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28 June, 2011

The Commissioners,
Queensland Floods Commission of Inquiry,
PO Box 1738,
Brisbane QLD 4001

Re: Submission re Operation of Wivenhoe Dam Releases – Major Flood, January, 2011

Reference is made to my earlier submission (24 March, 2011) to the Commission wherein I indicated that if some pre-emptive release had been made from Wivenhoe Dam in the period 8 January, 2011 onwards the question of dam safety would have been addressed and the probability of downstream urban flooding and rural disruption minimised. I further contended that enhanced releases from the dam could or should have been initiated earlier and were warranted under the Operation Strategies.

In Section 5.6 of the WMA Report (Mark Babister) at 83 to 88 it is indicated that WMA sought three separate assessments as to whether the release of water from the dams was in accordance with the Manual of Operational Procedures Rev. 7 (MOP) (Question 1) or whether there were any aspects not in accordance with the MOP (Question 2). The three assessments were in the affirmative on Question 1 and there was some variation in response on Question 2.

Whilst I respect the above opinions I beg to disagree and consider that there was a failure to adhere to the requirements of the MOP or at least a failure of judgement. My reasoning is as follows:

The MOP is quite specific in relation to Flood Mitigation Objectives (Sect. 3.1 et al) and states in particular: “ To meet the purpose of the flood operational procedures in the Manual, the following objectives, **listed in descending order of importance** (my emphasis), are as follows:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;
- Etc. (qv)

This section also clearly states “In meeting these objectives, the dams must be operated to account for the potential effects of closely spaced Flood Events.” This did in fact occur with two inflow peaks (one at 0800 on 10/01/11 and one following at 1300 on 11/01/11).

Referring to the Flood Operations Strategies at Section 8.4 of the MOP the abovementioned objectives are repeated “ in descending order of importance” and stresses “Within any strategy, consideration is always given to these objectives in this order, when making decisions on dam releases”. Within Strategies W2, W3 & W4 the final dot-point under ‘Conditions’ states “Lower level objectives are still considered when making decisions on water releases. Objectives are always considered in order of importance.”

Within each Strategy there is a requirement to consider downstream conditions eg at bridge crossings etc. in Strategy 1 and natural peak flows excluding Wivenhoe Dam Releases at Lowood and Moggill.

Information on the flood elevation at Moggill Alert (540147) and other stations is given in Figure 8 of the WMA Report. This figure suffers from an incomplete horizontal time scale (states date but not clear on time). However from Figure 9 it can be seen that the Moggill (6755) peak of about 18 m AHD occurred at about 15.00 on 12/01/11. I have used this to attribute a time scale to Figure 8. Figure 9 also indicates that a major flood level at Moggill occurs at 15.5 m AHD, presumably corresponding to the 4,000 cumecs. limit referred to in Strategies W3 & W4, although this is not clearly stated.

Giving consideration to the period when pre-emptive releases, referred to in my submission of 24/03/11, could or should have occurred, the Water Surface Elevations (WSE) at Moggill rose only slowly from approx. 2.00 m AHD early on 08/01/11 to 12.0 m AHD at 19.00 on 11/01/11. These levels are well below the above stated major flood level at Moggill. Even allowing for some 20 to 25 hours travel time from Wivenhoe to Moggill there appears no reason why the Moggill flood flow would have impeded a pre-emptive release for at least part of this period. It is unfortunate that the WMA Report does not provide a rating curve (Flood Discharge vs WSE) for the lower gauge heights at Moggill even though such information should be available for the lower river levels. I do not have available specific flood data for Lowood. However reference again to Figures 7 and 8 of the WMA Report suggests that O'Reilly's Weir Alert (540153) might be representative of Lowood WSE's and in the period 00.00 on 09/01/11 to at least 07.00 on 11/01/11 flood flows at this station were well below the subsequent peak. Again it is unfortunate that the WMA Report fails to provide a rating curve at this station even for the lower WSE's.

In Table 9 of the SEQWater Report of 02 March, 2011 the lake levels within Wivenhoe Dam are reported. These indicate that pre-emptive releases could have commenced early on 07/01/11 and that warrants existed under the Operation Strategies for this to occur. The following Table details the limiting Water Surface Elevations (WSE) in the dam and the applicable strategy, having, of course, due regard to naturally occurring flood conditions at Lowood and Moggill.

Table – 1 Actual Releases from Wivenhoe Dam

Time/Date	Pre-emptive release Possible	Actual Lake WSE m AHD	Actual Outflow (Cumecs.)	Limiting WSE m AHD	Reference
10.00 07/01/11	Yes but not done	67.68	0	67.25	Minimum Release Level 67.25
Prior to 08.00 08/01/11	Yes but not done	68.52	927	Less than 68.50	Strategy W1
08.00 08/01/11	Yes but not done	68.52	927	Likely to exceed 68.50 & up to 74.00	Strategy W2 or W3
11.00 11/01/11	Yes	74.10	3,533	Predicted to exceed 74.00	Strategy W4

Given the above and consideration that the dam WSE rose 4.0 m (EL 69.0 to 73.0) in the 24 hour period 19.00 on 09/01/11 to 19.00 on 10/01/11 there was clear evidence that a critical situation was arising. The pre-eminent flood management objective of protecting the structural integrity of the dam was thus becoming paramount and appropriate release was warranted under the Operational Procedures (MOP). Given this scenario and that either fuse plug initiation or dam failure was a possibility, with consequent uncontrolled urban flooding and rural disruption (to be avoided under the 2nd and 3rd Flood Mitigation Objectives), it is clear that a critical situation had in fact arisen.

The failure to adhere to the Flood Operation Strategies laid down in the MOP and having consideration to the minimal flood levels at Moggill and presumably at Lowood in the period early on 08/01/11 at least for the next 48 hours suggests that the requirements of the MOP were not adhered to, or at the very least ill-judged.

A further issue to be considered by the Commission is why the major release was undertaken in the period 18.00 on 11/01/11 to 00.00 on 12/01/11, peaking at 7,464 cumecs., when it should have been known that a major peak was occurring in Lockyer Creek at O'Reilly's Weir Alert (540153) in the period 16.00 to 20.00 on 11/01/11. Lockyer Creek joins the Brisbane River just downstream of Wivenhoe Dam (Refer Figure 7 of WMA Report). Accordingly the major release from Wivenhoe coincided with the peak discharge from Lockyer Creek severely exacerbating the flood situation downstream. It is also noteworthy that a significant peak had been recorded upstream in Lockyer Creek at Helidon Alert (540143) about 24 hours before the O'Reilly's Weir Alert peak and other peaks were occurring part way between these stations at Glenore Grove Alert (540149).

The WMA Report does not provide adequate data to allow a proper evaluation of the flood situation at Moggill and Lowood and therefore determine exactly what pre-emptive releases were feasible. However the writer maintains that such releases were feasible and should have taken place and accordingly reduced the flood discharges near Ipswich and at Brisbane City.

It is also noted that Figure 10 of the WMA Report indicates that the peak WSE at Jindalee occurred at almost the same time as that at Moggill. Whilst this is feasible, it is difficult to accept.

I trust that these analyses are helpful to the deliberations of the Commission and I am available to be of further assistance, if needed.

It would be appreciated if you would acknowledge receipt of this submission.

Yours faithfully,

Neville D Jones