

## Statement of Robert Arnold Ayre

### **QUEENSLAND TO WIT**

I, **ROBERT ARNOLD AYRE**, of c/- SunWater Limited (**SunWater**), Level 10, 179 Turbot Street, Brisbane in the State of Queensland do solemnly and sincerely declare, as follows:

### **Background**

#### **Wivenhoe Power Station and the W&S Manual**

1. The W&S Manual objectives do not include minimisation of disruption to Wivenhoe Power Station, which is operated by Tarong Energy. Previous revisions of the W&S Manual have included this objective. The history of these revisions to the W&S manual is outlined below.

#### **August 1998 to December 2004 (revisions 3 to 6 of the W&S Manual)**

2. Between 1998 and 2004, the *Manual of Operational Procedures for Flood Mitigation for Wivenhoe Dam and Somerset Dam*, (revision 3: August 1998, up to revision 6: December 2004), included a flood mitigation objective of minimising disruption and impact upon Wivenhoe Power Station (refer to section 3.1(d) of all revisions).
3. Further detail in respect of this objective was contained in the W&S Manual, as follows:

#### *3.5 Provision of Pumping Pool for Power Station*

*The power station is not affected by the reservoir level in Wivenhoe Dam during flood events other than the impacts of high tail water levels have on the efficiency of the power station. The power station does however require a pumping pool for operation. The loss of the storage by dam failure would render the power station inoperative.*

(Refer to section 3.5 of revision 6 and section 3.6 of revisions 3 to 5 of the superseded W&S Manuals)

4. The focus of the above objective was to maintain the pumping pool during flood events by ensuring no undue loss of water storage in Wivenhoe Dam. The primary consideration of this objective was the maintenance of the ability of the power station to generate electricity during a flood event.

## **February 1999 Flood Event**

5. During the February 1999 flood event, the flood engineers observed oscillations in the manually recorded lake levels in Wivenhoe Dam as a result of releases from the Splityard Dam and pumping cycles. This observation was recorded in section 18.5 of the *Report to SEQ Water Board on Flood Events of February and March 1999*, (State Water Projects DNR, September 1999). This report made several recommendations arising out of this observation, including:-
  - (a) Defining a Full Supply Level in Lake Wivenhoe that takes account of the storage level in Splityard Creek Dam.
  - (b) Recognition that the effect of the Wivenhoe pumped storage scheme operation was most critical when returning Wivenhoe Dam back to FSL at the recession of a flood or at threshold levels relating to changes in strategies, including embankment crest level.
  - (c) Asking if consideration be given for the Senior Duty Flood Operations Engineer (SDFOE) to be given powers to limit the discharge from Splityard Creek Dam into Wivenhoe Dam if there was a critical (dam safety) incident at Wivenhoe Dam.
  - (d) The establishment of an ALERT sensor to measure the headwater elevations in Splityard Creek Dam to enable Wivenhoe Dam headwater levels to be adjusted for the volume of water stored in Splityard Creek Dam.
6. The following steps were taken to implement the above recommendations, as follows:
  - (a) A spreadsheet model of the combined storage level of Wivenhoe Dam and Splityard Creek Dam was established and incorporated into the operational model suite which was used for the February 2001 flood event. This step fulfilled recommendations (a) and (b) above.
  - (b) An ALERT sensor for Splityard Creek Dam was installed in satisfaction of recommendation (c) above, (this work was completed in March 2002).
  - (c) I understand that consideration was given to empowering the SDFOE to limit the discharge from Splityard Creek Dam into Wivenhoe Dam by the SEQ Water Board (to be resolved in their contract negotiations with Tarong Energy)(recommendation (c)). My understanding is that no such power was therefore included in the subsequent revisions of the W&S Manual.

## **Revision 7 November 2009**

7. The notes taken by John Tibaldi during discussions between the manual review panel, that consisted of the flood engineers and representatives of DERM, in relation to revision 7 of the W&S Manual, stated as follows:

*it was determined that decisions made during flood events have never given consideration to either minimising disruption and impact upon Wivenhoe Power Station or minimising disruption to navigation in the Brisbane River, notwithstanding such an objective had been contained in revisions 3 to 6 of the W&S Manual.*

8. During the discussions between the manual review panel consisting of representatives of DERM, and the flood engineers, the potential impact of the influence between Wivenhoe Dam and the Wivenhoe Power station was considered, it was determined that:
- (a) high tail water levels in Wivenhoe Dam (above EL74.0m AHD) would reduce the efficiency of the power station; and
  - (b) the operations of Splityard Creek Dam could, at the most, influence the level in Wivenhoe Dam by up to 0.23m when Wivenhoe Dam was at FSL.
9. This potential influence of the operation of Wivenhoe Dam on Wivenhoe Power Station and Splityard Creek Dam is considered to be minimal in relative terms. It was determined therefore that a flood operation objective in the W&S Manual requiring dam operators to give consideration to the power station was not warranted. As a consequence, reference to the flood objective of minimising disruption and impact on Wivenhoe Power Station was removed from the list of objectives in Revision 7 of the W&S Manual (November 2009).

### **1. Chronology of interaction with Wivenhoe Power Station**

The interaction between Tarong Energy and flood engineers between 1 October 2010 and 31 March 2011, is outlined below.

In an email of Wednesday 29 September 2010 Rob Drury from Seqwater requested that Tarong Energy provide the FOC with upcoming movements of water from Wivenhoe Power Station, and asked that the flood engineers be copied into these updates.

In accordance with the agreement to provide updates, emails were sent to the Seqwater flood engineers by the following representatives of Tarong Energy:

[REDACTED]  
[REDACTED] and [REDACTED]

These emails advise pumping and generation rates and times. These emails were generally provided a short time prior to the operation occurring due to Commercial in Confidence requirements.

Email correspondence between flood engineers and Tarong Energy Corporation was sent on the following dates:

- 1 October 2010 from Rob Drury to Sorin Lupulescu of Tarong Energy attaching contacts list for the flood engineers;
- 4 October 2010 from Rob Drury to Tarong Energy in relation to the flood engineer contact list; (2) emails
- 7 October 2010 from Tarong Energy to Rob Drury in relation to the flood engineer contact list;
- 10 October 2010 providing notification;
- 20 October 2010 providing notification;
- 28 October 2010 providing notification;
- 1 November 2010 providing notification;
- 8 November 2010 providing notification;
- 13 November 2010 providing notification;
- 17 December 2010 providing notification;
- 19 December 2010 providing notification;
- 23 December 2010 providing notification;
- 24 December 2010 providing notification;
- 27 December 2010 providing notification;
- 28 December 2010 providing notification;
- 10 January 2011 providing notification (3 emails);
- 17 January 2011 providing notification;
- 18 January 2011 providing notification;
- 25 January 2011 providing notification;
- 29 January 2011 providing notification;
- 1 February 2011 providing notification;
- 2 February 2011 providing notification (2 emails);
- 3 February 2011 providing notification (4 emails);
- 5 February 2011 providing notification;
- 6 February 2011 providing notification (2 emails);
- 7 February 2011 providing notification;
- 15 February 2011 providing notification;
- 18 February 2011 providing notification (2 emails); and
- 19 February 2011 providing notification.

During the December 2010 and January 2011 flood events, the FOC corresponded with Mr Rob Drury of Seqwater in relation to the operations of the Wivenhoe Power Station.

On Tuesday 11 January 2011, at about 17:48, I called Rob Drury to ask him to contact Tarong Energy in order to request that no release be made from Splityard Creek Dam in order to ensure that the increase in lake level in Wivenhoe Dam could be arrested. (Refer to paragraph 172 of my Supplementary Statement of 29 March 2011 and the Flood Event Log (Appendix M of the Seqwater Flood Report)).

## **2. Interaction outside of Flood Events**

I did not participate in any meetings or entered into any correspondence with Tarong Energy during the period 1 October 2010 to 31 March 2011. My understanding is that all contact with Tarong Energy during this period was left to Seqwater, principally Mr Rob Drury.

I have not been involved with contact between Tarong Energy and Seqwater outside of flood events.

## **3. Improvements relating to Interaction**

In my opinion, advice received from Tarong Energy during the flood events was adequate for the flood engineers to take into account whilst making decisions relating to operational strategies.

Recognising the commercial aspects of the information provided (spot price of electricity on the national grid) I do not believe that any further information or that the frequency of provision of the information needs to be changed. It is my opinion that the frequency and type of information provided during the 2010-2011 wet season is sufficient for dam operations.

## **4. Opinion as to how and by whom releases would be best controlled**

I think the arrangement of co-operation that existed between Seqwater and Tarong Energy during the January 2011 flood event worked satisfactorily. However, I think there are benefits to be gained from the formalisation of arrangements in respect to how and by whom releases from Splityard Creek Dam are controlled during flood events. The primary benefit includes the establishment of a clear identification of responsibility for operational decisions which would remove any ambiguity that may exist under the current arrangements.

I agree with the recommendation (c) from the February 1999 Flood Event report that the SDFOE be given powers to limit the discharge from Splityard Creek Dam into Wivenhoe Dam if there was a critical (dam safety) incident at Wivenhoe Dam particularly during a flood event.

I understand that control of the pumping and releases from Splityard Creek Dam is performed remotely at Tarong Power Station. Whilst this arrangement is satisfactory, I recommend that redundant communication paths are established between the FOC and the Tarong Energy operators to ensure that the SDFOE can direct the Tarong Energy operators to cease or reduce releases if necessary.

This arrangement should be documented in the next revision of the W&S Manual and it should also be referenced in the contract documentation between Seqwater and Tarong Energy.

**5. Appropriateness for the FOC to control releases from Splityard Creek Dam.**

I do not think it is appropriate for the FOC to 'control' releases from Splityard Creek Dam during flood events. The preferred mode of operation is outlined above and would require the SDFOE to direct the cessation of releases if a dam safety incident occurs. This would be done in circumstances where there is an elevated lake level in Wivenhoe Dam (i.e, above FSL, EL67.0m AHD) or when it is may be desirable to prevent the initiation of a fuse plug or prevent the lake level in Wivenhoe Dam exceeding a strategy threshold level or the embankment crest level.

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

Sworn and Declared at Brisbane )  
this 7th day of September 2011 in )  
the presence of: )



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Signature of the Declarant

.....  
Justice of the Peace/ Solicitor/  
Commissioner for Declarations