

**From:** Nguyen Khanh  
**Sent:** Friday, 15 January 2010 1:57 PM  
**To:** Allen Peter; Guppy Ron  
**Subject:** RE: Revised North Pine Dam Flood Mitigation Manual for your comments

Peter & Ron,

We have not received any AFC information from Seqwater at this stage other than the revised flood hydrology report dated Oct 2007. Our preliminary AFC assessment based on current available revised flood hydrology suggested that:

(1) North Pine Dam can perhaps safety handle an equivalent 1:500,000 AEP flood, which is larger than 75% of the AFC (assumed AFC is the PMP-DF). This based on the assumption of 1 gate is inoperable (20% of gates out of action) as per Fall-back approach. No spillway upgrade is required until 2035.

(2) Due to the low probability of the DCF flood (1:500,000 AEP), adopting RA would probably meeting ANCOLD's tolerability criteria for now. Hence no immediate spillway upgrade is required.

(3) There may be room to modify the current operating rule to contain the PMPDF if necessary. However, unless we have a time to prove that the new operating rules could also improve the flood performance of the Dam for the more frequent flood events (from 1:10 to 1:2,000AEP), then I don't see an immediate benefit to modify the current operating rules.

The following flood routing summary for the 36-hr events are based on the revised flood hydrology May 2007.

- (1) With all 5 gates operable, the DCF of the Dam is equivalent to the 1:2,00,000AEP
- (2) With all 5 gates operable, the Radial Gate Switch gear level (RL 41.66) is equivalent to the 1:100,000AEP
- (3) One gate inoperable: DFC is 1:550,000AEP
- (4) Two gates inoperable: DFC is 1:125,000AEP
- (5) Three gates inoperable: DFC is 1:25,000AEP
- (6) Four gates inoperable: DFC is 1:1,250AEP

Table 10-2: Critical Durations, Outflows and Peak Water Levels – Scenarios 1,2&amp;3

AEP 1 in ...	Normal Operations			One Gate Inoperable			Two Gates Inoperable		
	Critical Duration hr	Peak Outflow m3/s	Peak Water Level m AHD	Critical Duration hr	Peak Outflow m3/s	Peak Water Level m AHD	Critical Duration hr	Peak Outflow m3/s	Peak Water Level m AHD
2	36	390	39.92	72	390	39.91	72	380	39.92
5	36	550	40.01	36	550	40.01	36	550	40.01
10	36	660	40.07	36	660	40.07	36	660	40.07
20	12	830	40.17	12	820	40.16	12	830	40.16
50	12	1,040	40.28	12	1,040	40.28	12	1,040	40.28
100	12	1,200	40.39	12	1,200	40.38	12	1,200	40.38
200	12	1,500	40.51	12	1,500	40.51	12	1,400	40.50
500	18	1,700	40.67	18	1,700	40.66	18	1,700	40.67
1,000	36	2,100	40.85	36	2,100	40.85	36	2,000	40.90
2,000	12	2,200	40.87	12	2,200	40.86	36	2,000	40.92
5,000	36	2,600	41.02	36	2,600	41.01	36	2,200	41.29
10,000	36	3,000	41.14	36	2,800	41.20	36	2,400	41.64
50,000	36	3,600	41.45	36	3,200	41.89	48	2,900	42.71
100,000	36	3,800	41.71	36	3,400	42.29	48	3,200	43.16
200,000	36	4,000	42.06	36	3,700	42.71	36	3,700	43.49
500,000	36	4,300	42.56	36	4,100	43.23	36	4,600	43.73
1,000,000	36	4,700	42.95	36	4,800	43.54	36	5,100	43.89
2,900,000	36	5,400	43.47	36	5,800	43.81	36	6,000	44.13

RL 40.23	Top of Closed Gates
RL 41.66	Radial Gate Switchgear
RL 43.28	Embankment Crest

Regards

Khanh (Ken) Nguyen

Project Manager - Dam-Safety (Spillway Upgrade)

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**From:** Guppy Ron

**Sent:** Wednesday, 13 January 2010 10:44 AM

**To:** Nguyen Khanh; Allen Peter

**Subject:** FW: Revised North Pine Dam Flood Mitigation Manual for your comments

This may cause a bit of a dilemma for us.

The 1991 hydrology which was the most up to date stuff prior to 2007 had for this schedule for gate operation a 'maximum design flood level' of 41.47 and a PMP lake level of 42.38 both below the embankment crest level of 43.28.

9/05/2011

The May 2007 hydrology changed that so with the same gate operations the PMP-DF now overtops the embankment for 12 hours by up to 0.19 metres for the all gates operating case.

Do we want to approve a manual with these same gate operations?

Ken, can you do a quick summary of where it sit regards spillway adequacy and any upgrade options they might have in mind. Also does the spillway adequacy

There is no great urgency to get a new manual approved. The current version is valid to September 2012.

As far as the actual manual goes, from first glance there has been a lot of copying from the Wivenhoe Manual some of which shouldn't have happened. e.g.. like having gates out of the water. I will have a more detailed look at it in the future.

Ron Guppy  
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**From:** John Tibaldi [mailto:[REDACTED]]  
**Sent:** Tuesday, 12 January 2010 2:42 PM  
**To:** Rob.ayre [REDACTED]; Ruffini John; Allen Peter; Guppy Ron; Terry Malone; Barton Maher; Louw Van Blerk  
**Cc:** Rob Drury; Jim Pruss  
**Subject:** Revised North Pine Dam Flood Mitigation Manual for your comments

All

Attached is a draft of the revised Flood Mitigation Manual for North Pine Dam for your comments prior to formal submission for gazettal. The main changes from the previous version of the manual are:

- Change in relevant legislation to the Water Supply (Safety and Reliability) Act 2008.
- Change in relevant regulatory agency to the Department of Environment and Resource Management.
- Change in dam owner to the Queensland Bulk Water Supply Authority trading as Seqwater.
- Change in Agencies requiring information and holding controlled copies of the Manual in accordance with the Local Government Amalgamations of 2008.
- Change in format to achieve consistency with the Wivenhoe/Somerset Manual.

In my view, none of these changes resulted in any significant change in operational procedure from the previous version of the Manual. I will contact you all individually in the next week or so to determine if a meeting is required to discuss the changes, prior to formal submission to the regulator.

John Tibaldi  
Dam Safety Manager

Queensland Bulk Water Supply Authority *trading as* Seqwater



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