WIVENHOE DAM and JANUARY 2011 FLOODS

EPILOGUE

To coincide with the official interim report from the $15 million plus inquiry, the following is my revised operating procedure for the Wivenhoe Dam Gates. This is to replace the verbose, cumbersome, bureaucratic, ambiguous 79 page existing operation manual .

The beauty of my operational procedure is its brevity and simplicity. Critics will no doubt say this offering is simplistic, the rantings and ravings of a grumpy old luddite. This, may contain some elements of truth but remember that many a good tune comes from an old fiddle.

The most objective data available at any moment at the dam is the water level and the derivatives of this namely, increments in water level and rates of change in water level.

Significant water levels involved are as follows

Spillway Sill Level (Bottom of Spillway Gates) EL. 57.00

Dam Full supply Level El 67.00

Fuse Plug Activation Level El.75.70

Opening Schedule

When the dam water level reaches a level between

67.20 to 67.40 commence raising all five gates in a logical and rational manner. Over 8 to 9 hours open all of the five gates to **6 metres** vertically open.

Then monitor the dam water level.

Occasionally the water level will go past El 73.00 when some further appropriate, more dramatic action may be considered.

Closing Procedure

The three conditions required for commencing the closedown procedure are as follows

(1).The dam water level has been falling consistently for at least 6 hours.

(2) Weather forecasts are favourable

(Please remember that closedown procedures may be slower and more complicated than opening procedures.)

Downstream Flooding

The accepted benchmark for the start of serious flooding in Brisbane is a river flow of 4000 cumecs (cubic metres per second).

Hypothetical Management of the January 2011 Floods

If this flood had been managed in the following manner,

(1)At 9.00 am on Thursday 6th January commence opening the gates in a logical, rational sequence.

(2) By early evening all five gates are set at 6.00 metres vertical opening.

the results would have been as follows

Maximum Discharge:-3350 cumecs

Maximum Dam Water Level El. 72.90

Time of Occurrence of both 6.00 to 7.00 am Wednesday 12th January.

With respect to flooding in Fernvale, Ipswich and Brisbane the discharge from Wivenhoe Dam is not the only factor. The uncontrolled discharges of Lockyer Creek and the Bremer River are significant inputs. I have no information about the magnitude and timing of floods in either and so only make the following general comment.

It may be theoretically possible to manipulate the gates of Wivenhoe Dam to reduce the combined downstream flows. The problem is that this flood mitigation is, in reality, only available in hindsight! The accurate extent of the incoming flood into the dam is unknown but may be estimated by modelling. However the author is of the opinion that modelling of any type is illustrative and not definitive, and as such the potential for reducing the impact of floods downstream is compromised. In fact such procedures appear, at present, positively dangerous (Is this not what actually happened in January?)

The answer in the future may be accurate modern hydrodynamic modelling???

All the above is based on compute analysis of various flood possibilities and involved a huge amount of number crunching. If any reader requires elaboration of any point please contact me on [redacted] For the numerate masoschist all the various spreadsheets are also available.

Ian Chalmers B.E., B. Econ.

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