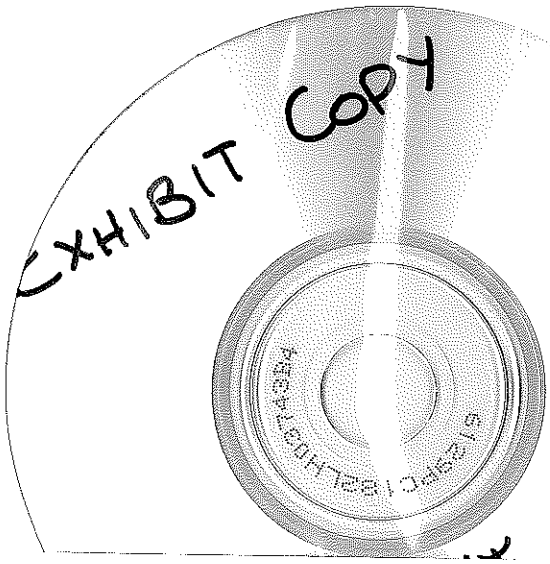
BOYDELL



QFCI

Date: 18/05/11

Exhibit Number: 419

STATEMENT

I **MARY STUART BOYDELL**, Commissioner of the Queensland Water Commission, 53 Albert Street, Brisbane in the State of Queensland state on oath:

1. Reporting structure of Queensland Water Commission to responsible Ministers

1.1 In respect of water supply and demand management in South East Queensland (**"SEQ"**), the Queensland Water Commission (**"QWC"**) reports to the Minister for Energy and Water Utilities as outlined below.

1.1.1 The current reporting structure is contained in the *Administrative Arrangements Order (No. 1) 2011* (gazetted on 21 February 2011) as amended by the *Administrative Arrangements Amendment Order (No. 1) 2011* (gazetted on 10 March 2011).

1.1.2 Administrative responsibility is conferred upon the Minister for Energy and Water Utilities with the QWC designated as the Administrative Unit in respect of the *South-East Queensland Water (Distribution and Retail) Restructuring Act 2009* (Distribution and Retail Restructuring Act) and for Chapter 2A, Part 1, Part 2 Divisions 1,2,4,5 (including section 360C to the extent that it applies to the function of water supply and demand management) and 7 (other than section 360FA) Part 3 Division 1 and 2, Part 4, Part 5A and Part 6 of the *Water Act 2000* (the Act).

1.1.3 Prior to the current arrangement the provisions of the *Administrative Arrangements Order (No.1) 2010* (gazetted on 2 July 2010) were not materially different except that the responsible Minister was the Minister for Natural Resources, Mines and Energy and Minister for Trade.

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Deponent

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Solicitor

2. Reporting structure of Seqwater to Queensland Water Commission

2.1 Seqwater (the Queensland Bulk Water Supply Authority) does not report to the QWC regarding its operations. However, the *Water Regulation 2002* Water Supply Emergency provisions in Part 8, do require relevant service providers to submit monthly reports to the Minister and the QWC in relation to progress towards achievement of the outcomes stipulated in Schedules 10B and 10C (s87 and s88).

2.2 Seqwater is required under schedule 10B measure 9 to "take all necessary steps to prepare for and construct, Hinze Dam Stage 3 and prepare for associated water harvesting works" and under Measure 1 Bribie Island Groundwater project is required to "Take all necessary steps to make available capacity to substitute 5ML/day from the existing water supply system with underground water sourced from Bribie Island".

2.3 Accordingly, Seqwater is required to provide the QWC with monthly reports about its progress in carrying out these measures until the works are completed and accepted as complete by the Minister. These reporting requirements are expected to continue until June 2011, unless a regulation is made to end the emergency. The Department of Environment and Resource Management (**"DERM"**) is currently conducting a review process for ending the emergency provisions that involves consideration of the need to discontinue or require the completion of measures through other legislative mechanisms.

3. My opinion as to whether the capacity of the Wivenhoe and Somerset Dams ("the Dams") is adequate for water security

3.1 By "water security", I refer to the desired levels of service objectives for the SEQ region set out in the Regional water security program for South East Queensland Revision 1, March 2010 made by the Minister under section 360M(1)(b) of the *Water Act 2000* (the Act).

[redacted] [redacted]

Deponent Solicitor

3.2 By "capacity of the Dams", I refer to the full supply volume of water stored for water supply purposes.

3.3 My background understanding includes:

3.3.1 Regulatory framework:

(a) The QWC must make and give advice to the Minister about its regional water security options for SEQ (Section 360I of the Act) having regard to the matters set out in Section 360J of the Act and the Minister is required to make a regional water security program to achieve water security for the SEQ region (Section 360M of the Act);

(b) If there is a regional water security program for the SEQ region, the QWC must make a system operating plan to facilitate the achievement of the desired levels of service objectives for the region; and

(c) Chapter 2A, Part 6 of the Act provides for the QWC's power to restrict water supply in SEQ.

3.3.2 The SEQ Water Strategy provides a framework for QWC's planning functions in assessing and recommending options to achieve water security in SEQ.

3.3.3 SEQ water supply infrastructure comprises a system of dams, weirs, groundwater, desalination, purified recycled water, treatment plants and transport network and further works to be completed under the regional water security program.

3.3.4 Full Supply Level is determined by DERM through the Water Resource Plan (**"WRP"**) processes and sets the maximum volume of water that can be stored for water supply purposes.

3.3.5 Water allocations provided through the WRP are a key input in determining the volume of water that can be supplied from the interconnected system as a whole. Water allocations from "the Dams" are a significant proportion of overall SEQ allocations, about 50%.

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Deponent

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3.3.6 The levels of service system yield (**"LOS yield"**) can be described as the volume of water that can be supplied from the SEQ water supply infrastructure (based on hydrological assessment), optimally operated, every year and still achieve the desired levels of service objectives for the region. The LOS yield is lower than the allocations licensed under the WRPs.

3.3.7 Whether the desired levels of service objectives for the SEQ region are achieved is a function of supply and demand over time.

3.3.8 A supply gap (whether caused by lack of availability, lack of yield or increasing demand) will be addressed by introducing new supply, triggering restrictions in accordance with the desired levels of service objectives or triggering some higher level of restriction or demand management response (which might result in a change to the desired levels of service objectives).

3.4 The question asks for my opinion as to whether the capacity of "the Dams" is adequate for water security. While the Wivenhoe-Somerset system plays a key role in surface water capacity it cannot be considered in isolation. The security of supply for SEQ is based on the conjunctive use of a total suite of sources and measures.

3.5 The SEQ Water Strategy outlines a bandwidth of time when new water supply may be required to maintain water security. At page 5 of the Strategy, Table A Impact of reduced consumption on the timing of the next augmentation and Figure A Water balance in normal operating mode, show that new water supply to meet growth will not be needed until after 2022 based on medium growth projections and is more likely to be after 2027.

4. My opinion as to whether the capacity of the Dams is adequate for flood mitigation

4.1 The QWC has no regulatory or operational role in relation to flood mitigation. As such it is not within my role and I am not qualified to comment on this topic.

[redacted] [redacted]

Deponent Solicitor

5. **The water security needs of South East Queensland up to 2050 and the ability of the Dams to meet those needs**

5.1 I refer to and repeat my answer to topic 3 and provide the following additional information.

5.2 The water security needs of SEQ up to 2050, are articulated through the desired levels of service objectives adopted by the Queensland Government in the Regional water security program, Revision 1, March 2010.

5.3 The SEQ Water Strategy outlines the planning approach and assumptions directed to facilitating the achievement of the desired levels of service objectives through preparedness to respond to changing circumstances. The Strategy outlines a bandwidth of time when new water supply may be required to maintain water security. At page 5 of the Strategy, Table A Impact of reduced consumption on the timing of the next augmentation and Figure A Water balance in normal operating mode, show that new water supply to meet growth will not be needed until after 2022 based on medium growth projections and is more likely to be after 2027.

5.4 As outlined in the Water Supply Emergency Projects Monthly Progress Reports February 2011, Figure 2 Forecast Key SEQ Water Grid Storage levels based on probabilities of exceedance, the combined capacity of the grid 12 storages would not reach 40% until late 2013. This analysis is based on the volume of water in storage in Wivenhoe Dam having been drawn down to 77.5% at the end of February 2011 and an extremely conservative scenario of repeated worst-case twelve-month inflows. The rate of decline of water in storage eases at around 40% showing the effect of the introduction of manufactured water.

6. **How the Full Supply Level was originally determined when Wivenhoe Dam was built and the reasons for any significant amendments to the Full Supply Level since that time**

6.1 The QWC was established in 2006. To my knowledge there have been no amendments to the Full Supply Level since 2006. I have no knowledge of how the Full Supply Level for Wivenhoe Dam was originally determined or any knowledge of significant amendments to the Full Supply Level.

[redacted] [redacted]

Deponent Solicitor

7. **My role in relation to the Full Supply Level of the Dams;**

and

8. **My role in any amendment to the Full Supply Level of the Dams**

7.1 The QWC has no direct role in setting or amending the Full Supply Level of the Dams.

7.2 However, while the QWC plays no part in determining dam operating levels, the QWC's role necessitates that it consider the potential implications of such matters. Any proposal to modify the volume of water stored in a dam for supply purposes must be assessed against the water security risk criteria, and consideration given to the risk implications for the SEQ region's water security. Existing Full Supply Level for a dam is a fundamental input into any analysis of desired levels of service objectives, water supply security and base case costs.

7.3 As part of the WRP and Resource Operation Plan ("**ROP**") processes set out in the Act, the QWC may make a submission to DERM presenting views on the water supply capacity or operation of a dam. DERM takes all submissions into consideration in coming to a decision. To date, the QWC has made no submissions on the Full Supply Level of any dam. If any such submissions were made, they would highlight the potential impact on the achievement of the desired levels of service objectives for the region and consequences of that impact. This information would also be provided to government to assist in analysis of the costs and benefits of any proposals to alter the Full Supply Level of the Dams.

The QWC may investigate opportunities to increase the availability or reliability of water from water storages. Such investigations would include consultation with other responsible agencies and stakeholders, for example to ensure appropriate consideration of flood mitigation issues. If a viable option emerges, a submission could be made through the WRP process where the information from the QWC-led investigation could be provided. One such project identified for investigation is

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Deponent

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Solicitor

an assessment of the capacity of the Brisbane River system including the Full Supply Level of Wivenhoe Dam (discussed at 11.22 to 11.29).

7.4 Since the January 2011 flood event the QWC has provided assistance to Seqwater by preparing a draft report on the Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam 14 February 2011 (discussed at 11.18).

9. My role in relation to the dam operations at Wivenhoe, Somerset and North Pine Dams

9.1 Neither I, nor the QWC, have any regulatory or operational role in respect of dam operations at Wivenhoe, Somerset or North Pine Dams.

10. When, how and why the Full Supply Levels for the Dams, which existed at the time of the January 2011 Flood Event, was determined

10.1 I refer to and repeat my answer to topic 6 addressed earlier.

11. An account of all discussions, correspondence, meetings or briefings from 1 September 2010 to 31 March 2011 in which I was involved regarding potential changes to the Full Supply Levels of the Dams;

and

12. Provision of all notes made of all discussions and meetings regarding potential changes to the Full Supply Levels of the Dams between September 2010 and March 2011

Work arising out of Minister's request of 20 January 2011

11.1 On 20 January 2011, at 7.21pm, I received (by email from Tim Watts, Policy Advisor, Office of the Minister for Natural Resources, Mines and Energy and Minister for Trade) a letter from Minister Robertson attaching a copy of a letter from the Minister to Phil Hennessey (Chairman of Seqwater)

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Deponent Solicitor

also dated 20 January 2011 requesting the provision of all necessary assistance by QWC to Seqwater to ensure that the requests outlined in the letter to Seqwater could be responded to as a matter of priority and with urgency. A copy is attached as **Exhibit 1**.

11.2 I responded briefly to the Minister's policy advisor on 20 January 2011. A copy of that email is attached as **Exhibit 2**.

11.3 Mid-morning on 21 January 2011 I called Bob Reilly, the General Manager of the Office of the Water Supply Regulator ("**OWSR**"), to discuss in broad terms the content of the letters from the Minister and the next steps required for QWC to support Seqwater as requested. Bob Reilly told me that the Minister had written to the SEQ Water Grid Manager ("**SEQWGM**") in October 2010 requesting advice on the Full Supply Level for the coming wet season. Bob said that he had not been aware of the Minister's request when it was initiated. I advised Bob that I had no knowledge of that request, however, I was aware that on 24 December 2010 the SEQWGM had requested QWC's comment on the possibility of a small release.

11.4 Mid-morning on 21 January 2011 I called Phil Hennessey, the Chairman of Seqwater, to affirm QWC's readiness to support Seqwater as requested by the Minister. I indicated that QWC staff could provide input and if required, comment on security impacts of any scenario modeling and provide other support. I said that we would welcome attending meetings convened by Seqwater that brought all parties together to work on this. I advised Phil that I had only just learned of the Minister's October 2010 request. Phil told me that the Minister had spoken with him a couple of days earlier and that through that conversation he had become aware of the Minister's letter to the SEQ WGM in October 2010 seeking advice on releases.

11.5 At 11.30 am on 21 January 2011 I attended a meeting with Bob Reilly and staff of QWC to discuss broadly the background to and the work that might be required to support Seqwater. It was agreed at the meeting that QWC's role should be to understand and provide advice on the impact on SEQ water supply security of a possible temporary release of water from Wivenhoe Dam and/or a longer

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Deponent Solicitor

term arrangement of lowering the Full Supply Level of Wivenhoe Dam or other dams. The work to be undertaken was titled the "SOP Project". A copy of my records of and from that meeting is attached as **Exhibit 3.**

11.6 On 24 January 2011 an internal QWC meeting was held to further discuss the framework for consideration of information material to support Seqwater and to have in preparation for a meeting on 25 January 2011 involving DERM, OWSR, SEQWGM, QWC and Seqwater.

11.7 At around 7pm on 24 January 2011 I spoke to John Bradley, the Director General of DERM, regarding the letter from Minister Robertson of 20 January 2011. I advised John that QWC was in touch with Seqwater and would provide the support requested. I also advised John that I had only just learned of the Minister's October 2010 request and previously had been unaware of that request.

11.8 I responded to the Minister's letter of 20 January 2011 by letter dated 25 January 2011. A copy of that letter is attached as **Exhibit 4.**

11.9 At 10am on 25 January 2011 I attended an internal meeting of QWC staff to review the progress of the SOP project. Copies of the documents from that meeting are attached as **Exhibit 5.**

11.10 At 1.30pm on 25 January 2011 I, along with Karen Waldman (CEO, QWC), attended a meeting at DERM to discuss the Minister's letter of 20 January 2011. In attendance were John Bradley, Debbie Best, Greg Claydon and Penny Douglas from DERM; Phil Hennessey and Peter Borrows from Seqwater; Barry Dennien and Gordon Jardine from the SEQWGM. Seqwater representatives outlined their approach to responding to the Minister's letter. QWC representatives tabled the Example Framework for Consideration of the Impact on SEQ Water Strategy of Various Operating Levels for Wivenhoe Dam which is attached as. **Exhibit 6**

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Deponent

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Solicitor

11.11 At 11am on 1 February 2011 I attended an internal meeting of QWC staff to review the progress of the SOP project. Copies of documents from that meeting are attached as **Exhibit 7**

11.12 At 4pm on 1 February 2011 I, along with Karen Waldman, attended a meeting at Seqwater regarding Seqwater's response to the Minister's letter of 20 January 2011. In attendance were John Bradley (by phone), Peter Allen, Debbie Best, Greg Claydon and Penny Douglas from DERM; Phil Hennessey, Peter Borrows and Jim Pruss from Seqwater; Barry Dennien and Gordon Jardine from SEQWGM. The Seqwater representatives outlined the scenarios being tested; identified questions that needed to be resolved; and advised that Seqwater would not provide further advice until it had been peer reviewed and cleared by their insurer. It was noted that DERM was to resolve ROP/Resource Operations Licence (**"ROL"**) issues, if any. A copy of my records of and from that meeting is attached as **Exhibit 8.**

11.13 On 3 February 2011, Karen Waldman and I met with Minister Robertson for our quarterly meeting. Prior to the commencement of the quarterly meeting I met privately with Minister Robertson (the usual practice) and advised that:

(a) QWC was undertaking work to support Seqwater as requested by the Minister on 20 January 2011;

(b) On 24 December 2010 QWC officers responded to an urgent enquiry from the SEQWGM in relation to the potential drawdown of Wivenhoe and North Pine Dams;

(c) I only became aware of the Minister's October 2010 letter to the SEQWGM on 21 January 2011; and

(d) QWC had offered its assistance to other entities during and after the January flood event but only limited resources of QWC had been accessed.

Matters discussed during the formal quarterly meeting attended by the Minister, Tim Watts, Karen Waldman included:

[redacted] [redacted]

Deponent Solicitor

(a) The status of work on investigations around the Wivenhoe Dam Full Supply Level that had been initiated to progress the activity identified in the SEQ Water Strategy(refer to 11.22 to 11.29); and

(b) The possibility that some scheduled investigation works might be delayed due to disruption from the floods and some would be informed by the Commission of Inquiry.

A copy of my records of and from that meeting is attached as **Exhibit 9.**

11.14 On 3 and 4 February 2011 there were internal meetings held of QWC staff to review the progress of the SOP project.

11.15 At 12pm on 4 February 2011 I, along with Karen Waldman, attended a meeting at DERM regarding Seqwater's response to the Minister's letter of 20 January 2011. In attendance were John Bradley and officers from DERM; Phil Hennessey, Peter Borrows, and Jim Pruss from Seqwater; Barry Dennien from the SEQWGM. Seqwater outlined the broad dimensions of the scenarios being tested and the work undertaken to date and tabled a letter to Minister Robertson dated 4 February 2011. A copy of my records of and from that meeting is attached as Exhibit 10.

11.16 On 8 and 9 February 2011 there were internal meetings of QWC staff to review the progress of the SOP project. A copy of my records from the meeting on 9 February 2011 is attached as **Exhibit 11.**

11.17 On or around 9 February 2011 I was provided with a copy of a letter from Barry Dennien to Peter Borrows expressing that the SEQWGM had no objection to drawing down Wivenhoe Dam to 75% of the Full Supply Level. I was copied into internal QWC emails on the issue on that date. A copy of that correspondence is attached as **Exhibit 12.**

11.18 On 14 February 2011 the QWC produced a draft report entitled *Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam*, version 6, the purpose of which is to provide information on the potential impact on water supply security in SEQ if a significant volume of water is

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Deponent Solicitor

released from the water supply capacity of Wivenhoe Dam as a potential flood mitigation measure. The draft report was circulated for comment to Peter Borrows, Seqwater; John Bradley Director General DERM and Barry Dennien SEQ WGM. On 12 February 2011, Karen Waldman had informally provided the draft report to Peter Borrows.

A copy of the letters to Messrs Borrows, Bradley and Dennien and the report is attached as **Exhibit 13** (I note that there is a typographical error in the report on page 16. The "Total Central" should read 1,798,627 and not 7,798,627).

11.19 On the day prior to that, 13 February 2011, Minister Robertson issued a media release to the effect that Seqwater intended to reduce the Wivenhoe Dam level for the remainder of the 2010/2011 wet season to 75%. I had no role or input into the media release. On 14 February 2011, the Executive Support Officer of the QWC provided a copy of the media release to me. A copy of that email is attached as **Exhibit 14.**

11.20 On 3 March 2011 Karen Waldman received an email from Barry Dennien referring to QWC's letter to Seqwater dated 14 February 2011 and advising that the SEQWGM did not disagree with the summary of findings. A copy of that email is attached as **Exhibit 15.**

11.21 On 4 March 2011 there was an internal meeting of QWC staff to review the progress of the SOP project.

Optimisation Of The Yield For The Brisbane River System **("Review the operation of the Brisbane River system to optimise the water supply yield and balance flood storage and water supply storage volumes" (Activity no. 50) in the SEQ Water Strategy)**

11.22 Since March 2010 the QWC has carried out work for a pre-feasibility study, as part of its role in relation to ensuring water security in SEQ, into the possibility of raising the Full Supply Level of the Wivenhoe Dam. That project is being carried out in conjunction with Seqwater, DERM and the

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Deponent

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Solicitor

SEQWGM and in consultation with the Brisbane City and Ipswich City Councils. Between 1 September 2010 and 31 March 2011 I was involved in discussions, correspondence, meetings and briefings in relation to this study as follows.

11.23 On 7 October 2010 a QWC Commission Meeting was held at 53 Albert Street at which I was in attendance. The items discussed included an update as to actions arising from earlier meetings. Attached as **Exhibit 16** is an extract of the QWC Commission Meeting Actions as at 24 September 2010 dealing with the Optimisation of the Yield for the Brisbane River System.

11.24 On or around 11 October 2010 I received a copy of a Ministerial Briefing Note provided by Karen Waldman to Minister Robertson on the issue of progress of the Wivenhoe Dam Full Supply Level review. Attached as **Exhibit 17** is a copy of that Ministerial Briefing Note.

11.25 On 4 November 2010 QWC Commission Meeting was held at 53 Albert Street at which I was in attendance. The items discussed on that day included:

(a) an update as to actions arising from earlier meetings. Attached as **Exhibit 18** is an extract of the QWC Commission Meeting Actions as at 19 October 2010 dealing with the Optimisation of the Yield for the Brisbane River System;

(b) an update on infrastructure projects in which the QWC was involved in at November 2010. Projects discussed included Optimisation of the Yield of the Brisbane River system. Attached as **Exhibit 19** are copies of the Briefing Paper for Agenda Item 7 for the Commission Meeting, attachments 2 and 5 to the Briefing Paper, and the Commission Meeting Minutes that reflect the matters discussed at the meeting.

11.26 On 11 November 2010, Karen Waldman and I met with Minister Robertson for our quarterly meeting. Attached as **Exhibit 20** is a copy of the Ministerial Meeting Briefing Note for the meeting and attachment 1 to it.

[redacted] [redacted]

Deponent Solicitor

11.27 On 3 February 2011, Karen Waldman and I met with Minister Robertson for our quarterly meeting. Refer topic 11.13 above. (A copy of my records of and from that meeting is attached as **Exhibit 8**.)

11.28 On 16 February 2011 I received from the Acting General Manager of Regional Planning and Policy of QWC, Tad Bagdon, a copy of the agenda for the Brisbane System Project Reference Group (PRG). A copy of that correspondence is attached as **Exhibit 21**.

11.29 On 17 February 2011 a QWC Commission Meeting was held at 53 Albert Street at which I was in attendance. The items discussed on that day included an update on infrastructure projects in which the QWC was involved in January 2011. Projects discussed included Optimisation of the Yield of the Brisbane River system. Attached as **Exhibit 22** are copies of the Briefing Paper for Agenda Item 7 for the meeting, attachment 3 to the Briefing Paper and the Commission Meeting Minutes that reflect the matters discussed at the meeting. The Decision Register maintained by the QWC records that, at this meeting, a decision was made that the CEO would clarify QWC's official position regarding the project to ensure stakeholders are fully informed. A copy of the relevant extract of the Decision Register is attached with **Exhibit 22** Attached as **Exhibit 23** are copies of emails sent confirming the Commission's official position.

13. My opinion as to what the Full Supply Levels of the Dams should be

13.1 The issue of what the Full Supply Levels of the Dams should be is not within the function or authority of the QWC or my role. I have discussed this earlier in my statement in response to topics 7 and 8.

[redacted] [redacted]

Deponent Solicitor

14. **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**

14.1 The QWC does not have any regulatory or operational role in dam safety or flood mitigation nor any role in the preparation or implementation of the Manual of Operating Procedures for Flood Mitigation at Wivenhoe and Somerset Dams. I have no knowledge of how (in terms of regulatory or legislative changes, directives to operators etc) or why the amount of the water in the dams was decreased in February 2011 other than as outlined in my response to topics 11 and 12 above. I was not involved in, or a party to, the making of that decision.

15. **Details, including verbatim accounts were possible, of all discussions, correspondence, meetings or briefings regarding decreasing the Dams level in January and February 2011**

15.1 I refer to my response to topics 11 and 12 above.

16. **Details, including verbatim accounts where possible, of any 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)**

16.1 On 24 December 2010 Karen Waldman advised me by phone that the QWC had responded to an urgent request from the SEQ WGM to comment on the proposed drawdown of water from Wivenhoe and North Pine Dams to lower the operating levels to 95% and 97.5% respectively and that the QWC had responded that the QWC had no objection, noting that it was an internal operating matter for Seqwater within the context of the ROP and recommending Seqwater liaise with DERM regarding conditions that might apply, particularly dam safety. No further verbal or written information was provided to me at that time.

[redacted] [redacted]

Deponent Solicitor

16.2 I was provided with a copy of the emails and background (relating to the matter outlined at 16.1 above) on 24 January 2011 following receipt of a letter from the Minister dated 20 January 2011. Copies of that correspondence are attached as **Exhibit 24**.

16.3 In preparing the QWC's submission to the Flood Commission further emails were identified that showed that Karen Waldman had received a copy of a letter from Minister Robertson to the SEQ WGM dated 25 October 2010 for her information and that the email was provided to other QWC officers. A copy of that correspondence is attached as **Exhibit 25**. I am advised that:

(a) There was no request from the SEQWGM to provide comment on this letter. There was an urgent request made on 24 December 2010 as outlined at topic 16.1; and

(b) QWC officers consulted do not have any recollection of further consideration with SEQWGM or Seqwater officers.

16.4 I otherwise refer to my response to topics 11 and 12 above.

17. An account of all briefings prepared for the Minister in the time period from 1 January 2010 until 25 March 2011 with responsibility for dam operations by the Queensland Water Commission in relation to the Dams

17.1 A number of briefings were prepared by the QWC for the Minister with responsibility for dam operations between 1 January 2010 and 25 March 2011. Some have previously been provided to the Commission. None of the briefings address the issue of dam operations.

[redacted] [redacted]

Deponent Solicitor

18. **An account of all communications I had or any briefings received from the Flood Operations Centre (operated by Sunwater) between 1 and 19 January 2011 (and provision of all emails, text messages and notes of phone conversations)**

18.1 I was not involved in any communications with and did not receive any briefings from the Flood Operations Centre.

19. **An account of all communications within my knowledge, between any officer of the Queensland Water Commission and the Flood Operations Centre (operated by Sunwater) between 1 and 19 January 2011 (and provision of all emails, text messages, and notes of phone conversations)**

19.1 To my knowledge no officer of the QWC was involved in any communications with the Flood Operations Centre between 1 and 19 January 2011 orally or in writing. The QWC has no regulatory or operational role in the management of flood events.

All the facts and circumstances above deposed to are within my own knowledge save such as are deposed to from information only and the means of my knowledge and sources of information appear on the face of this my affidavit.

Sworn by **MARY STUART BOYDELL** on 4 April 2011 at Brisbane in the presence of:

[redacted]

Deponent

[redacted]

Solicitor

[redacted]

From: Mary Boydell [redacted]
Sent: Thursday, 20 January 2011 10:33 PM
To: Mcmaster Rosemarie
Subject: Fwd: Correspondence from Minister Robertson
Attachments: Mary Boydell.pdf; ATT67266.htm; Karen Waldman.pdf; ATT67267.htm

Hi Rosemarie

Pls can you print the attachments for me?

Thanks, Mary

Begin forwarded message:

From: "Tim Watts" <[redacted]
Date: 20 January 2011 7:31:20 PM AEST
To: "Mary Boydell" <[redacted] "Waldman Karen" <[redacted]
Cc: "Josh Lockyer" [redacted], "Lance McCallum" <[redacted]
Subject: Correspondence from Minister Robertson

Mary Karen
Please find correspondence from the Minister attached.
Tim
<<Mary Boydell.pdf>> <<Karen Waldman.pdf>>
Tim Watts
Policy Advisor
Office of the Minister for Natural Resources,
Mines and Energy and Minister for Trade
[redacted]

QWC-5

COPY

Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources,
Mines and Energy and
Minister for Trade

20 JAN 2011

RECEIVED
21 JANUARY 2011

Ms Mary Boydell
Commissioner
Queensland Water Commission
PO Box 15087
CITY EAST QLD 4002

CC: Ms Karen Waldman
Chief Executive Officer
Queensland Water Commission
PO Box 15087
CITY EAST QLD 4002

Dear Ms Boydell

Please find attached correspondence to Mr Phil Hennessey, Chair, SEQ Water.

I would appreciate you providing all necessary assistance to SEQ Water to ensure that the requests in the attached correspondence can be responded to as a matter of priority and with urgency.

Should you have any further enquiries, please do not hesitate to contact Lance McCallum, Principal Advisor, on telephone [redacted]

Yours Sincerely

STEPHEN ROBERTSON MP

Level 17
61 Mary Street Brisbane Qld 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone +61 7 3225 1861
Facsimile +61 7 3225 1828
Email nrmet@ministerial.qld.gov.au

QWC-5

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.

Level 17
61 Mary Street Brisbane Qld 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone +61 7 3225 1861
Facsimile +61 7 3225 1828
Email nrmet@ministerial.qld.gov.au

(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 3330 6298.

Yours sincerely

STEPHEN ROBERTSON MP

[redacted]

From: Mary Boydell [redacted]
Sent: Tuesday, 29 March 2011 3:43 PM
To: Salcedo Agustin
Subject: Fwd: Correspondence from Minister Robertson

Begin forwarded message:

From: "Tim Watts" <[redacted]
Date: 21 January 2011 7:54:59 AM AEST
To: "Mary Boydell" <[redacted]
Subject: RE: Correspondence from Minister Robertson

Thanks Mary
I hope you are well

Tim Watts
Policy Advisor
Office of the Minister for Natural Resources,
Mines and Energy and Minister for Trade
[redacted]

-----Original Message-----
From: Mary Boydell [mailto:mary.boydell@bigpond.com]
Sent: Thursday, 20 January 2011 9:56 PM
To: Tim Watts
Cc: Karen Waldman; Josh Lockyer; Lance McCallum
Subject: Re: Correspondence from Minister Robertson

Dear Tim

Thank you.

I will respond formally to the Minister however in the meantime please assure him that QWC will ensure it supports this work with the priority and urgency required.

Kind regards, Mary

On 20/01/2011, at 7:31 PM, Tim Watts wrote:

> Mary Karen
>
> Please find correspondence from the Minister attached.

Tim

<<Mary Boydell.pdf>> <<Karen Waldman.pdf>>

Tim Watts

Policy Advisor

Office of the Minister for Natural Resources,

Mines and Energy and Minister for Trade

<Mary Boydell.pdf><Karen Waldman.pdf>

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If not an intended recipient of this email, you must not copy, distribute or take any

QWC MEETING (MB, KW, TB, WTONL, GL, MH, RS)

BOD REILLY 21/1/2011

1. 100% FSL

2. HOW HARD + FAST ARE RELEASES?

3. DAM SAFETY REGULATION → FLOOD MANUAL + COMMS PROTOCOL
→ SEQWATER RIGHT TO ASK REGULATOR TO CHANGE
→ TIGHTLY DEFINED MANUAL

1. INTEGRITY OF STRUCTURE
2. DOWNSTREAM PROPERTY IMPACT
3. FSL THRESHOLD
4. ENVIRONMENT ETC

4. EARLY WORK BY SEQ WATER - NEED 30% - 40% REDUCTION TO IMPACT 3M AT PORT OFFICE

5. INVOLVE COMMS PEOPLE

1. QWC SUBMISSIONS + INQUIRY → FACTS
→

Key Information

- Maximum System Take allowed = 450,000 ML/a
- Current Demand = 300,000 ML/a
- Current Additional Available = 150,000 ML/a

- Total Water Supply of Wivenhoe Dam = 1, 165,000 ML (EL 67m)

- Flood Capacity of Wivenhoe Dam = 1, 450,000 ML (EL77.5m)

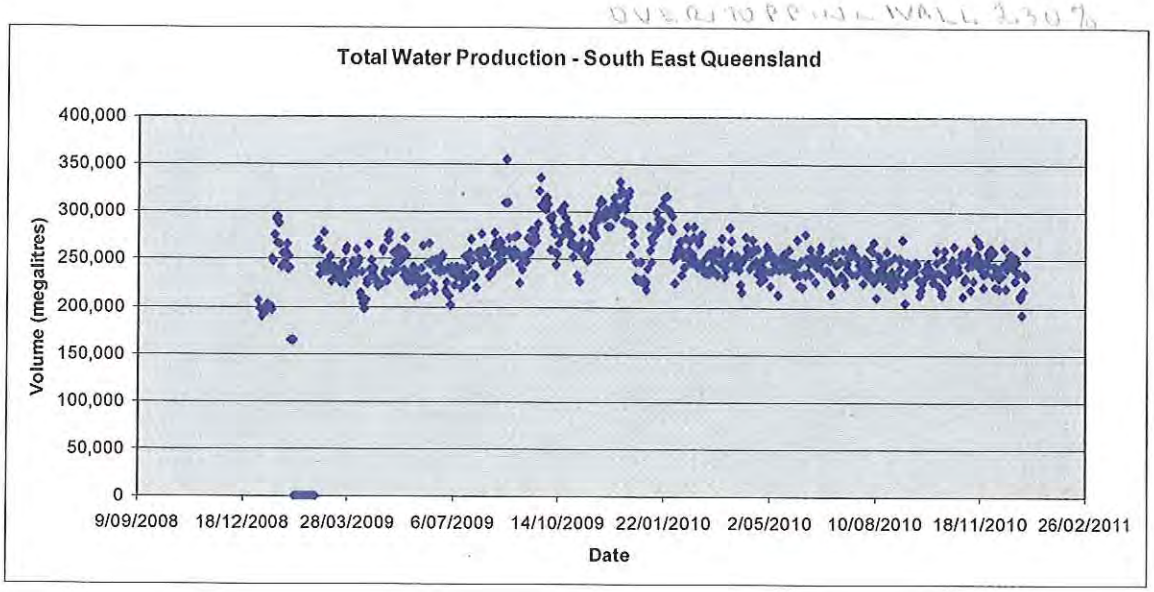
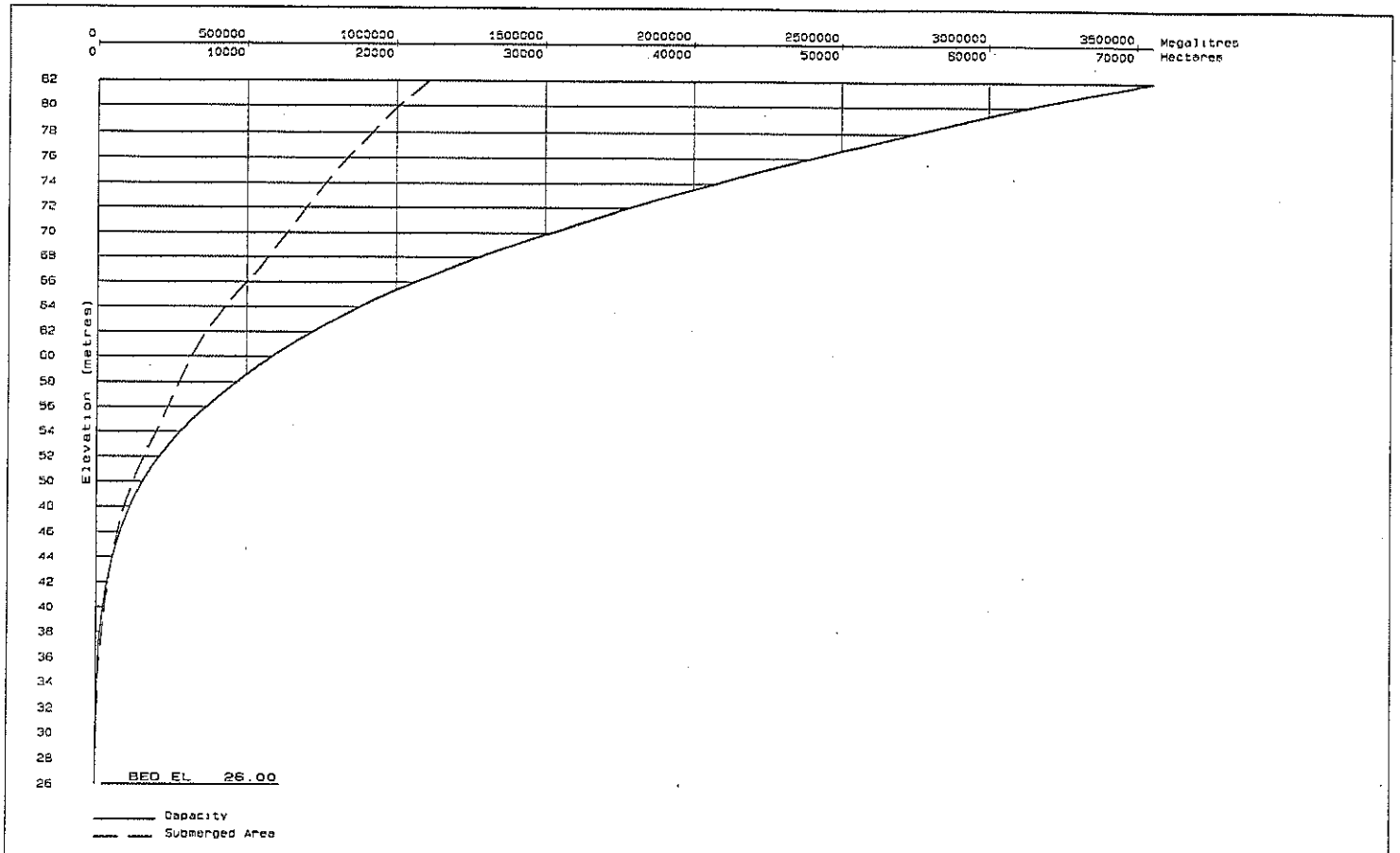


Table of Storage Reduction for Wivenhoe Dam

% Reduction (from Full Supply)	Volume of Water Released (ML)	Volume Remaining at Wivenhoe (from Full supply)	Height Reduction (m) (from Full Supply)
5	58,250	1,106,750	0.25
10	116,500	1,048,500	0.8
12.9	150,000	1,015,000	1.5
15	174,750	990,250	1.75
20	233,000	932,000	2.33
25	291,250	873,750	3.0
30	349,500	815,500	3.75



Level Datum: AHD - PM 34781 EL 74.784 m
Computed using photogrammetric DTM produced in 1995 from 1971 photography
Survey records : 25727 FD
Full Supply Level: EL 67.000 m AHD [1,165,200 ML ; 10,750 ha]
River outlet EL 33.200 m AHD [2,510 ML ; 88 ha]
Catchment Area: 7020 sq km
Latitude: 27 23 39 Longitude: 152 36 08

DEPARTMENT OF PRIMARY INDUSTRIES

BRISBANE RIVER - BASIN 143
WIVENHOE DAM 150.2 km

STORAGE CURVE

A3-110404

19/09/95

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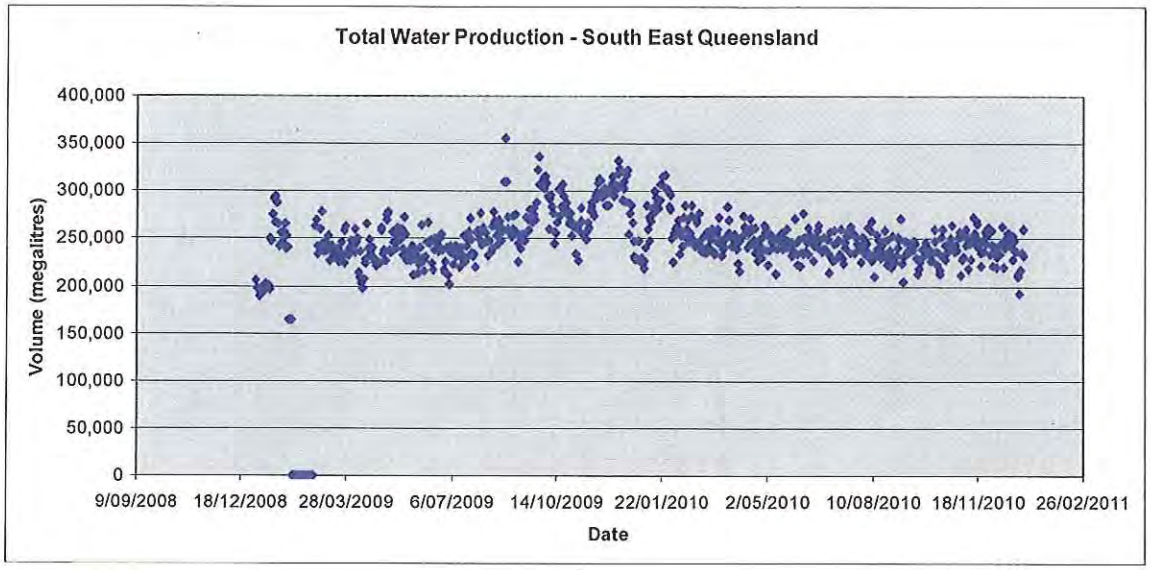

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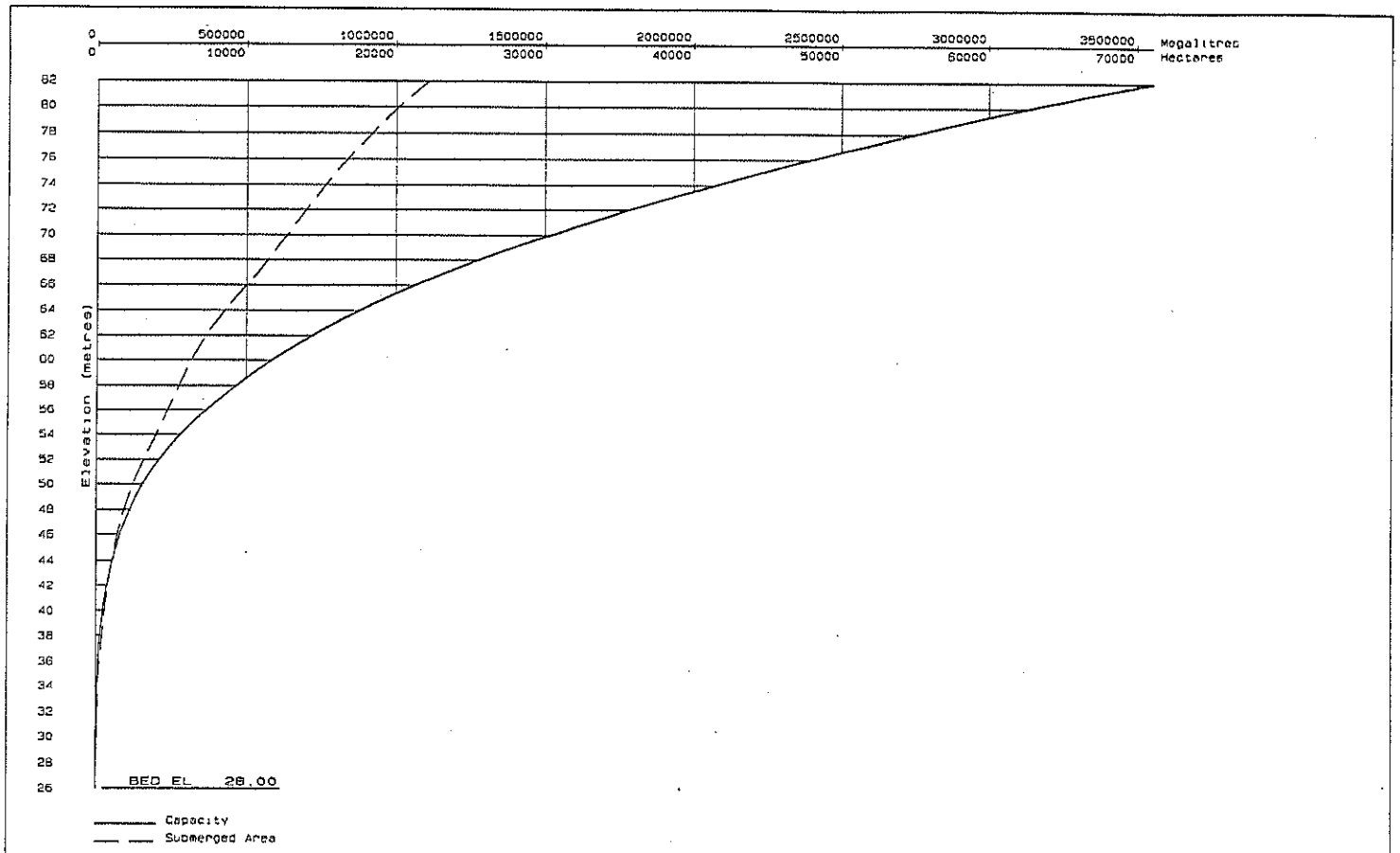

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Computed using photogrammetric DTM produced in 1995 from 1971 photography
Survey records : 25727 FD
Full Supply Level: EL 67.000 m AHD { 1,165,200 ML ; 10,750 ha }
River outlet EL 33.200 m AHD { 2,510 ML ; 98 ha }
Catchment Area: 7020.00 km
Latitude: 27 23 39 Longitude: 152 36 08

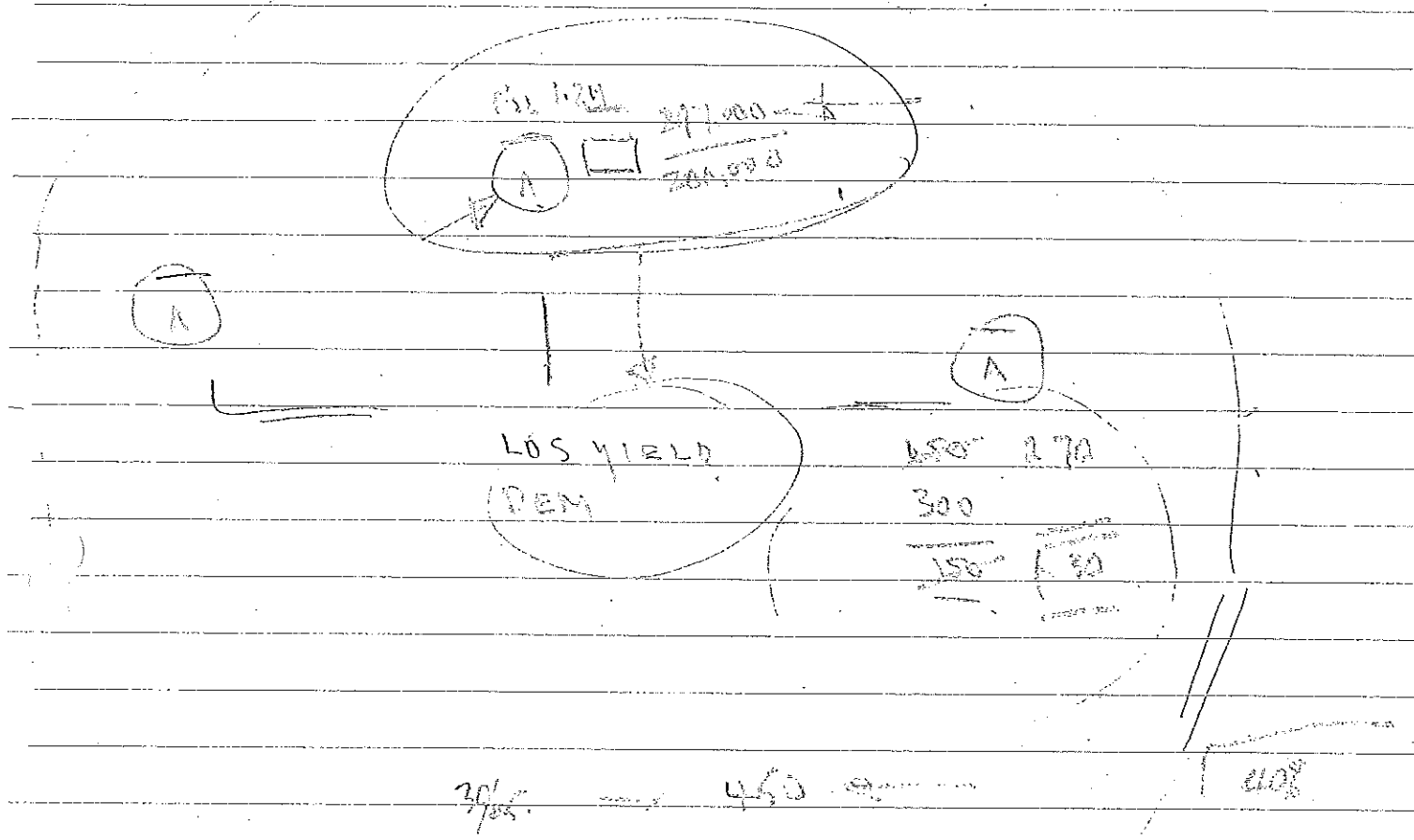
DEPARTMENT OF PRIMARY INDUSTRIES
WATER RESOURCES

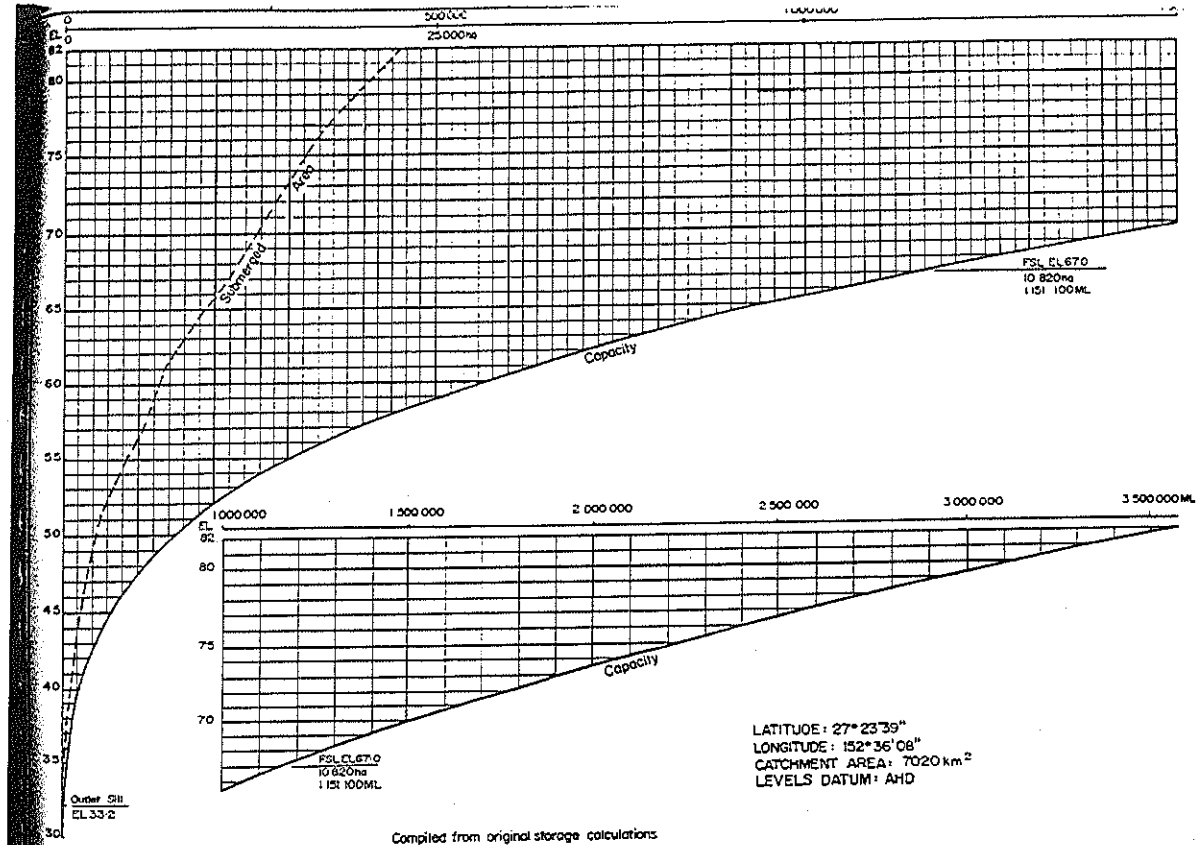
BRISBANE RIVER - BASIN 143
WIVENHOE DAM 150.2 km

STORAGE CURVE

A3-110404

19/09/95





EL	Sub. Area (ha)	Capacity (ML)
23·2	0	0
30·48	45	1 630
33·53	100	3 790
36·58	210	8 470
39·62	510	19 500
42·67	850	40 200
45·72	1 280	72 600
48·77	1 870	120 600
51·82	2 720	190 600
54·86	4 100	294 500
57·91	5 500	440 800
60·96	6 680	626 400
64·01	8 640	859 900
67·00	10 820	1 151 100
70·10	12 900	1 518 800
73·15	14 860	1 942 100
76·20	16 950	2 427 200
79·00	19 550	2 938 200
80·00	20 500	3 138 500
81·00	21 520	3 348 600
82·00	22 530	3 568 800

LATITUDE: 27°23'39"
LONGITUDE: 152°36'08"
CATCHMENT AREA: 7020 km²
LEVELS DATUM: AHD

Compiled from original storage calculations
to EL 79·0 & PP03589 to EL 82·0
See file 8841J

REVISIONS					
DATE		REMARKS	ZONE	CKD	PSD
25·5·84	C	Curve extended, redrawn			

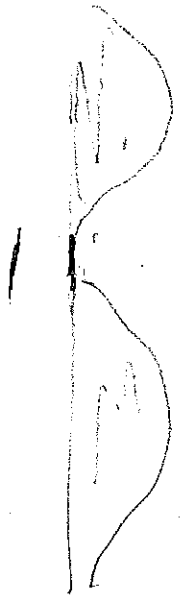
DESIGN	DRAFTING
PREP	DR
CKD	CKD
SUPV	SUPV
SUBMITTED	RECOMMENDED / APPROVED/DATE

Queensland Water Resources Commission

BRISBANE RIVER 150·2km
WIVENHOE DAM—
STORAGE CURVES

CONTRACT NUMBER
DRAWING NUMBER
A3-44067
C

A3-44067



Queensland water Commission

Securing our water, together.

Our ref: MB/11/0017

25 January 2011

The Honourable Stephen Robertson MP
Minister for Natural Resources, Mines and Energy and
Minister for Trade
PO Box 15215
City East QLD 4002

Dear Minister Robertson

Thank you for your letter of 21 January 2011 requesting that the Queensland Water Commission (QWC) provide assistance to Seqwater to ensure that your requests to Mr Phil Hennessy, Chair, Seqwater as raised in your letter of 20 January 2011 are able to be responded to as a matter of priority and with urgency.

Please be assured that QWC will support this work with the priority and urgency required.

QWC is liaising with Seqwater and undertaking preliminary work to support the matters you have raised with Seqeater. We will be in a position to provide advice as and when required by you and/or Seqwater.

If you require any further information, please do not hesitate to contact Karen Waldman on [redacted]

Yours Sincerely

[redacted]

Mary Boydell
Commissioner

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

Queensland Water Commission

Project Plan

For

Investigation into Scenarios of Operation for SEQ System Operating Plan

January 2011

1. Project Purpose

The purpose of this investigation is to assess the impact on the security of supply, over the immediate and long term due to potential lowering of the operating level of Wivenhoe Dam.

2. Project Background

Major flooding occurred in the Brisbane River catchment on 13 January 2011, coinciding with a king tide and significant uncontrolled inflows from the Lockyer and Bremer river catchments.

This resulted in the Brisbane River peaking at 4.46m at the Port Office in Brisbane City and has the following impacts:

- 20 fatalities (to-date)
- 31,520 properties affected
- 11, 879 homes flooded over the entire property
- 14,685 homes partly flooded
- 4,956 businesses inundated
- 40,000 evacuees in Brisbane, Ipswich and the Lockyer Valley.

This flood is about 1m lower than the 1974 Flood event of 5.45m at Brisbane City.

However, the social and economic impacts are expected to be much more significant given the developments over the last 37 years.

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 in view of the fact that this is still in the middle of a wet season and further significant inflows into the dams may be possible.

This work is to be carried out as a matter of priority and urgency.

3. Role of Queensland Water Commission

Queensland Water Commission is responsible for the approval of the SEQ System Operating Plan (SOP) which sets the framework for the supply to meet the desired levels of service objectives for the SEQ region as stipulated in the SEQ Regional Water Security Program. The SOP is intended to deal with the immediate/short term timeframe, and contains the operating rules and the reporting requirements for the SEQ Water Grid Manager. In the longer term, the water security for SEQ is guided by the SEQ Water Strategy to ensure supply meets demand over the next 50 years.

The Commission would need to determine the potential impacts on the water supply security and its impacts for various scenarios of lowering the water level at Wivenhoe

Dam. The water level may be lowered by controlled release prior to an impending wet season.

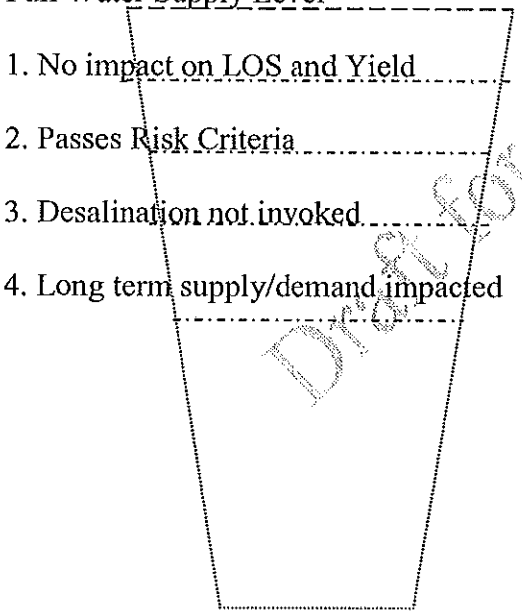
4. Conceptual Threshold Levels

To assist in this investigation, it is useful to determine the various threshold levels which can be expressed as follows:

Threshold Level	Description
1	No impact on Level of Service (LOS) and LOS Yield
2	When just passes Risk Criteria
3	When present demand is met without invoking full desalination (SEQ Grid storages above 60%)
4	Long term supply/demand balanced impacted

The project is scoped below in part to determine these thresholds.

Figure 1: Conceptual Wivenhoe Dam showing Threshold Levels



5. Project Scope

To meet the project purpose, the proposed scope of the investigation is provided below.

Short Term (over next 6 months)

1. Determine the volume of release (or dam level) which will have no impact on the existing entitlement of the Water Grid Manager for this water year 2010/2011 - based on most likely demand over the next 6 months (no refill scenario).
2. Carryout hydrologic assessment to determine the Risk Criteria using the SEQ Regional Water Balance Model:

Case	% Reduction Wivenhoe (from full supply)	Volume of Water Released from Wivenhoe Dam (ML)	%reduction of Grid 12 Storages (from full supply)
1	10	116500	5.6
2	12.9	150285	7.3
3	20	233000	11.3
4	30	349500	16.9
5	40	466000	22.5
6	50	582500	28.1

This would identify the trigger point for when the volume of release would impact on the supply security.

3. For Case 6 (subject to results from 2 above), determine the timing and corresponding probabilities of various inflows when 60% is reached for the Grid 12 storages. This provides an idea of when the desalination may need to be triggered in full, and the operation costs incurred.
4. For Case 6 (subject to results from 2 above), determine the timing and corresponding probabilities of various inflows when 40% is reached for the Grid 12 storages. This provides an idea of when the purified recycled water may need to be triggered in full, and the operation costs incurred.
5. Initial assessment of the potential for reducing demands via restrictions or education, and determine the new demand. This may impact on the price path. Reassess the implications with the reduced demand, if required as compared to the use of manufactured water.

Long Term

1. Assess the impact on the level of service and yield with a "permanent" reduction in the full supply level – various supply levels to be investigated.
2. Assess the impact on the demand/supply balance i.e. potential to bring forward new infrastructure.

3. Determine the cross-over point for desalination versus demand management (based on cost).
4. Assess the appropriateness of the current Levels of Service objectives in the SEQ Water Strategy. This may involve some social and economic studies to ascertain the impact of restrictions and risk of failure.
5. Carry out Annual Review of the SEQ Water Strategy

Feedback with SeqWater

The results from the investigations are shared with SeqWater and any feedback received may result in the Commission needing to carryout further assessments.

6. Project Governance

A Project Steering Committee will oversee the direction of this investigation. The Committee consists of:

- Karen Waldman, CEO (Chair)
- Tad Bagdon, A/GM (RPP)
- Gayle Leaver A/GM (Water Reform)

The Committee will meet on a daily basis initially. The frequency of meeting in the future will be determined when appropriate.

The Committee will be supported by a Project Team, consisting of:

- Wai-Tong Wong, A/Director (Water Strategy) – Project Manager
- Mark Askins, A/Director (Water Information) – Deputy Project Manager (?)
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The composition of this team may be amended to meet various requirements as the project progresses and new work emerges.

Please amend above to suit – only my initial thoughts

7. Process

To ensure the project is managed adequately to meet the objectives, the following process should be followed:

1. All documents should be placed in TRIM. A folder will be created for access by the Project Steering Committee and the Project Team (Project Manager to advise).
2. All key actions and outcomes will be recorded.

3. All key assumptions and results for the modelling runs recorded appropriately for easy reference.
4. Modelling inputs and results be reviewed and checked.
5. etc (to be added)

8. Funding

Short Term assessments are to be met within current operational budget.

Long Term assessments will require funding for consultancies.

9. Timelines

Short Term Assessments – by 2 March 2011(?)
Long Term Assessments – by end June 2011 (depending on scope of works)

Mary.

Queensland Water Commission

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SEQ Water Strategy

Prepared (supply ready)

Conserve (use less)

Manage efficiently

Queensland water Commission

Securing our water, together.

Context

- Water supplies are secure over the short-medium term
- We do not need to make a decision on the next supply source before the next Strategy review in 2014
- Key variables:
  - water use (demand rebound)
  - growth projections
  - climate change
- There is general community support for Target 200
- Current use is trending down but varies over the region
- Community feedback
  - over 60% support the current level (Target 200)
  - over 80% support planning to provide more water than normally required

Region	PWCM (01/12/09 – 28/05/10)	Last Week (Ending – 28/05/10)
SEQ (as a whole)	165 L/p/d	151 L/p/d
Central SEQ	146 L/p/d	137 L/p/d
Gold Coast	201 L/p/d	177 L/p/d
Sunshine Coast	215 L/p/d	188 L/p/d
Scenic Rim	144 L/p/d	123 L/p/d
Redland	193 L/p/d	172 L/p/d

Queensland water Commission

Securing our water, together.

SEQ Water Strategy

Prepared (supply ready)

- Baseline security through a portfolio of sources and optimising their conjunctive use
- Preparedness to respond to drought or growth trigger
- Prudent to maintain existing planning base until next review
- Investigate new sources, substitution, decentralised/local supplies (proactive research, project support, guidelines development and sub-regional planning)

Conserve (use less)

- Comprehensive approach to demand management

Manage and operate efficiently

- Achieve LOS objectives, while minimising costs where possible
- Options to use available water above LOS needs for interruptible supply for rural production and to outside of SEQ region
- Monitor and review with annual assessment and update, with consideration given to climate variability and climate change knowledge

Queensland water Commission

Securing our water, together.

SEQ – demand/supply balance

Demand

- Planning assumption of 375 litres/person/day (that includes 230 litres/person/day residential use)
- Demand management through Target 200, education, PWCM and regulation including innovative and total water cycle management solutions (such as water sensitive urban design)
- Key message: community behaviour significantly determines when future supply augmentation is required

Supply

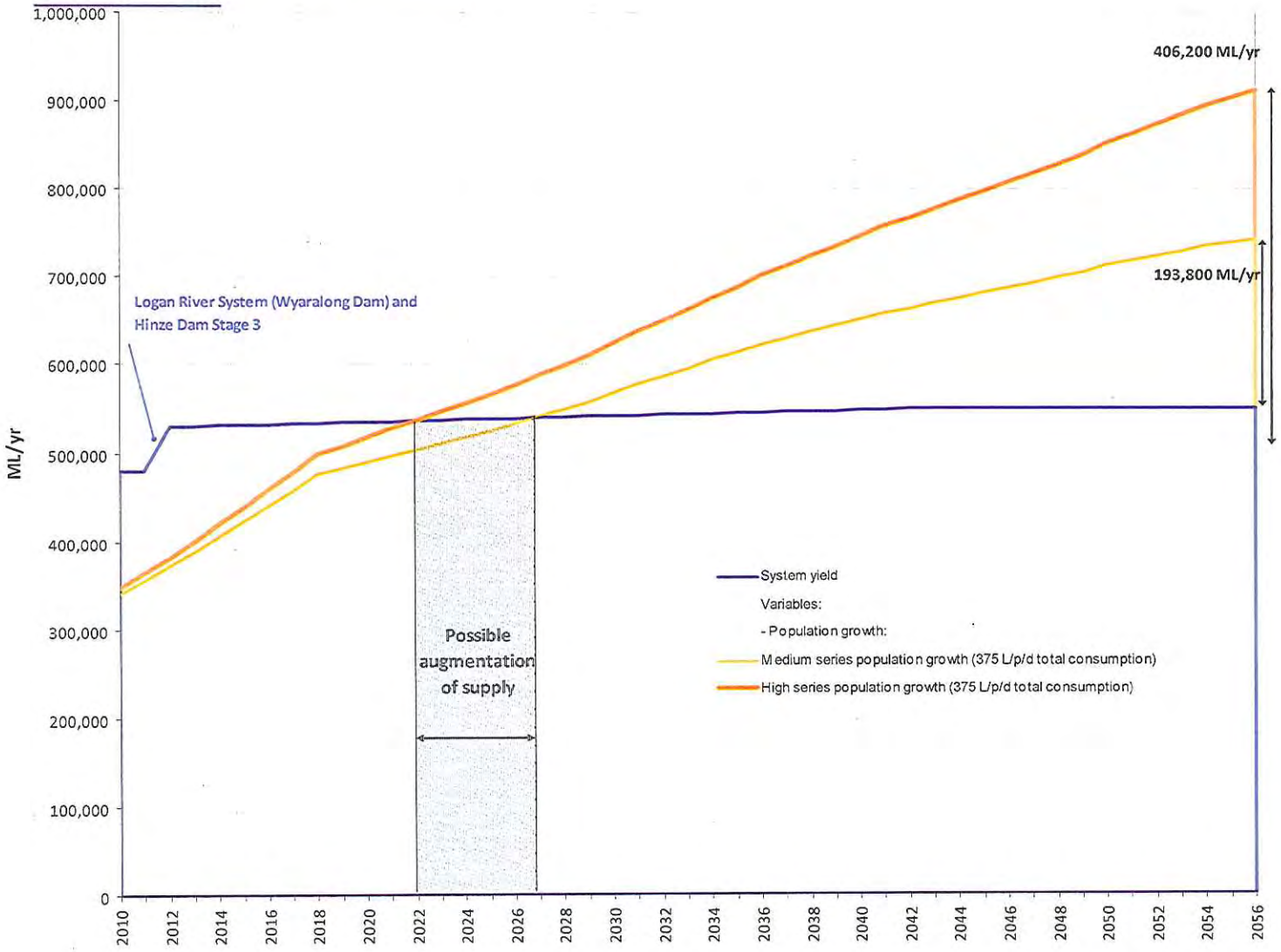
- Level of Service objectives – calculate LOS yield needed
- Portfolio of sources – dams, groundwater, PRW, desalination (climate vulnerable, climate resilient and climate independent)
- PRW critical standby source
- Investigate and preserve viable options to be ready through a robust, transparent and inclusive process
- Innovative solutions (such as stormwater harvesting, local reuse)

Queensland water Commission

Securing our water, together.

Water balance in normal operating mode

375 litres/person/day



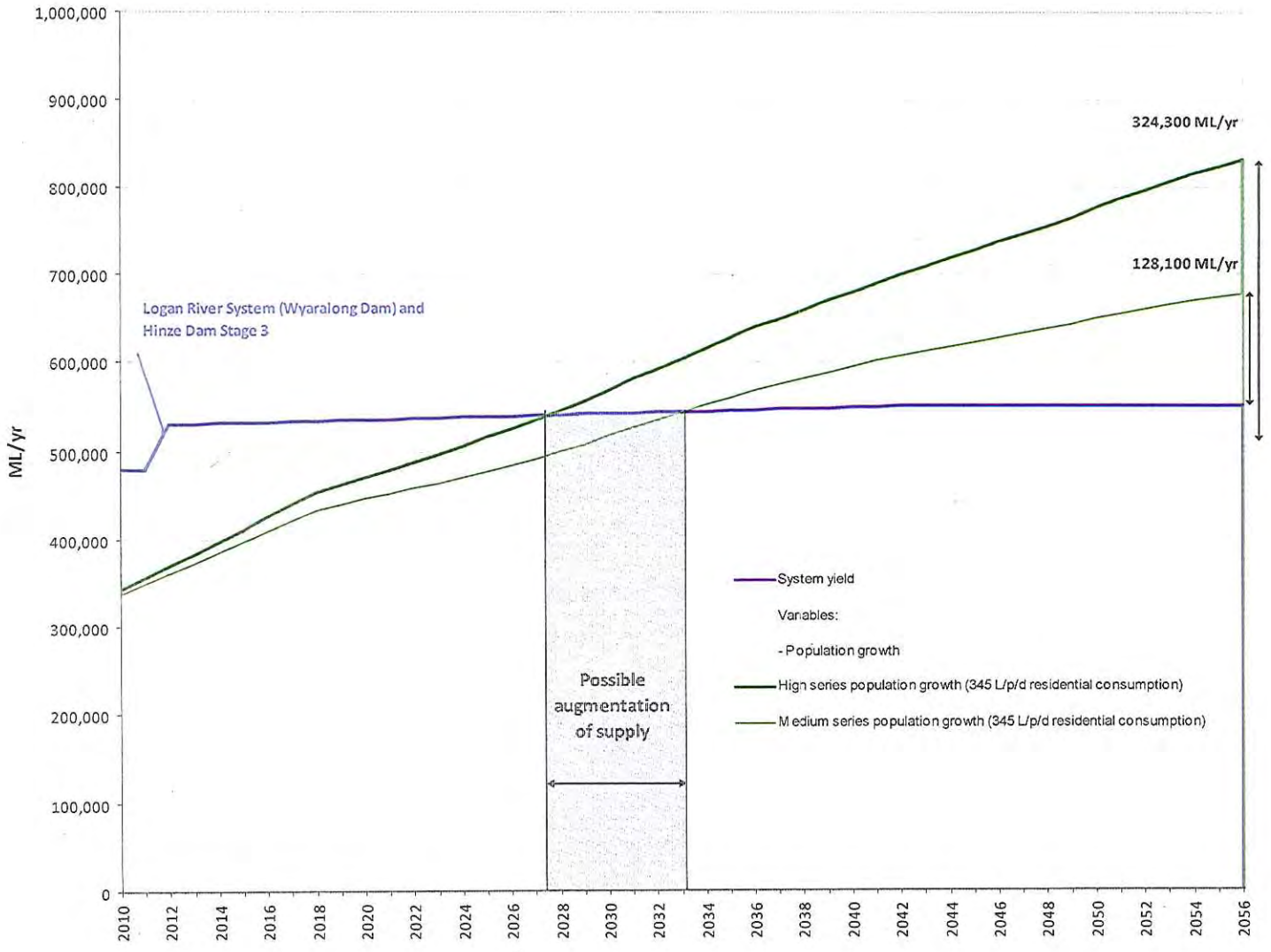
Queensland water Commission

Securing our water, together.

Climate change scenario may bring forward augmentation date. The Strategy is designed to deal with such variability.

Water balance in normal operating mode

345 litres/person/day



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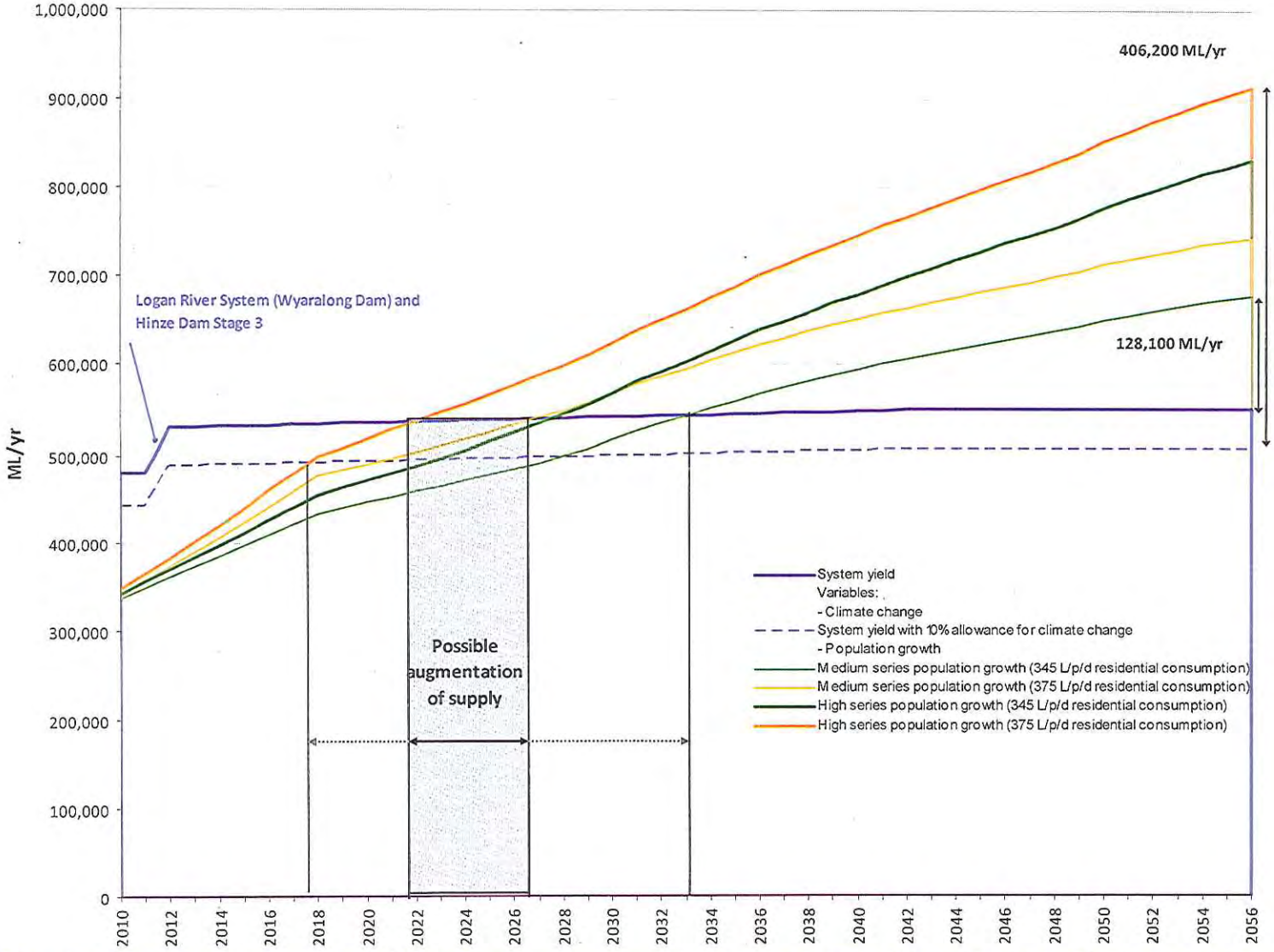

Queensland water Commission

Securing our water, together.

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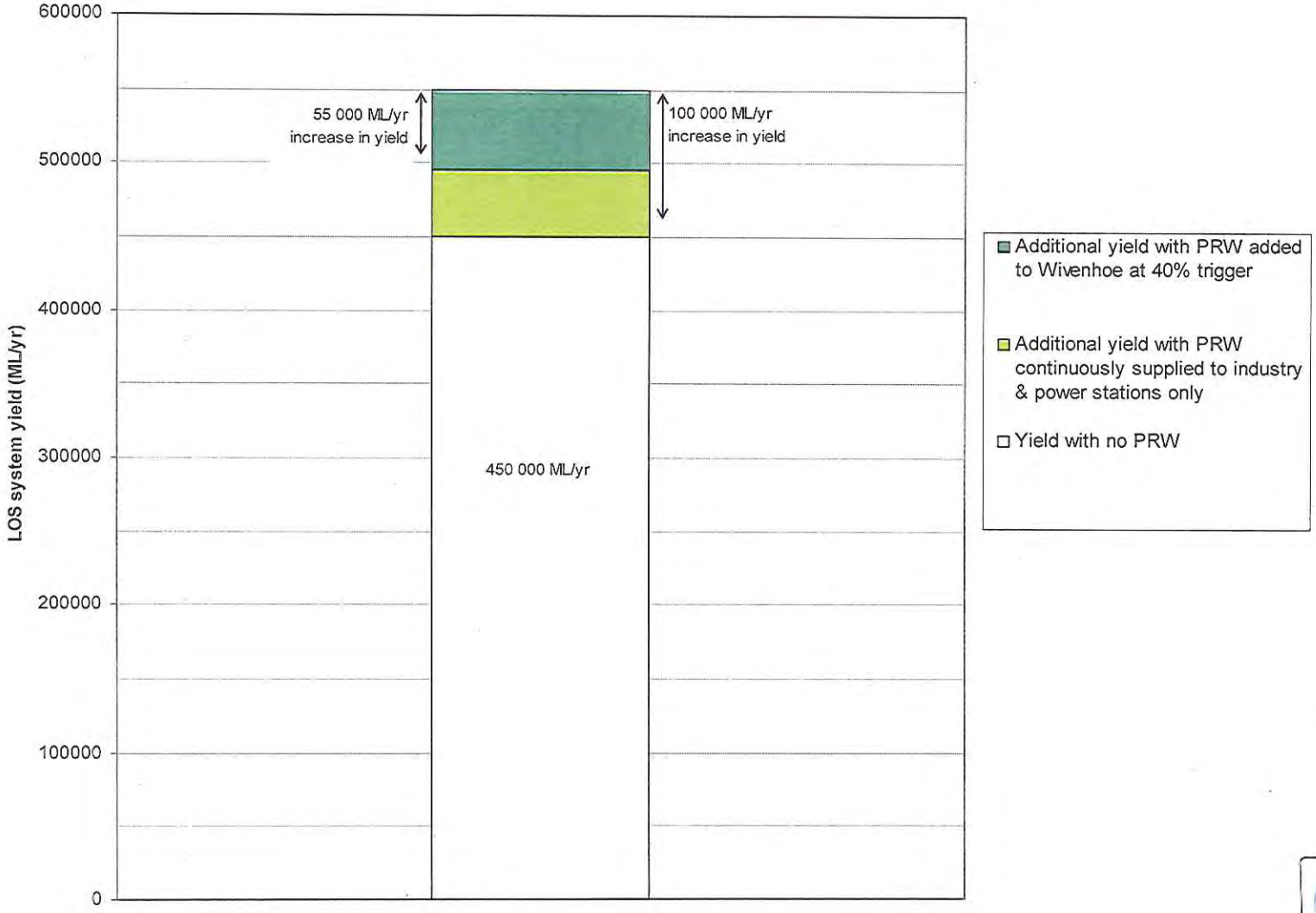
Impact of varying the PRW trigger

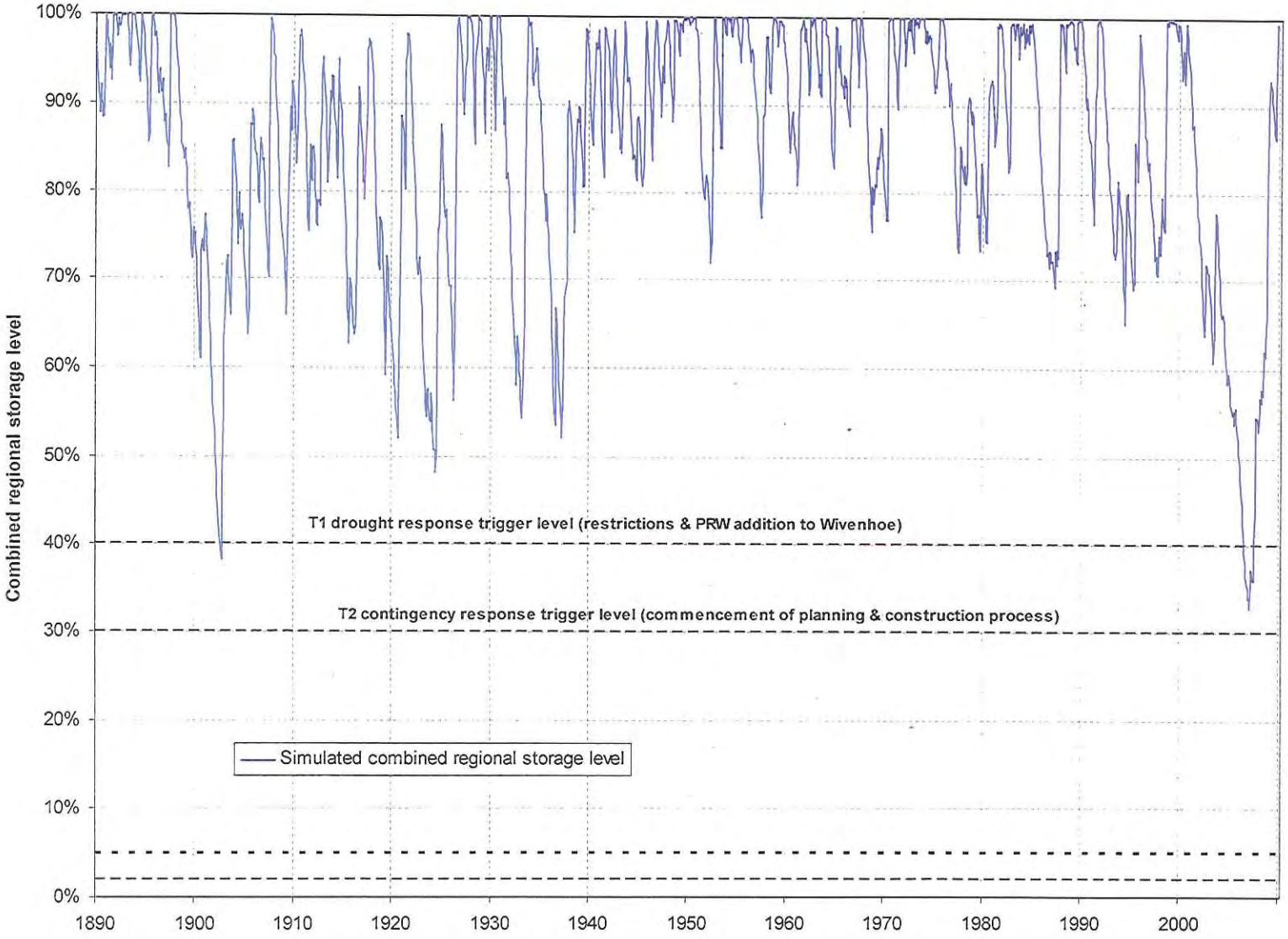


Queensland water Commission

Securing our water, together.

Simulated Water Grid levels

based on historic inflows and operating LOS system yield



Queensland water Commission

Securing our water, together.

In 2004-05 storages fell from 60% to 17%; if the Water Grid had been in place they would not have fallen to below 30%.

Contentious issues

- Proceeding to plan for preserving desalination sites
- Belief that local supplies can replace infrastructure – the Strategy supports developing decentralised systems (above existing regulated requirement) where they meet the supply criteria of safety, security and reliability at acceptable cost for whole-of-life
- Key growth areas – the Strategy provides for key growth areas and in addition, through subregional planning, includes assessment and championing innovative approaches
- Mary Valley investigations to proceed with stakeholder involvement
- Realisation of PRW use, including addition to Hinze and North Pine Dams
- The Government has already committed to a planning basis of 375 litres/person/day (which includes a 230 litres/person/day residential use) through such instruments as the Regional Water Security Program and the System Operating Plan

Example Framework for Consideration of the Impact on SEQ Water Strategy of Various Operating Levels for Wivenhoe Dam

Description	Base Case	Short Term Options			Intermediate (Ingenuity Option)	Long Term Option
		10% drawdown	30% drawdown	50% drawdown		
Security						
• Sufficiency	ok	ok	impacted	impacted		Impacted – demand management/ manufactured water required
• Demand/Supply Balance	ok	ok	ok	ok		Impacted – new infrastructure brought forward
Levers						
• Level of Service changed					Review	
• Policy					Review	
• Assumptions					Review	
• Other						
Input						
• Allocation	ok	ok	Impacted?	Impacted?		Impacted - Review required
• Yield	ok	ok	ok	ok		Impacted
• Demand	ok	ok	ok	ok		Potentially reduced
• Other						
Price						
	ok	ok	Grid operating costs / manufactured water triggered?	Grid operating costs / manufactured water triggered		Yes – new price path?

Note: above table is only an example – details are being assessed.

Operating Level Scenarios for Key Storages in South East Queensland

Project Meeting

1 February 2011

11 – 12 noon

Draft Agenda

1. **Introduction**
2. **Strategic Issues – feedback from other agencies, releases etc**
3. **Modelling Results to-date**
4. **Additional Modelling – time to reach 40% and 60%**
5. **Preparation of Report - progress**
6. **Other business**

D/11/001719

Example Framework for Consideration of the Impact on SEQ Water Strategy of Various Operating Levels for Wivenhoe Dam

Description	Base Case	Short Term Options			Intermediate (Ingenuity Option)	Long Term Option
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Levers						
• Level of Service changed					Review	
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• Assumptions					Review	
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• Demand	ok	ok	ok	ok		Potentially reduced
• Other						
Price						
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Note: above table is only an example – details are being assessed.

Scenarios for Operation of Wivenhoe Dam January 2011

Preliminary Modelling results

Variation in Initial Wivenhoe Dam Level

An assessment of the risk criteria for three initial levels of Wivenhoe Dam was undertaken with the following assumptions:

- Initial levels of Wivenhoe Dam were 87.1%, 70% and 50%
- **All other storages were set at 100% initially.**
- No NPI2 for the duration of the modelling
- Simulation start was February 2011, with initial dam levels January 2011
- Price path 2010 – 2015 demands
- No Tugun desalination above 60% Key Water Grid Storages, full desalination below 60%

All scenarios passed the SOP risk criteria as shown below in the Table 1.

Table 1

SOP

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.2%	NA	<5%
30%	NA	<.5%	<1%

Scenario - Wivenhoe 87% (Case 2)

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.01%	NA	0.09%
30%	NA	<.01%	<.01%

Scenario - Wivenhoe 70% (Case 4)

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.01%	NA	0.20%
30%	NA	<.01%	0.01%

Scenario - Wivenhoe 50% (Case 6)

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.01%	NA	0.48%
30%	NA	<.01%	0.01%

Below in Table 2 are some of the results comparing the probability of reaching 40% for the scenarios run so far:

Table 2

Case	% Reduction Wivenhoe (from full supply)	Volume of Water Released from Wivenhoe Dam (ML)	%reduction of Grid 12 Storages (from full supply)	Probability of reaching 60% within 5 years (desalination trigger)	Probability of reaching 40% within 5 years (PRW trigger)
1	10	116,500	5.6		
2	12.9	150,285	7.3		.09%
3	20	233,000	11.3		
4	30	349,500	16.9		.2%
5	40	466,000	22.5		
6	50	582,500	28.1		.48%

Wivenhoe Dam initially at 50%, with varied initial Baroon Pocket and Hinze dam levels

An assessment of the effect on risk criteria of lower initial Hinze and Baroon Pocket dam levels was undertaken with the following assumptions:

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- No NPI2 for the duration of the modelling
- Simulation start was February 2011, with initial dam levels January 2011
- Price path 2010 – 2015 demands
- No Tugun desalination above 60% Key Water Grid Storages, full desalination below 60%

Both scenarios passed the risk criteria as shown in Table 3 below.

Table 3

SOP

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.2%	NA	<5%
30%	NA	<.5%	<1%

50/50/50%

Volume of water stored by all Key Water Grid Storages	Probability of reaching stored volume		
	1 year	3 years	5 years
40%	<.01%	NA	0.49%
30%	NA	0.01%	.03%%

Table 4 compares the risk criteria for all scenarios.

Table 4

Wivenhoe/Baroon/Hinze levels	50/50/50	50/100/100	70/100/100	87/100/100	SOP
40% SEQ volume					
1 year	<.01%	<.01%	<.01%	<.01%	<2%
5 year	0.49%	0.48%	0.20%	0.09%	<5%
30% SEQ volume					
3 years	0.01%	<.01%	<.01%	<.01%	<5%
5 years	0.03%	<.01%	0.01%	<.01%	<1%

Storage behaviour curves for varying probabilities of exceedance are shown below in Figures 1 and 2.

Figure 1

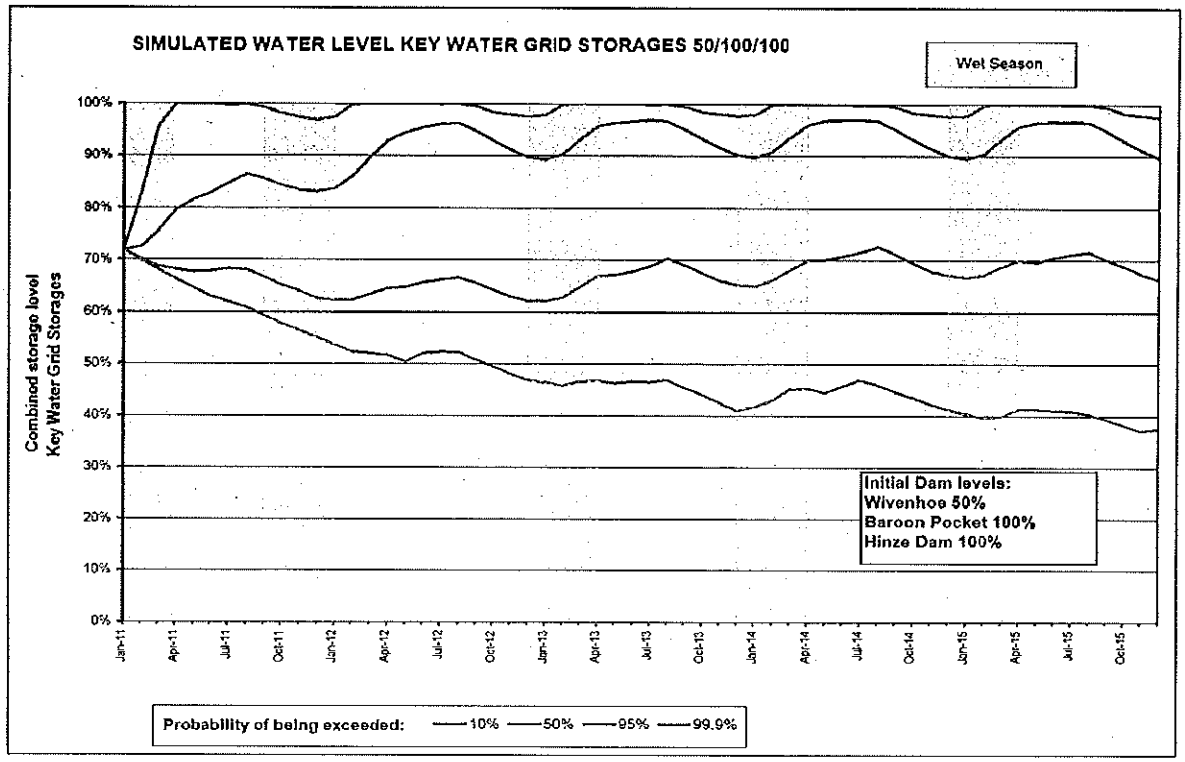


Figure2

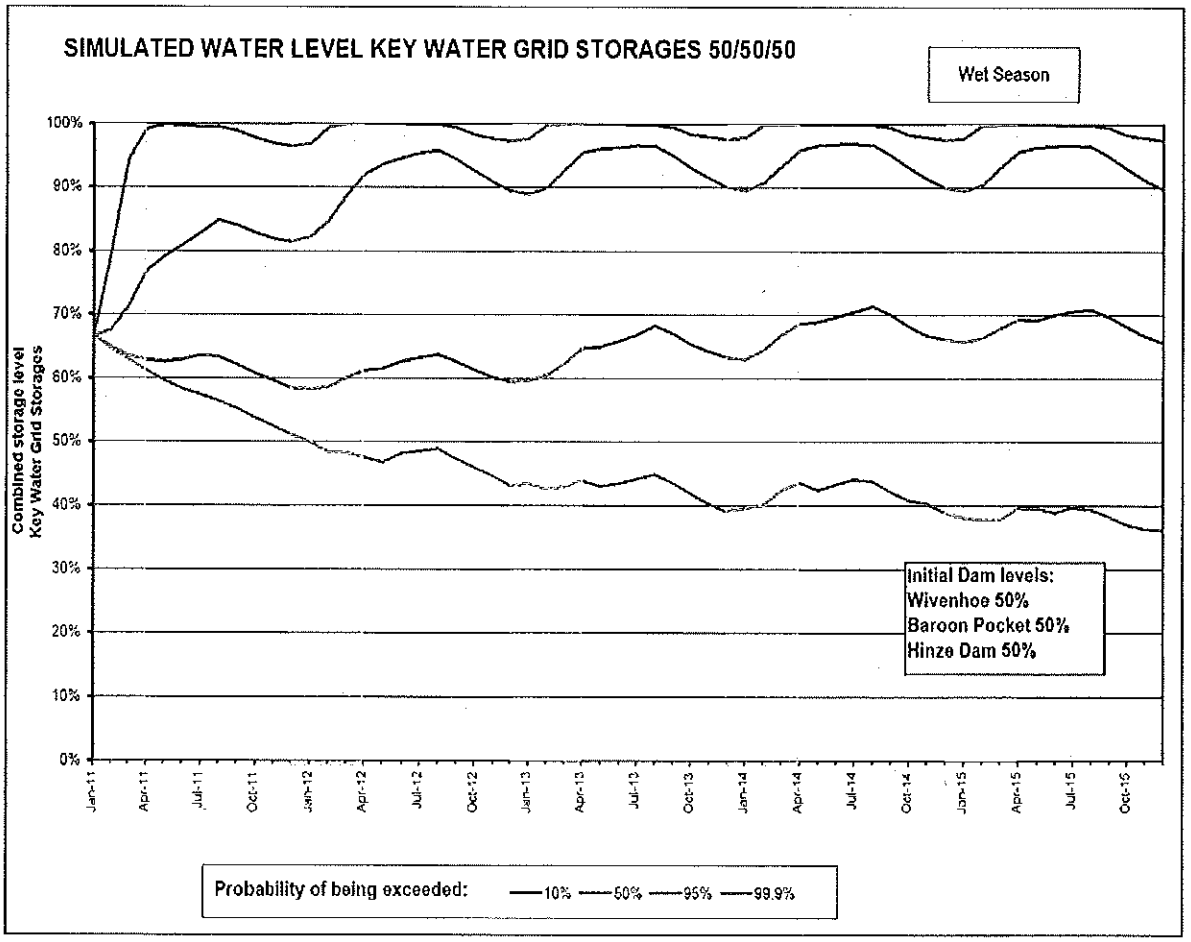


Figure 1: Water Balance

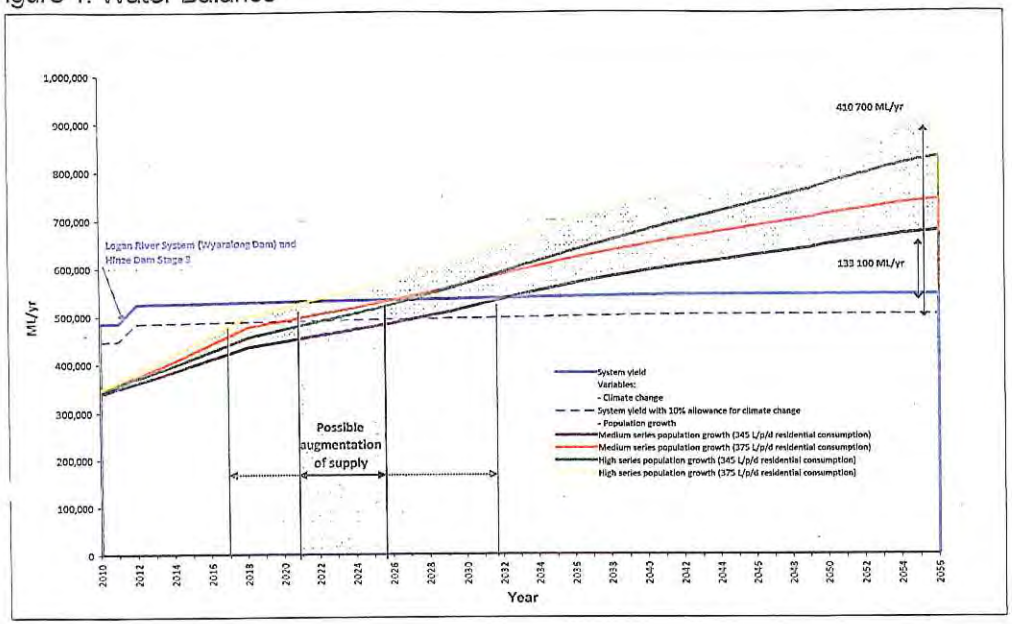


Figure 2: Storage Levels - "Grid 12"

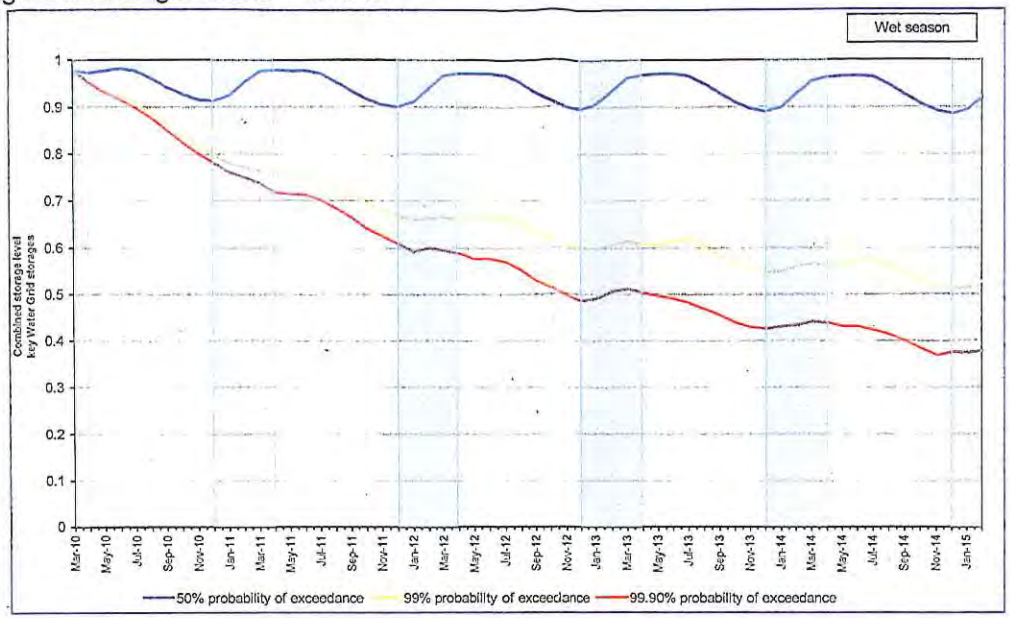


Figure 3: Drought Response Storage Trigger Points

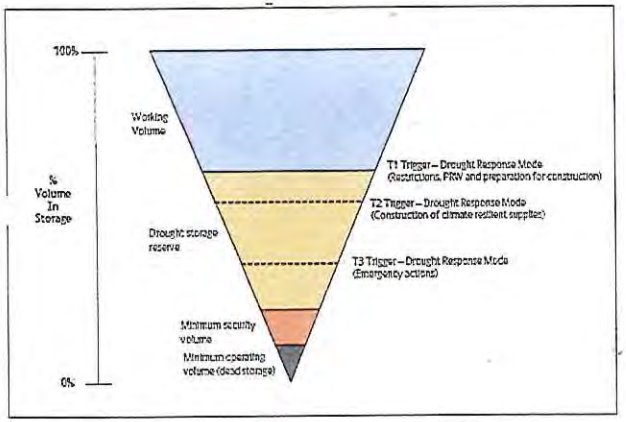
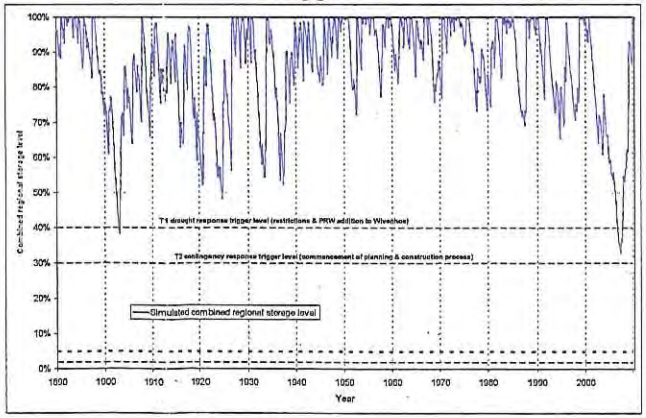


Table A: Impact of Reduced Consumption on the Timing of the Next Augmentation

Scenario	Regional average residential consumption	
	230 litres/person/day	200 litres/person/day
Earliest date with: • high population growth • provision for climate impact	2017	2022
Likely date with: • high population growth	2021	2027
Likely date with: • medium population growth • provision for climate impact	2020	2027
Latest date with: • medium population growth	2026	2032

Figure 4: Storage Levels with Drought Response Triggers



The next bulk water source will be required for a growth or drought trigger. Fig 1 shows likely timeframes for growth scenarios. Fig 2 shows that there is 1 in a 1000 probability that a drought trigger might occur in late 2014 requiring construction to commence in 2017. Fig 3 illustrates the relationship of drought triggers to storage levels while Fig 4 illustrates that the present grid is sufficiently robust that on present population and planning based demand levels of 230 l/p/d construction of drought response infrastructure would not have been required for the Millennium drought.

1/2/2011

ROP ISSUES:

S14(1)

SEQUENTIAL OFFICES:
JP, PH, PD, BD & GJ (GRID MGR.),
DB, GC + PD (DERM) KJ + MD (QU

SCENARIOS:

1. ADJUSTMENTS TO RELEASE STRATEGY
2. FSL 65%
3. ✓ ✓ + 1.
4. ✓ 75% + FLOOD MANUAL @ 100%
5. ✓ ✓ + ✓ ✓ @ 75%
6. ✓ 50% + ✓ ✓ @ 100%

→ REDUCED WATER LEVELS DOWNSTREAM

NO FURTHER ADVICE UNTIL PEER REVIEW AND INSURANCE (COMPANY) REVIEW

IS IT A QUESTION OF DOES MANUAL + FSL DELIVER LEVEL OF FLOOD MITIGATION EXPECTED?

OR

IS IT WHAT IS THE LEVEL OF FLOOD MITIGATION REQUIRED?

CLAUSES 29 + 74

NEXT MONDAY

Scenarios for Operation of Wivenhoe Dam January 2011

Preliminary Modelling results

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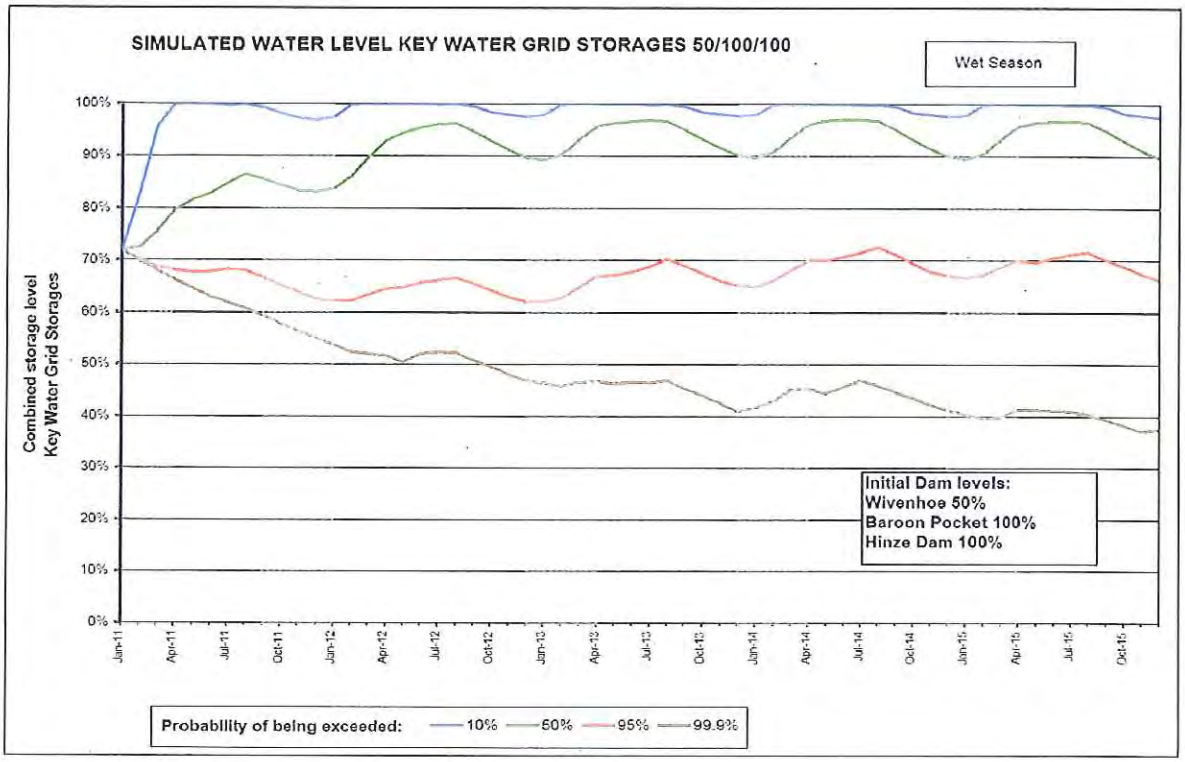

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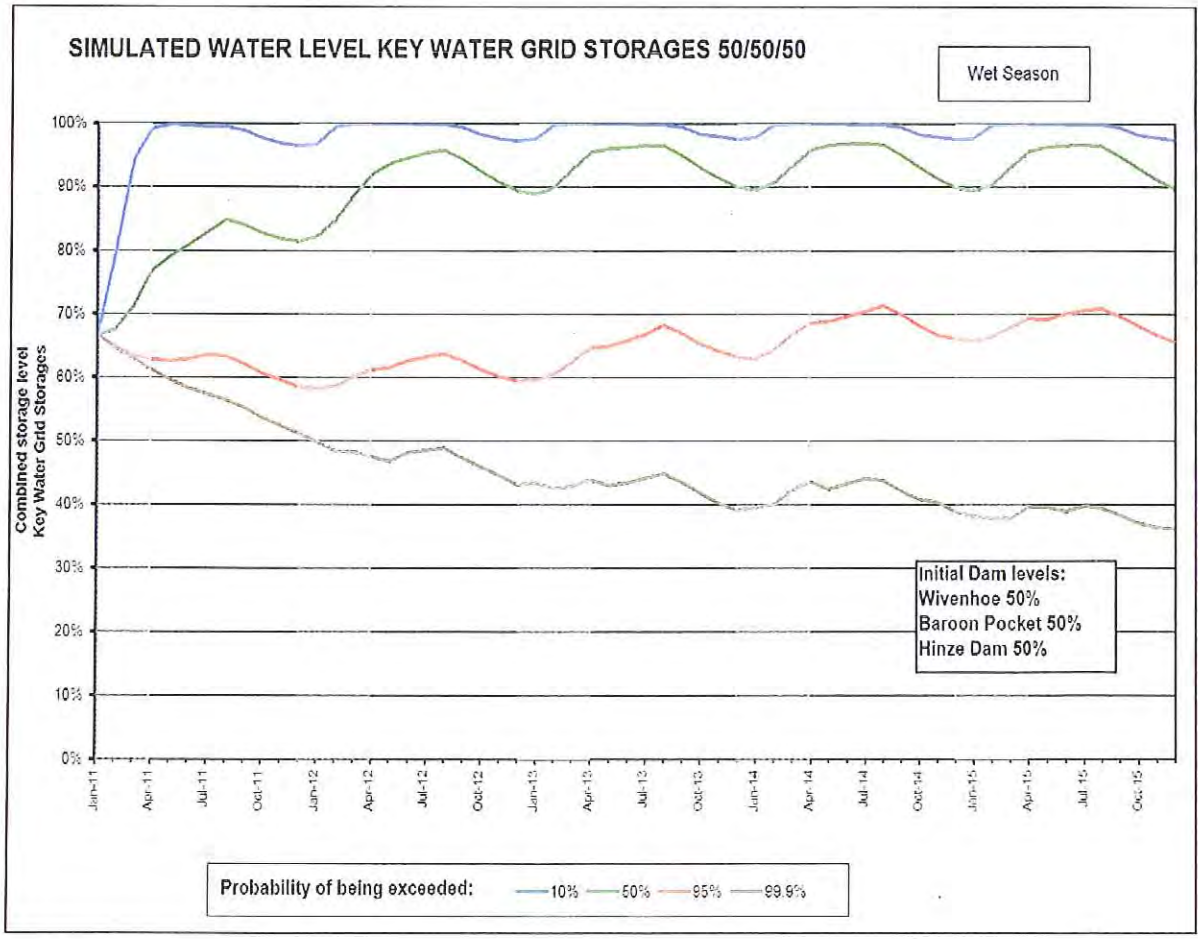


SUBJECT

DATE 3/2/2011

MINISTER RODERTSON MEETING

1. [redacted]

2. MINISTER'S ENQUIRY TO WHM RE RELEASE OF WATER FROM WIVENHOE
   → ENQUIRY FROM WHM TO UWC ON 24/12 WITH 1 HR FOR RESPONSE
   SHORT RESPONSE ; SECURITY IMPACT TOLERANCE FOR SEQWATER
   ; OPERATIONAL MATTERS
   ; RECOMMEND CHECK WITH DERM
   → PERSONALLY ONLY AWARE 21/1, DAY AFTER RECEIVING LETTER

3. LETTERS OF 20/1, SUPPORTING SEQ WATER

4. FLOODS DISASTER — DWC OFFERED TO SUPPORT BUT ONLY LIMITED RESOURCES ACCESSED

5. ACKNOWLEDGE DERM ACCOMMODATION DURING PERIOD OF BUILDING CLOSURE

NO.

SUBJECT

DATE 3/2/2011

1. WORK ON INVESTIGATIONS AROUND WIVENHOE FSL

2. ANY CHANGE TO MARY RIVER INVESTIGATIONS

3. SOME SCHEDULE OVWORK (INVESTIGATIVE SUCH AS WIVENHOE & MARY RIVER MIGHT BE DELAYED DUE TO DISRUPTION

QCA MONITORING NEXT WEDNESDAY

CORRESPONDENCE

[LUNCH ~ [SL GROUP]

ESTABLISHMENT COSTS

CTS No. 23212/10

Queensland Water Commission
MINISTERIAL MEETING BRIEFING NOTE
Monday 10 January 2011
Mary Boydell, Commissioner [redacted]
Karen Waldman, Chief Executive Officer
[redacted] 5.1.11

Advisor	☐ Ok
Dated	/ /
☐ Approved ☐ Not Approved ☐ Noted	
☐ Further information required	
Minister.....	
Dated	/ /

TO: **Minister for Natural Resources, Mines and Energy and Minister for Trade**

SUBJECT: **Quarterly meeting with the Queensland Water Commission**

BACKGROUND

- The Queensland Water Commission (QWC) Commissioner and Chief Executive Officer (CEO) meet with the Minister on approximately a quarterly basis in order to discuss matters of strategic importance.
- The previous meeting was held on 11 November 2010 and focused primarily on the review of the bulk water price path.
- The objective of this meeting is to:
  - provide an opportunity for the Minister to raise issues with the Commissioner and the CEO; and
  - update the Minister on QWC's priorities for the next quarter and several potentially contentious issues related to the QWC's key result areas.

Author	Cleared by	Cleared by	Recommended:
Name: Karen Waldman Position: CEO QWC Tel No [redacted] Date: 5 January 2010	Name: Karen Waldman Position: CEO QWC Tel No: [redacted] Date: 6/1/2011	Name: Leslie Shirreffs Position: A/Deputy Director-General, DERM Tel No: [redacted] Date:	Name: Debbie Best A/Director-General, DERM Tel No: [redacted] Date:

File Ref: D/11/000185 / ME/10/0783

+ WIDENING PSL WORK (AS OUTLINED IN STRATEGY) [INFORMED BY COMM'S OF ENQUIRY]

SUBJECT: MEETING WITH SEQWATER

DATE: 04/02/2011

WGM

J BRADLEY

DERM OFFICERS

1. OUTFLOWS
2. LEVEL OF RIVER + < BOM / BCC (WANT TO RECALIBRATE THEIR MODEL)
3. FLOOD INUNDATION

INFO/RESOURCES NOT CURRENTLY AVAILABLE

1974, 2011, 1893 } 10 SCENARIOS ON LACK
x 3   x 3   x 3

~~FSV~~

RAINFALL → INFLOWS

FLOOD [CRITICAL DURATIONS = 24HR–72HR]

[illegible] 1:100 EVENT IN THE CATCHMENT

BENEFIT UP TO 1:500

APPROX	
1974	1:80
2011	>1:100
1893	1:150+

SECURITY →

	[illegible]%	75% / 100%	75%
2011	7800 CM (AT PEAK)	5750 CM	4300 CM
1:1000 DESIGN EVENT LONGER DURATION	6000 CM	4700 CM	4500 CM
1:500 [illegible]	9000 CM	3700 CM	3300 CM

kikki.K

SUBJECT

DATE

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:

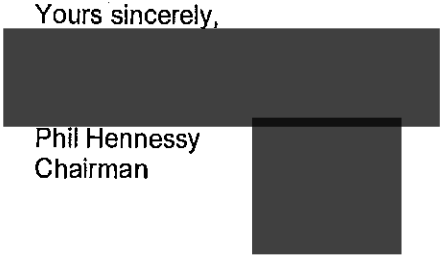
(a) Seqwater will need to work urgently with the Dam Safety Regulator to finalise any necessary changes to the flood mitigation manual;
(b) if requested, Seqwater can provide assistance to DERM following DERM's determinations regarding the Moreton Resource Operations Plan and the appropriate mechanism 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,



Phil Hennessy
Chairman

Operating Level Scenarios for Key Storages in South East Queensland

Project Meeting

9 February 2011

3-4 pm

Draft Agenda

1. Introduction
2. Strategic Issues – feedback from other agencies etc
3. Review of draft Report by John Collins
4. Draft Report Ver 4
5. Other business – review by Anita Sweet

D/11/002657

INFORMATION MATERIAL ONLY

Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam

9 February 2011

Version 4

Table of Contents

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 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, the short term is defined as the period over the next 5 years where the supply security may be impacted by any proposed temporary lowering of the dam operating level over the 2011 wet season. Long term is defined as permanent measures that may impact water security over the next 50 years.

It is emphasised that these are only scenarios and are meant to provide information for the consideration of any temporary measure over the 2011 wet season.

This assessment does not deal with the environmental, social and economic impacts of the dam operating levels in relation to flood mitigation to 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 Port Office, Brisbane City. However, 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 to SEQ.

The SEQ Water Strategy defines the LOS objectives as relating to the expected frequency, duration and severity of restrictions during future droughts. The LOS

4 Short Term Impacts

4.1 Determine the volume of release (or dam level) which may be accommodated within the Brisbane River system LOS yield

QWC RESPONSIBLE FOR LOS YIELD BUT OTHER OFF IS "A GRAND OF SAND"

The SEQ Water Strategy notes that the Brisbane River system (Wivenhoe, Somerset and Gold Creek dams, Lake Manchester and Mt Crosby Weir) provides an average contribution of 256,300 ML/annum to the LOS Yield. This represents about 47% of the total LOS system yield for SEQ.

The metered demand from the Brisbane River system from 1 July 2010 to 31 December 2010 is about 51,400ML. This equates to about 102,800 ML/annum.

Thus, there may be potential to release about 150,000 ML/a or about 13% capacity of the full supply volume (FSV) of Wivenhoe Dam based on the Storage Capacity data provided in Appendix A. These calculations and conclusion are premised on the current high volumes of water in the remaining SEQ water storages, and the assumption that this stored water could be readily accessed to meet the region's demands.

4.2 Determine the volume of release (or dam level) which can be accommodated in accordance with the SOP for the SEQ region as a whole (for discussion)

Figure 1 shows the daily production rate of water for all of SEQ, since January 2009. As expected, there are some daily variations due to factors such as climatic conditions but over these two years the volume of production was about 680 megalitres per day (ML/day) or about 250,000 ML/annum.

4.3 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 scenarios modelled. Five scenarios were considered involving a reduction in water level at Wivenhoe Dam. The fifth scenario includes a reduction at Hinze and Baroon Pocket Dams. 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).

The key assumptions adopted for these runs were:

- Simulations start in January 2011
- Reduced initial levels of Wivenhoe Dam to 87%, 75%, 70% and 50% capacity (Scenarios 1-4) and all other storages were set at 100% initially.
- Reduced levels of Wivenhoe Dam, Baroon Pocket and Hinze Dams to 50% capacity and all other storages were set at 100% initially (Scenario 5)
- Northern Pipeline Interconnector Stage 2 excluded
- Demand used corresponds to permanent water conservation measures, in particular, 200 litres per person per day for residential use (November 2010 Bulk Price Review)
- Medium series population growth consistent with SEQ population forecasts
- No desalination above 60% Key Grid 12 Storages
- Full desalination below 60% Key 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 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 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 4.3.

4.4 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, 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 specification, government policies and assumptions
- Inputs – these are some of the input factors which could be impacted e.g. allocation, demand and supply
- Pricing – some of the scenarios may impact upon the current Price Path 2010-12 that has been established.

The following observations are made and this is reflected in Table 3:

Table 3: Preliminary Framework for Consideration of the Impact on SEQ Water Strategy of Various Operating Levels for Wivenhoe Dam

Description	Base Case (status quo)	Short Term/Temporary Options (Wivenhoe Dam drawdown)			Intermediate Option	Long Term/Permanent Options (Wivenhoe Dam drawdown)	
		13%	25%	50%	Review	#10%	25%
Security of supply							
• Sufficiency	✓	✓	✓	✓	Review	✓	✗
• LOS Yield	✓	✓	✓	✓		✓	✗
• Demand/ Supply Balance	✓	✓	✓	✓		✓	✗
• Desalination	✓	✓	✗ (potentially triggered ~~within 3 years~~ if 2001-2006 inflows ~~occur within~~ next 6 years)	✗ (potentially triggered within 3 years if 2001-2006 inflows occur within next 6 years)		✓	✗
Levers							
• Levels of Service					Review		
• Policies							
• Assumptions							
Input							
• Allocation/Yield	✓	✓	✗ (Brisbane river system allocation of 285,545 ML are impacted)	✗ (Brisbane river system allocation of 285,545 ML are impacted)	Review	✗ (impacted)	✗

DERM ALLOCATION

4.5 Forecast the probability of key Grid 12 storages level over the next 5 years

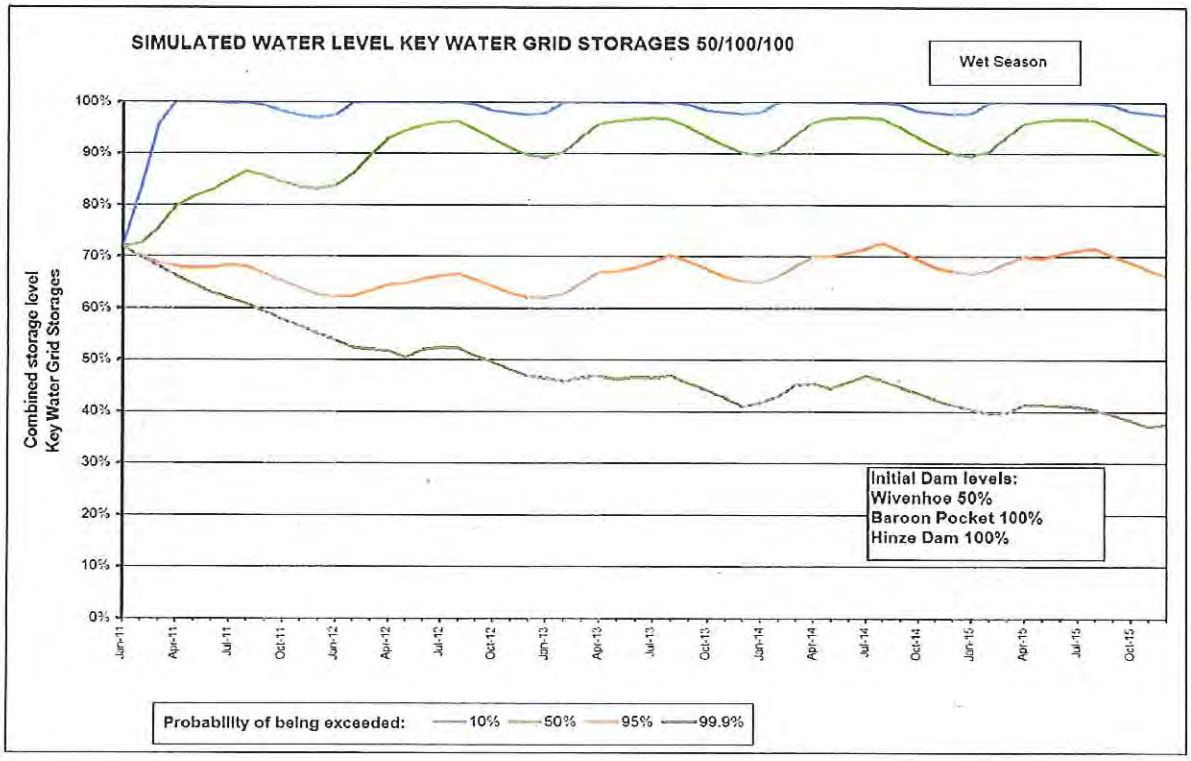
To forecast the probability of the Grid 12 storages reaching a certain level, the Wathnet Model was used, based on stochastic data generation for 117 years of historical information.

Figure 2 shows the forecast storage level for the Grid 12 (key water grid storages) for Scenario 4 (as described in Section 4.2) with Wivenhoe drawn down to 50% and the rest of the storages at 100% at the start of the simulation in January 2011. (Note: The plots for Scenarios 1 – 3 would show higher storage levels than those shown in Figure 2).

In this scenario:

- there is a 95% probability that the combined Grid 12 dam levels remain above 60% over the next 5 years;
- there is a 99.9% probability that the Grid 12 level remains over 40% for the next 4 years; and
- there is a 50% probability that the combined Grid 12 dam levels will climb back to 90% and remain at this level for the remainder of the 5 year period.

Figure 2: Scenario 4 with Wivenhoe Dam drawn down to 50% - forecast combined dam level Grid 12 showing probabilities of exceedance



4.6 Simulated storage behaviour of Grid 12 storages over the next 6 years using three inflow scenarios (using Waspp Model[2])

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 (or cases) 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, average inflow and 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[3] 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 shown in Case 3 (Table 5).

Table 5: inflow scenarios assessed

Scenarios (Case)	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:

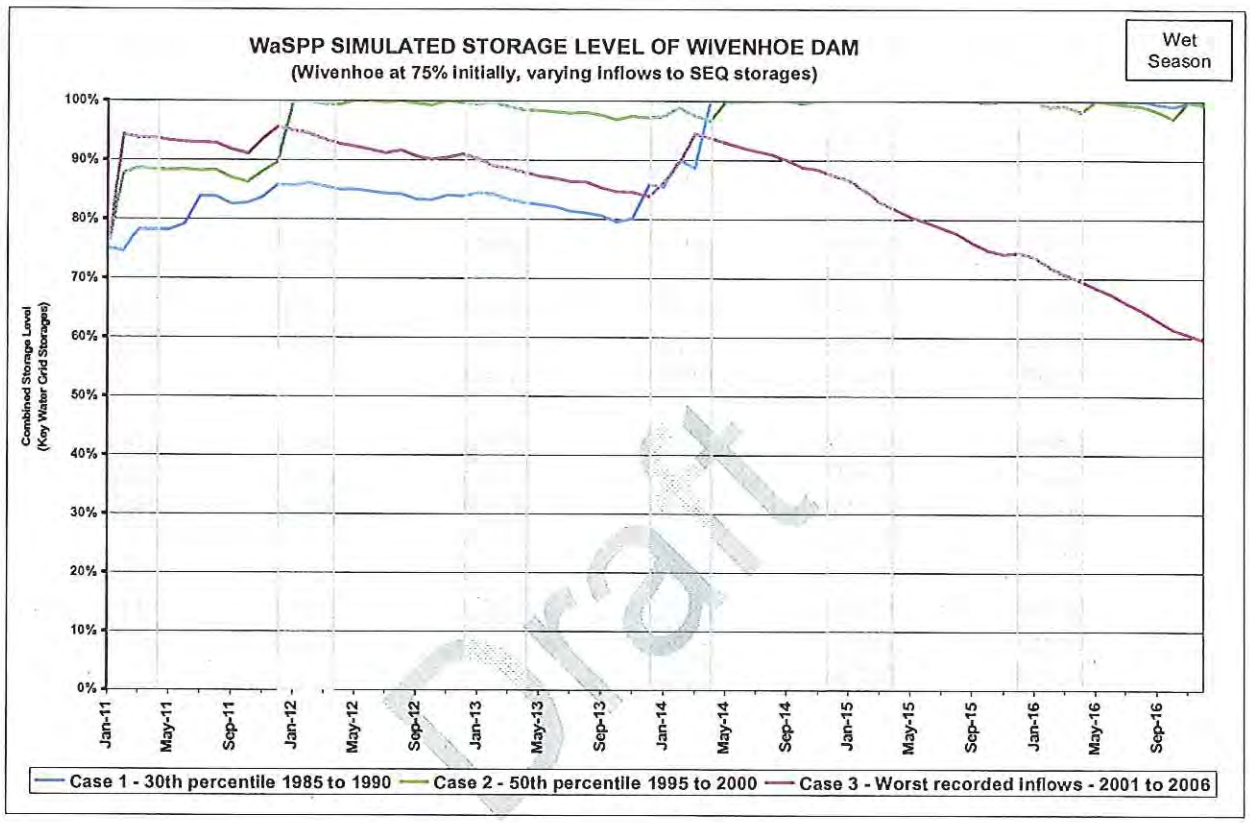
- 75% initial storage volume at Wivenhoe Dam (all other storages at 100% full) - or Grid 12 storages at 86% capacity
- Demands based on November 2010 Bulk Price Path – commences with current consumption and increases to a residential 200 litres/person/day by 2018

[2] Waspp Model refers to Water Supply Predictive Planning Model, QWC.

[3] The exceedance probability is the percentage probability of a 6 years of cumulative inflows being equalled or exceeded. For example, the exceedance probability of the Jan 2001-2006 inflows is 100% - as this volume of inflow is always exceeded (100%) based on the previous record.

The simulated storage level behaviour of Wivenhoe Dam for the three inflow scenarios is indicated in Figure 5. As expected the simulated level for Wivenhoe Dam reduces significantly due to the worst inflow sequence (drought). With the other two inflow scenarios, Wivenhoe Dam recovers within about 3 years.

Figure 5: Simulated Wivenhoe Dam storage levels for 3 inflow scenarios/cases



5 Long Term Impacts - assessment of the potential impact on the LOS Yield (using Wathnet Model)

To assess the impact on the LOS yield if Wivenhoe Dam was operated at a reduced water supply capacity, over a long term or permanently, 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.

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 System Operating Plan. These objectives provide a long term security of water supply and are defined as the:

- desirable maximum frequency, duration and severity of water restrictions
- 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 PRW at 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[4]:

- 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.

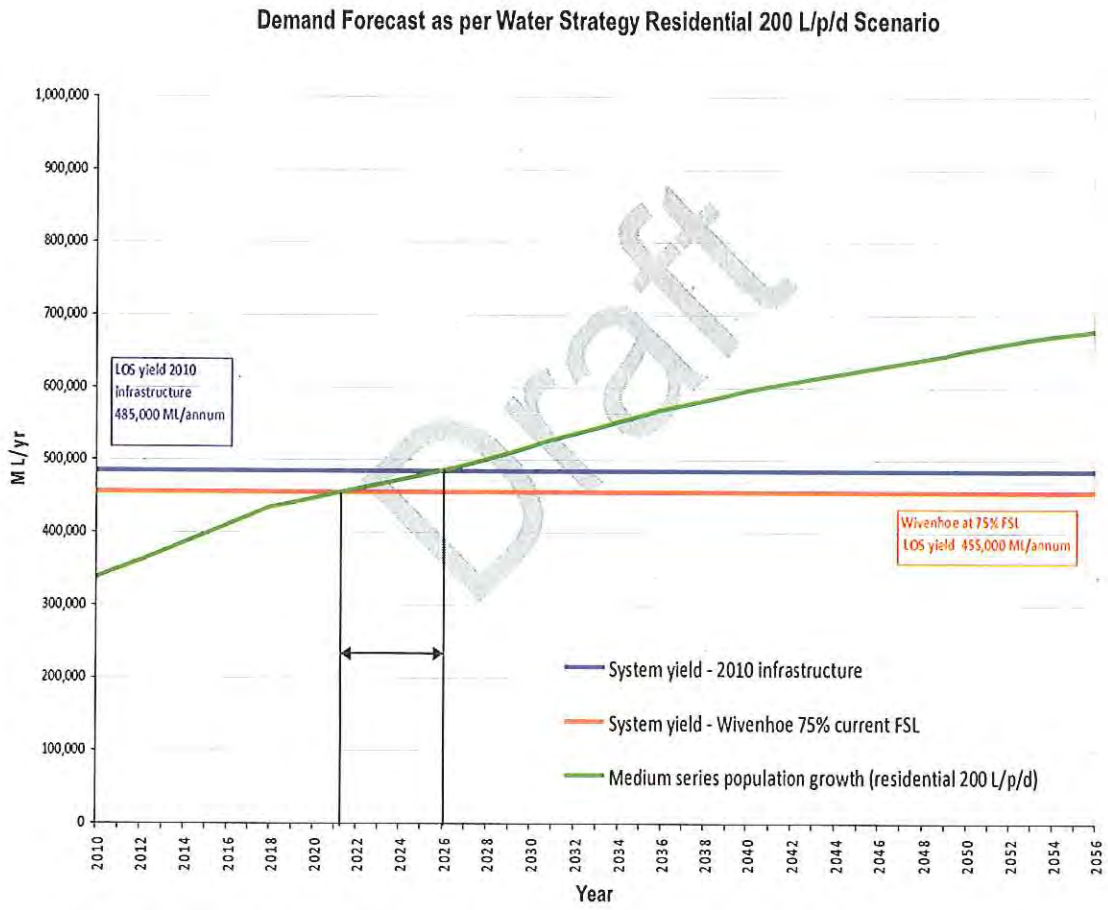
[4] The Wathnet modelling scenarios were based on the model set up used in the preparation of the SEQ Water Strategy.

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 operated at 25% lower than the Full Supply. The LOS yield has reduced from 485,000 ML/annum to 455,000 ML/annum.

Figure 6 shows that new infrastructure would need to be brought forward by about 5 years to about 2021 from 2026 under the medium population growth series.

Figure 6: LOS Yield comparison



Appendix A – Wivenhoe Dam Storage Capacity Data

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	CONV
82.00	22161	3555000	
81.75	21916	3499906	
81.50	21658	3445429	
81.25	21415	3391560	
81.00	21166	3338261	
80.75	20918	3285762	
80.50	20677	3233774	
80.25	20431	3182392	
80.00	20192	3131619	
79.75	19952	3081433	
79.50	19705	3031815	
79.25	19509	2982768	
79.00	19265	2934279	
78.75	19051	2885358	
78.50	18831	2839008	
78.25	18613	2792205	
78.00	18390	2745957	
77.75	18173	2700263	
77.50	17956	2655099	
77.25	17746	2610476	
77.00	17535	2566379	
76.75	17322	2522810	
76.50	17118	2479767	
76.25	16920	2437223	
76.00	16724	2395172	
75.75	16531	2353607	
75.50	16337	2312526	
75.25	16147	2271925	
75.00	15954	2231791	
74.75	15763	2192113	
74.50	15572	2152874	
74.25	15443	2114058	
74.00	15269	2075678	
73.75	15106	2037713	
73.50	14943	2000158	
73.25	14782	1963003	
73.00	14620	1926252	
72.75	14454	1889912	
72.50	14286	1853992	
72.25	14121	1818485	
72.00	13960	1783388	
71.75	13800	1748690	
71.50	13642	1714393	
71.25	13484	1680485	
71.00	13323	1645963	
70.75	13167	1613071	
70.50	13009	1581155	
70.25	12851	1549833	
70.00	12693	1518905	
69.75	12529	1488379	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	CONV
69.50	12365	1458287	
69.25	12205	1428557	
69.00	12046	1399246	
68.75	11889	1369332	
68.50	11723	1339815	
68.25	11561	1310714	
68.00	11401	1281013	
67.75	11240	1251714	
67.50	11080	1219815	
67.25	10916	1192321	
67.00	10751	1165238	
66.75	10572	1138550	
66.50	10389	1112378	
66.25	10197	1086624	
66.00	9990	1061414	
65.75	9797	1036687	
65.50	9598	1012440	
65.25	9412	988681	
65.00	9234	965378	
64.75	9058	942515	
64.50	8884	920080	
64.25	8712	898036	
64.00	8541	876532	
63.75	8371	855391	
63.50	8194	834561	
63.25	8027	814418	
63.00	7864	794557	
62.75	7710	775097	
62.50	7558	756014	
62.25	7402	737320	
62.00	7247	719011	
61.75	7115	701062	
61.50	6987	683435	
61.25	6865	666123	
61.00	6745	649112	
60.75	6629	632398	
60.50	6518	615966	
60.25	6409	599809	
60.00	6299	583927	
59.75	6190	568318	
59.50	6085	552976	
59.25	5975	537895	
59.00	5875	523082	
58.75	5775	508518	
58.50	5674	494208	
58.25	5573	480151	
58.00	5467	466339	
57.75	5371	452812	
57.50	5273	439507	
57.25	5175	426447	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	CONV
57.00	5078	413633	
56.75	4985	401056	
56.50	4897	388706	
56.25	4810	376573	
56.00	4721	364660	
55.75	4627	352973	
55.50	4537	341519	
55.25	4445	330291	
55.00	4348	319302	
54.75	4256	308561	
54.50	4144	298084	
54.25	4042	287851	
54.00	3942	277871	
53.75	3837	268147	
53.50	3735	258693	
53.25	3633	249474	
53.00	3524	240529	
52.75	3425	231845	
52.50	3329	223403	
52.25	3212	215250	
52.00	3121	207334	
51.75	3029	199651	
51.50	2932	192203	
51.25	2837	184993	
51.00	2744	178019	
50.75	2654	171275	
50.50	2576	164738	
50.25	2501	158392	
50.00	2427	152231	
49.75	2350	146259	
49.50	2264	140494	
49.25	2179	134939	
49.00	2100	129594	
48.75	2029	124434	
48.50	1957	119452	
48.25	1883	114644	
48.00	1820	110006	
47.75	1754	105542	
47.50	1693	101255	
47.25	1639	97073	
47.00	1590	93038	
46.75	1542	89123	
46.50	1488	85335	
46.25	1444	81670	
46.00	1399	78116	
45.75	1355	74673	
45.50	1312	71340	
45.25	1265	68139	
45.00	1214	65053	
44.75	1174	62068	

EL (M)	AREA (HA)	VOLUME (ML) TOTAL	CONV
44.50	1134	59185	
44.25	1095	56399	
44.00	1043	53727	
43.75	1008	51167	
43.50	977	48686	
43.25	944	46285	
43.00	911	43966	
42.75	879	41728	
42.50	828	39593	
42.25	801	37557	
42.00	774	35569	
41.75	744	33692	
41.50	716	31858	
41.25	685	30116	
41.00	659	28435	
40.75	625	26829	
40.50	593	25289	
40.25	575	23834	
40.00	554	22424	
39.75	533	21066	
39.50	512	19761	
39.25	494	18504	
39.00	476	17292	
38.75	456	16128	
38.50	433	15014	
38.00	393	12937	
37.50	338	11096	
37.00	309	9460	
36.50	279	8006	
36.00	202	6725	
35.50	184	5765	
35.00	168	4986	
34.50	153	4383	
34.00	132	3879	
33.50	104	2907	
33.00	95	2311	
32.50	84	1864	
32.00	60	1507	
31.50	55	1220	
31.00	51	955	
30.50	44	718	
30.00	39	510	
29.50	34	327	
29.00	30	167	
28.50	19	47	
28.00	3	12	
27.50	2	1	
27.00	0	0	
26.50	0	0	
26.00	0	0	

Level Datum AHD - PM 34781 EL 74.784 m
Computed using photogrammetric DTM produced in 1995 from 1971 photography
Survey records : 25727 FD
Full Supply Level: EL 67.000 m AHD [1,165,200 ML : 10,750 ha]
River outlet EL 33.200 m AHD [2,510 ML : 89 ha]
Catchment Area 7020 sq km
Latitude: 27 23 39 Longitude: 152 33 05

DEPARTMENT OF PRIMARY INDUSTRIES

BRISBANE RIVER - BASIN 143
WIVENHOE DAM 150.2 km

STORAGE DATA

A3-110405

19/09/95

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.

[redacted]

From: Mary Boydell[redacted]
Sent: Tuesday, 29 March 2011 3:39 PM
To: Salcedo Agustin
Subject: Fwd: Copy of letter re: water security impacts of lowering FSL at Wivenhoe Dam
Attachments: Water security impacts of lowering FSL at Wivenhoe Dam.pdf; ATT630391.htm

Begin forwarded message:

From: "Waldman Karen" <[redacted]
Date: 9 February 2011 1:13:55 PM AEST
To: "Bagdon Tad" <[redacted], "Wong Wai Tong" <[redacted]
Cc: "Mary Boydell" <[redacted]
Subject: FW: Copy of letter re: water security impacts of lowering FSL at Wivenhoe Dam

Hi all

For information - Peter Borrows advises me that this is forming the basis of a discussion with John Bradley this evening as they now have clear direction on water security.

Do we concur with its statements?

Regards, Karen.

Chief Executive Officer | Queensland Water Commission
[redacted]

From: Aleisha Paine [redacted]
Sent: Wednesday, 9 February 2011 11:49 AM
To: Peter Borrows
Cc: Waldman Karen; Dennien Barry @ SEQWGM
Subject: Copy of letter re: water security impacts of lowering FSL at Wivenhoe Dam

Good morning Peter,

Please find attached a copy of our letter regarding water security impacts of lowering Full Supply Level at Wivenhoe Dam.

A hard copy will be sent to you and CC'd to Karen today.

Kind regards,

Aleisha Paine
Board Executive Officer

SEQ Water Grid Manager
Phone: [redacted]
Email: [redacted]
Visit: Level 15, 53 Albert Street Brisbane
Post: PO Box 16205, City East QLD 4002
ABN: 14783 317 630

Please consider the environment before printing this email. It takes 10 litres of water to make one sheet of A4 paper.

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.

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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

INFORMATION MATERIAL ONLY

Impacts on SEQ Water Strategy of Various Operating Scenarios for Wivenhoe Dam

14 February 2011

Version 6

Table of Contents

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.

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.

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.

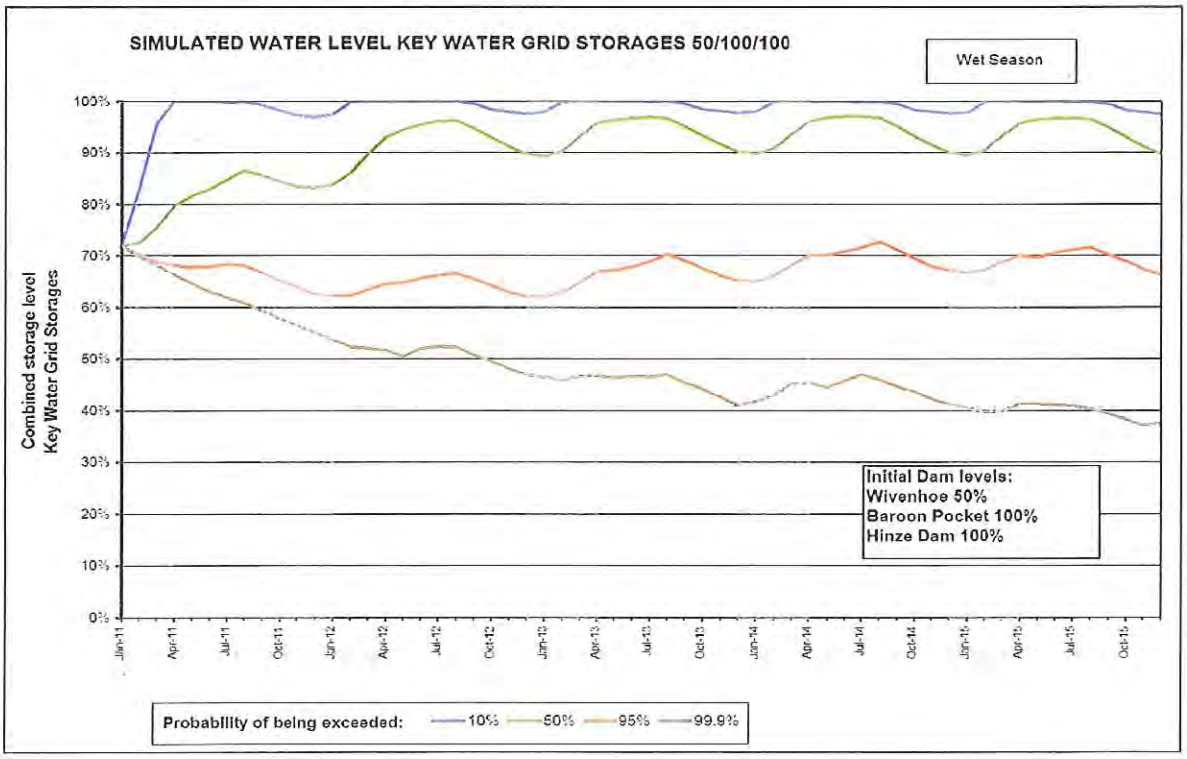
Stochastically generated data provides longer time sequences of hydrologic data that have similar statistical characteristics of that of the historical record. This data provides better information about climate variability and the potential for droughts worse than have occurred on record.

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



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.

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.

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.

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 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**

Queensland water Commission

Securing our water, together.

Our ref: ME/11/0017

14 February 2011

Mr John Bradley
Director General
Department of Environment and Resource Management
GPO Box 2454
Brisbane Qld 4001

John

Dear Mr Bradley

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If you require any further information, please contact me, on [redacted]

Yours sincerely

[redacted]

Ms Karen Waldman
Chief Executive Officer

Enc (1)

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Queensland water Commission

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Chief Executive Officer
Seqwater
PO Box 16146
City East QLD 4002

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Yours sincerely

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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

Queensland water Commission

Our ref: ME/11/0017

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14 February 2011

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Chief Executive Officer
SEQ Water Grid Manager
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Barry

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Seqwater
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- 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

From: "Martin Amy" [redacted]
Received: 14 February 2011 10:04:11 AM AEST
To: "Mary Boydell" [redacted]
Subject: RE: Media release

Hi Mary,
Â
Please find the media release below.
Â
Amy
Â
Minister for Natural Resources, Mines and Energy and Minister for Trade
The Honourable Stephen Robertson
13/02/2011
Seqwater to undertake dam release

13 February 2011
Seqwater intends to reduce the Wivenhoe Dam level for the remainder of the wet season, given the extreme floods in January and the current water security of South East Queensland.
Seqwater has formally recommended Wivenhoe Dam's be temporarily reduced to 75 per cent of its current Full Supply Level and expects to implement the release strategy gradually during the next week.
The Minister for Natural Resources, Stephen Robertson, said the release was recommended by Seqwater after its recent hydrology analysis and was a precaution given the second strongest La Nina pattern in history continues to influence the current wet season.
"Seqwater made its recommendation recognising the extreme January 2011 event that left the catchments soaked and the water tables full," Mr Robertson said.
"While we can't be certain about what rain is yet to come in this wet season, this measure reflects an abundance of caution.
"Seqwater has advised that a reduction in Wivenhoe's Dam storage level to 75 per cent of its Full Supply Level provides appreciable flood mitigation benefits ahead of any major rain events in the remainder of the wet season."
SEQ Water Grid manager Chief Executive Officer Barry Dennien said he had advised Seqwater a reduction to 75 per cent would be manageable from a water security perspective.
Mr Dennien said the January floods also transformed our long-term water storage capacity with the recently completed Wyaralong Dam now full five years earlier than expected and now storing 103,000 megalitres which is able to be connected to the Water Grid when required.
"With Wyaralong full, other dams full around the region and the Grid in place, Wivenhoe Dam can be operated at a lower level for the rest of the wet season without impacting on water security," Mr Dennien said.
Seqwater Chief Executive Peter Borrows said Seqwater expected to implement the release later this week to reduce the drinking water storage capacity of Wivenhoe Dam from 1,165 million megalitres down to around 874 million megalitres.
"We are likely to begin the transition by next weekend, with a slow release rate over about nine days discharging around 30,000 megalitres each day," he said.
"We will adjust the release to take into account any rainfall and tides as usual and this slow release will ensure no significant downstream impacts."
Mr Borrows said that like other low volume releases in the past, there will be a limited number of bridges immediately downstream of Wivenhoe (Twin Bridges, Colleges Crossing and Savages Crossing) which will be closed during the period.
Mr Robertson said Seqwater's operational decision reflected current circumstances rather than issues which likely to be considered by the Commission of Inquiry into the recent floods.
"As per its terms of reference, the Commission of Inquiry will continue to assess dam operations during the January flood event and whether any changes to the long term framework are required," Mr Robertson said.
Mr Borrows said the dam would be maintained at 75 per cent of the current Full Supply Level until April,

after the end of the wet season.
About Wivenhoe Dam
Wivenhoe Dam was built in 1985 to provide flood protection for South East Queensland after the devastation of the 1974 floods .
About 40 per cent of the dam's capacity is devoted to storing drinking water and the remaining 60 per cent is for flood mitigation. The dam is said to be at 100 per cent full supply level when the drinking water component is full.
The strategy and requirements for operating the dam, including flood mitigation and water releases, are outlined in the Dam Operations Manual. This Manual was developed in 1992. Since then it has been revised six times, most recently in January 2010.
The Manual is approved by the State's Dam Safety Regulator, in accordance with the Water Supply Act 2008.
Media contact: [redacted]
==========

From: Mary Boydell [redacted]
Sent: Monday, 14 February 2011 9:44 AM
To: Martin Amy [redacted]
Subject: Re: Media release

Pls can you send the actual media release?Â
Thanks

On 14/02/2011, at 9:31 AM, "Martin Amy [redacted]

Hi Mary,
Â
As per your conversation with Karen please find attached the link regarding dam releases.
Â
http://www.couriermail.com.au/news/queensland/wivenhoe-dam-floodgates-open-sparking-speculation-over-flood-prevention/story-e6freoof-1226005375277
Â
Thank you
Â
Amy
Â
Amy Martin
Executive Support Officer
Office of the CEO
Â
Queensland Water Commission
Level 16, 53 Albert Street, Brisbane QLD 4000
PO Box 15087, City East QLD 4002
[redacted]
Â
P Please consider the environment before printing this email
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[redacted]

From: Barry Dennien [redacted]
Sent: Thursday, 3 March 2011 4:31 PM
To: Waldman Karen
Cc: spiller daniel @ SEQWGM; Bagdon Tad
Subject: Feedback on the QWC

Karen

In reference to your letter of the 14th February 2011 to Seqwater with regards the security impacts of a 25% reduction in the full supply level of Wivenhoe Dam. I am providing feedback as requested.

In general the SEQ Water Grid Manager has no disagreement with the summary of findings provided by the QWC.

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

Extract of QWC Committee meeting actions 24th Sept 2010

Agenda Item	Action	Responsible	Proposed Completion Date	STATUS • In Progress Completed date	Comments
			TERMS	OF REFERENCE APPROVAL OF COMMISSIONER	
3 Update from 3 June 2010 Commission Meeting Optimising the Yield for the Brisbane River System.	Confirm that John Mulheron has been appointed to the Technical Panel Items outstanding from 3 June i) A paper detailing the status and scope of this project will be submitted to July Commission meeting. (ii) The paper will include all options that have been identified and a justification why raising the dam level will only marginally increase yield. (iii) It was agreed that the Steering Committee should be convened as quickly as possible to discuss and confirm this issue. (iv) Peter Sommer will discuss the paper with Karen Waldman once it is prepared. Paper titled 'Optimising Yield for the Brisbane River System' was presented to 5 August 2010 Commission Meeting. (i) The Project Plan is to be amended (page 6 – assessment matrix and page 8 – project costs) (ii) Ms Waldman is to ensure that the comment at page 11 of the Progress Report dealing with 'pricing' is reviewed and 'signed off' by Water Reform.	Tad Bagdon	7 September 2010	**In Progress**	The Paper, Project Plan and Progress Report are to be amended and resubmitted to the September Commission meeting.

D/10/049623 - 1

CTS 18474/10

Advisor .....OK Dated / /
Approved/Not Approved/Noted Further information required Minister ..... Dated / /

QUEENSLAND WATER COMMISSION
MINISTERIAL BRIEFING NOTE

TO: **Minister Robertson** [redacted] 11.10.10

FROM: **Karen Waldman, Chief Executive Officer**

SUBJECT: **Progress of the Wivenhoe Dam full supply level review**

Noted / Further information required DG DERM ..... Dated / /

TIMEFRAME

- Noting of this brief is required urgently as requested by the Minister's Office.

RECOMMENDATION

- It is recommended that the Minister **note** the progress of the review of Wivenhoe Dam's full supply level being conducted by the Queensland Water Commission (QWC) and Seqwater.

BACKGROUND

- One of the recommended planning activities to be undertaken by the QWC identified in the *South East Queensland Water Strategy* (the Strategy) is a review of the operation of the Brisbane River system to optimise the water supply yield and to balance the flood storage and water supply storage volume requirements.
- The Wivenhoe Dam is operated with a normal storage capacity at full supply level (FSL) of 1.165 million megalitres (ML). It is able to hold back a further 1.45 million ML during a flood situation. This additional storage is used to provide flood mitigation benefits along the Brisbane River downstream of the dam by spreading release over a large period.
- An investigation into increasing the yield from Wivenhoe and Somerset Dams was undertaken by Seqwater. Seqwater's March 2007 report, *Provision of Contingency Storage in Wivenhoe and Somerset Dam*, investigated three levels of possible increases to the current FSL of Wivenhoe Dam of two metres, three metres and four metres. This report, which is available on the QWC's website, did not consider the requirements of the Moreton Water Resource Plan in terms of environmental flow.

CURRENT ISSUES

- A detailed investigation is being conducted by the QWC in conjunction with Seqwater and in consultation with the Brisbane and Ipswich City Councils to determine the maximum level to which the FSL of Wivenhoe Dam could be raised without raising the dam wall.
- In addition, a study will be undertaken to identify alternative options to access additional water from the Brisbane River system to identify the most advantageous option.

Key stages in the assessment

- **Pre-feasibility study** – a desk top study using existing models is anticipated to be completed by March 2011. It involves:
  - assessing the maximum yield within the environmental parameters of the Moreton Water Resource Plan;
  - assessing the upstream and downstream flooding impacts;
  - undertaking a cost benefit assessment of these impacts against the value of the water sourced;
  - identifying alternative options to access water in the system;
  - peer review of the work undertaken; and
  - preparing a report on the study.

Contact: Tad Bagdon, A/Senior Director, Regional Planning and Policy, QWC
Telephone: [redacted] Mobile: [redacted]
File Number: D/10/049623

Date: 11 October 2010

- Cost impacts would be based on the Brisbane City Council's Brisbane River Flood Damages Study and would be undertaken in conjunction with Brisbane and Ipswich City Councils.
- Based on the pre-feasibility investigation, the QWC will recommend to the Minister whether the option warrants further investigation through a feasibility study or not to proceed.
- **Feasibility study** – This will be at a more detailed level and will involve refinement of the models and may involve some site inspections. The feasibility study is anticipated to take 12 months and would involve:
  - upstream and downstream flood hydrology sufficient to clearly identify flood risks including infrastructure impacts and upstream land acquisition (amend leases);
  - identifying dam structure impacts;
  - identifying environmental impacts including fauna and flora;
  - quantifying the project costs and yield benefits; and
  - identifying the project delivery time frame including environmental approvals.
- A report will be prepared including briefing material to advise the Minister of the outcome of the studies with a recommendation to proceed or not proceed with the preparation of a business case.

Current status of project

- Preliminary investigations have been undertaken by QWC using the Integrated Quantity and Quality Model (IQQM) and the WATHNET model to determine the additional yield meeting both the environmental requirements under the Moreton Water Resource Plan and the Level of Service criteria adopted for supplies in south east Queensland.
- The investigations also indicate that an additional 5,000 ML per annum could be accessed with a 1 metre raising of Wivenhoe Dam's FSL.
- The investigations indicate that any raising of FSL above one metre actually results in a lower overall yield from the system due to higher evaporation losses.
- The Wivenhoe system is nearly at its limit in terms of the end of system environmental flow objective (EFO) which is set under the Moreton Water Resource Plan at 67.22%. The one metre raising results in a 67.28% end of system flow whereas two metres results in 67.03%.
- QWC is currently awaiting costs from Seqwater to undertake components of the work but Seqwater will fund all its internal costs.
- The project will be overviewed by a Project Steering Committee which will include representatives from the QWC, Department of Environment and Resource Management, Seqwater, Brisbane City Council, Ipswich City Council and two independent experts in hydrology and water engineering.
- Once the costing from Seqwater is received, work on the pre-feasibility study will commence and should be completed by March 2011.
- If the pre-feasibility study indicates that a proposal is viable, at least another 12 months of further detailed technical studies at an estimated cost of $500,000. This cost would be incurred by the QWC.
- Consultation with stakeholders and the community will be undertaken during the feasibility study, but ultimately this could easily add to that timeframe, given the complex nature of the impacts to be investigated.
- Until this work has been completed, and in consideration of the safety of the community, flood waters will be cleared in accordance with the existing Flood Operations Manual developed by Seqwater and approved by the Dam Safety Regulator.

RESOURCE/IMPLEMENTATION IMPLICATIONS

- The pre-feasibility investigations are expected to be finalised in March 2011 at an estimated cost of $100,000. If the pre-feasibility study indicates that a proposal is viable, at least another 12 months of further detailed technical studies at an estimated cost of $500,000. This cost would be incurred by the QWC.

PROPOSED ACTION

- The QWC will continue to work with Seqwater to undertake a pre-feasibility study on the viability of raising the Wivenhoe Dam FSL or an alternative option if identified.

OTHER INFORMATION

- *Consultation:* Meetings have been held with Seqwater and discussions have been arranged with Brisbane City Council and Ipswich City Council.
- *Legislation:* Any option considered will be compliant with the Moreton Water Resource Plan.
- *Key Communication Messages:* As indicated in the Strategy, the QWC, in conjunction with Seqwater, will be investigating the maximum level to which the storage level of Wivenhoe Dam could be raised without raising the dam wall, while still remaining within acceptable risk levels. Until the detailed investigations have been completed, flood waters will be cleared in accordance with the existing gazetted Flood Operations Manual developed by Seqwater and approved by the Dam Safety Regulator. It is vital the Government takes all the time needed to get it right and the Government will not be rushed into making hasty decisions in the area of public safety. Getting this wrong has the potential to endanger homes, property and livelihoods of residents both upstream of the dam and downstream as far as Brisbane City.

MINISTER'S COMMENTS

Extract of QWC Committee meeting actions 19th Oct 2010

Agenda Item	Action	Responsible	Proposed Completion Date	STATUS • In Progress Completed date	Comments
3 Update from 3 June 2010 Commission Meeting Optimising the Yield for the Brisbane River System.	(i) It was agreed that the Steering Committee should be convened as quickly as possible Confirm that John Mulheron has been appointed if available	Tad Bagdon	(i) End November 2010	In Progress	STATUS?

QUEENSLAND WATER COMMISSION Briefing Paper:	DATE: 4 NOVEMBER 2010 AGENDA ITEM: 7 DECISION REGISTER NO: 10/199

INFRASTRUCTURE PROJECTS' UPDATE

1. PURPOSE

The purpose of this project is to provide a project update and address actions that have been raised at previous Commission meetings on the following key security projects:

- Upper Mary River system water supply development options;
- Optimising the yield of the Brisbane River system;
- Logan/Albert catchment investigations; and
- Phase 3b desalination investigations.

2. BACKGROUND

The South East Queensland Water Strategy (Water Strategy) provides a comprehensive planning and implementation framework to secure water supplies in south east Queensland for the long-term.

Recent additions to the water supply infrastructure are assessed as being able to meet the water requirements of the region until at least 2022. Beyond that date, additional sources of water supply are likely to be required.

The Water Strategy has identified a number of possible planning initiatives and actions to identify new water sources. Although new sources are not required in the short term, it is highly desirable that future sites be identified to ensure they can be secured for future development as that becomes necessary. Accordingly, the Queensland Water Commission (Commission) will be undertaking feasibility studies in a number of areas.

Optimising the yield of the Brisbane River system

Project Overview

The purpose of this project is to identify the most favourable means of increasing the take from the Brisbane River system within the constraints of the Water Resource Plan for comparison with other options in the region. The deliverable is a pre-feasibility study report which will identify the viability of increased take from the system and a report identifying other options to achieve take.

Project plan

- A briefing note with an accompanying draft project plan and progress report was submitted to the Commission meeting in August 2010. Some modifications to the documentation were requested and it was agreed that the revised material would be submitted to the Chief Executive Officer out of session for approval.
- The Commission has been working with Seqwater to develop a two phase approach for delivery of the pre-feasibility stage.
- A summary of the two phase approach involves:
  - phase one – undertaking upstream and downstream flood modelling for the proposed 68 m FSL using the existing Flood Gate Operations Rules for Wivenhoe Dam; and
  - phase two – remodel the upstream and downstream flooding impacts for the proposed 68 m FSL by working with DERM to adjust the Flood Gate Operation Rules for Wivenhoe Dam.
- Both phases would need to be completed for a decision about moving from the pre-feasibility to the feasibility phase of the investigation, only that Phase one was considered sufficient for the Minister to consider if the investigations should continue.
- an opportunity was identified with the phased approach that would allow sufficient information to be provided to the Minister to decide if the project should continue.
- It is anticipated that the revised draft project plan will be submitted to the Chief Executive Officer before the Commission meeting in November 2010.

Project resourcing

- A draft terms of reference to engage a consultant to evaluate alternative sources of supply has been developed. Consideration was given to appointing SunWater to undertake the investigation. SunWater advised that it does not have sufficient resources to complete the investigation within the required timeframe and are therefore not available to conduct the investigation. The Chief Executive Officer's approval will be sought to appoint a suitably qualified contractor.
- Informal discussions have been held with Professor Colin Apelt and John Mulheron in relation to their availability to serve on the steering committee as independent experts. Both have expressed willingness to participate. Approval will be sought for their engagement.
- Community consultation aspects of this project will form part of the tasks to be undertaken by the Community Consultation Advisor.
- Following the Commission meeting in August 2010, Seqwater was asked to prepare a revised proposal for the flood modeling work including a timetable and estimate of cost. This was received on 15 October 2010.

Action Officer:	Emma Patullo
Endorsed by:	Peter Sommer
Group/Unit:	Planning Projects
Telephone:	Telephone Number [redacted]
TRIM Ref:	D/10/050911

- The information provided by Seqwater has been incorporated into the revised briefing note, which will be submitted to the Chief Executive Officer. It is expected that Seqwater will be engaged to carry out the work as soon as approval to proceed is provided.

Steering committees/project reference groups

- Discussions were held with the Department of Environment and Resource Management, Seqwater, Brisbane City Council and Ipswich City Council regarding their participation on a steering committee to oversee and contribute to the studies. A meeting will be arranged with Somerset Regional Council by the Commission meeting in November 2010. Formal requests will be made following approval of the project.
- A draft terms of reference for the project steering committee has been prepared and will be reviewed and agreed to by the project steering committee. The Chief Executive Officer's consideration of the membership of and terms of reference for the project steering committee will be sought.

Correspondence

- No change since last update.

Action items

- A status update on the required action items has been provided as **Attachment 2**.

4. RECOMMENDATION

It is recommended that the Commissioner **note** this paper as a record of this briefing.

5. ATTACHMENTS

- Attachment 1 – Upper Mary River project update
- Attachment 2 – Optimising of the yield of the Brisbane River project update
- Attachment 3 – Logan/Albert Catchment Investigations project update
- Attachment 4 – Desalination Investigations project update
- Attachment 5 – Response to the Chief Executive Officer's comments

Action Officer:	Emma Patullo
Endorsed by:	Peter Sommer
Group/Unit:	Planning Projects
Telephone:	Telephone Number [redacted]
TRIM Ref:	D/10/050911

Queensland Water Commission

Record of Decision Register No: 10/199

Action Item Number 7

Infrastructure Projects' Update

☐ Noted

☐ Approved

☐ Not Approved

☐ Further information/meeting required

Comments

Signed: ..... Date: / / 2010

Mary Boydell, Commissioner

Action Officer:	Emma Patullo
Endorsed by:	Peter Sommer
Group/Unit:	Planning Projects
Telephone:	Telephone Number [redacted]
TRIM Ref:	D/10/050911

ATTACHMENT 2 – OPTIMISING THE YIELD OF THE BRISBANE RIVER

Responses to requested actions

Required Action	Response/Update
(i) It was agreed that the Steering Committee should be convened as quickly as possible.	• Discussions have been held with representatives of the Department of Environment and Resource Management, Seqwater, Brisbane City Council and Ipswich City Council regarding their participation on a steering committee to oversee and contribute to the studies. A meeting will be arranged with the Somerset Regional Council by the Commission meeting in November 2010. Formal requests will be made following approval of the project. • A draft terms of reference for the project steering committee has been prepared and will be reviewed and agreed to by the project steering committee. The Chief Executive Officer's consideration of the membership of and terms of reference for the project steering committee will be sought.
(ii) Confirm that John Mulheron has been appointed if available.	• Informal discussions have been held with Professor Colin Apelt and John Mulheron in relation to their availability to serve on the steering committee as independent experts. Both have expressed willingness to participate. Approval will be sought for their engagement.
(iii) Public commitment to publish reports with a peer review.	• This activity will be supported in the communication strategy for the project, but is subject to the views of the Project Steering Committee.
(iv) Issue of purified water going into dam must not be forgotten.	• Initial discussions by the Acting General Manager Regional Planning and Policy with the Water Assessment Group at the Department of Environment and Resource Management suggest minimal impact but this will be further investigated based on revised operating strategies presently under review.
(v) Sensitivities to LoS criteria e.g. 1in 20 year or 1 in 50 year restrictions.	• Modelling by the Water Information Unit at the direction of the Acting General Manager Regional Planning and Policy to test sensitivities will be undertaken following completion of the recent operating strategy and price path review.

ENSURE QWC DECISIONS.

Page 3 – Optimising the yield of the ~~Logan/Albert~~ system: A draft terms of reference to engage a consultant to evaluate alternative sources of supply has been developed. Representatives of the Commission and SunWater met in September to discuss appointing SunWater to undertake the investigation.	A potential conflict of interest could arise from meeting with SunWater to discuss appointing them.	• The State Procurement Policy preserves the right of each agency to deal directly with competitively neutral, commercialised business units within their own agency or other agencies that are acting for the Crown in the same right without the requirement to comply with the competitive purchasing processes. • SunWater is a government-owned corporation that provides engineering consultancy services. • Meeting with SunWater does not represent a conflict of interest, as they would not be appointed through a competitive purchasing process. • Since the draft paper was submitted to the CEO, representatives of SunWater have advised the Project Manager that SunWater does not currently have the resources to conduct the investigation. • The CEO's approval will be sought to appoint a suitably qualified contractor to undertake the investigation.
Page 3 – Optimising the yield of the Brisbane River	There is a commitment to complete the pre-feasibility investigations for optimising the yield of the Brisbane River system by March 2011.	• A project plan was submitted to the Commission meeting in August 2010, which outlined the resourcing and governance arrangements to ensure that the project milestones will be achieved. • The project scope has been divided into two phases. • It is anticipated that the phase 1 pre-feasibility study will be completed by March 2011. Approval will then be sought from the Minister for Natural

QUEENSLAND WATER COMMISSION

Commission Meeting Minutes

Meeting No:	10 - 2010
Location:	Conference Rooms 1 and 2, Floor 16, 53 Albert Street, Brisbane
Date:	4 November 2010
Time:	9.25am – 3.45pm
Chair:	Commissioner Mary Boydell
QWC Attendees:	Karen Waldman, Margaret Hoekstra, Gayle Leaver, Tad Bagdon and Steve Davey
Invited Guests:	Richard Scott, Anita Sweet, Rolf Rose, Patricia Hurikino, Julie Allan, Peter Sommer, Chris McKenna, Christine Yates (QWC), Anthony Mathas, Lisa Bourke, and Dave Suthers (DERM)
Apologies:	Randall Cox

2. **Optimising the Yield of the Brisbane River - update**

Terms of Reference to be amended to confirm that the Steering Committee provides advice not recommendations.

D/10/051295-1

CTS No. 13965/10

Advisor	☐ Ok
Dated	/ /
☐ Approved ☐ Not Approved ☐ Noted	
☐ Further information required	
Minister.....	
Dated	/ /

Queensland Water Commission
MINISTERIAL MEETING BRIEFING NOTE
Thursday 11 November 2010
Mary Boydell, Commissioner 9.11.2010
Karen Waldman, Chief Executive Officer [redacted] 9.11.10

TO: **Minister for Natural Resources, Mines and Energy and Minister for Trade**

SUBJECT: Quarterly meeting with the Queensland Water Commission

BACKGROUND

- The Queensland Water Commission (QWC) Commissioner and Chief Executive Officer (CEO) meet with the Minister on approximately a quarterly basis in order to discuss matters of strategic importance.
- The previous meeting was held on 10 August 2010.
- The objective of this meeting is to;
  - provide an opportunity for the Minister to raise issues with the Commissioner and the CEO; and
  - update the Minister on key result areas, issues and achievements for the QWC.

CURRENT ISSUES

Author	Cleared by	Cleared by	Recommended:
Name: Karen Waldman Position: CEO QWC Tel No: [redacted] Date: 28 October 2010	Name: Karen Waldman Position: CEO QWC Tel No: [redacted]	Name: Chris Robson Position: ADG Tel No: [redacted]	Name: John Bradley Director-General, DERM Tel No: [redacted] Date:

MINISTER'S COMMENTS

ATTACHMENTS

- Attachment 1 – Update on key result areas for the QWC
- Attachment 2 – CSG Water – QWC's Stakeholder Engagement

Author	Cleared by	Cleared by	Recommended:
Name: Karen Waldman Position: CEO QWC Tel No: [redacted] Date: 28 October 2010	Name: Karen Waldman Position: CEO QWC Tel No: [redacted]	Name: Chris Robson Position: ADG Tel No: [redacted]	Name: John Bradley Director-General, DERM Tel No: [redacted] Date:

1. **Planning for the provision of a safe, secure and reliable water supply for South East Queensland (SEQ) to achieve desired levels of service objectives.**

- The *South East Queensland Water Strategy* (Strategy) was released on 15 July 2010. Key features of the Strategy include:
  - Conserving water. Permanent Water Conservation Measures were introduced 11 months ago. The Queensland Water Commission (QWC) is revising its proposed communications campaign, to advise that even though dams are full, saving water remains an important issue for SEQ.
  - Being prepared and supply ready. In order to secure options for the future, the QWC is currently undertaking Phase 3 of the Desalination Siting Investigations to confirm the suitability of the priority sites and to develop an understanding of any outstanding investigations required prior to commencing the detailed feasibility studies.
  - Managing water efficiently. The QWC is working with the SEQ Water Grid Manager and WaterSecure to develop operating strategies that reduce capital and operating expenditure while managing security, technical, workforce and community risks. The Strategy also seeks to make additional water available for rural producers and irrigators, when it is not required for urban uses.

- The Strategy has identified the need to ensure stand-alone communities approach the same level of service as those communities connected to the Grid. The QWC, in collaboration with water entities and local governments, is developing a framework for assessing the water supply risk and developing a potential solution for stand-alone communities including Dayboro and Boonah and, in particular, Beaudesert and Canungra, which experienced shortages in 2009. A submission is being prepared for consideration in early 2011 about the future water supply options for stand-alone communities in the Scenic Rim.. In addition, the QWC is developing drought response plans for those communities assessed to be most at risk (such as Canungra) to ensure security of supply under existing supply arrangements.

- In line with the South East Queensland Regional Plan 2009-2031, the QWC has developed a draft Sub-regional total water cycle management planning framework. The framework has been provided to the key stakeholders for review prior to application as a pilot approach in late 2010. The QWC and Moreton Bay Regional Council have commenced planning to develop a sub-regional total water cycle management plan for the Caboolture West area by August 2011. Additionally, the QWC is engaging with the Urban Land Development Authority, Ipswich City Council and Sunshine Coast Regional Council to undertake a sub-regional total water cycle management plan for the priority areas of Ripley Valley and the Sunshine Coast (Palmview and Caloundra South).

- The QWC has commissioned Sunwater to investigate the potential for further water resource development of the Logan River Basin. Sunwater has submitted its draft report on the options for development. The Scenic Rim, Gold Coast and Logan Councils have been advised of the study and invited to participate in a workshop in November 2010 to consider the options. Further consideration is being given to smaller dams on the Albert River, including sites within the impoundment of the original Wolffdene Dam. Studies are on track for completion by mid 2011.

- On 7 September 2010, the QWC wrote to the Sunshine Coast and Gympie Regional Councils seeking their involvement in a project reference group (PRG) on the investigations of the upper Mary River water supply development options, including the Stage 3 raising of Borumba Dam. The PRG will include the QWC, the two councils, DERM, SunWater and key community groups. Gympie Regional Council proposed the Mary River Catchment Coordination Committee as a member of the PRG. The project now has formal endorsement by both Mayors. It is anticipated the study will be completed by mid 2011. A recent meeting

with the Mayor of Sunshine Coast Regional Council and Gympie Regional Council occurred on 22 October 2010. Both were supportive of the investigations proceeding in a collaborative and inclusive manner.

- As indicated in the Strategy, the QWC, in conjunction with Seqwater, will be investigating the maximum level to which the storage level of Wivenhoe Dam could be raised without raising the dam wall, while still remaining within acceptable risk levels. Preliminary investigations have indicated that only a one metre raising providing an additional 5000 megalitres may be possible while maintaining compliance with the environmental flow conditions under the Moreton Water Resource Plan. The investigations indicate that raising the level in excess of one metre actually results in less water being available due to greater losses from evaporation. Until the detailed investigations have been completed, flood waters will be cleared in accordance with the existing gazetted Flood Operations Manual developed by Seqwater and approved by the Dam Safety Regulator.

- The QWC is engaging with a number of stakeholders on resolving barriers to adopting local systems for water supply (such as stormwater harvesting and dual reticulation). In particular, the proposals at Fitzgibbon (stormwater harvesting) and Peregian Springs (roof water harvesting and dual reticulation) are being used as case studies to address technical, regulatory and governance issues.

Bagdon Tad

From: Patullo Emma
Sent: Wednesday, 16 February 2011 12:02 PM
To: Bagdon Tad; Sommer Peter
Subject: FW: Optimising the Brisbane River System
Importance: High
Attachments: Inaugural Meeting Agenda - Project Reference Group.DOC

Regards,

Emma Patullo

From: Patullo Emma
Sent: Wednesday, 9 February 2011 1:54 PM
To: Bagdon Tad
Subject: FW: Optimising the Brisbane River System
Importance: High

Hi Tad,

Here is the most recent communication sent by Ken Pearce to the members of the PRG regarding the scope of the Optimising the yield of the Brisbane River Project, which was emailed to the Seqwater representative, Rob Drury.

It is our intention to send out the draft terms of reference for the PRG prior to the PRG meeting and that the scope of the project will be discussed at the inaugural PRG meeting. The outcomes of this discussion will influence the development of the project plan.

It will be made clear that we have an inquiry in place and that the PRG scope is subject to the progress of the inquiry and the outcomes of it. The revised project plan will initially target 'no regret' work that could assist with the inquiry or would be unlikely to be impacted by the outcomes of the inquiry.

Colin Apelt has been provided with an terms of reference to define the scope of his engagement as a contractor on the PRG. He has also been provides with a superseded project plan, dated November 2010.

Regards,

Emma Patullo
Senior Policy Officer, Regional Planning and Policy
Telephone [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: 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

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	

QUEENSLAND WATER COMMISSION Briefing Paper:	DATE: 17FEBRUARY 2011 AGENDA ITEM: 7 DECISION REGISTER NO: 11/06

PROJECT UPDATE: PLANNING PROJECTS – JANUARY 2011

1. PURPOSE

The purpose of this paper is to provide an update on the following water supply investigations:

- Upper Mary River system water supply development options;
- Optimising the yield of the Brisbane River system;
- Logan/Albert catchment investigations; and
- Phase 3B desalination investigations.

2. BACKGROUND

The South East Queensland Water Strategy (Water Strategy) has identified a number of possible planning initiatives and actions to identify new water sources. Although new sources are not required in the short term, it is highly desirable that future sites be identified to ensure they can be secured for future development as that becomes necessary. Accordingly, the Queensland Water Commission (Commission) will be undertaking feasibility studies on a number of water supply options.

Based on current demand projections additional demand driven supply is not required until 2028 under a 200 litres per person per day residential demand scenario and medium series population growth. It is still considered prudent to investigate potential future supply option now in order to be able to make sound recommendations to Government when required.

Monthly Project Progress updates are provided in **Attachments 2 to 5**.

OPTIMISING THE YIELD OF THE BRISBANE RIVER SYSTEM

Project Overview

The purpose of this project is to identify the most favourable means of increasing the take from the Brisbane River system within the constraints of the Water Resource Plan for comparison with other options in the region. The deliverable is a pre-feasibility study report which will identify the viability of increased take from the system and a report identifying other options to achieve take.

Project update

Flooding along the Brisbane River has delayed this project. Seqwater and the Director Planning Projects indicated to the Commission at the outset that the need to deal with flood management would take priority for the staff involved in the process.

The Judicial Inquiry announced by the Premier may have implications for the future scope of this project.

The existing scope will be discussed with the PRG at its inaugural meeting on Friday, 25 February 2011 at Wivenhoe Dam. A proposed revised scope is provided in the attached project progress report. Proposed changes to the scope and project plan will be provided to the Commissioner for consideration. The revised project plan would initially target 'no regret' work that could assist with the inquiry or would be unlikely to be impacted by the outcomes of the inquiry.

Project Plan

A briefing note with an accompanying draft project plan and progress report was submitted to the Commission meeting in August 2010. Some modifications to the documentation were requested.

The scope will be reconsidered in response to the recent flooding along the Brisbane River. The scope is intended to be refined through input from the PRG with this and the Project Plan being provided to the Commissioner for consideration.

BACK TO PROJECT PROCESS

Project Resourcing

See 'Issues affecting all projects'

Steering Committees/Project Reference Groups

Brisbane City Council; Ipswich City Council, Somerset Regional Council; the DERM, Seqwater and Professor Colin Apelt have accepted an invitation to participate in the PRG. Mr Mulheron was invited to be part of the PRG but has declined on the basis that he will be absent overseas. A short list of suitable replacements for Mr Mulheron is being prepared.

An informal meeting was held with Professor Apelt on Monday 31 January 2011. Professor Apelt is supportive of the project and is of the view that there are common linkages with the State Judicial Inquiry and his review of Seqwaters compliance with the Flood Operation Manual.

The inaugural meeting of the PRG is scheduled for 25 February 2011 at Wivenhoe Dam.

4. RECOMMENDATION

It is recommended that the Commissioner **note** this paper as a record of this briefing.

5. ATTACHMENTS

- Attachment 1 – Planning Project's staff distribution for projects
- Attachment 2 – Upper Mary River project progress report – January 2011
- Attachment 3 – Optimising of the yield of the Brisbane River project progress report – January 2011
- Attachment 4 – Logan/Albert catchment investigations project progress report – January 2011
- Attachment 5 – Phase 3b Desalination Investigations project progress report – December 2010 / January 2011

Queensland Water Commission

Record of Decision Register No: 11/06

Action Item Number 7

Project update: Planning Projects – January 2011

☐ Noted

☐ Approved

☐ Not Approved

☐ Further information/meeting required

Comments

Signed: ..... Date: / / 2010

Mary Boydell, Commissioner

Action Officer:	Andrea Bell-Booth
Endorsed by:	Peter Sommer
Group/Unit:	Planning Projects
Telephone:	Telephone Number[redacted]
TRIM Ref:	D/11/002878

Project Progress Report
January 2011

Project:	**Optimising the yield of the Brisbane River system**
Organisational unit	Planning Projects
Project Manager	Ken Pearce

Project Scope

The purpose of this project is to undertake a detailed investigation to determine the maximum level to which the working storage of Wivenhoe Dam could be raised without raising the dam walls. The deliverable is a pre-feasibility study report which will identify the viability of increased take from the system and a report identifying other options to achieve take.

Project Status

Impacts of flooding

The scope will be reconsidered in response to the recent flooding in the Brisbane River valley.

The scope is intended to be refined through input from the Project Reference Group with this and the Project Plan being provided to the Commissioner for consideration. At this stage the proposed scope 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;
- 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.

A dynamic FSL approach for water supply infrastructure in the Brisbane River system would be considered. 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 South East Queensland 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.

Project Update

Seqwater's Mr John Tribaldi has advised that recent flooding will delay the start of the Project by at least two months as the flood modellers are fully committed to other work. Seqwater advised the Commission at the outset that flood management had priority over this project. They are producing a report on the recent flooding and have engaged Professor Apelt to review the work being undertaken.

The State Judicial Inquiry into flooding in the Brisbane River valley may affect Seqwater's ability to commit to this study.

Project Reference Group

The following organisations/individuals have accepted an invitation to participate on the Project Reference Group (PRG):

- Brisbane City Council; Ipswich City Council and Somerset Regional Council;
- Department of Environment and Resource Management;
- Seqwater; and
- Professor Colin Apelt.

Mr Mulheron was invited to be part of the PRG but has declined on the basis that he will be absent overseas. A short list of suitable replacements for Mr Mulheron is being prepared.

An informal meeting was held with Professor Apelt on Monday 31 January 2011. Professor Apelt is supportive of the project and is of the view that there are common linkages with the State Judicial Inquiry and his review of Seqwaters compliance with the Flood Operation Manual.

The inaugural meeting of the PRG is scheduled for 25 February 2011 at Wivenhoe Dam.

Schedule

	Milestones	Target Completion Date	Forecast Completion Date
1	Establish Project Reference Group	End of February 2011	25 February 2011
2	Report to Minister	End of March 2011	End of June 2011
3	Pre-feasibility Report	End of June 2011	End of November 2011

General comment on schedule:

Project has been delayed by recent flooding in the Brisbane Valley.

Budget*

Exp. To Date	$0	**Commitments To Date**	$0
Target Final Cost	$186 000	**Forecast Final Cost**	$186 000

**does not include operational expenditure*

No monies have yet been expended for this project.

The forecast final cost may change due to flood considerations.

The Planning Projects Unit has not yet been allocated funds from the Regional Planning and Policy budget for its projects; no monies have been loaded into project cost centres.

Project Exception*

**only needs to be reported on if an exception report is required.*

Nil

Quality & Compliance

Communications and Community

The slippage of the project schedule can be attributed to factors including:

- the DG/DERM requiring with the support of the MRCCC prior to further progression of the project;
- additional time to negotiate DERM's involvement in the project;
- delaying the engagement of the prime consultant to follow the finalisation of the project plan and the community consultation plan; and
- additional time for internal processes and approvals.

The detail of the community consultation plan is yet to be determined and may affect the project timeframes.

The timeframe for the consultancy work is yet to be agreed with the preferred offeror.

A more detailed Gantt chart is available at D/10/059095

Budget*

Exp. To Date	$0	**Commitments To Date**	$0
Target Final Cost	$649 200	**Forecast Final Cost**	$649 200

**does not include operational expenditure*

Budget requirement to be finalised upon receipt of offers for the consultancy work.

The Planning Projects Unit has not yet been allocated funds from the Regional Planning and Policy budget for its projects; no monies have been loaded into project cost centres.

Project Exception*

**only needs to be reported on if an exception report is required.*

Nil

Quality & Compliance

Nil

Communications and Community

Mary River Recovery Plan for Threatened Species

The Commission has been invited by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) to participate in a steering committee for the development of a threatened species recovery plan for the Mary River. It is essential the Commission is involved in the steering committee to ensure any proposed Mary River system water infrastructure development options are considered in the development of the threatened species recovery plan. The Commission's role is to provide the communication link between the recovery planning work and the project, not developing the recovery plan.

Ms Emma Patullo and Mr Ian Hanks attended a meeting on 8 December 2010 convened by SEWPAC and will be attending future meetings of the recovery team.

Principal outcomes of the 8 December meeting were that:

- SEWPAC are to prepare an Australia wide recovery plan for the lungfish as required under Commonwealth legislation; and
- The MRCCC is to prepare terms of reference for a Mary River Recovery plan including consideration of the Lungfish, the Mary River Cod and the Mary River Turtle.

Mr Steve Burgess of the MRCCC advised Commission officers at the meeting that the GRC and SCRC Mayors had informed him of the Commission project and that he was likely to be the MRCCC nominated representative to the PRG.

Significant communication, community consultation or marketing planned for coming two months:

A meeting with MRCCC, GRC and SCRC representatives is to be convened on 10 February 2011.

HR

This project is one of a series of projects that do not have the resources stated in the project plans available. Planning Projects have only five (5) full time equivalents (FTE), while the project plans are based on twelve (12) FTEs. Currently only Ian Hanks, Principal Policy Officer and Emma Patullo, Senior Policy Officer are allocating some time to manage this project.

Risk Management

Risk	Management Strategy
MRCCC may not be supportive of the proposed scope of the project.	A meeting is to be convened on 10 February 2011 with MRCCC, QCC, GRC and SCRC representatives to discuss the project and seek their support.
There may be differing opinions among PRG members regarding the scope and nature of community consultation.	The project timeframe has been delayed so that a community consultation plan can be endorsed by the PRG and approved by CEO/QWC prior to the awarding of the main consultancy to assess the options.
DG/DERM may not be agreeable to DERM carrying out the hydrological assessments for the project as an in-kind contribution, as is proposed in a draft letter to him.	A nominal amount of $100 000 has been allowed in the project plan budget for the hydrological assessments to be carried out by a consultant.
The fees in the offers for the main consultancy, the hydrological assessments and the contract community advisor may exceed that budgeted.	A 20% contingency sum has been included in the project plan budget. Estimated costs have been based on the costs of similar projects.

QUEENSLAND WATER COMMISSION

Commission Meeting Minutes

Meeting No:	1 - 2011
Location:	Conference Rooms 1 and 2, Floor 16, 53 Albert Street, Brisbane
Date:	17 February 2011
Time:	8.10am – 3.25pm
Chair:	Commissioner Mary Boydell
QWC Attendees:	Karen Waldman, Margaret Hoekstra, Tad Bagdon (part of meeting), Gayle Leaver, Randall Cox (part of meeting) and Steve Davey
Invited Guests:	Rolf Rose, Anita Sweet, Julie Allan, Wai-Tong Wong, and Peter Sommer (QWC).
	Anthony Mathas, Dave Suthers and Lisa Bourke (DERM).
Apologies:	Nil

1 WELCOME

The Commissioner opened the meeting at 8.10am, and welcomed attendees. It was agreed that the agenda would be modified and items brought forward.

2 COMMISSION MEETING MINUTES FOR MEETING HELD 2 DECEMBER 2010

The Commissioner:

- **approved** the minutes as tabled.

The paper and various attachments were discussed.

5. o In the context of the discussions regarding the Project for Optimising the Yield of the Brisbane River System the Commissioner commented that QWC officers must remember that the QWC is concerned with long term sustainability and that we do long term planning for preparedness. Accordingly there is a need to manage our projects on the basis of preserving the options set out in the Water Strategy whilst ensuring we prepare for the future. She indicated that it may be time to step back from, or to take a pause with, some projects until we have reviewed the Water Strategy, given the changed context in which we are now operating. With specific reference to this project the Commissioner emphasised that QWC is not involved in flood mitigation per se, but that it is a relevant consideration in the context of our water supply planning activities. We need to be clear about our role so that we consult appropriately with relevant stakeholders. Before communicating with stakeholders we need to ensure that our communications appropriately represent the endorsed QWC position

   o There was a need for a 'stocktake' to be undertaken of all the infrastructure projects to ensure relevance, priority and urgency in relation to the current context for the SEQ Water Strategy

❖ **Actions**

- Upper Mary River System Water Supply Development Options – all communications with external stakeholders must be approved in advance by the CEO.
- Optimising the Yield of the Brisbane River System – the CEO will clarify the Commission's official position regarding this project to ensure stakeholders are fully informed – action CEO.
- Optimising the Yield of the Brisbane River System – Commissioner noted earlier comments.
- Phase 3B Desalination Site Investigations – (i) Peter Sommer is to confirm the agenda and attendees at the Steering Committee meeting to be held 18 February and (ii) the consultancy is to progress – action GM, RP&P.

The Commissioner:

The Meeting closed at 3.25pm.

Confirmed [redacted] .....

Chair: Mary Boydell

Date 16/03/2011.

11/06	21/1/11	Briefing Note **Commission Meeting** 17 February 2011	Project Update: Planning Projects	Regional Planning and Policy	D/11/000725	17/2/11	• Upper Mary River System Water Supply Development Options – all communications with external stakeholders are to be approved in advance by the CEO. • Optimising the Yield of the Brisbane River System – the CEO will clarify the Commission's official position regarding this project to ensure stakeholders are fully informed – action CEO. • Optimising the Yield of the Brisbane River System - • Phase 3B Desalination Site Investigations – (i) Peter Sommer is to confirm the agenda and attendees at the Steering Committee meeting to be held 18 February and (ii) the consultancy is to progress – action GM, RP&P. The Commissioner **noted** the paper as a record of the briefing.

NB: Areas shaded in yellow are outstanding items

[redacted]

From: Sommer Peter

Sent: Thursday, 17 February 2011 5:01 PM

To: Tucker, Greg [redacted] Hogan Bernadette; [redacted] 'Colin Apelt'; 'Tony Jacobs'

Cc: Waldman Karen; Bagdon Tad

Subject: The proposed PRG meeting on 25 February for optimising the yield of the Brisbane River system

On 3 February 2011, an email was sent to you from Ken Pearce, Project Officer, Regional Planning and Policy, advising that, owing to the recent flooding in the Brisbane River Valley, it is planned to seek input of the PRG into a proposed revised scope at the scheduled workshop on 25 February 2011, prior to taking it to the QWC's Executive for consideration. The email also attached a draft agenda for the meeting.

Although the intention stated by Ken was to seek input of the PRG into the proposed scope, the QWC's preferred approach is to review any change to the planned scope in relation to how it links to the relevant action for the QWC stated in the SEQ Water Strategy. The proposed scope contained in the email of 3 February 2011 alters the QWC's original endorsed action and may have unintentionally given the impression that the QWC role was extending into areas in which it has no responsibility.

Therefore the QWC would like to retract the proposed scope stated in the email of 3 February 2011 and review the direction of this project in the context of the SEQ Water Strategy, the recent establishment of the Commission of Inquiry and the annual review of the SEQ Water Strategy.

This review will aim to ensure preservation of options that are fit-for-purpose in the current operating environment.

As a result of the above, it is planned to cancel the workshop on 25 February 2011 at this stage, and review considerations at the Executive level of the QWC prior to confirming the next steps.

I apologise for any inconvenience this may cause and thank you for your input to date. I will keep you informed as we clarify our progress.

Should you have any questions please do not hesitate to contact me.

Regards

Peter Sommer
Director, Planning Projects
Regional Planning and Policy
Telephone: [redacted] **Facsimile:** 07 [redacted] **Mobile:** [redacted]
Email: [redacted]
www.qwc.qld.gov.au

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

[redacted]

From: Waldman Karen
Sent: Thursday, 17 February 2011 5:10 PM
To: Best Debbie; [redacted]
Cc: Bradley John
Subject: FW: The proposed PRG meeting on 25 February for optimising the yield of the Brisbane River system

Hi Debbie and Lance

As discussed yesterday - for your information, regards, Karen.

Chief Executive Officer | Queensland Water Commission
T 07 [redacted] **| M** [redacted] **| F 07** [redacted]
[redacted]

From: Sommer Peter
Sent: Thursday, 17 February 2011 5:01 PM
To: Tucker, Greg [redacted] Hogan Bernadette; [redacted]; 'Colin Apelt'; 'Tony Jacobs'
Cc: Waldman Karen; Bagdon Tad
Subject: The proposed PRG meeting on 25 February for optimising the yield of the Brisbane River system

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Should you have any questions please do not hesitate to contact me.

Regards

Peter Sommer
Director, Planning Projects
Regional Planning and Policy

Telephone: [redacted] **Facsimile:** 07 [redacted] **Mobile:** [redacted]
Email: [redacted]
www.qwc.qld.gov.au

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

[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

Wiatong Tad

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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

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-northem 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
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

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

Please consider the environment before printing this email. It takes 10 litres of water to make one sheet of A4 paper.

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.

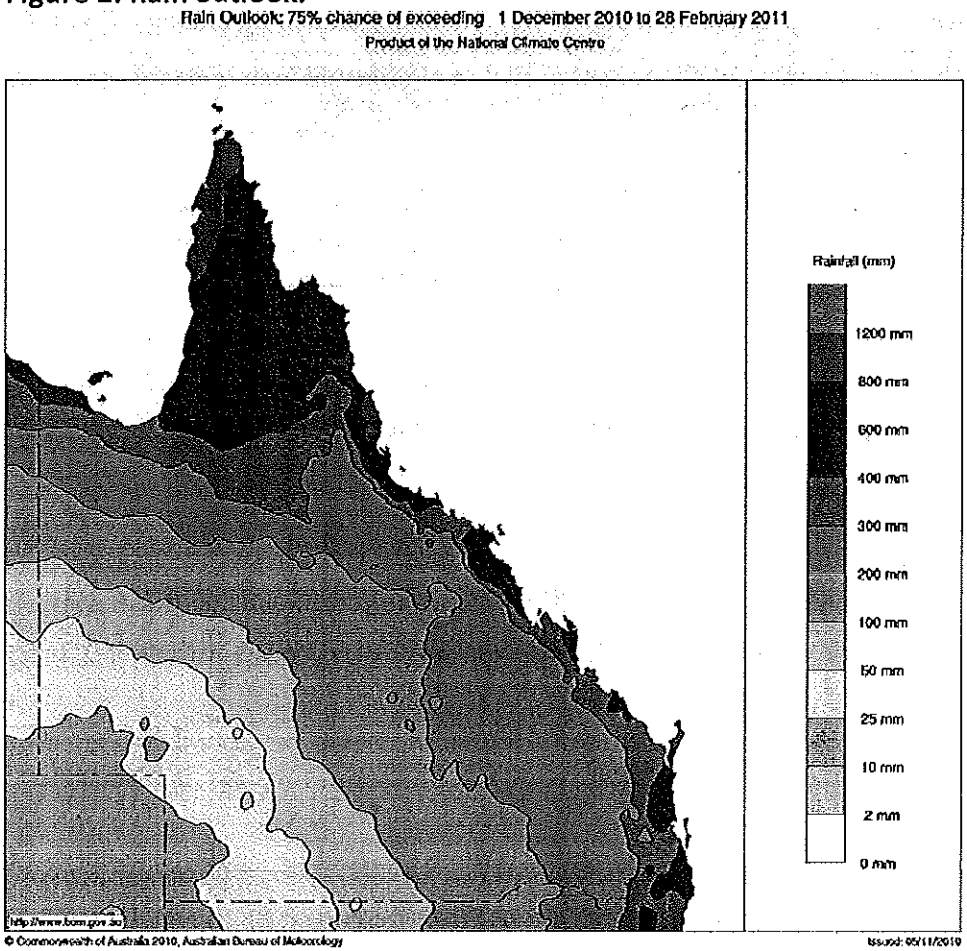
Probability of gate releases over the remainder of the wet season

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).

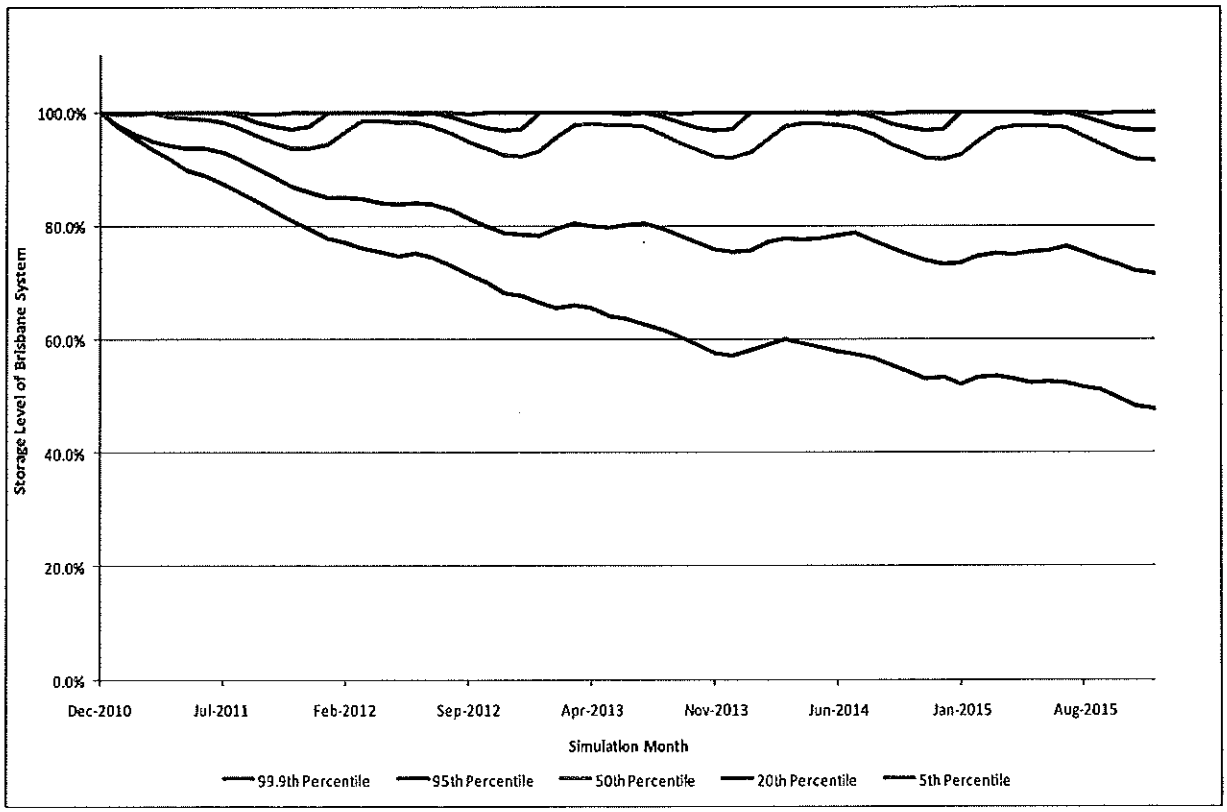


Figure 2: Storage volume forecast Brisbane System (case 2).

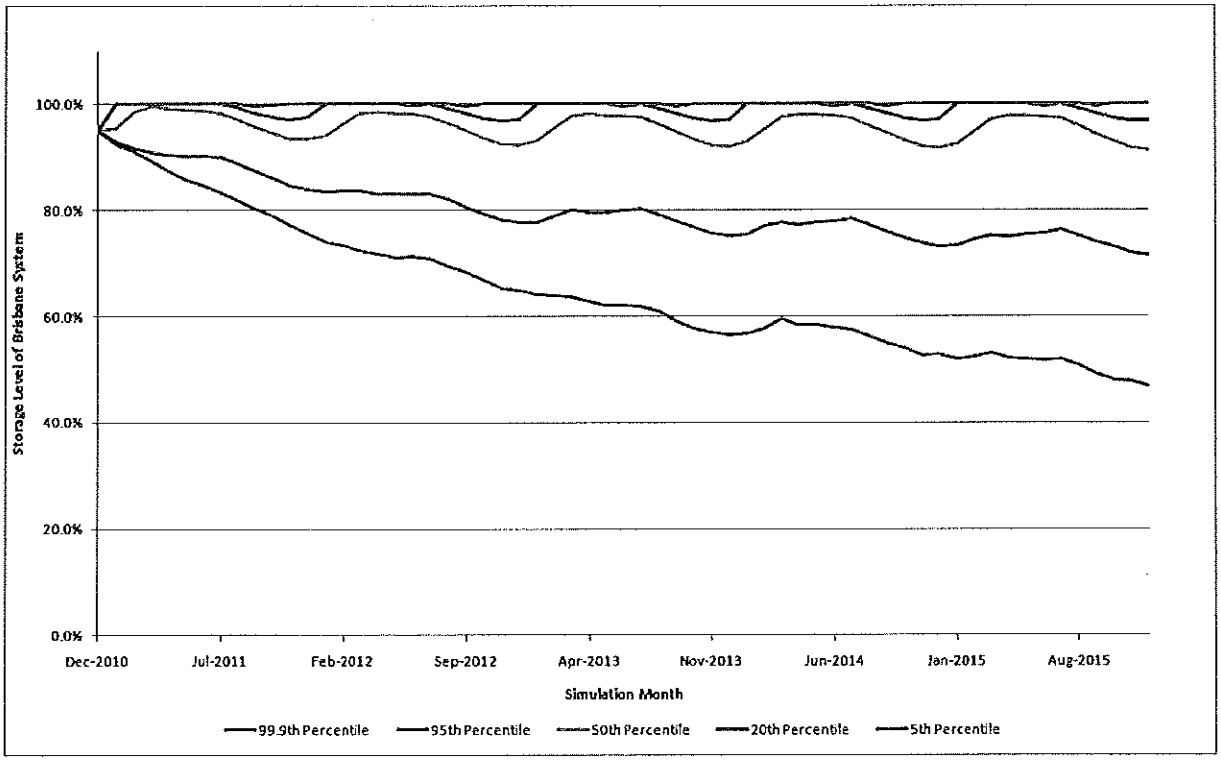


Figure 1 shows that, under the current case, 50% of long-term simulated inflow scenarios maintain the Brisbane System at full storage capacity over the next three months. With the release to 95% of Full Supply Level, 50% of simulated inflows return the dams to Full Supply Level in approximately four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

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

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
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

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Internal memo for Wivenhoe and Somerset December 2010 flood releases.docx
¬

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

Wiatong Tad

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Regards

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
Phone: [redacted] | Fax: [redacted] | Mobile: [redacted]
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Seqwater letter re Min s request on options for release of water.docx ¬

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 +61 7 3225 1861
Facsimile +61 7 3225 1828
Email nrmet@ministerial.qld.gov.au
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 +61 7 3225 1861
Facsimile +61 7 3225 1828
Email nrmet@ministerial.qld.gov.au
ABN 65 959 415 158

[redacted]

From: Waldman Karen
Sent: Thursday, 28 October 2010 11:22 AM
To: Bagdon Tad
Subject: Fw: Request for a review of dam operting levels

Attachments: Letter from Stephen Robertson MP RE Release of Water from Key Storages.tif; image001.gif

Letter from Stephen Robertson ..

Hi Tad

For information and relevant action from QWC's perspective, Karen

----- Original Message -----
From: Gina O'Driscoll [redacted]
To: Waldman Karen
Sent: Thu Oct 28 09:52:22 2010
Subject: FW: Request for a review of dam operting levels

image001.gif (391 B)

Karen - copy of letter as promised in my previous email.

Regards

Barry Dennien

Chief Executive Officer

SEQ Water Grid Manager

Phone: (07) [redacted] | Fax: (07) [redacted] | Mobile: [redacted]

Email: [redacted]
Visit: Level 15, 53 Albert Street, Brisbane

Post: PO Box 16205, City East Qld 4002

ABN: 14783 317 630

From: Barry Dennien
Sent: Tuesday, 26 October 2010 7:37 AM
To: Waldman Karen
Cc: Gina O'Driscoll; Dan Spiller
Subject: Request for a review of dam operting levels

Karen

The Minister has asked if we can review the flood safety benefits of pre-emptively dropping Wivenhoe supply levels a few percentage points. I letter will arrive today asking:

- seeks, by end November 2010, advice as to the available options and the likely benefits
- states that, at a minimum, a review of the operation of Wivenhoe, North Pine and Leslie Harrison dams
emphasises that this is only a temporary measure, reflecting that dams are full prior to the commencement of the traditional wet season
- seeks advice about a clear date or trigger beyond which dams will be allowed to fill to their full supply level.
- Seels advice on the best method, slow release or fast release over a few days as rain events are confirmed

I will cc the letter when it comes in.

Barry Dennien

Chief Executive Officer

SEQ Water Grid Manager

Phone: (07) [redacted] | Fax: (07) [redacted] | Mobile: [redacted]

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ABN: 14783 317 630

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[redacted]

From: Bagdon Tad
Sent: Tuesday, 26 October 2010 10:01 AM
To: Rose Rolf; Wong Wai Tong
Subject: FW: Request for a review of dam operting levels

Further risk analysis needed. Advice from WGM is that dropping to 90% has minimal impact on risk.

Tad Bagdon
Acting General Manager
Regional Planning and Policy
Queensland Water Commission
L16 53 Albert Street
Brisbane QLD 4000
[redacted]
www.qwc.qld.gov.au

From: Waldman Karen
Sent: Tuesday, 26 October 2010 9:59 AM
To: Bagdon Tad
Subject: FW: Request for a review of dam operting levels

Hi Tad

What are implications of this request for us please, thanks, Karen.

From: Barry Dennien [mailto:[redacted]
Sent: Tuesday, 26 October 2010 7:37 AM
To: Waldman Karen
Cc: Odriscoll Gina @ SEQWGM; spiller daniel @ SEQWGM
Subject: Request for a review of dam operting levels

Karen

The Minister has asked if we can review the flood safety benefits of pre-emptively dropping Wivenhoe supply levels a few percentage points. I letter will arrive today asking:

- seeks, by end November 2010, advice as to the available options and the likely benefits
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  emphasises that this is only a temporary measure, reflecting that dams are full prior to the commencement of the traditional wet season

- seeks advice about a clear date or trigger beyond which dams will be allowed to fill to their full supply level.
- Seels advice on the best method, slow release or fast release over a few days as rain events are confirmed

I will cc the letter when it comes in.

Barry Dennien
Chief Executive Officer
SEQ Water Grid Manager
Phone: (07) [redacted] | **Fax:** (07) [redacted] | **Mobile:** [redacted]
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