[redacted]

From: Duty Engineer [dutyseq@[redacted]

Sent: Saturday, 15 January 2011 1:02 PM

To: john.ruffini@[redacted] jtibaldi@[redacted] rob.ayre@[redacted] tmalone@[redacted]

Cc: 'Rob Drury'

Subject: Summary of Manual

Attachments: Summary of Manual.doc

Peter Borrows asked for a 2 page summary of the manual. Any comments prior to Rob Drury passing it on?

JT bring out the red pen!

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QFCI

Date: 2/2/12 JM

Exhibit Number: 1050

Summary
of
Manual of Operational Procedures
for
Flood Mitigation at Wivenhoe and Somerset Dam

Background

- The Manual was originally issued in Oct 1968 and has been revised on 6 occasions since. Each major revision of the Manual is overseen by a panel of engineering experts. The last major revision was November 2009.
- The Manual is approved under the Water Supply Act 2008.
- The purpose of the Manual is to define a set of procedures to reduce, so far as practicable, the effects of flooding associated with the dams.
- The Manual is approved by the Director General of the Department of Environment and Resource Management and takes effect from the date of the gazette notice.

Objectives

The objectives of the flood operational procedures, listed in order of importance, are:

- Ensure structural safety of the dams
- Provide optimum protection of urbanized areas from inundation
- Minimise disruption to rural life in the Stanley and Brisbane Rivers
- Retain a full water supply storage at the conclusion of the flood event.
- Minimise the impacts to the environment during the drain phase following a flood.

Flood Operations

Wivenhoe Dam

The volume above the full water supply level is available as temporary flood storage. Water levels in the dam are managed by 5 large radial gates capable of releasing up to 10,000m3/s at extremely high water levels.

In addition, the auxiliary spillway, capable of releasing up to 14,000m3/s at extremely water levels, consists of 3 fuse plugs which erode after being overtopped, thereby increasing the discharge capacity of the dam. This ensures the structural safety of the dam. In the event of initiation of the fuse plugs, outflow from the dam can still be controlled by the radial gates.

The Flood Operations Centre was mobilised at 8am Saturday 6 January 2011.

During an event, the operation of the dam transitions between four operating strategies depending of the circumstances at the time:

- **W1** – Primary consideration is given to Minimising Disruption to Downstream Rural Life. Under this strategy, the predicted water level is below 68.50 m AHD and the maximum release is 1,900m3/s.
    - *This stage was exceeded at 8am Saturday 6 January 2011.*
- **W2** – Transition Phase moving from Minimising Disruption to Protecting Downstream Urban Areas. Under this strategy, the water level is predicted to be between 68.5 and 74.0 m AHD and the maximum release is less than 3,500m3/s.
    - *This stage was exceeded approximately 6pm Saturday 8 January 2011.*
- **W3** – Primary consideration is to Protect of Urban Areas from Inundation. Under this strategy, the water level is predicted to be between 68.5 and 74.0 m AHD but the maximum release is less than 4,000m3/s.
    - *This stage was exceeded approximately 9am Tuesday 11 January 2011.*
- **W4** – Primary consideration is to Protection the Dam. Under this strategy, the water level is predicted to exceed 74.0 m AHD and there is no limit to the maximum release. Consideration is given to managing gates releases to avoid fuse plug initiation if at all possible as this would compromise flood mitigation capacity in the short to medium term

In extreme events, the interval between gates openings can be as little as 10 minutes.

Somerset Dam

The flood storage compartment of Somerset Dam is used in conjunction with of Wivenhoe Dam to ensure that the combined flood mitigation impact is maximized. This may mean temporarily holding flood water in Somerset while Wivenhoe Dam levels are rising.

Monitoring and Prediction

During the event, observed and forecast rainfall and observed water levels are continuously monitored and included in prediction models to give as long as practical lead times for potential inflows and subsequent gate operations.

Drainage Phase

The objective of the drainage strategy is to drain the flood component within 7 days to ensure the dam is ready for any possible ensuing event while minisming downstream impact in urban areas. This generally means that releases are managed so that downstream flows are limited to 3,500m3/s, the threshold for urban flood damage.