

Briefing note on Raising Wivenhoe Full Supply Level

Note: The operation of Wivenhoe Dam during floods is governed by the Flood Operations Manual under legislation and is a gazetted document. We cannot operate differently to this until it is approved by the regulator.

Background

Over the last few years, several reports have been carried out considering the raising of the full supply level of Wivenhoe and the subsequent impacts. These include

- **Provision of Contingency Storage in Wivenhoe & Somerset Dams - Feasibility Report for the NRW Regional Water Supply Strategy in 2007 and also for the QWC (this also looked at raising Somerset Dam FSL)**
- **Report – Assessment of Wivenhoe Dam Full Supply level on Flood Impacts – 2007**
- **Proposed Operating Rules for Wivenhoe Dam at EL 69.0 m AHD IQQM Modelling Report – Parsons Brinckerhoff 2008**
- **Preliminary desktop studies by Seqwater primarily on physical considerations and flood discharges – draft only at this stage.**

The original report in 2007 outlined issues including recommendations that

- **Raising of the FSL level of Somerset Dam be rejected due to the impacts on the upstream population during flood events.**
- **The provision of contingency storage in Wivenhoe is investigated further. A 2m raising in the FSL could be achieved with minimal capital costs subject to addressing regulator and stakeholder issues.**
- **A detailed flood assessment is carried out to develop and assess changes to the flood manual to allow the storage of the additional 2m in Wivenhoe. The impact of the changes should be assessed for the full range of Annual Exceedance Probabilities and Storm Durations. This assessment should also link with the Brisbane River Flood Damages Assessment currently being carried out by Brisbane City Council.**
- **A detailed review of the structural adequacy of the various components of the dam is carried out to confirm the assumptions of this report.**
- **A program of consultation with the downstream stakeholders is carried out.**

- SEQWater be provided with the opportunity to instigate a public consultation process prior to the public release of options to raise the storage levels of Wivenhoe.

Current Position

The substantial review and update of the Manual of Flood Mitigation that occurred late last year (formally gazetted in January 2010) means that there is a need to update all previous flood hydrology investigations associated with investigating raising the FSL. Initial studies required to progress this issue to preliminary decision (including approximate duration) are outlined below:

- Yield Hydrology Study to quantify yield benefits and set targets for revised full supply level.
- Flood Hydrology Study to quantify the impacts of the raised full supply level has to be redone subsequent to this to consider the impacts of increasing the FSL on flood levels
- Investigate the changes to the flooding impacts downstream of Wivenhoe based on the Brisbane River Flood Damages Study and quantify increased impacts
- Consideration of the impacts of raising FSL on upstream communities including leaseholders, Wivenhoe Power Station (Splityard), urban areas and agricultural operation

If the initial work (the yield and hydrology studies that may require 2 to 3 months at least) indicates potential feasibility, in the order six to twelve months of further detailed technical studies would be required to allow final regulatory approval including formal amendment of the Manual of Flood Mitigation. Consultation with stakeholders could take place concurrently but could easily add to that timeframe.

Seqwater is best placed to manage this project, with the major stakeholders (QWC and DERM) being part of the project team.

Rob Drury

Raising Wivenhoe Full Supply Level - Project Brief

1. Introduction
 - Summary of previous work
2. Current situation
 - Yield studies
 - Flood management
 - Operational procedures
3. Yield hydrology
 - Conduct yield studies for range of options
 - Consider outcomes of studies in respect to FSL levels
 - Consider ROP implications, available allocations, contingency storage
4. Flood hydrology
 - Develop Expert panel
 - Conduct PMF/Flood studies
 - Investigate operational issues Operational issues
5. Structural issues
 - Gates
 - Dam wall
 - Auxillary spillway
6. Storage Impacts
 - Leases
 - Bridges/roads
 - Intake structures – Kilcoy, Esk WTP, Toowoomba
 - Tarong Power Station
 - Somerset dam wall/hydro plant
 - Recreational activities
 - Environmental impacts of new inundated area
7. Flood releases
 - Changes to release strategy
 - Impacts downstream
8. Risk assessment
 - Downstream flooding/damage estimates – refer to BCC damages study and annualised costs
 - Dam safety
 - Release strategy
9. Operational methodology
 - WIVOPS and releases
 - Grid operation
10. Cost/benefit assessment
11. Consultation
 - DERM
 - QWC/WGM
 - BCC/Ipswich/Somerset

- Tarong
- community

12. Recommendations

References

NRW Regional Water Supply Strategy - Provision of Contingency Storage in Wivenhoe & Somerset Dams - Feasibility Report
SEQWater
Report No WS/OPS 011106
February 2007

Queensland Water Commission Department of Natural Resources and Water
Provision of Contingency storage in Wivenhoe & Somerset dams
SEQWater
March 2007
Report No WS/OPS 011106

Report - Wivenhoe Dam Assessment of Wivenhoe Dam Full Supply Level on Flood Impacts
Sunwater
December 2007

Tom Vanderbyl of Sunwater, entitled "Framework for Analysing Surface Water Availability in South-East Queensland" (1 September 2005, Version A3)

Historical No Failure Yield Assessment for Different levels of Wivenhoe Dam, June 2005, John Ruffini.

Occasional Paper No 14 "Framework for Urban Water Resource Planning" (Water Services Association of Australia – WSA, June 2005).

Design Discharges and Downstream Impacts of the Wivenhoe Dam Upgrade Q1091
September 2005 – Wivenhoe Alliance

WIVENHOE AND SOMERSET DAMS FULL SUPPLY LEVEL INVESTIGATIONS PROJECT MANAGEMENT STRUCTURE

