[redacted]

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 12:03 PM
To: Waldman Karen
Subject: RE: URGENT

Thanks Karen

From: Waldman Karen [redacted]
Sent: Friday, 24 December 2010 11:56 AM
To: Barry Dennien
Cc: Sommer Peter; Wong Wai Tong; Bagdon Tad; [redacted]
Subject: FW: URGENT
Importance: High

Hi Barry

The QWC has considered the request by the SEQ Water Grid Manager to comment on the proposed drawdown of:

- Wivenhoe and Somerset dams to 95% of their combined full supply level
- North Pine Dam being drawn down to 97.5% of it's full supply level

The Commission note that the Water Grid Manager has no concerns and advises that the drawdown will not infringe the risk criteria stipulated in the SEQ System Operating Plan or the interim operating strategy. The Water Grid Manager has also stated that this drawdown will not impact on their ability to meet supply obligations to the Water Grid customers. Based on this advice, the Commission has no objection to the proposed release.

It is noted also that such releases are an operational matter for Seqwater, within the context of the Resource Operations Plan, where there is no condition in the SEQ System Operating Plan that regulates releases from the dams concerned.

It is however recommended that Seqwater liaise with the Department of Environment and Resource Management to confirm their understanding of any conditions that apply, particularly in relation to dam safety matters.

Regards, Karen

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 10:17 AM
To: Bagdon Tad; Wong Wai Tong
Cc: Waldman Karen; spiller daniel @ SEQWGM
Subject: URGENT

Wiatong Tad

See attached a letter we are planning to send to Seqwater giving our permission to lower Wivenhoe below full supply level down to 95% and North Pine to 97.5% for flood mitigation purposes. The is only for the current wet season.

We request the QWC note this proposed strategy and reply appropriately by midday today.

We apologise in advance for the short turnaround period. Current weather events have made us progress this issue.

Regards

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
[redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street, Brisbane
Post: PO Box 16205, City East Qld 4002
ABN: 14783 317 630

[redacted]

From: Sommer Peter
Sent: Friday, 24 December 2010 11:17 AM
To: Barry Dennien
Cc: spiller daniel @ SEQWGM; Waldman Karen; Wong Wai Tong
Subject: RE: URGENT
Follow Up Flag: Follow up
Flag Status: Completed

Given that we will be guided by Seqwater's advice, as the experts for operating the dam, there advice would add weight to the argument.

Could you provide this?

Regards Peter

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 11:04 AM
To: Sommer Peter
Cc: spiller daniel @ SEQWGM; Waldman Karen
Subject: RE: URGENT

Peter

Our advice reflects Seqwater's advice and our joint experiences over the past weeks of flood releases.

Barry

From: Sommer Peter [redacted]
Sent: Friday, 24 December 2010 10:59 AM
To: Barry Dennien
Cc: Wong Wai Tong; Sweet Anita; Waldman Karen
Subject: FW: URGENT

To help with our response could you please provide the information provided from Seqwater on the options and benefits of the proposed release as referred to in your letter.

Regards

Peter Sommer
Director, Planning Projects
Regional Planning and Policy
[redacted]
Email: [redacted]
www.qwc.qld.gov.au

Queensland Water Commission

53 Albert Street, Brisbane Q 4000
PO Box 15087, City East Q 4002

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 10:17 AM
To: Bagdon Tad; Wong Wai Tong
Cc: Waldman Karen; spiller daniel @ SEQWGM
Subject: URGENT

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ABN: 14783 317 630

and any copies of this message from your computer and/or your computer system network.
****

[redacted]

From: Sommer Peter
Sent: Friday, 24 December 2010 11:38 AM
To: Waldman Karen; Wong Wai Tong
Subject: FW: Discussion Paper on Dam Full Supply Level Investigations Seqwater Gated Storages
Attachments: Discussion Paper on Dam Full Supply Level Investigations Seqwater Gated Storages.docx

Seqwaters advice as referred to in the proposed SEQWGM letter.

In summary Seqwaters advice was "This is not considered a viable option for the following reasons"

Regards Peter

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 11:27 AM
To: Sommer Peter
Cc: spiller daniel @ SEQWGM
Subject: Discussion Paper on Dam Full Supply Level Investigations Seqwater Gated Storages

Peter, attached.

Regards
Barry

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

Attachment 1

Discussion Paper on Dam Full Supply Level Investigations Seqwater Gated Storages

Summary of comments

The attached paper summarises an analysis that changing the initial storage level of dams has on downstream flood impacts.

Wivenhoe/Somerset System

The analysis shows that for some minor floods similar to October 2010, reducing the starting volume of Wivenhoe Dam by 5% or 10% has minimal impacts on impacts downstream. The main benefit being that inundation times for downstream bridges will be reduced but only by around15%. However peak water levels are not affected. There are minimal potential benefits to downstream bridge until dam levels are reduced down to about 50% of capacity.

These results are not unexpected as Wivenhoe has such a large flood storage. Adding say 100,000ML to the flood storage (equates to reducing the storage volume by 10%) does not appreciably increase this available flood storage.

It should also be noted that in many cases, Wivenhoe flood releases will be made following the peaks of inflows into the Brisbane River from the Lockyer and Bremer Catchments. Certainly during many events, Lockyer Creek could already have inundated most or all of the road crossings downstream of Wivenhoe Dam. In these instances, a small amount of additional flood storage in the dam provides minimal benefit.

Another option considered was pre-releasing Wivenhoe water in anticipation of a flood event. This is not considered a viable option for the following reasons:

- Regardless of forecast, there is never any certainty on the amount of rain that will fall within a dam catchment. For example, on 29 November 2010, the quantitative forecast from BOM for the Wivenhoe Catchment was 25 to 50 millimetres. Actual rainfall received was in the order of 10 millimetres. On a saturated catchment this could equate to a runoff discrepancy of hundreds of thousands of megalitres. A pre-release of anticipated flood water based on forecast could result in major embarrassment.
- Any significant pre-release of water would result in bridge inundation below Wivenhoe Dam.
- Any pre-release of water from Wivenhoe Dam will take at least 24 hours to reach the lower end of the Brisbane River system. Rains occurring in the catchments below the dam over this period could potentially worsen downstream flood impacts.

The Bureau of Meteorology has been contacted and they have confirmed the above forecast reliability assessment. They advised that, whilst weather prediction models are steadily improving, the forecast of rainfall amounts over catchment time/space scales is recognised as one of the most challenging/difficult tasks. Detailed rainfall forecasting is not deterministic - the uncertainties involved are often expressed in probablistic forecasts and whilst there is often the ability to forecast the potential for a significant rain event to occur in the southeast

Qld-northern NSW region, it is difficult (if not impossible) to predict the actual location of the heaviest rain, even with only a few hours notice.

The Queensland Director of Dam Safety (Mr Peter Allen) was contacted and he confirmed the assessment that minor reductions in the stored volume of Wivenhoe Dam would have minimal impacts on floods downstream and concurred with the risks involved in any pre release of significant volumes of water from dams prior to an event.

North Pine and Leslie Harrison Dams

Lowering the normal FSL for North Pine and Leslie Harrison Dams will have minimal impact on major floods and may not decrease releases depending on the size of even minor events. However lowering the level of North Pine Dam after a flood release to between 95% and 100% may reduce the frequency of operations in some rain events although the main benefit is in operational efficiency as it provides more time for response and may reduce making releases in a minor storm event.

Similarly reducing Leslie Harrison level to around 95% after or before an event could assist in reducing call out of staff and manning the storage for minor releases and even the timing of releases.

Normally both dams are returned to just under 100% after an event based on base inflows still occurring and possible further rain. Allowing the dams to reduce to around 95% improves the operational leeway. However this could best be provided by an operational arrangement where the WGM simply agrees Seqwater has the operational latitude to reduce both storages to between 95% and 100% after an event or when there is some inflow and Seqwater can decide the exact level based on ongoing inflows and possible predicted rainfall, but not going below 95%.

[redacted]

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 11:04 AM
To: Sommer Peter
Cc: spiller daniel @ SEQWGM; Waldman Karen
Subject: RE: URGENT
Follow Up Flag: Follow up
Flag Status: Completed
Attachments: Internal memo for Wivenhoe and Somerset December 2010 flood releases.docx

Peter

Our advice reflects Seqwater's advice and our joint experiences over the past weeks of flood releases.

Barry

From: Sommer Peter [redacted]
Sent: Friday, 24 December 2010 10:59 AM
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Cc: Wong Wai Tong; Sweet Anita; Waldman Karen
Subject: FW: URGENT

To help with our response could you please provide the information provided from Seqwater on the options and benefits of the proposed release as referred to in your letter.

Regards

Peter Sommer
Director, Planning Projects
Regional Planning and Policy
[redacted]
Email: [redacted]
www.qwc.qld.gov.au

Queensland Water Commission
53 Albert Street, Brisbane Q 4000
PO Box 15087, City East Q 4002

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We apologise in advance for the short turnaround period. Current weather events have made us progress this issue.

Regards

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
[redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street, Brisbane
Post: PO Box 16205, City East Qld 4002
ABN: 14783 317 630

SEQ Water Grid manager

Memorandum

TRIM reference: D/10/7970	**Date:** 25 January 2011
To: Gary Humphrys	
From: Barry Dennien	
Subject: Water security modelling for Wivenhoe Dam flood releases	

Purpose

To seek in principle approval for water to be released from Wivenhoe and Somerset dams to 95 per cent (%) of storage capacity at any time until end March 2011.

Background

Minister Robertson wrote to our Chair on 25 October 2010 seeking advice regarding options to, and benefits of, releasing water from key SEQ Water Grid (Water Grid) storages in anticipation of major inflows over the coming summer (**Attachment 1**).

SEQ Water Grid Manager (WGM) officers have consulted with Seqwater regarding options and benefits of releasing water from key storages. Beyond the detailed advice outlined below, Seqwater officers have reiterated that Seqwater is confident of its ability to manage floods in accordance with the approved management plans and based on the existing Full Supply Level. While not necessary, Seqwater consider that in principle agreement to reduce storages to below Full Supply Level may provide operational advantages in some situations.

Relevant dams

In South East Queensland, Wivenhoe, Somerset, North Pine and Leslie Harrison dams are gated. Gates have also been installed as part of the Hinze Dam upgrade, which is scheduled to be completed by end January 2011. Other dams have a combination of small release valves and spillways and spill when above the Full Supply Level.

Gated dams provide an opportunity for water to be released to below the Full Supply Level in anticipation of future inflows.

Controlled releases impact upon downstream river levels, with the extent of impact dependent upon the amount releases. Controlled releases are only one of several factors that impact river levels, including tide and inflows downstream of the dam wall. For example, Wivenhoe and Somerset dams control only half of the Brisbane River catchment.

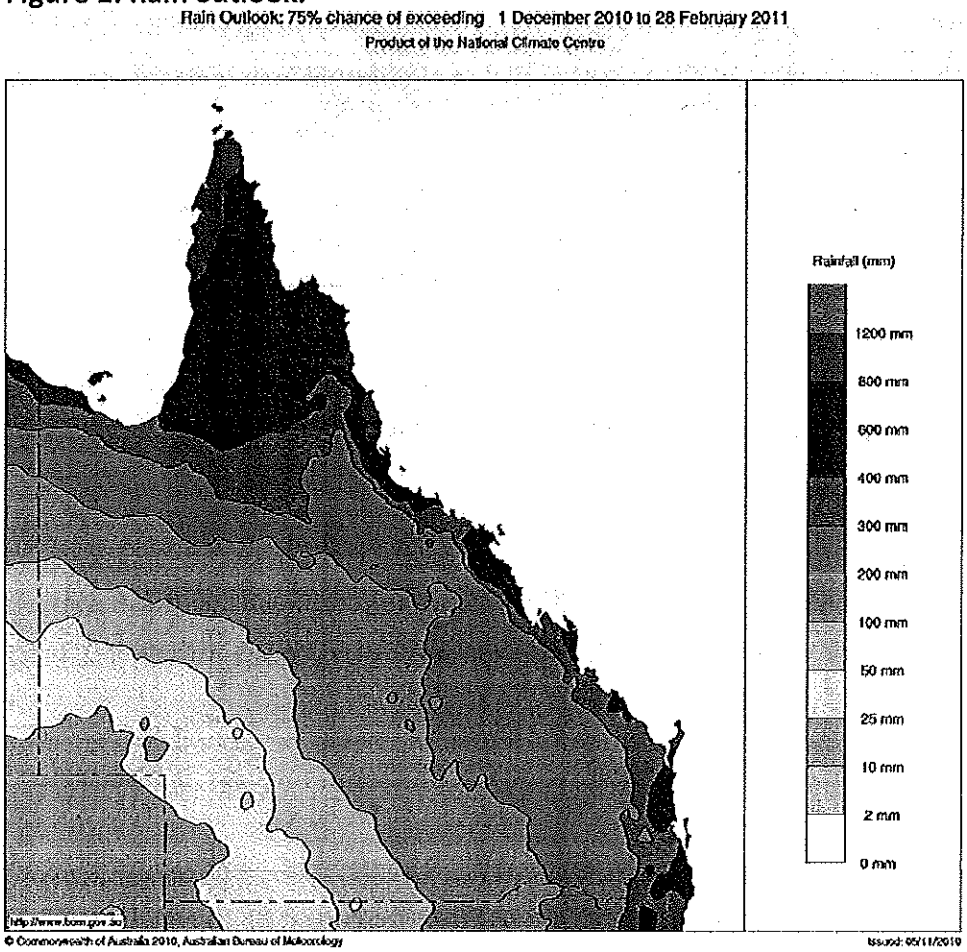
Probability of gate releases over the remainder of the wet season

Grid 12 storages are at 100% of combined capacity, with further rainfall forecast. The Bureau of Meteorology has advised that:

- heavy rainfall is likely across South East Queensland over the Christmas holiday period
- higher than average rainfall to continue over the remainder of the traditional wet season, with 75% probability of exceeding at least 300 millimetres of rainfall across South East Queensland from December 2010 to the end February 2011.

Any further rainfall is expected to result in significant inflows to storages, due to catchments being wet. With storages being full, these inflows will trigger managed releases from Wivenhoe, Somerset and North Pine dams.

Figure 1: Rain outlook.



Wivenhoe and Somerset dams: Medium to major flood events

Seqwater has advised that releases of greater than 3,500 cubic metres per second 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 megalitres (ML). This is equivalent to a release of about 16% 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 more significant than the negligible benefits. These potential security impacts include costs associated with the earlier or avoidable operation of the Gold Coast Desalination Plant (Desalination Plant) at capacity, as well as the increased probability of triggering the implementation of a drought response plan.

More detailed investigation of opportunities to 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 Meteorology, Councils and the Water Grid Manager.

Wivenhoe and Somerset dams: Minor flood 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 possible. In addition:

- There are resource implications involved in the activation of the flood control centre. Under flood management plans, the flood control 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 2010.

- 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.

Recommendation

It is recommended that the WGM advise Seqwater that, from a water security perspective:

- in principle, we would not object to water being released from Wivenhoe and Somerset dams to 95% of storage capacity at any time until end March 2011
- any specific release should be endorsed by the Chief Executive Officer (CEO) or Director of Operations, prior to being made
- approval is for the existing wet season only and is subject to review prior to the 2011 wet season.

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 per day was released during November 2010 and mid December 2010. At this rate, the additional releases could occur in approximately half a day.
- Ongoing gate releases of up to 30,000 ML per day, which would not isolate any residents but could inundate some lower bridges that cause inconvenience.
- Ongoing valve release of up to about 4,300 ML per day, which can be maintained without inundate any bridges.

Actual releases will be decided based on operational considerations.

The CEO and the Director of Operations will seek to ensure that storages are managed with the objective of being at Full Supply Level at the end of the wet season, in April 2011.

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 as:

- 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 into the dams. Modelling indicates that the reduction would have a minimal impact on the probability of key Water Grid storages falling to 40% of capacity over the next five years.

Four cases were developed to assess the impact of the potential flood releases below Full Supply Level. Each was based on the model used to develop the October 2010 version of the Operating Strategy, with an update for the operation of the Desalination Plant. The outline of each case is shown below in **Table 1**.

The first two runs assess the difference in water security starting in January 2011 with storages at 100% and 95%. The second two cases assessed the scenario where dams were reduced to 95% and were not refilled this wet season, and therefore the simulation started in June 2011.

Table 1: Summary of models.

Case	Wivenhoe and Somerset dam level	Start month
1	100%	January 2011
2	95%	January 2011
3	100%	June 2011
4	95%	June 2011

Results show that the ability to meet the risk criteria stated in the South East Queensland System Operating Plan (SOP) (refer **Table 2**) is not affected by this change in supply level in January 2011. In addition, the difference in probability of Wivenhoe and Somerset dams refilling is negligible after six months. If releases are made to bring Wivenhoe and Somerset dams to 95% of combined storage, hydrologic modelling using stochastically generated inflows indicates that the point at which the probability of reaching 40% was brought forward by two months (refer **Figures 2 and 3**).

Table 2: SOP rules.

Trigger	1 year	3 years	5 years
T1	<0.2%	Not specified	<5%
T2	Not specified	<0.5%	<1%

Table 3: Current levels, starting January 2011 (case 1).

Trigger	1 year	3 years	5 years
T1	0	0	0.01%
T2	0	0	0
Brisbane System reaching 40%	0.00%	0.00%	0.01%

Table 4: Wivenhoe and Somerset dams at 95%, starting January 2011 (case 2).

Trigger	1 year	3 years	5 years
T1	0	0	0.01%
T2	0	0	0
Brisbane System reaching 40%	0.00%	0.00%	0.01%

Table 5: Current levels, starting June 2011 (case 3).

Trigger	1 year	3 years	5 years
T1	0	0	0.01%
T2	0	0	0
Brisbane System reaching 40%	0.00%	0.00%	0.01%

Table 6: Wivenhoe and Somerset dams at 95%, starting June 2011 (case 4).

Trigger	1 year	3 years	5 years
T1	0	0	0.01%
T2	0	0	0
Brisbane System reaching 40%	0.00%	0.00%	0.01%

Figure 2: Storage volume forecast Brisbane System (case 1).

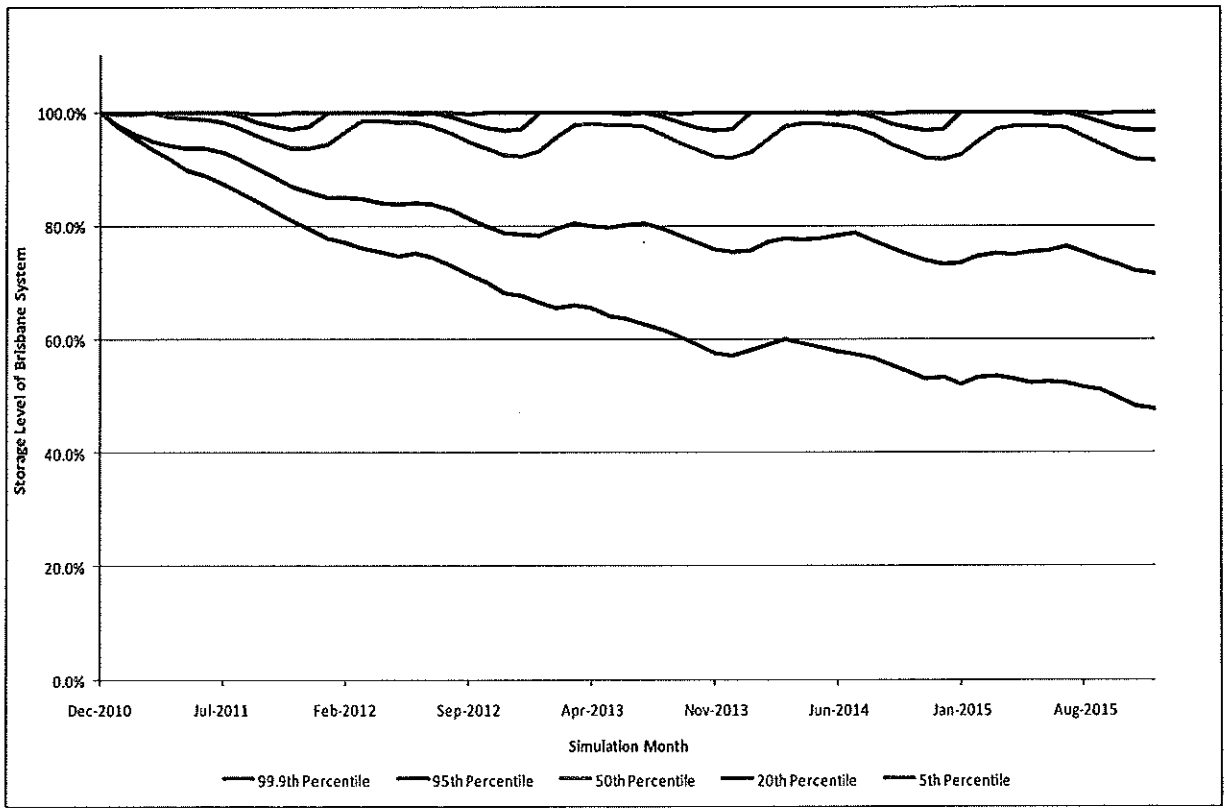


Figure 2: Storage volume forecast Brisbane System (case 2).

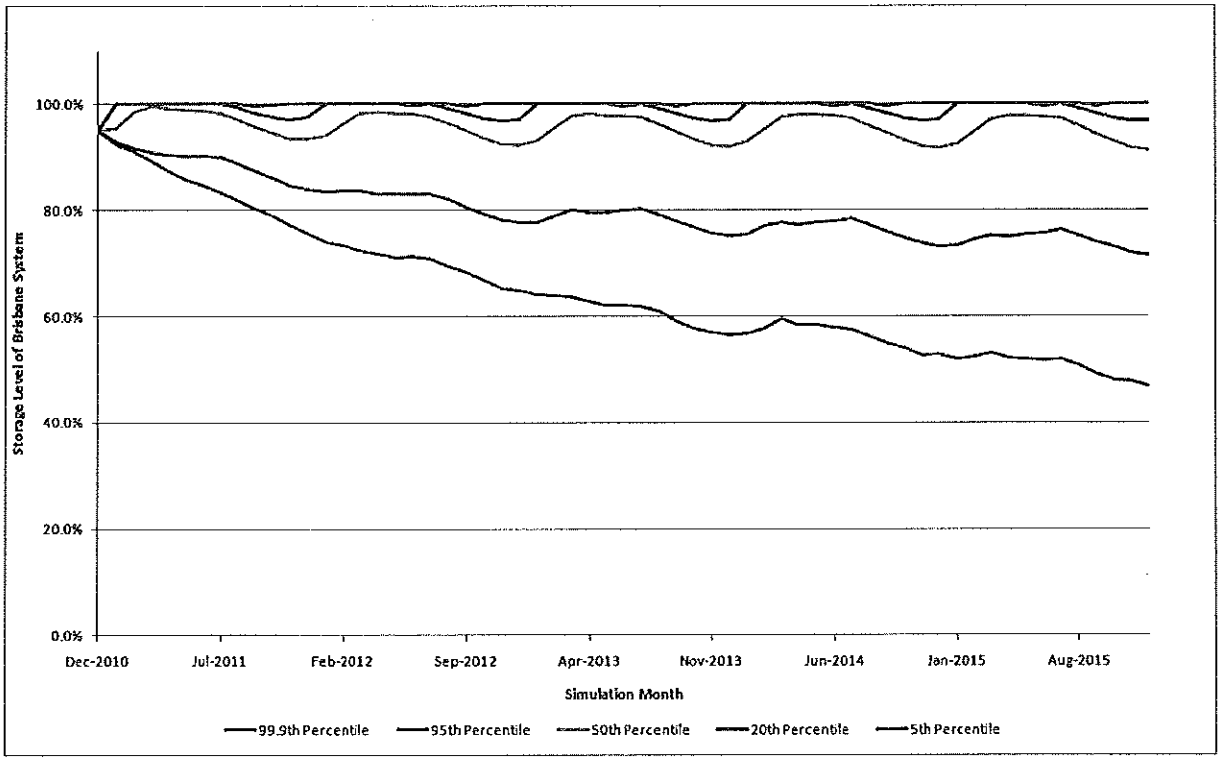


Figure 1 shows that, under the current case, 50% of long-term simulated inflow scenarios maintain the Brisbane System at full storage capacity over the next three months. With the release to 95% of Full Supply Level, 50% of simulated inflows return the dams to Full Supply Level in approximately four months.

As a worst case scenario, a scenario was run that reduced the Full Supply Level of Wivenhoe and Somerset dams to 95% of the current level for the full duration of the simulation (that is, a permanent reduction). This was undertaken to indicate the lower bound of results that could be expected when simulating the proposed dam release approach. Results for this scenario indicated that the probability of reaching 40% in the Brisbane System increased to 0.03% in five years, as compared to the base case of 0.01%.

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, it is recommended that the WGM advise Seqwater that, from a water security perspective:

- in principle, it would not object to water being released to 97.5% of storage capacity at any time until end March 2011
- any specific release should be endorsed by the CEO or Director of Operations prior to being made
- approval is for the existing wet season only, subject to review prior to the 2011 wet season.

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, it is recommended that no in-principle approval be made for pre-emptive releases from this dam.

Summary of recommendations

It is recommended that the SEQ Water Grid Manager Board (Board) approve that:

- from a water security perspective, it would not object to water being released from Wivenhoe and Somerset dams to 95% of the Full Storage Level at any time until end March 2011
- from a water security perspective, it would not object to water being released from North Pine Dam to 97.5% of the Full Storage Level at any time until end March 2011
- any specific release should be endorsed by the CEO or Director of Operations prior to being made
- approval is for the existing wet season only, subject to review prior to the 2011 wet season.

The proposed letter from the Chair forms **Attachment 2**.

This advice is consistent with the verbal briefing provided to Minister Robertson at the 13 December 2010 Board meeting. The response to Minister Robertson will reflect this advice (refer **Attachment 3**).

[redacted]

From: Barry Dennien [redacted]
Sent: Friday, 24 December 2010 10:17 AM
To: Bagdon Tad; Wong Wai Tong
Cc: Waldman Karen; spiller daniel @ SEQWGM
Subject: URGENT
Attachments: Seqwater letter re Min s request on options for release of water.docx

Wiatong Tad

See attached a letter we are planning to send to Seqwater giving our permission to lower Wivenhoe below full supply level down to 95% and North Pine to 97.5% for flood mitigation purposes. The is only for the current wet season.

We request the QWC note this proposed strategy and reply appropriately by midday today.

We apologise in advance for the short turnaround period. Current weather events have made us progress this issue.

Regards

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
[redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street, Brisbane
Post: PO Box 16205, City East Qld 4002
ABN: 14783 317 630

Trim Ref: D/10/8129

24 December 2010

Mr Peter Borrows
Chief Executive Officer
Seqwater
PO Box 16146
City East Qld 4002

Dear Mr Borrows

I refer to our letter of regarding the request from Minister Stephen Robertson to consider options to, and the benefits of releasing water from key storages in anticipation of major inflows over the coming summer period.

As you are aware, your officers have since provided advice about options and benefits.

I advise that, from a water security perspective, the SEQ Water Grid Manager 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, we have 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.

Any specific releases to below Full Supply Level should be approved by myself or, if I am not available, the Director of Operations, SEQ Water Grid Manager.

Any releases should be managed by Seqwater in accordance with any statutory and regulatory obligations, such as the flood operations manuals and Resource Operations Plan. We recommend that you liaise with the Department of Environment and Resource Management to confirm any conditions that apply.

I acknowledge that these releases would have a negligible impact on the extent and duration of flooding during a major flood event. However, they may provide the ability to minimise the community and operational impacts of minor releases.

We have 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 *South East Queensland System Operating Plan* or our ability to meet our supply obligations to SEQ Water Grid customers.

From a water security perspective, I am advised that the Queensland Water Commission also does not have any objections to the proposed release.

Please note that these arrangements are intended to apply for the current wet season only, taking into account the level of storages and the rainfall forecasts over coming months.

I am keen to continue to work with you to investigate the optimal arrangements for future wet seasons. In particular, I am keen to work with you 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 increased water supply be expanded to include options to lower the full supply level for managing flood events.

Thank you for your assistance in this matter. If you have any questions, please do not hesitate to contact Mr Dan Spiller, Director of Operations, by telephone on [redacted] or via email at [redacted]

Yours sincerely

Barry Dennien
Chief Executive Officer

From: "Waldman Karen" [redacted]
Date: 24 January 2011 10:51:38 AM AEST
To: "Mary Boydell" [redacted] "Martin Amy (QWC)" [redacted]
Subject: Copy of 24 December material

From: "Barry Dennien" [redacted]
Date: 24 December 2010 12:03:07 PM AEST
To: "Waldman Karen" [redacted]
Subject: RE: URGENT

Thanks Karen

From: Waldman Karen [redacted] □Sent: Friday, 24 December 2010 11:56 AM□To: Barry Dennien□Cc: Sommer Peter; Wong Wai Tong; Bagdon Tad; [redacted] □Subject: FW: URGENT □Importance: High

Hi Barry

The QWC has considered the request by the SEQ Water Grid Manager to comment on the proposed drawdown of:

- Wivenhoe and Somerset dams to 95% of their combined full supply level
- North Pine Dam being drawn down to 97.5% of it's full supply level

The Commission note that the Water Grid Manager has no concerns and advises that the drawdown will not infringe the risk criteria stipulated in the SEQ

System Operating Plan or the interim operating strategy. The Water Grid Manager has also stated that this drawdown will not impact on their ability to meet supply obligations to the Water Grid customers. Based on this advice, the Commission has no objection to the proposed release.

It is noted also that such releases are an operational matter for Seqwater, within the context of the Resource Operations Plan, where there is no condition in the SEQ System Operating Plan that regulates releases from the dams concerned.

It is however recommended that Seqwater liaise with the Department of Environment and Resource Management to confirm their understanding of any conditions that apply, particularly in relation to dam safety matters.

Regards, Karen
==========

From: Barry Dennien [redacted] □Sent: Friday, 24 December 2010 10:17 AM□To: Bagdon Tad; Wong Wai Tong□Cc: Waldman Karen; spiller daniel @ SEQWGM□Subject: URGENT
Wiatong Tad

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We apologise in advance for the short turnaround period. Current weather events have made us progress this issue.

Regards

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
[redacted]
Email: [redacted] Visit: Level 15, 53 Albert Street, Brisbane
Post: PO Box 16205, City East Qld 4002
ABN: 14783 317 630

water to make one sheet of A4 paper.

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From: "Barry Dennien" [redacted]
Date: 24 December 2010 11:04:06 AM AEST
To: "Sommer Peter" [redacted]
Cc: "spiller daniel @ SEQWGM" [redacted] "Waldman Karen" [redacted]
Subject: RE: URGENT

Peter

Our advice reflects Seqwater's advice and our joint experiences over the past weeks of flood releases.

Barry

From: Sommer Peter [mailto:[redacted] □Sent: Friday, 24 December 2010 10:59 AM□To: Barry Dennien□Cc: Wong Wai Tong; Sweet Anita; Waldman Karen□Subject: FW: URGENT

To help with our response could you please provide the information provided from Seqwater on the options and benefits of the proposed release as referred to in your letter.

Regards

Peter Sommer
Director, Planning Projects
Regional Planning and Policy
[redacted]
Email: [redacted]
www.qwc.qld.gov.au

Queensland Water Commission
53 Albert Street, Brisbane Q 4000
PO Box 15087, City East Q 4002

From: Barry Dennien [redacted] □Sent: Friday, 24 December 2010 10:17 AM□To: Bagdon Tad; Wong Wai Tong□Cc: Waldman Karen; spiller daniel @ SEQWGM□Subject: URGENT
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Barry Dennien
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Internal memo for Wivenhoe and Somerset December 2010 flood releases.docx
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From: "Barry Dennien" [redacted]
Date: 24 December 2010 10:17:28 AM AEST
To: "Bagdon Tad" <[redacted]>, "Wong Wai Tong" [redacted]
Cc: "Waldman Karen" [redacted], "spiller daniel @ SEQWGM" <[redacted]>
Subject: URGENT

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