Lockyer Ck. To delay damaging floods as long as possible
The intent of Strategy W3 is to limit the flow in the Brisbane River at Moggill to less than 4000 m^3/s, noting that 4000 m^3/s at Moggill is the upper limit of non-damaging floods downstream. The combined peak river flow targets for Strategy W3 are shown in the following table. In relation to these targets, it should be noted that depending on natural flows from the Lockyer and Bremer catchments, it may not be possible to limit the flow at Moggill to below 4000 m^3/s. In these instances, the flow at Moggill is to be kept as low as possible.	
The intent of Strategy W4 is to ensure the safety of the dam while limiting downstream impacts as much as possible. This strategy normally comes into effect when the water level in Wivenhoe Dam reaches EL74.0 m AHD. However the Senior Flood Operations Engineer may seek to invoke the discretionary powers of Section 2.8 if earlier commencement is able to prevent triggering of a fuse plug. There are no restrictions on gate opening increments or gate operating frequency once the storage level exceeds EL74.0 AHD, as the safety of the dam is of primary concern at these storage levels.	Technical Situation Reports indicate that Wivenhoe Dam releases were such as to delay adopting this strategy as long as possible
Where possible, total releases during closure should not produce greater flood levels downstream than occurred during the flood event.	Technical Situation Reports indicate that this requirement was satisfied
The aim should always be to empty stored floodwaters stored above EL 67.0m within seven days after the flood peak has passed through the dams.	Technical Situation Reports indicate that

Action	Comment
	emphasis was given to satisfying this requirement
Flow in the spillway to be as symmetrical as possible with the centre gates opened first.	Technical Situation Reports indicate that this was done
The bottom edge of the radial gates must always be at least 500mm below the release flow surface.	See Note 1 above

Action	Comment
Flood Strategies for Somerset Dam:	
The intent of Strategy S1 (Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam not expected to reach EL 67.0 (FSL) during the course of the Flood Event) is to return the dam to full supply level while minimising the impact on rural life upstream of the dam. Consideration is also given to minimising the downstream environmental impacts from the release.	Technical Situation Reports indicate that this was done
The intent of Strategy S2 (Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam level expected to exceed EL 67.0 (FSL) but not exceed EL 75.5 (fuse plug initiation) during the course of the Flood Event). This to maximise the benefits of the flood storage capabilities of the dam while protecting the structural safety of both dams. The Flood Mitigation Manual contains a graph that shows the intended interaction of the Wivenhoe Dam and Somerset Dam storage levels.	Technical Situation Reports indicate that this was done – little information on the operation of the radial gates at Somerset Dam. How the graph was followed not really demonstrated
The intent of Strategy S3 (Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam level expected to exceed EL 75.5 (fuse plug initiation) during the course of the Flood Event) is to maximise the benefits of the flood storage capabilities of the dam while protecting the structural safety of both dams.	Not relevant at this stage
The safety of Somerset Dam is the primary consideration and cannot be compromised and its peak level cannot exceed EL 109.7.	Maximum level only EL103.3

Wivenhoe & Somerset Dams – Storage Level Behaviour (as presented in Technical Situation Reports)



brian cooper consulting



Brian Cooper

Dams Engineer

Qualifications & Affiliations

Short courses on finite element analysis, embankment dam engineering, earthquake engineering. Published technical papers – ICOLD. ANCOLD and I.E. Aust. Attended dam safety course at USBR (Denver, USA) in 2002

Bachelor of Engineering (B.E. Hons), 1968 and Master of Engineering Science (M.Eng.Sc.), 1971

University of New South Wales

Graduate Diploma of Engineering Management, 1994 Deakin University

F.I.E. Aust.,C.P.Eng. RPEQ

Expertise

Brian has approximately 40 years experience in investigation and design of major dams, weirs and hydraulic structures, having started his career designing farm dams and small irrigation schemes. He retired from NSW Department of Commerce in 2005. Brian now works as a private consultant specialising in dams engineering and fish passage at dams and weirs. He has a special interest in risk assessment and computer modelling in general and the seismic analysis of dams in particular. Engineering software (concrete dam stability analysis and flood routing) written by Brian is still used extensively in the Dams & Civil Group of the Department of Commerce. He also has particular experience with concrete dams and the use of post tensioned ground anchors for strengthening those dams. He was a member of the Australian National Committee on Large Dams (ANCOLD) Working Group that developed guidelines for 'Design of Dams for Earthquakes' and a member of the Working Group that revised the guidelines for 'Risk Assessment for Dams'. He has been a guest lecturer for a number of years (most recently in 2009) on concrete dam engineering for the University of NSW post graduate Embankment Dam Engineering Course, and on the history of dams in NSW at Sydney University.

He has been the project director and project manager for a number of feasibility studies, design reviews, site investigations and detail design consultancies for major dams and weirs including the direction and co-ordination of all specialist services including dambreak studies, preparation of dam safety emergency plans and risk assessments. He is currently an expert reviewer for a number of Australian water authorities and consultants (State Water Corporation (NSW), Hydro Tasmania, SunWater (Queensland), Brisbane City Council, Goulburn-Murray Water, Goulburn Valley Water, WA Water Corporation, Southern Rural Water (Victoria), URS, GHD, Hobart Water, NT PowerWater, and TrustPower (NZ)). He has also worked as a sub-consultant for a number of consulting firms (URS, MWH, GHD).

Brian is the Engineers Australia representative for the NSW Dams Safety Committee (the dam safety regulator in NSW) and is currently the Chairman of that organisation. He has been a member of the Murray Darling Basin Authority's Fish Passage Task Force which advises inter alia on the installation of fishways on the Murray River as part of the Living Murray Program.

Brian is a registered engineer in Queensland (RPEQ No. 6819). He started his own consulting business in 2008, advising on dam safety, dam design and analysis, dam risk assessments and dam upgrades as well as fish passage for dams. He is providing specialist advice through *Brian Cooper Consulting* as a sole trader.

Professional Experience

2008 to Present: Principal of Brian Cooper Consulting

2010
Five yearly comprehensive dam safety inspection of Carcoar Dam (double curvature arch dam).
Internal reviewer to URS (Melbourne) on concept design of regulator structures and associated fishways for the Hipwell Road project for watering the Gunbower Forest
Specialist adviser to Melbourne Water – valve behaviour on Sugarloaf Dam pipeline, structural behaviour of pumping station floor slab and pump bases at Cardinia Dam Pumping Station
Commenced work as member of ANCOLD working group re-writing the Earthquake Guidelines – responsible for re-writing sections relating to concrete dams.
Continuing involvement with Alluvium in the design of the weir upgrade and the new fishway for Booligal Weir.
Continuing external peer review services to State Water Corporation for the detail design of new auxiliary fuse plug spillways for Copeton and Chaffey Dams, detail design of raising and post tensioned strengthening of Keepit Dam, detail design of upgrade works for Wyangala Dam, finite element analysis of Carcoar Dam (double curvature arch dam).
Further work with GHD (Perth) on risk assessment for Serpentine Dam.
Continuing involvement with Hydro Tasmania, as Chair of external review panel for Catagunya Dam.

2009
Part of URS' comprehensive inspection team for Melbourne Water's Maroondah Dam.
Part of URS' business risk assessment team for Southern Rural Water's Cowwarr and Maffra Weirs.
Part of Alluvium's design team upgrading Booligal Weir and providing a fishway at the weir, for State Water Corporation.
Part of GHD's design team for Lower Fitzroy River Infrastructure Project designing fishways for Rookwood and Eden Bann Weirs near Rockhampton in Queensland.
Project Manager on behalf of SA Water and reviewer for study into vibration of a crane rail beam at Lock 5 on the River Murray.
Expert reviewer for State Water Corporation for 3D finite element analysis of Carcoar Dam (double curvature arch dam).
Internal reviewer for URS on Laanecoorie Dam Upgrade.
Expert reviewer for State Water Corporation for risk assessments for Oberon and Rydal Dams.
Member of GHD's Serpentine Dam risk assessment team for WA WaterCorp.
Expert reviewer for SunWater in Queensland for the comprehensive risk assessment undertaken for Fairbairn Dam and Coolmunda Dam.
Expert reviewer for State Water Corporation for major upgrade works at Keepit, Copeton, Chaffey and Wyangala Dams.
Appointed as Chairman of the NSW Dams Safety Committee (the dam safety regulator in NSW).
Provided external peer review for Goulburn Valley Water, on Nine Mile Creek Dam Upgrade.
Internal reviewer for URS (Adelaide) for Lake Victoria Outlet Regulator options studies.
Provided advice to URS (Melbourne) on the Mildura Weir Fishway design.
Member of expert panel advising State Water Corporation on revised dam surveillance regime.
Part of Ecosmart bid team - prepared concept designs for fish passage facility at proposed Wyaralong Dam in Queensland.
Continuing expert review role for Catagunya Dam upgrade.

2008
Started as a private specialist dams consultant - *Brian Cooper Consulting.*
Worked through the URS Corporation for the USBR and the USACE in developing a risk toolbox for lined spillways.
Advised TrustPower in New Zealand on replacement of post tensioned anchors at Mahinerangi No. 1 Dam.
Adviser to State Water Corporation and to URS on further upgrade works for Hume Dam.
Provided specialist advice to WA Water Corporation on Wellington Dam post tensioning.
Peer reviewer on behalf of URS for Warren Dam in South Australia.
Part of URS team carrying out portfolio risk assessment of Melbourne Water's dams.
Member of Expert Review Panel for Darwin River and Manton Dams for NT PowerWater.

1987 to 2008: Dams & Civil Section of NSW Department of Public Works and Services/NSW Department of Commerce.

2008 Carried out detailed 3D finite element analysis of radial gate at Wyangala Dam spillway for State Water Corporation.
Continuing review role for Tillegra Dam.
Continuing review role for Hinze and Lake Manchester Dams in Queensland and Catagunya Dam in Tasmania.
Prepared options report on Burrendong Dam spillway modifications for State Water Corporation.

2007 Continuing roles on Lake Manchester, Hinze, Catagunya and Redbank Ck. Dams.
Internal peer reviewer for NSW Dept. of Commerce regarding design of Tillegra Dam.
Advised State Water on feasibility of fish passage facilities at a number of their major irrigation dams.
Expert reviewer for GHD on a flood retarding basin in south west Sydney.
Part of expert panel for River Murray Water risk assessments for Hume and Dartmouth Dams, Torrumbarry and Yarrowonga Weirs and Lake Victoria.
Re-elected as Deputy Chairman of the Dams Safety Committee

2006 Project director for 3D finite element analysis of Bendora Dam (double curvature arch dam)
Chair of external peer review panel for upgrading of Lake Manchester Dam (concrete gravity dam) in Queensland
Internal peer reviewer and senior consultant for the raising of Hinze Dam (earth and rockfill embankment) in Queensland
Project director for preliminary and detailed design of Redbank Creek Dam (single curvature arch dam) upgrading
Project director for Keepit Dam fish passage investigations
Part of expert panel for URS undertaking portfolio risk assessment for dams owned by River Murray Water
External peer reviewer for Hydro Tasmania for Catagunya Dam (concrete gravity dam) upgrading;
Project director for 3D finite element analysis of Upper Cordeaux No. 2 Dam (single curvature arch dam owned by SCA) for BHP Billiton

2005 Project design engineer for dam related aspects of Nepean Dam Deepwater Access Project: Pipeline crossing end of spillway; outlet works for end of pipeline
Project design engineer for Avon Dam Deepwater Access Project: tunnel design through rockfill buttressing; new low level outlet works

2004 Internal reviewer to URS Australia for Pykes Ck Dam Investigations (Southern Rural Water, Victoria)
Internal reviewer to URS Australia for Lower Reservoir Dam (Hobart Water, Tasmania)
Member of expert review panel for the Melton Dam upgrade design (Southern Rural Water, Victoria)

2003/04 Designer for retrofitting multi-level offtake for Tallowa Dam (Sydney Catchment Authority).
Member of the Independent Technical Expert Panel for the Eildon Dam Upgrading in Victoria for Goulburn-Murray Water.
Currently the design director for the Wivenhoe Dam Alliance carrying out the flood capacity upgrading for Wivenhoe Dam in Queensland – included directing major computational fluid dynamics modelling investigations of existing spillway

2003 Carried out options study for environmental upgrading works at Keepit Dam (selective withdrawal facility, additional outlet works and fish passage)
Carried out assessment of spillway capacity for Hume Dam using computational fluid dynamics modelling (by a sub-consultant)
Carried out detail design for anchoring Bellfield Dam (Victoria) Intake Tower
Carried out detailed finite element analysis of Keepit Dam radial gates

2002 Carried out review of large farm dam with seepage problems. Directed computational fluid dynamics modelling of drum gate and radial gates at Warragamba Dam together with structural analysis of gates (modelling carried out by sub-consultant) to ensure gates can handle more

rigorous operating conditions
Adviser to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) on civil engineering matters related to the replacement reactor project at Lucas Heights
Expert reviewer for Goulburn-Murray Water for remedial works at Cairn Curran Dam in Victoria
Project Director for Lerderderg Weir safety review and risk assessment for Southern Rural Water (Victoria). Carried out finite element analysis of radial gate

2001

Project Director for design of further remedial works at Hume Dam.
Technical director on behalf of NPWS for quantitative risk assessment for Snowy Mountains roads
Chairman of the committee producing a geotechnical response plan for the Alpine Way in the Snowy Region for NPWS
Carried out non-linear finite element analysis (earthquake loading) for outlet tower at Bellfield Dam for Wimmera-Mallee Water (Victoria)
Joined the MDBC's Fish Passage Reference Group and reviewed fishway designs
Consultant to DLWC for their portfolio risk assessment of thirty dams
Provided advice on the post tensioning system at Waitakere Dam in New Zealand.

Director of Dam Surveillance Group responsible for the surveillance of DLWC dams and participant of a number of 5 yearly surveillance inspections
Project Director of review of DLWC Intake Towers Earthquake Stability Review
Directed DPWS input into the Earthquake Stability of the structural elements of Yarrawonga Weir as sub-consultant to URS Australia – included detail design of anchoring system for the weir.
Also provided design advice on design of stone columns to provide protection against liquefaction of alluvial foundations.
Member of the expert panel for the risk assessment studies being undertaken for Goulburn-Murray Water
Project Director for safety review and preliminary design of remedial options for Blowering Dam (DLWC)
Acted as reviewer for a number of projects carried out by URS (incl. Cardinia Dam outlet tower, Bellfield Dam embankment/spillway)
Directed functionality study (including business risk assessment) for Yallourn Weir for Southern Rural Water (Victoria)

2000

Project Director for design of further investigations and remedial works at Hume Dam.
Safety reviews for Bamarang and Flat Rock Dams
Director of Dam Surveillance Group responsible for the surveillance of DLWC dams and participant of a number of 5 yearly surveillance inspections
Project Director for earthquake studies on intake towers and appurtenant works at DLWC dams
Consultant to DLWC to manage their portfolio risk assessment
Project Director for a number of dambreak studies and preparation of dam safety emergency plans
Member of the consulting team carrying out risk assessments for Goulburn-Murray Water (Victoria) for Eppalock Dam
Carried out review of Earthquake Stability Review of the Outlet Tower at Eppalock Dam in Victoria for G-MW.
Reviewed URS Australia designs for Alpine Way remedial works

1999

Project Director of earthquake studies on Wyangala Dam
Project Director for design of further remedial works at Hume Dam. Included design of ground improvement works (stone columns) for protecting alluvial foundations against liquefaction
Peer reviewer of Leslie Dam (Queensland) Safety Report.
Peer reviewer of DLWC's Screening Level Risk Assessment

1998

Project Director for portfolio risk assessment for six dams owned by a Southern Rural Water in Victoria.
Directed structural analysis of spillway gates on Narracan Dam for Southern Rural Water
Project Director for concept design and DD&C contract documentation for Warragamba Dam auxiliary spillway. Dam to be upgraded the dam to cater for increased inflow flood estimates. Upgrading works estimated to cost $135M. An auxiliary spillway is to be constructed adjacent to the existing dam - involves excavating some 2,000,000m³ of rock and constructing concrete lining, training walls, fuse plug embankments, large scale cement stabilised sandstone fill, a multi

span bridge across the spillway, post tensioned ground anchors for dissipator/training walls, modifications of existing spillway gates. Design involved extensive physical hydraulic model testing.

1997 Feasibility options study for remediation of Redbank Ck. Dam near Mudgee (NSW) Karapiro Dam, New Zealand - Part of international consulting team reviewing this concrete arch dam's security and determining appropriate remedial options (mass concrete buttressing). Director of risk assessment studies for Tenterfield Dam

1993-1997 Hume Dam Investigations - Project Manager of Investigation and Design Studies for the embankments at the dam. Work involves:

- review of the stability of the embankments under static and earthquake loadings
- investigation of liquefaction
- potential of embankments' foundations
- development of stabilising options
- development of options to provide increased flood security including provision of new auxiliary spillways and modifications to existing works

- detail design and documentation of stabilising works for the embankments including a key trench into the dam's foundations, stabilising berms, slurry wall cut-offs, drainage/filter curtains and strengthening of critical gravity training walls with both horizontal and vertical post tensioning.

- part of advisory and review team for the risk assessment of the dam and its components.

1990-1996 Warragamba Dam Upgrading for Sydney Water Corporation - Project Manager of Investigation Concept Design Studies for upgrading the dam to cater for increased inflow flood estimates and provide substantial flood mitigation. Upgrading works estimated to cost $280M. The existing dam was to be strengthened with mass concrete buttressing – some 600,000m³.

1996 Project Director for Safety Review (including Finite Element Analysis) of Wellington Dam

1993-1996 Hume Dam Gates for Department of Water Resources - Project Manager for the design of new maintenance baulks and emergency closure gates. Involves development of proposals for underwater installation.

1995 Redbank Creek Dam and Lithgow No. 2 Dam for NSW Public Works Dams Surveillance - Project Manager for safety reviews and finite element analysis of two 15m high arch dams. Clarrie Hall Dam for NSW Public Works Dams Surveillance - Project Manager for dambreak studies.

1994 Burrinjuck Dam Gates for NSW Department of Water Resources - Project Manager for the design of new control and emergency closure gates. Involves underwater installation. Karangi Dam for Coffs Harbour City Water Project - Project Manager for dambreak studies.

1993 Mardi Dam for Wyong Council - Project Manager for safety review of earth embankment.

1988-1990 Nepean Dam Remedial Works for Sydney Water Corporation - Project Manager for investigation studies, design development and detail design. Work involved:

- initial flood security studies and development of options
- co-ordination of hydraulic model studies
- detail design and contract documentation for modified spillway, large size post-tensioned ground anchors and rockfill buttressing.

1987-1989 Boggabilla Weir for NSW Department of Water Resources - Project Manager for detail design and contract documentation of a large gated re-regulation weir with fishway. Involved liaison with fisheries expert in developing optimum geometry for fish ladder.

Chaffey Dam for NSW Department of Water Resources - Project Manager for upgrading of dam. Work involved:

- development of options and preliminary design
- finite element analyses for raised morning glory spillway
- stability analyses for raised earth/rockfill embankment
- co-ordination of hydraulic model studies for raised spillway.

1969-1987: ***Water Resources Commission of NSW (WRC) (now Department of Land and Water Conservation).***

1986-1987 Flood Security studies for WRC - Project Design Engineer for investigation into flood security of Chaffey and Glennies Creek Dams. Involved co-ordinating dambreak studies, development of remedial options, economic risk studies.

1985-1987 Hume Dam Strengthening for WRC - Project Design Engineer for detail design and contract documentation. Work included:

- design of large size post-tensioned ground anchors including development of appropriate grouting procedures
- design of structural modifications to the concrete gravity dam
- design of a new road bridge over the dam.
- establishing the rationale for replacing the existing post tensioning system

Contact

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Williams Lynette

From: Cook Clive
Sent: Saturday, 19 February 2011 6:34 PM
To: Bradley John
Subject: Re: CIC- Disaster Recovery Cabinet Sub Committee = Outcomes

I have emailed and left a message for Alan Brown regarding release of Operation Qlder.

Incidentally, after reading the whole thing again on Thursday, I think it doesn't quite make the build it back green, ESD, green infrastructure, sustainability ethos quite as explicitly as I would have liked and I suspect this may not be missed by our stakeholders?

Clive

----- Original Message -----
From: Bradley John
To: Best Debbie; Wall Terry
Cc: Cook Clive; Robson Chris; Jacoby Steven; Birchley Michael
Sent: Sat Feb 19 14:39:24 2011
Subject: CIC- Disaster Recovery Cabinet Sub Committee = Outcomes

-- Cabinet in Confidence --

Debbie, Terry, Chris, Steve, Clive

The DRCSC met on Friday afternoon as you know. The key outcomes for us that you should be aware of are:

1) Spatial Information Industries Group Support

At the outset of the meeting in the General Qld RA report, there was a lot of discussion/appreciation from the Premier, Ken Smith and Graeme Newton about the significant role that DERM's SIIG is playing in

* completing the flood extent mapping;
* assisting the Qld RA to confirm eligibility for assistance payments.

Graeme mentioned that there is still a fair amount of assessment and mapping still going on –

* Of the 210 towns (and suburbs), he said that 92 (43%) had been the subject of the DCS Rapid Assessment to date and of these 77 (36%) were metropolitan suburbs – so there was a substantial amount of assessment yet to occur in country towns.

* In relation to SIIG's role, as I understood Graeme's comments, he thought 46 areas have been mapped to the flood extent through DERM and other parties.

While there was recognition of the excellent role that Steve's group have been playing, Graeme expressed concern about the current outlook for getting through the remaining mapping activities faster. He flagged to the meeting that he would be discussing with me at our meeting on Monday the scope for us to look at some resourcing change (eg. external support) by which we could increase completion rates.

- ACTION: Chris/Steve, can you please consider any opportunities in this regard before I meet Graeme at 5.45 pm Monday night. I would appreciate your views on scope for any cut-through solutions, to draw in additional resources or otherwise increase completion rates.

2) Operation Queenslander

DRCSC approved consultation with the 5 Sub Groups (ie. including our Environmental Recovery SubGroup) and Local Governments on "Operation Queenslander", the State Community, Economic and Environmental Recovery and Reconstruction Plan . Note the public profile was not entirely clear - the Qld RA will liaise further with Premier's office around whether that will be a confidential consultation program or the subject of a media release.

- ACTION: Clive, can you please check with QLDRA/Alan Brown that we can do this as early as the next meeting. This may require printed copies or a PDF to be tabled.

3) DERM REPORT - Gauging Stations

The Premier mentioned to Senator Ludwig that she thought it was likely that one of the key public questions in the Inquiry was likely to be the sufficiency of gauging stations to support BOM's activities in forecasting or managing flood risk. Some members were unclear about what the BOM network was and the DERM network – I explained the different purposes of each network and confirmed the hydrological reason for our network existing but made clear they were operated in a manner that explicitly supports BOM's objectives.

The Premier suggested to Senator Ludwig that the Commonwealth should request BOM to prepare a review on the adequacy and location of its gauging station network. The Senator agreed and indicated to me that there may be a need for DERM to assist the BOM in this process, given the role of DERM's gauging network.

- ACTION: Debbie, can you please personally discuss this with Jim Davidson of the Bureau and relay these comments to him on Monday, just in case it is not actioned out of Senator Ludwig's office. In my view the primary action is a request for BOM to assess a guaging network for its purposes but we will clearly have a supporting role.

4) DERM REPORT - NRM PROJECTS/FARM CLEAN UP

I spoke to the joint workshop held this week. The Deputy Premier raised Graeme Scheu's concerns about the ability to clean up significant quantities of irrigation

tape. I said that we had been in discussions this week about the issue and, while it was not an issue we had a head of power to address under the EP Act, we would find a clear way forward and ensure the issue can be resolved. I said that Mike Birchley was meeting Cr Scheu in Toowoomba that day and that Graeme Newton and I had agreed to discuss when we meet on Monday.

- ACTION: Mike/Terry - Can I please get an update from you before lunchtime Monday on the discussion with Cr Scheu, key outcomes and proposed way forward, in advance of me meeting Graeme N at 5.45 pm Monday night.

5) Next Update for DRCSC

The Qld RA was requested to endeavour to ensure that the next Recovery update for the DRCSC was as up to date as possible before the next session of Parliament.

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