

QFCI

Date:

5/2/12

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Exhibit Number:

1075

**IN THE MATTER OF
THE QUEENSLAND FLOODS COMMISSION OF INQUIRY**

**A COMMISSION OF INQUIRY UNDER THE
COMMISSIONS OF INQUIRY ACT 1950**

**AND PURSUANT TO
COMMISSION OF INQUIRY ORDER (No.1) 2011**

FIFTH STATEMENT OF TERRENCE ALWYN MALONE

On the 1st day of February 2012, I, Terrence Alwyn Malone, of 240 Margaret Street, Brisbane, in the State of Queensland, state on oath:

1. I am employed by Queensland Bulk Water Supply Authority ("Seqwater") in the position of Principal Hydrologist; Water Delivery.
2. By written requirement made by the Commissioner pursuant to section 5(1)(d) of the *Commissions of Inquiry Act 1950* dated 25 January 2012, I was directed to provide this written account of my involvement in the creation of the following parts of the January 2011 Flood Event Report on the Operation of Somerset Dam and Wivenhoe Dam dated 2 March 2011 ("the Flood Event Report"):
 - (a) Executive Summary;
 - (b) Part 2 – Flood Event Summary;
 - (c) Part 10 – Flood Management Strategies and Manual Compliance; and
 - (d) Part 19 – Report Conclusions;which parts are collectively referred to herein as the "Relevant Parts".
3. Prior to the commencement of the drafting of the Flood Event Report, John Tibaldi, Robert Ayre, John Ruffini and myself discussed who would be responsible for writing particular

Filed on behalf of Terrence Alwyn Malone
C/- Gadens Lawyers
Level 25, 240 Queen Street
BRISBANE QLD 4001

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TERRENCE MALONE
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parts. During this discussion, John Tibaldi, as Principal Engineer Dam Safety for Seqwater, indicated that he wished to write what ultimately became the Relevant Parts. It was then agreed that various other parts of the Report would be written by Robert Ayre, John Ruffini and myself. In addition, because such an extensive report had never been compiled by any of us before, the need to include additional parts was identified during the writing process and, when identified, someone was allocated the task of writing them.

4. In accordance with that early discussion, John Tibaldi then proceeded to write the Relevant Parts, with the balance of the Report being written by Robert Ayre and myself. Although John Ruffini had been allocated the task of writing what was to become Part 5 (Data Collection System Performance), I ended up writing that Part as well as the other Parts assigned to me (Parts 6, 8 and 9).
5. In the result, I wrote the following parts of the Flood Event Report:
 - (a) Part 5 – Data Collection System Performance;
 - (b) Part 6 – Event Data;
 - (c) Part 8 – Preliminary Assessment of Event Magnitude; and
 - (d) Part 9 – Dam inflow and flood release details.

Contribution to the Relevant Parts

6. As far as I can recall, there was no widespread collaboration between the four engineers in respect of the specific Parts of the Flood Event Report which each was tasked to prepare.
7. Instead, my contribution to the Parts of the Flood Event Report written by the other engineers was limited to responding to specific requests for information from them. These requests were made either verbally, by email or via a request to open an electronic document from the Flood Operations Centre server and enter the information requested into that document. To the best of my recollection, there were a number of such requests over the writing period, although I cannot now recall the specifics of all of those requests.
8. So far as the Relevant Parts are concerned, the requests made by John Tibaldi for information were to the best of my recollection limited to the following:

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- (a) The provision of factual data such as rainfall data, water level and flow data, flood volume data, rainfall intensity, rainfall intensity analysis, flow rates at various times and re-running flood models; and
- (b) Advice as to whether John Tibaldi was correctly interpreting the factual data and/or using correct terminology. This advice was necessary because the factual data and terminology were matters which were within my area of expertise as a hydrologist but outside John Tibaldi's expertise which was more focussed on dam safety and operations.

9. I have perused the Relevant Parts and confirm that I provided the following data appearing in the Relevant Parts pursuant to a request from John Tibaldi:

- (a) I provided the categorisation of the flood as it appears in the first sentence of the third paragraph of the Executive Summary on page 'i' of the Flood Event Report;
- (b) Within the Executive Summary under the heading "Significance of the January 2011 Flood Event", I provided:
 - (i) the Annual Exceedance Probability (AEP) of the rainfall data in first bullet point;
 - (ii) the AEP of the estimated heavy rainfall in the vicinity of Wivenhoe Dam in the second bullet point ("AEP of 1 in 2000"); and
 - (iii) the volume of the inflow into Wivenhoe Dam in the third bullet point ("2,650,000 ML").
- (c) Within the Executive Summary in the third numbered paragraph under the heading "Operations during the January 2011 Flood Event" I provided the AEP of the estimated heavy rainfall in the vicinity of Wivenhoe Dam ("AEP of 1 in 2000"). This is the same data referred to at subparagraph 9(b)(ii) herein;
- (d) Within the Executive Summary in the second bullet point under the heading "Flood mitigation benefits of Somerset Dam and Wivenhoe Dam" I provided the 2.0m estimate of the flood mitigation impact of Somerset and Wivenhoe Dam;

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- (e) I provided Figure 9.1.2 on page 'iv' of the Executive Summary under the heading "Flood mitigation benefits of Somerset Dam and Wivenhoe Dam";
- (f) I provided the following data which appears in the Flood Event Summary table:
 - (i) Catchment average rainfalls (this information appears in the column titled "Background", "Dam Conditions" and "Rainfall and Model Results");
 - (ii) Forecast twenty-four hour catchment average rainfall (this information appears in the column titled "Rainfall and Model Results"); and
 - (iii) Estimated modelled peaks of dam levels and dam inflows and estimated flows at Lowood and Moggill including and excluding forecast rainfall based upon modelling that I undertook (this information appears in the column titled "Rainfall and Model Results").
- (g) I provided Figure 10.3.2 on page 185 of the Flood Event Report; and
- (f) I provided Figure 10.5.3 on page 203 of the Flood Event Report.

- 10. The information referred to in the preceding paragraph was to the best of my knowledge and belief accurate. It was also appropriate in my opinion for that information to be included in the Relevant Parts.
- 11. As to how these requests for information were made by John Tibaldi, I certainly recall a number of verbal requests being made because John Tibaldi's workstation was situated next to mine at the Flood Operations Centre.
- 12. To the extent that information for the Relevant Parts was supplied by email, I have over the last 24 hours reviewed emails sent and received on my email accounts with the Seqwater server, the Flood Operations server (up to 18 February 2011) and my home server. I have no other information (or sources of information) in my possession with respect to the content of; or manner of supplying, the information referred to in paragraph 9. That stated, as a consequence of my review of the emails, I located three of relevance:

- (a) John Tibaldi emailed me on 22 February 2011 at 9:16am asking me whether a number of draft paragraphs for the section of the Executive Summary dealing with

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 TERRENCE ALWYN MALONE

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the "Significance of the January 2011 Flood Event" were "OK?", to which I responded "Yep", indicating my agreement with the accuracy of the AEP and words used to describe them. Exhibited to this statement and marked TAM-1 is a copy of this email exchange;

(b) John Tibaldi emailed me on 26 February 2011 at 5:33 am asking me whether the wording of the final bullet point under the heading "Significance of the January 2011 Flood Event" in the Executive Summary was "OK?". I responded with an alternative suggestion at 7:33 am. I responded with a further suggestion at 7:43 am. Exhibited to this statement and marked TAM-2 is a copy of this email exchange;

(c) Jim Pruss, Seqwater's Executive General Manager, Water Delivery emailed me on 2 March 2011 at 10.01am identifying a numerical error in the Flood Event Summary. I attended to the change in the Flood Event Report and communicated that to Jim by return email. Exhibited to this statement and marked TAM-3 is a copy of this email exchange.

13. It is possible that John Tibaldi may have requested me to supply some of the information referred to above by asking me to insert data in hand writing on a section of his draft or to insert data on a draft electronic document on the Flood Operations Centre server. I cannot distinctly recall having supplied any of the information for the Relevant Parts in either of these ways, but I cannot exclude them as possibilities. If I did, then my handwriting should appear on drafts returned to John Tibaldi (assuming they were kept) or they may appear in the electronic files on the server.

14. To the extent that I reviewed the Relevant Parts of the Flood Event Report with a view to suggesting corrections, amendments or additions or to otherwise provide comment, this occurred in three respects:

(a) As stated in paragraphs 8 to 12 above, I responded to requests for information which I then supplied;

(b) Towards the completion of the Flood Event Report, I took home a hard copy of a document which was a substantially completed draft of the final report, with the intention of identifying anything in the draft that was either obviously wrong or

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incorrect based on my knowledge and understanding of the event. At the conclusion of this task I wrote an email to John Tibaldi advising that there were inconsistencies and duplications within the document. Exhibited to this statement and marked TAM-4 is a copy of this email exchange. I took the draft report back to the Flood Operations Centre on Monday 21 February 2011 so that I could use it in discussions with John Tibaldi to address the inconsistencies and duplications I had identified. To the best of my recollection, following these discussions I left the draft in the Flood Operations Centre with a pile of other papers and documents, but the present location of this document is unknown to me. Indeed, because it was only a draft, it may very well have been discarded during the relocation of the Flood Operations Centre in July 2011.

- (c) In or about the week of 28 February 2011, the Flood Event Report had been compiled in its entirety and was due to be printed. However, because John Tibaldi was on leave, and I took on the responsibility for the final proofing of it along with any printing related issues. That required me to communicate formatting errors or issues to Rowlands, the firm contracted to format and print the Flood Event Report. Attending to this task necessarily entailed a review of the Flood Event Report, but I did so only to the extent of identifying formatting errors or issues.

SWORN by TERRENCE ALWYN MALONE ON 1 FEBRUARY 2012 AT BRISBANE IN THE PRESENCE OF:

Peter Coggins, Solicitor



TERRENCE ALWYN MALONE



WITNESS

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FIFTH STATEMENT OF TERRENCE ALWYN MALONE

Exhibits TAM 1 - 4 to the statement of TERRENCE ALWYN MALONE sworn 1 February 2012:


TERRENCE ALWYN MALONE


WITNESS

TAM-1

Jennifer Mallett

From: Terry Malone [REDACTED] **Sent:** Tue 31/01/2012 4:59 PM
To: Jennifer Mallett
Cc:
Subject: FW: JT says, Is this OK?
Attachments:

From: Terry Malone
Sent: Tuesday, 22 February 2011 9:16 AM
To: Duty Seq
Subject: Re: JT says, Is this OK?

This message has been archived. [View the original item](#)

Yep
 Be in soon

From: DutyEngineer [REDACTED]
Sent: Tuesday, February 22, 2011 08:32 AM
To: Terry Malone
Subject: JT says, Is this OK?

The January 2011 Flood Event has been categorised as a rare event, as defined in Australian Rainfall and Runoff, the Institution of Engineers national guidelines for the estimation of design flood characteristics, and as a major flood, according to the flood level classifications adopted by BoM. Relevant statistics that demonstrate this are:

- Rainfall recorded in the catchment area above Wivenhoe Dam indicates that the catchment average rainfall intensity for the 72 hour period to Tuesday 11 January 2011 at 19:00 had an annual recurrence interval of between 1 in 100 years and 1 in 200 years. The catchment average rainfall intensity for the 120 hour period to Tuesday 11 January 2011 at 19:00 also had an annual recurrence interval of between 1 in 100 years and 1 in 200 years. At some individual rainfall stations within the Brisbane River Catchment, rainfall estimates beyond the AEP limit of extrapolation (1 in 2,000) were recorded for durations between 6 hours and 48 hours.

- On Tuesday morning 11 January 2011, water levels in Wivenhoe Dam began rising rapidly in response to very heavy localised rainfall in the area immediately upstream of the Dam. At the time, the BoM radar indicated this rain was located in an area which does not have any real time rain gauges. Post flood analysis suggests the rainfall required to reproduce this rise could exceed an annual recurrence interval of 1 in 2,000 years and may be well into the extreme category. Rainfall of this intensity and duration over the Wivenhoe Dam lake area at such a critical stage of the Flood Event, was unprecedented.

- The volume of total inflow into Wivenhoe Dam during this Event was 2,650,000 ML. This volume has been calculated to be almost double (190%) the comparable volume of inflow from the January 19

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TAM-2

Terry Malone

From: Terry Malone
Sent: Saturday, 26 February 2011 7:33 AM
To: Duty Seq
Subject: Re: JT says "Are the words below OK?"

~~This message has been archived. View the original item.~~

The peak water levels recorded at gauges in the Brisbane River catchment above Wivenhoe Dam during the Event exceeded major flood levels and in many cases were the highest levels ever recorded. This situation was repeated along Lockyer Creek that enters the Brisbane River just downstream of Wivenhoe Dam.

From: DutyEngineer [REDACTED]
Sent: Saturday, February 26, 2011 05:33 AM
To: Terry Malone
Subject: JT says "Are the words below OK?"

The peak water levels recorded at gauges in the Brisbane River catchment above Wivenhoe Dam during the Event exceeded the major flood level and in many cases produced the highest levels ever recorded. This situation is mirrored in Lockyer Creek that enters the Brisbane River downstream of Wivenhoe Dam.

-----Safe Stamp-----

Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

Terry Malone

From: Terry Malone
Sent: Saturday, 26 February 2011 7:43 AM
To: Duty Seq
Subject: Re: JT says "Are the words below OK?"

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along Lockyer Creek, most notably in the upper reaches, that

From: DutyEngineer [REDACTED]
Sent: Saturday, February 26, 2011 05:33 AM
To: Terry Malone
Subject: JT says "Are the words below OK?"

The peak water levels recorded at gauges in the Brisbane River catchment above Wivenhoe Dam during the Event exceeded the major flood level and in many cases produced the highest levels ever recorded. This situation is mirrored in Lockyer Creek that enters the Brisbane River downstream of Wivenhoe Dam.

-----Safe Stamp-----

Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

TAM3

Terry Malone

From: Terry Malone
Sent: Wednesday, 2 March 2011 10:19 AM
To: Jim Pruss
Subject: RE: Greg rhodes
Attachments: @

~~This message has been archived. View the original item.~~

Has been changed

From: Jim Pruss
Sent: Wednesday, 2 March 2011 10:01 AM
To: Terry Malone
Subject: Greg rhodes

Terry

I was just talking to Greg Rhodes and he said he picked up an error, only one, and was just wondering if anyone picked it up. It was on page 6 of 21 of the flood event summary on the rainfall and model results where we refer to a peak number as 69.9 and it is really 68.9. I haven't looked and it is easily possible this one has already been picked up but thought I would pass along the advice.

Still haven't heard from the insurers

Jim Pruss

Executive General Manager, Water Delivery

QLD Bulk Water Supply Authority trading as Seqwater

Level 4 240 Margaret Street, Brisbane City QLD 4000 Australia

PO Box 16146, City East QLD 4002

Website | www.seqwater.com.au <<http://www.seqwater.com.au/>>

Attachments:

[image001.png](#)

(7 KB)

[image002.jpg](#)

(12 KB)

TAM-4

Jennifer Mallett

From: Terry Malone [REDACTED] **Sent:** Tue 31/01/2012 4:51 PM
To: Jennifer Mallett
Cc:
Subject: FW: Good news - Manual Compliance
Attachments:

From: John Tibaldi
Sent: Monday, 21 February 2011 6:24 AM
To: Terry Malone
Subject: Re: Good news - Manual Compliance

This message has been archived. [View the original item](#)

Terry

Your email fills me with enthusiasm for another week in the flood room working on the report.

I could not agree more that the report is nowhere near finished and we have a big week in front of us this week.

JT

From: Terry Malone
Sent: Sunday, February 20, 2011 05:18 PM
To: John Tibaldi
Subject: RE: Good news - Manual Compliance

JT

Thanks for the advice as I was just about to sign the house over to my wife's name.

I have spent a large part of the weekend going through the report. In my opinion there is a lot of inconsistency and duplication. I hope you will take some of my suggestions on board.

I think that there is still a lot of work to do to tidy it up.

Terry

From: John Tibaldi
Sent: Sunday, 20 February 2011 3:57 PM
To: Terry Malone; Rob.ayre [REDACTED] John.Ruffini [REDACTED]
Subject: Good news - Manual Compliance

See email below. I don't agree with the discretion words and will sort that out next week.

From: Colin Apelt [REDACTED]
Sent: Saturday, February 19, 2011 08:55 PM
To: John Tibaldi
Subject: Manual Compliance

Hi John,

I know I am going to be busy for most of Monday, hence this email instead of a phone call.

I have completed my detailed review of the extract from the Draft Report (Chs 1, 2, 9 and 10) and I can confirm that I am satisfied that the Manual was complied with throughout the flood event from 06 Jan 2011, 07:42 to 19 Jan 2011, 12:00, in the operation of both Wivenhoe and Somerset Dams.

As mentioned by telephone, there was an exercise of discretion on 11 Jan 2011 at 21:00 when Wivenhoe gate openings were below minimum recommended settings. In my considered opinion, this was appropriate and fully in accordance with the intent of the Manual.

I have noted some minor typos and points of clarification that I wish to discuss with you but these do not and cannot affect the con

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