

- b) Seqwater, as owner and occupier of Somerset Dam and Wivenhoe Dam, was engaged in an inherently dangerous activity, being the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam;
- c) the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam was an extremely hazardous activity which carried with it the risk of harm to at least 244,000 people located downstream of Wivenhoe Dam;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010, p 5.
- d) Seqwater had actual knowledge of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010, p 5.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
- C. Further particulars may be provided after discovery.
- e) the location and identity of persons and businesses likely to be directly impacted by a failure by Seqwater properly to conduct Flood Operations at Wivenhoe Dam was reasonably ascertainable;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010, p 5.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
- C. Further particulars may be provided after discovery.
- f) Seqwater had the legal right (by operation of ss 107 and 107A of the Water Act, the Seqwater ROL and the August 2010 Interim Program), and practical ability, to exercise a high degree of control in relation to

the operation of Somerset Dam and Wivenhoe Dam so as to avoid or minimise the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

- g) Seqwater knew, or ought reasonably to have known, that it was the only entity licensed under s 107A of the Water Act (or any other statutory provision) to conduct Flood Operations at Somerset Dam and Wivenhoe Dam;
- h) Seqwater had the means to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam (including predictions as to the effects of actual and forecast rainfall), and to use those predictions and the Real Time Flood Model to operate Somerset Dam and Wivenhoe Dam in a manner so as to avoid or minimise the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

PARTICULARS

- A. Seqwater was able to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam by reason of:
 - 1. the matters pleaded in paragraphs 106A-106B;
 - 2. the matters pleaded in paragraphs 133 to 142;
 - 3. the matters pleaded in paragraphs 158(d)-(f), 163A-163H, 174(e)-(g), 179A-179I, 192-194, 214-217, 231-234, 248-250, 270-273, 291-293, 310-315;
 - 4. the matters pleaded in paragraphs 200-202; and
 - 5. the matters pleaded in paragraphs 151, 158(c), 164-165, 174(d), 180-182, 196-198, 218-219, 235-236, 251-252, 274-275, 294-295, 316-318.
- i) the plaintiff and other Group Members could not direct, control or influence the manner in which Seqwater conducted Flood Operations at Somerset Dam or Wivenhoe Dam;

- j) the plaintiff and other Group Members had no ability, or alternatively, no practical ability, to protect themselves from the Risk of Harm to Property, the Risk of Interference with Use and Enjoyment or the Risk of Harm to Businesses;
- k) the plaintiff and other Group Members were dependent upon Seqwater taking reasonable care to avoid or minimise the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses; and
- l) the plaintiff and other Group Members were accordingly highly vulnerable to harm from the manner in which Seqwater exercised its rights and powers as owner, occupier and licensed operator of Somerset Dam and Wivenhoe Dam.

144 In light of the facts and matters pleaded in paragraphs 142A-143, Seqwater, in its capacity as owner and occupier of Somerset Dam and Wivenhoe Dam, owed a direct (or "personal" or "non-delegable") duty to Group Members:

- a) to take reasonable care in the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam; and
- b) to ensure that reasonable care was taken by any third party engaged by or on behalf of Seqwater to conduct Flood Operations at Somerset Dam and Wivenhoe Dam;

to avoid or minimise each of the Risk of Harm to Property, the Risk of Interference with Use and Enjoyment and the Risk of Harm to Businesses **(Seqwater's Duty as Owner and Occupier).**

Seqwater's Direct Duty of Care as Sole Licensee under the Water Act

145 Further, and in the alternative, in light of the facts and matters pleaded in paragraphs 61-76 and 142A-143, Seqwater, as the sole entity licensed to conduct Flood Operations at Somerset Dam and Wivenhoe Dam under s 107A of the Water Act, had a direct ("personal" or "non-delegable") duty to Group Members to take reasonable care in the operation of Somerset Dam and Wivenhoe Dam to avoid or minimise each of the Risk of Harm to

Property, the Risk of Interference with Use and Enjoyment and the Risk of Harm to Businesses (**Seqwater's Duty as Licensee**).

146 Seqwater's Duty as Licensee:

- a) required that Seqwater act personally (including through its employees) in conducting Flood Operations at Somerset Dam and Wivenhoe Dam; and
- b) could not be discharged by the delegation by Seqwater of its responsibility for conducting Flood Operations at Somerset Dam and Wivenhoe Dam to third parties (including SunWater).

SunWater's Direct Duty of Care

147 In December 2010 and January 2011:

- a) each of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses was reasonably foreseeable by SunWater;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
 - B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
 - C. Further particulars may be provided after discovery.
- b) SunWater, as the entity in practical control of Flood Operations at Somerset Dam and Wivenhoe Dam, was engaged in an inherently dangerous activity, being the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam;
 - c) the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam by SunWater was an extremely hazardous activity which carried with it the risk of harm to at least 244,000 people located downstream of Wivenhoe Dam;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010, p 5.
- d) SunWater had actual knowledge of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

PARTICULARS

- A. Flood Management Services Agreement, Service Schedule, clause 1.
- B. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
- C. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
- D. Further particulars will be provided by way of correspondence after discovery.
- e) the location and identity of persons and businesses likely to be directly impacted by a failure by SunWater properly to conduct Flood Operations at Wivenhoe Dam was reasonably ascertainable;

PARTICULARS

- A. Flood Management Services Agreement, Service Schedule, clause 1.
- B. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
- C. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
- D. Further particulars will be provided by way of correspondence after discovery.
- f) SunWater had the practical ability to exercise a high degree of control in relation to the operation of Somerset Dam and Wivenhoe Dam so as to avoid or minimise the Risk of Harm to Property, Risk of

Interference with Use and Enjoyment and Risk of Harm to Businesses;

- g) SunWater had the means to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam (including predictions as to the effects of actual and forecast rainfall), and to use those predictions and the Real Time Flood Model to operate Somerset Dam and Wivenhoe Dam in a manner so as to avoid or minimise the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

PARTICULARS

- A. SunWater was able to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam by reason of:
1. the matters pleaded in paragraphs 106A-106B;
 2. the matters pleaded in paragraphs 133 to 142;
 3. the matters pleaded in paragraphs 158(d)-(f), 163A-163H, 174(e)-(g), 179A-179I, 192-194, 214-217, 231-234, 248-250, 270-273, 291-293, 310-315;
 4. the matters pleaded in paragraphs 200-202; and
 5. the matters pleaded in paragraphs 151, 158(c), 164-165, 174(d), 180-182, 196-198, 218-219, 235-236, 251-252, 274-275, 294-295, 316-318.
- h) the plaintiff and other Group Members could not direct, control or influence the manner in which SunWater conducted Flood Operations at Somerset Dam or Wivenhoe Dam;
- i) the plaintiff and other Group Members had no ability, or alternatively, no practical ability, to protect themselves from the Risk of Harm to Property, the Risk of Interference with Use and Enjoyment or the Risk of Harm to Businesses;

- j) the plaintiff and other Group Members were dependent upon SunWater taking reasonable care to avoid or minimise the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses; and
- k) the plaintiff and other Group Members were accordingly highly vulnerable to harm from the manner in which SunWater exercised its functions in performing Flood Operations at Somerset Dam and Wivenhoe Dam.

148 In light of the facts and matters pleaded in paragraphs 142A-142B and 147, SunWater, in its capacity as the entity having practical control over the operation of Somerset Dam and Wivenhoe Dam, owed a duty to Group Members:

- a) to take reasonable care in the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam; and
- b) to ensure that reasonable care was taken by persons engaged by or on behalf of SunWater to conduct Flood Operations at Somerset Dam and Wivenhoe Dam;

to avoid each of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses (**SunWater's Duty of Care**).

Flood Engineers' Duty of Care

149 In December 2010 and January 2011:

- a) each of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses was reasonably foreseeable by the Flood Engineers;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.

- C. Further particulars may be provided after discovery.
- b) the Flood Engineers were engaged in an inherently dangerous activity, being the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam;
- c) the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam by the Flood Engineers was an extremely hazardous activity which carried with it the risk of harm to at least 244,000 people located downstream of Wivenhoe Dam;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010, p 5.
- d) the location and identity of persons and businesses likely to be directly impacted by a failure by the Flood Engineers properly to conduct Flood Operations at Wivenhoe Dam was reasonably ascertainable;

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.
- C. Further particulars will be provided by way of correspondence after discovery.
- e) the Flood Engineers had actual knowledge of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses; particulars

PARTICULARS

- A. Seqwater, *Wivenhoe Dam Emergency Action Plan*, Uncontrolled Copy, September 2010.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 4, 8.4.

- C. Further particulars will be provided by way of correspondence after discovery.
- f) the Flood Engineers were able to exercise a high degree of control in relation to conduct of Flood Operations at Somerset Dam and Wivenhoe Dam so as to avoid the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;
- g) the Flood Engineers had the means to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam (including predictions as to the effects of actual and forecast rainfall), and to use those predictions and the Real Time Flood Model to operate Somerset Dam and Wivenhoe Dam in a manner so as to avoid the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses;

PARTICULARS

- A. The Flood Engineers were able to make useful predictions as to the range of weather conditions that might affect Somerset Dam and Wivenhoe Dam by reason of:
1. the matters pleaded in paragraphs 106A-106B;
 2. the matters pleaded in paragraphs 133 to 142;
 3. the matters pleaded in paragraphs 158(d)-(f), 163A-163H, 174(e)-(g), 179A-179I, 192-194, 214-217, 231-234, 248-250, 270-273, 291-293, 310-315;
 4. the matters pleaded in paragraphs 200-202; and
 5. the matters pleaded in paragraphs 151, 158(c), 164-165, 174(d), 180-182, 196-198, 218-219, 235-236, 251-252, 274-275, 294-295, 316-318.
- h) the plaintiff and other Group Members could not direct, control or influence the manner in which the Flood Engineers conducted Flood Operations at Somerset Dam or Wivenhoe Dam;

- i) the plaintiff and other Group Members had no ability, or alternatively, no practical ability, to protect themselves from the Risk of Harm to Property, the Risk of Interference with Use and Enjoyment or the Risk of Harm to Businesses;
- j) the plaintiff and other Group Members were dependent upon the Flood Engineers taking reasonable care in the conduct of Flood Operations to avoid the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses; and
- k) the plaintiff and other Group Members were accordingly highly vulnerable to harm from the manner in which the Flood Engineers exercised their functions in performing Flood Operations at Somerset Dam and Wivenhoe Dam.

150 In light of the facts and matters pleaded in paragraphs 142A-142B and 149, each of the Flood Engineers owed a duty to Group Members to take reasonable care in the operation of Somerset Dam and Wivenhoe Dam to avoid each of the Risk of Harm to Property, Risk of Interference with Use and Enjoyment and Risk of Harm to Businesses.

M Events of 1 December to 16 December 2010

Rainfall and Inflows

151 Between 1 December and 15 December 2010, the catchment areas for Lake Somerset and Lake Wivenhoe experienced rainfall of between approximately 52 mm and 270 mm.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 47-48.

Water Level

152 In the period 1 December 2010 to 13 December 2010:

- a) the water level in Lake Wivenhoe rose from approximately EL 67.00 m AHD to approximately 67.33 m AHD; and

- b) the water level in Lake Somerset rose from approximately EL 99.06 m AHD to approximately EL 99.68 m AHD.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 18 & 49-50.
- B. Lake Wivenhoe water level at 6.30am on 1 December 2010 - EL 67.01 m AHD
- Lake Wivenhoe water level at 6.30am on 13 December 2010 - EL 67.30 m AHD
- Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.
- C. Lake Somerset water level at 6.30am on 1 December 2010 - EL 99.06 m AHD
- Email from damlevels@seqwater.com.au to DG-Ops Dam Levels, DG-Ops duty engineers, DG-ops Dam Levels Central, sent Wednesday 1 December 2010 at 6.27am; Subject: FW: Somerset Dam.

Flood Operations

- 153 At around 7 am on 11 December 2010, Seqwater and SunWater mobilised the Flood Operations Centre.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 8.
- 154 The Flood Engineers worked the following shifts in the period 13 December to 16 December 2010:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Monday 13/12/10 07:00	Monday 13/12/10 19:00	Mr Malone
Monday 13/12/10 19:00	Tuesday 14/12/10 7:00	Mr Tibaldi
Tuesday 14/12/10 07:00	Tuesday 14/12/10 19:00	Mr Malone
Tuesday 14/12/10 19:00	Wednesday 15/12/10 07:00	Mr Tibaldi
Wednesday 15/12/10 07:00	Wednesday 15/12/10 19:00	Mr Ruffini
Wednesday 15/12/10 19:00	Thursday 16/12/10 07:00	Mr Tibaldi
Thursday 16/12/10 07:00	Thursday 16/12/10 10:30	Mr Malone

155 At or around 3:00 pm on 13 December 2010, the Flood Engineers commenced releasing water from Somerset Dam and Wivenhoe Dam consistent with Strategy W1 at Wivenhoe Dam and Strategy S2 at Somerset Dam.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 48-49.

156 The Flood Engineers discontinued the releases and Flood Operations at or around 10:00 am on 16 December 2010.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 11 & 47.

157 The Flood Engineers demobilised the Flood Operations Centre at or around 10:30 am on 16 December 2010.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 11.

- 158 At or around the time at which the releases and Flood Operations were discontinued:
- a) Lake Wivenhoe remained above Full Supply Level at approximately EL 67.10 m AHD;
 - b) Lake Somerset remained above Full Supply Level at approximately EL 99.07 m AHD;
 - c) flood inflows into both Lake Wivenhoe and Lake Somerset were continuing;
 - d) the Bureau of Meteorology 1-day rainfall forecast for 16 December 2010 predicted continuing rain in the Lake Somerset and Lake Wivenhoe catchment areas;
 - e) the Bureau of Meteorology 4-day forecast for 16 December to 19 December 2010 predicted 15 to 50 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
 - f) the Bureau of Meteorology 8-day forecast for 16 December to 23 December 2010 predicted 50 to 100 mm of rainfall in the Lake Somerset and Lake Wivenhoe catchment areas; and
 - g) a Flood Event (as defined in paragraph 102 above) was occurring.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 49-50.
- B. Lake Wivenhoe water level at 10.00am on 16 December 2010 - EL 67.10 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.
- C. Lake Somerset water level on 16 December 2010 – EL 99.07 m AHD

Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 18.

- D. Bureau of Meteorology, Poor Man's Ensemble forecast for period 16 December 2010.
- E. Bureau of Meteorology, Poor Man's Ensemble forecast for period 16 December to 19 December 2010.
- F. Bureau of Meteorology, Poor Man's Ensemble forecast for period 16 December to 23 December 2010.

16 December Breaches

158A In the circumstances pleaded in paragraphs 151-152 and 158, the cessation of releases and Flood Operations on 16 December 2010 created a significant risk:

- a) that there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to store flood inflows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology; and
- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

159 [Not used]

160 Further, by reason of the matters pleaded at paragraphs 158-158A, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 16 December 2010:

- a) would have complied with the Flood Mitigation Manual;
- b) would have recommended or continued Flood Operations and releases throughout on 16 December 2010;
- c) would have implemented Strategy W1 at Wivenhoe Dam;
- d) would have implemented Strategy S2 at Somerset Dam;

- e) would have caused Wivenhoe Dam and Somerset Dam to release water at rates approximating exceeding the rate of inflow;
- f) would have reduced the water level in Lake Somerset to no higher than approximately EL 99.04 m AHD by the end of 16 December 2010;
- g) would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 67.09 m AHD by the end of 16 December 2010;
- h) would have continued Flood Operations until Lake Somerset and Lake Wivenhoe were no longer likely to exceed their respective Full Supply Levels.

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraphs 160(b)-(h) below.
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Dr Ronald K Christensen, *Wivenhoe and Somerset Dam Operations During the Brisbane River Flood of December 2010 and January 2011*, 19 February 2015 (**Christensen Report**), Chapter VIII, [484]-[515].

161 In the circumstances pleaded at paragraphs 156-160, the Flood Engineers (or one or more of them) failed to do one or more of the things pleaded in paragraph 160.

162 By reason of the matters pleaded in the preceding paragraph, the Flood Engineers, or one or more of them, breached their duty of care to the plaintiff and other Group Members on 16 December 2010 (the **16 December Breaches**).

163 Immediately upon the cessation of Flood Operations on 16 December 2010, the water levels in Lake Wivenhoe and Lake Somerset began to rise.

N Events of 17 December to 24 December 2010

Weather Forecasts

163A On 17 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 17 December to 20 December 2010 predicted 25-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 17 December to 24 December 2010 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 17 December to 20 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 17 December to 24 December 2010.

163B On 18 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 18 December to 21 December 2010 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 18 December to 25 December 2010 predicted 100-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 18 December to 21 December 2010.

- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 18 December to 25 December 2010.

163C On 19 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 19 December to 22 December 2010 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 19 December to 26 December 2010 predicted 75-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 19 December to 22 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 19 December to 26 December 2010.

163D On 20 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 20 December to 23 December 2010 predicted 25-50 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 20 December to 27 December 2010 predicted 40-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 20 December to 23 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 20 December to 27 December 2010.

163E On 21 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 21 December to 24 December 2010 predicted 25-75 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 21 December to 28 December 2010 predicted 100-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 21 December to 24 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 21 December to 28 December 2010.

163F On 22 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 22 December to 25 December 2010 predicted 50-125 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 22 December to 29 December 2010 predicted 100-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 22 December to 25 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 22 December to 29 December 2010.

163G On 23 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 23 December to 26 December 2010 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 23 December to 30 December 2010 predicted 125-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 23 December to 26 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 23 December to 30 December 2010.

163H On 24 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 24 December to 27 December 2010 predicted 100-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 24 December to 31 December 2010 predicted 150-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 27 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 31 December 2010.

Rainfall and Inflows

164 There were further rainfalls over the Lake Somerset and Lake Wivenhoe catchment areas in the period 17 December to 24 December 2010.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 55-64.

165 Total rainfall during this period averaged approximately 115 mm in the Stanley River upstream of Somerset Dam and 71 mm in the rest of the Brisbane River Basin upstream of Wivenhoe Dam.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 63-64.

Water Level

166 In the period 17 December to 21 December 2010:

- a) the water level in Lake Wivenhoe rose from approximately EL 67.10 67.20 m AHD to approximately EL 68.24 m AHD; and
- b) the water level in Lake Somerset rose from approximately EL 99.10 m AHD to approximately EL 100.42 m AHD.

PARTICULARS

A. Lake Wivenhoe water level at ~~9.00am~~ 6.30am on ~~16~~ 17 December 2010 - EL ~~67.10~~ 67.20 m AHD

Lake Wivenhoe water level at 4.00am on 21 December 2010 - EL 68.24 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

- B. Lake Somerset water level on 16 December 2010 - EL 99.07 m AHD

Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 18.

- C. Lake Somerset water level on 20 December 2010 - EL 100.42 m AHD

Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 74.

Flood Operations

- 167 Seqwater and SunWater mobilised the Flood Operations Centre at or around 10:00 am on 17 December 2010.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam – October to December 2010*, May 2011, p 8.

- 168 The Flood Engineers worked the following shifts in the period 17 December to 24 December 2010:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Friday 17/12/10 16:00	Saturday 18/12/10 07:00	Mr Ruffini
Saturday 18/12/10 07:00	Saturday 18/12/10 19:00	Mr Tibaldi
Saturday 18/12/10 19:00	Sunday 19/12/10 07:00	Mr Malone
Sunday 19/12/10 07:00	Sunday 19/12/10 19:00	Mr Ayre
Sunday 19/12/10 19:00	Monday 20/12/10 07:00	Mr Tibaldi
Monday 20/12/10 07:00	Monday 20/12/10 19:00	Mr Ruffini
Monday 20/12/10 19:00	Tuesday 21/12/10 07:00	Mr Ayre
Tuesday 21/12/10 07:00	Tuesday 21/12/10 19:00	Mr Malone

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Tuesday 21/12/10 19:00	Wednesday 22/12/10 07:00	Mr Ruffini
Wednesday 22/12/10 07:00	Wednesday 22/12/10 19:00	Mr Malone
Wednesday 22/12/10 19:00	Thursday 23/12/10 07:00	Mr Tibaldi
Thursday 23/12/10 07:00	Thursday 23/12/10 19:00	Mr Ayre
Thursday 23/12/10 19:00	Friday 24/12/10 07:00	Mr Tibaldi
Friday 24/12/10 07:00	Friday 24/12/10 15:00	Mr Ruffini

169 At or around 6:00 pm on 17 December 2010, the Flood Engineers, or one or more of them, commenced releasing water from Somerset Dam and Wivenhoe Dam at flow rates consistent with Strategy W1 at Wivenhoe Dam and Strategy S2 at Somerset Dam.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 119.

170 On or around 24 December 2010, the Chief Executive Officer of the SEQ Water Grid Manager informed Seqwater that Seqwater was authorised to draw down Lake Somerset and Lake Wivenhoe to 95% of their combined Full Supply Level (**Temporary Full Supply Level**).

PARTICULARS

A. Letter from Barry Dennien, Chief Executive Officer, SEQ Water Grid Manager, to Peter Borrows-Burrows, Chief Executive Officer, Seqwater, dated 24 December 2010.

170A The Temporary Full Supply Level:

- a) for Somerset Dam was EL 98.54 m AHD; and
- b) for Wivenhoe Dam was EL 66.45 m AHD.

171 Notwithstanding the authorisation pleaded in paragraph 170, Seqwater did not take steps to draw down Lake Somerset or Lake Wivenhoe to 95% of their combined Full Supply Level on 24 December 2010 or at any material time thereafter.

172 The Flood Engineers discontinued the releases and Flood Operations by 1:00 pm on 24 December 2010.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 12 & 50.

173 The Flood Engineers demobilised the Flood Operations Centre at or around 3:00 pm on 24 December 2010.

PARTICULARS

A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 12.

174 At or around the time at which the releases were discontinued on 24 December 2010:

- a) Lake Wivenhoe remained above Temporary Full Supply Level and Full Supply Level at approximately EL 67.10 m AHD;
- b) Lake Somerset remained above Temporary Full Supply Level and Full Supply Level at approximately EL 99.10 m AHD;
- c) flood inflows into both Lake Wivenhoe and Lake Somerset were continuing;
- d) rain was continuing to fall in the Lake Somerset and Lake Wivenhoe catchment areas;
- e) the Bureau of Meteorology 1-day rainfall forecast for 24 December 2010 was for continuing rain in the Lake Somerset and Lake Wivenhoe catchment areas;
- f) the Bureau of Meteorology 4-day forecast for 24 December to 27 December 2010 predicted 100 to 150 mm of rainfall in the Brisbane

River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; ~~and~~

- g) the Bureau of Meteorology 8-day forecast for 24 December to 31 December 2010 predicted 150 to 200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- h) a Flood Event (as defined in paragraph 102 above) was occurring.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 74-75.
- B. Lake Wivenhoe water level at 10.00am on 24 December 2010 - EL 67.10 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.
- C. Lake Somerset water level on 24 December 2010 - EL 99.10 m AHD

Seqwater, Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010, May 2011, p 18.
- D. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December 2010.
- E. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 27 December 2010.
- F. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 31 December 201 OT

17-24 December Breaches

174A In the circumstances pleaded in paragraphs 163A-166 and 174, the cessation of Flood Operations and releases on 24 December 2010 created a significant risk:

- a) that there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to store flood inflows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology; and
- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

175 [Not used]

176 Further, by reason of the matters pleaded at paragraphs 174-174A, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam in the period 17 to 24 December 2010:

- a) would have complied with the Flood Mitigation Manual;
- b) would have recommended or continued Flood Operations and releases at Somerset Dam and Wivenhoe Dam on 24 December;
- c) would have implemented and maintained Strategy W3 at Wivenhoe Dam for substantially all of the period 18 to 24 December 2010;
- d) would have implemented and maintained Strategy S2 at Somerset Dam throughout the period 17 to 24 December 2010;
- e) would have caused Somerset Dam and Wivenhoe Dam to release water at rates substantially exceeding the rate of inflow;
- f) would have reduced the water level in Lake Somerset to no higher than:
 - i) approximately EL 95.75 m AHD by the end of 24 December 2010; or, alternatively,

- ii) Temporary Full Supply Level by the end of 24 December 2010;
or, alternatively,
 - iii) Full Supply Level by the end of 24 December 2010;
- g) would have reduced the water level in Lake Wivenhoe to no higher than:
- i) approximately EL 63.93 m AHD by the end of 24 December 2010; or, alternatively,
 - ii) Temporary Full Supply Level by the end of 24 December 2010;
or, alternatively,
 - iii) Full Supply Level by the end of 24 December 2010; and
- h) would have continued Flood Operations until Lake Somerset and Lake Wivenhoe were no longer likely to exceed their respective Temporary Full Supply Levels, or alternatively, their Full Supply Levels.

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraphs 176(b)-(h).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [516]-[644].

177 In the circumstances pleaded at paragraphs 167-176, the Flood Engineers (or one or more of them) failed to do one or more of the things pleaded in paragraph 176.

178 By reason of the matters pleaded in the preceding paragraph, the Flood Engineers, or one or more of them, breached their duty of care to the plaintiff and other Group Members in the period 17-24 December 2010 (the **17-24 December Breaches**).

179 Immediately upon the Flood Engineers, or one or more of them, ceasing Flood Operations on 24 December 2010, the water levels in Lake Wivenhoe and Lake Somerset began to rise.

O Events of 25 December 2010 to 1 January 2011

Weather Forecasts

179A On 24 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 24 December to 27 December 2010 predicted 100-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 24 December to 31 December 2010 predicted 150-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 27 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 24 December to 31 December 2010.

179B On 25 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 25 December to 28 December 2010 predicted 150-250 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 25 December 2010 to 1 January 2011 predicted 200-300 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 25 December to 28 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 25 December 2010 to 1 January 2011.

179C On 26 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 26 December to 29 December 2010 predicted 100-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 26 December 2010 to 2 January 2011 predicted 200-300 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 26 December to 29 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 26 December 2010 to 2 January 2011.

179D On 27 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 27 December to 30 December 2010 predicted 100-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 27 December 2010 to 3 January 2011 predicted 100-200 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 27 December to 30 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 27 December 2010 to 3 January 2011.

179E On 28 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 28 December to 31 December 2010 predicted 25-50 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 28 December 2010 to 4 January 2011 predicted 25-50 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 28 December 2010 to 31 December 2010.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 28 December 2010 to 4 January 2011.

179F On 29 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 29 December 2010 to 1 January 2011 predicted 5-25 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 29 December 2010 to 5 January 2011 predicted 25-50 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 29 December 2010 to 1 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 29 December 2010 to 5 January 2011.

179G On 30 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 30 December 2010 to 2 January 2011 predicted 1-10 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 30 December 2010 to 6 January 2011 predicted 10-15 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 30 December 2010 to 2 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 30 December 2010 to 6 January 2011.

179H On 31 December 2010:

- a) the Bureau of Meteorology 4-day forecast for 31 December 2010 to 2 January 2011 predicted 10-15 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 31 December 2010 to 7 January 2011 predicted 10-15 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 31 December 2010 to 2 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 31 December 2010 to 7 January 2011.

179I On 1 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 1 January to 4 January 2011 predicted 10-25 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 1 January to 8 January 2011 predicted 15-25 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 1 January to 4 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 1 January to 8 January 2011.

Rainfall and Inflows

180 There were further rainfalls over the Lake Somerset and Lake Wivenhoe catchment areas in the period 25 December to 31 December 2010.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 92.

181 In the five-day period from 25 December to 29 December 2010, there was average rainfall of approximately 107 mm over the Lake Somerset catchment and 80 mm average rainfall over the Lake Wivenhoe catchment.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 92.

182 From 25 December 2010 to 2 January 2011, total rainfall averaged 126 mm over the Lake Somerset catchment and 80 mm over the Lake Wivenhoe catchment.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 92.

Water Level

183 In the period 25 December 2010 to 29 December 2010, the water level in Lake Somerset rose from approximately EL 99.10 m AHD to approximately EL 99.98 m AHD.

PARTICULARS

- A. Lake Somerset water level on 24 December 2010 - EL 99.10 m AHD

Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 18.

- B. Lake Somerset water level at 9.20am on 28 December 2010 - EL 100.00 m AHD

Email from damlevels@seqwater.com.au to DG-Ops Dam Levels, DG-Ops duty engineers, DG-ops Dam Levels Central, sent Tuesday, 28 December 2010 at 9.18am; Subject: FW: Somerset Dam.

184 In the period 25 December 2010 to 31 December 2010, the water level in Lake Wivenhoe rose from approximately EL 67.28 m AHD to approximately EL 68.48 m AHD.

PARTICULARS

- A. Lake Wivenhoe water level at 6.30am on 25 December 2010 - EL 67.28 m AHD

Lake Wivenhoe water level at 12 pm on 29 December 2010 - EL 69.33 m AHD

Lake Wivenhoe water level at 3.00am on 31 December 2010 - EL 68.48 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

- B. Lake Wivenhoe water level at 3.00am on 31 December 2010 - EL 69.93 m AHD

Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 100.

Flood Operations

184A At all times between 1:00 pm on 24 December 2010 and 7:00 am on 26 December 2010, a Flood Event (as defined in paragraph 102 above) was occurring.

184B Between 1:00 pm on 24 December 2010 and 7:00 am on 26 December 2010, the person or persons rostered on call as Duty Flood Operations Engineer (as defined in paragraph 99 above) did not mobilise the Flood Operations Centre or commence Flood Operations.

PARTICULARS

- A. The plaintiff is presently unaware of which of the Flood Engineers acted as the Duty Flood Engineer during this period. Further particulars may be provided after discovery.

185 Seqwater and SunWater mobilised the Flood Operations Centre at or around 7:00 am on 26 December 2010.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010, May 2011*, p 13.

186 The Flood Engineers worked the following shifts in the period 26 December 2010 to 2 January 2011:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Sunday 26/12/10 07:00	Sunday 26/12/10 19:00	Mr Ayre
Sunday 26/12/10 19:00	Monday 27/12/10 07:00	Mr Tibaldi
Monday 27/12/10 07:00	Monday 27/12/10 19:00	Mr Malone
Monday 27/12/10 19:00	Tuesday 28/12/10 07:00	Mr Tibaldi
Tuesday 28/12/10 07:00	Tuesday 28/12/10 19:00	Mr Malone
Tuesday 28/12/10 19:00	Wednesday 29/12/10 07:00	Mr Ruffini
Wednesday 29/12/10 07:00	Wednesday 29/12/10 19:00	Mr Malone
Wednesday 29/12/10 19:00	Thursday 30/12/10 07:00	Mr Ayre
Thursday 30/12/10 07:00	Thursday 30/12/10 19:00	Mr Malone
Thursday 30/12/10 19:00	Friday 31/12/10 07:00	Mr Ruffini
Friday 31/12/10 07:00	Friday 31/12/10 19:00	Mr Malone
Friday 31/12/10 19:00	Saturday 01/01/11 07:00	Mr Ruffini
Saturday 01/01/11 07:00	Saturday 01/01/11 19:00	Mr Malone
Saturday 01/01/11 19:00	Sunday 02/01/11 07:00	Mr Ayre
Sunday 02/01/11 07:00	Sunday 02/01/11 9:45	Mr Malone

187 At or around 9:00 am on 26 December 2010:

- a) the water level in Lake Wivenhoe was approximately EL 67.30 m AHD;

- b) the water level in Lake Somerset was approximately EL 99.50 m AHD; and
- c) the Flood Engineers, or one or more of them, commenced releasing water from Somerset Dam and Wivenhoe Dam at flow rates consistent with Strategy W1 at Wivenhoe Dam and Strategy S2 at Somerset Dam.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 100-101, 119, 121.
- B. Lake Wivenhoe water level at 9.00am on 26 December 2010 - EL 67.35 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

- 188 Between 26 December 2010 and 28 December 2010, the Flood Engineers released water from Wivenhoe Dam at rates significantly below the rate of inflow.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 94, 100-101.

- 189 On or about the morning of 28 December 2010, the water level in Lake Wivenhoe exceeded approximately EL 68.5 m AHD, which circumstance required the Flood Engineers to transition to Strategy W2 or W3 at Wivenhoe Dam in accordance with the Flood Mitigation Manual.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 94, 100-101.
- B. Lake Wivenhoe water level at 6.00am on 28 December 2010 - EL 68.53 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

- C. Lake Wivenhoe water level at 7.12am on 28 December 2010 - EL 68.55 m AHD

Seqwater, Technical Situation Report 2, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, Appendix F, p 66.

- D. Flood Mitigation Manual, section 8.4.

190 The Flood Engineers did not transition to Strategy W2 or W3 until the water level in Lake Wivenhoe reached approximately 68.80 m.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 101, 121.

- B. Lake Wivenhoe water level at 12.00 pm on 28 December 2010 - EL 68.80 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

191 The water levels of Lake Wivenhoe and-Lake-Somerset continued to rise until 29 December 2010, eventually reaching a maximum level of approximately EL 69.33 m AHD at Lake Wivenhoe-and-approximately EL-~~99.99~~ m AHD at Lake-Somerset.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, pp 100-101.

- B. Lake Wivenhoe water level at 12.00 1:00 pm on 29 December 2010 – EL 69.33 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

- C. Lake Wivenhoe water level at ~~42~~ 1:00 pm on 29 December 2010
- EL 69.33 m AHD

Seqwater, Technical Situation Report 4, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 69.

- D. ~~[Not used] Lake Somerset water level at 9.20am on 28 December 2010 – EL 100.00 m AHD~~

~~Email from damlevels@seqwater.com.au to DG-Ops-Dam Levels, DG-Ops-duty-engineers, DG-ops-Dam-Levels-Central, sent Tuesday, 28 December 2010 at 9.18am; Subject: FW: Somerset-Dam.~~

25 December - 1 January Breaches

191A By reason of the matters pleaded at paragraphs 179A – 184A, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam in the period 25 December 2010 to 1 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have recommended or continued Flood Operations and releases as soon as possible and, in any event, before 7:00 am on 26 December 2010;
- c) would have implemented and maintained Strategy W2 or Strategy W3 at Wivenhoe Dam for substantially all of the period 25 December 2010 to 1 January 2010;
- d) would have implemented and maintained Strategy S2 at Somerset Dam throughout the period 25 December 2010 to 1 January 2011;

- e) would have kept reduced the water level in Lake Somerset to no higher than:
 - i) approximately EL ~~98.21~~ 98.73 m AHD by the end of 1 January 2011; or, alternatively,
 - ii) Temporary Full Supply Level by the end of 1 January 2011; or, alternatively,
 - iii) Full Supply Level by the end of 1 January 2011;

- f) would have kept the water level in Lake Wivenhoe to no higher than:
 - i) approximately EL ~~63.33~~ 66.28 m AHD by the end of 1 January 2011; or, alternatively,
 - ii) Temporary Full Supply Level by the end of 1 January 2011; or, alternatively,
 - iii) Full Supply Level by the end of 1 January 2011; and

- g) would have continued Flood Operations until Lake Somerset and Lake Wivenhoe were no longer likely to exceed their respective Temporary Full Supply Levels, or alternatively, their Full Supply Levels.

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraphs 191A(b)-(g).

- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.

- C. Christensen Report, Chapter VIII, [645]-[770].

191B In the circumstances pleaded at paragraphs 184A-191A, the Flood Engineers (or one or more of them) failed to do one or more of the things pleaded in paragraph 191 A.

191C By reason of the matters pleaded in the preceding paragraph, the Flood Engineers, or one or more of them, breached their duty of care to the

plaintiff and other Group Members in the period 25 December 2010 to 1 January 2011 (the **25 December- 1 January Breaches**).

P Events of 2 January 2011

Weather Forecasts

192 On 2 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 2 January to 5 January 2011 predicted 2-10 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 2 January to 9 January 2011 predicted 15-25 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 2 January to 5 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 2 January to 9 January 2011.

193 At or around 10:03 am on 2 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of up to 10 mm in the Lake Somerset and Lake Wivenhoe catchment areas over the following 24 hours.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix C, p 160.

194 At or around 4:04 pm on 2 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 5-10 mm in the Lake Somerset and Lake Wivenhoe catchment areas over the following 24 hours.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix C, p 161.

195 The weather forecasts issued on 2 January 2011 predicted rain in such quantities over the coming days that there was a significant risk that there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to prevent urban flooding downstream of Wivenhoe Dam unless releases were continued at both Somerset Dam and Wivenhoe Dam on 2 January 2011.

Rainfall and Inflows

196 The substantial rainfall over the catchment areas of Lake Somerset and Lake Wivenhoe in December 2010 caused those areas to become saturated with the effect that, by 2 January 2011 at the latest, there was an increased likelihood that further rainfall would result in runoff into Lake Somerset and Lake Wivenhoe rather than be absorbed into the ground.

197 In the 24 hours to 9:00 am on 2 January 2011, there was widespread rainfall throughout the catchment areas for Lake Somerset and Lake Wivenhoe, with up to 50 mm recorded at the headwaters of the Stanley River.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 88.
- B. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.

198 This rainfall, and the associated runoff, resulted in ongoing catchment inflows into Lake Somerset and Lake Wivenhoe on 2 January 2011.

PARTICULARS

- A. Queensland Floods Commission of Inquiry, Exhibit 1054, Gate Operations Spreadsheet, File name: SDWD-201101090900 (2).xls.
- B. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.

199 The rainfall and inflows into Lake Somerset and Lake Wivenhoe on 2 January 2011 increased the risk that, absent ongoing releases from Somerset Dam and Wivenhoe Dam, there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to prevent urban flooding downstream of Wivenhoe Dam should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology.

200 Further, as at 2 January 2011:

- a) the Brisbane River Basin, including the catchment areas for Lake Somerset and Lake Wivenhoe, had experienced six months of significantly above average rainfall;
- b) the Brisbane River Basin, including the catchment areas for Lake Somerset and Lake Wivenhoe, had experienced three months of significantly above average rainfall; and
- c) the Brisbane River Basin, including the catchment areas of Lake Somerset and Lake Wivenhoe, had experienced the wettest December on record, with rainfall 200% to 400% above average.

201 The cumulative effect of the rainfall in the Brisbane River Basin over the three months preceding 2 January 2011 made it likely that any further rain on or after 2 January 2011 would have a significant runoff response and result in substantial inflows into Lake Somerset and Lake Wivenhoe.

202 On 2 January 2011, the Flood Engineers knew that the Lake Somerset and Lake Wivenhoe catchments were saturated, and that further rainfall was

likely to generate additional runoff and inflows into Lake Somerset and Lake Wivenhoe.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.
- B. Further particulars may be provided after discovery.

Water Level

203 At or around 9:37 am on 2 January 2011:

- a) the water level of Lake Somerset was approximately EL 99.10 m AHD (0.10 m above Full Supply Level) and rising; and
- b) the water level at Lake Wivenhoe was approximately EL 67.10 m AHD (0.10 m above Full Supply Level) and rising.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.
- B. Lake Wivenhoe water level at 9.00am on 2 January 2011 - EL 67.10 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.
- C. Lake Somerset water level at 9.00am on 2 January 2011 - EL 99.11 m AHD

Seqwater, Spreadsheet containing Lake Somerset water levels between 31 December 2010 and 2 January 2011. File name: Somerset I-O V RTI.

204 Lake Wivenhoe and Lake Somerset continued to rise over the course of 2 January 2011.

Flood Operations

205 The Flood Engineers on duty on 2 January 2011 were as follows:

Shift Start Time	Shift finish Time	Flood Operations Engineer
Saturday 1/1/2011 19 00	Sunday 2/1/2011 07:00	Mr Ayre
Sunday 2/1/2011 07.00	Sunday 2/1/2011 09 45	Mr Malone

206 At or before 9:45 am on 2 January 2011, the Flood Engineers (or one or more of them) discontinued releases and ended Flood Operations.

PARTICULARS

- A. Seqwater, *Report on the Operation of Somerset and Wivenhoe Dam - October to December 2010*, May 2011, p 13.
- B. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.
- C. Further particulars may be provided after discovery.

207 At the time releases and Flood Operations were discontinued on 2 January 2011.

- a) Lake Wivenhoe and Lake Somerset were each above their respective Full Supply Levels, and
- b) a Flood Event (as defined in paragraph 102 above) was occurring.

208 Immediately upon the cessation of Flood Operations on 2 January 2011, the water levels in Lake Wivenhoe and Lake Somerset began to rise.

2 January 2011 Breaches

209 In the circumstances pleaded in paragraphs 192-204, the cessation of releases and Flood Operations on 2 January 2011 created a significant risk:

- a) that there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to store inflows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology; and
- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

210 [Not used]

211 Further, by reason of the matters pleaded at paragraphs 192-204 and 209, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 2 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have recommended or continued Flood Operations and releases at Somerset Dam and Wivenhoe Dam after 9:45 am on 2 January 2011;
- c) would have implemented Strategy W1 at Wivenhoe Dam;
- d) would have implemented Strategy S2 at Somerset Dam;
- e) would have caused Somerset Dam and Wivenhoe Dam to release water at rates substantially exceeding the rate of inflow;
- f) [Not used] would have reduced the water level in Lake Somerset to no higher than:
 - i) approximately EL 98.22 m AHD by the end of 2 January 2011; or, alternatively,
 - ii) approximately EL 98.65 m AHD by the end of 2 January 2011; or, alternatively,

- iii) Temporary Fully-Supply Level by the end of 2-January-2014; or, alternatively;
 - iv) Full-Supply-Level-by-the-end-of-2-January-2014;
- g) [Not used] would have reduced the water level in Lake Wivenhoe to no-higher-than:
- i) approximately EL ~~66.16~~ m-AHD-by-the-end-of-2-January-2014; or, alternatively;
 - ii) approximately EL ~~66.55~~ m-AHD-by-the-end-of-2-January-2014; or, alternatively;
 - iii) Temporary Fully-Supply Level by the end of 2-January-2014; or, alternatively;
 - iv) Full-Supply-Level-by-the-end-of-2-January-2014; and
- h) would have continued Flood Operations until Lake Somerset and Lake Wivenhoe were no longer likely to exceed their respective Temporary Full Supply Levels, or alternatively, Full Supply Levels; and
- i) would have selected and input losses and continuing loss rates equal, or approximate, to those specified in the table below into the Real Time Flood Model to forecast future inflows into Lake Somerset and Lake Wivenhoe to take account of the increased runoff that would be generated from continuing rainfall by reason of the increasingly saturated catchments;

<u>Region</u>	<u>Initial Losses</u>	<u>Continuing Loss Rates</u>
<u>CRE (Cressbrook Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>COO (Cooyar Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>LIN (Brisbane River at Linville Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>EMU (Emu Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>GRE (Gregors Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>

<u>Region</u>	<u>Initial Losses</u>	<u>Continuing Loss Miles Mi</u>
<u>SDI (Somerset Dam Inflow Region)</u>	<u>1.0 mm</u>	<u>0.05 mm/hr</u>
<u>WDI (Wivenhoe Dam Inflow Region)</u>	<u>1.0 mm</u>	<u>0.05 mm/hr</u>

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraphs 211(b)-(h).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [771]-[797].
- D. Christensen Report, Chapter X, [1194]-[1214].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [157]-[161].

211A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182 and 192-201, had the Flood Engineers commenced reasonably prudent Flood Operations at Somerset Dam and Wivenhoe Dam at any time on or after 16 December 2010 and continued such Flood Operations until 2 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 2 January 2011:

- a) that, unless releases were continued at Somerset Dam and Wivenhoe Dam, there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology; and
- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

211B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201 and 211A. by the end of 2 January 2011. a reasonably prudent flood engineer:

- a) having first commenced reasonably prudent Flood Operations on 16 December 2010 (by taking the actions pleaded in paragraph 160 above), and having continued reasonably prudent Flood Operations since that time, would have reduced the water level in Lake Somerset to no higher than approximately EL 98.21 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 66.15 m AHD; or, alternatively,
- b) having first commenced reasonably prudent Flood Operations on 2 January 2011 (by taking the actions pleaded in paragraph 211 above), would have reduced the water level in Lake Somerset to no higher than approximately EL 98.66 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 66.55 m AHD; or, alternatively,
- c) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Temporary Full Supply Levels; or, alternatively,
- d) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Full Supply Levels.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- B. Christensen Report. Chapter VIII. [771]-[797].
- C. Christensen Report. Volume 2, pp 158-159.
- D. Christensen Supplemental Report, Chapter VI, [157] - [161].
- E. Christensen Supplemental Report, Volume 2. pp 45-46.
- F. Christensen Report. Chapter X. [1194]-[1214].

212 In the circumstances pleaded at paragraphs 205-211B, on ~~2~~ January 2011, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things pleaded in paragraph 211 on 2 January 2011; and, or alternatively,
- b) failed, by the end of 2 January 2011, to reduce the water levels in Lake Somerset and Lake Wivenhoe to levels no higher than the respective water levels pleaded in paragraph 211B.

213 By reason of the matters pleaded in the preceding paragraph, the Flood Engineers, or one or more of them, breached their duty of care to the plaintiff and other Group Members on 2 January 2011 (the **2 January Breaches**).

Q Events of 3 January to 5 January 2011

Weather Forecasts

214 On 3 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 3 January to 6 January 2011 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 3 January to 10 January 2011 predicted 75-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 3 January to 6 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 3 January to 10 January 2011.

215 On 4 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 4 January to 7 January 2011 predicted 75-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 4 January to 11 January 2011 predicted 90-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 4 January to 7 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 4 January to 11 January 2011.

216 On 5 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 5 January to 8 January 2011 predicted 50-100 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas; and
- b) the Bureau of Meteorology 8-day forecast for 5 January to 12 January 2011 predicted 100-150 mm of rainfall in the Brisbane River Basin, including in the Lake Somerset and Lake Wivenhoe catchment areas.

PARTICULARS

- A. Bureau of Meteorology, Poor Man's Ensemble forecast for period 5 January to 8 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 5 January to 12 January 2011.

217 In the period 3 January to 5 January 2011, the Bureau of Meteorology issued QPFs predicting rainfall in the Lake Somerset and Lake Wivenhoe catchment areas as set out in the table below:

QPF Date	QPF Time	QPF Average Forecast Rainfall for Following 24 Hours
3 January 2011	11:36 am	5-10 mm
3 January 2011	16:00 pm	10-20 mm
4 January 2011	11.30 am	10-20 mm
4 January 2011	4:00 pm	5-15 mm
5 January 2011	10:03 am	20-30 mm
5 January 2011	4:00 pm	30-50 mm

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix C, pp 162-167.

Rainfall and Inflows

218 Between 3 January and 5 January 2011, approximate actual average rainfall in the Lake Somerset and Lake Wivenhoe catchment areas was as set out in the table below:

Period	Catchment Rainfall
9am on 3 January 2011 - 9am on 4 January 2011	5 mm
9am on 4 January 2011 - 9am on 5 January 2011	0 mm
9am on 5 January 2011 - 9am on 6 January 2011	26 mm

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.2, p 56 and Appendix C, p 159.

219 This rainfall, and the associated runoff, resulted in ongoing catchment inflows into Lake Somerset and Lake Wivenhoe in the period 3 January to 5 January 2011.

PARTICULARS

A. Christensen Report, [798]-[800], [821]-[822], [837]-[838].

Water Level

220 Between the end of Flood Operations on 2 January 2011 and the morning of 6 January 2011:

- a) the water level of Lake Somerset increased from approximately EL 99.10 m AHD to approximately EL 99.34 m AHD; and
- b) the water level of Lake Wivenhoe increased from approximately EL 67.10 m AHD to approximately EL 67.31 m AHD.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p1.

B. Lake Somerset water level at 7.30am on 2 January 2011 - EL 99.10 m AHD

Seqwater, Technical Situation Report 6, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 73.

C. Lake Wivenhoe water level at 9.00am on 2 January 2011 - EL 67.10 m AHD

Lake Wivenhoe water level at 6.30am on 6 January 2011 - EL 67.31 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

221 At all times between 2 January 2011 and 6 January 2011:

- a) the water levels in Lake Somerset and Lake Wivenhoe exceeded their respective Full Supply Levels; and
- b) a "Flood Event" (as defined in paragraph 102 above) was occurring.

222 On-or-about At some time between 6.30am on 5 January 2011 and 6.30am on 6 January 2011, the water level in Lake Wivenhoe exceeded EL 67.25 m AHD.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p1.

B. Lake Wivenhoe water level at 6.30am on 5 January 2011 - EL 67.23 m AHD

Lake Wivenhoe water level at 6.30am on 6 January 2011 - EL 67.31 m AHD

Seqwater, Spreadsheet containing Lake Wivenhoe water levels between 1 December 2010 and 31 January 2011, Doc identification number: MAU.500.020.0027.

223 By reason of the matters pleaded in the preceding paragraph, by ~~5~~6 January 2011 at the latest, the Flood Mitigation Manual required releases to continue or commence at Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, sections 8.3, 8.4.

Flood Operations

224 The Flood Engineers did not continue or commence Flood Operations or releases in the period 2 January to 5 January 2011.

224A Between 3 January 2011 and 5 January 2011, the person or persons rostered on call as Duty Flood Operations Engineer (as defined in paragraph 99 above) did not mobilise the Flood Operations Centre or commence Flood Operations.

PARTICULARS

A. The plaintiff is presently unaware of which of the Flood Engineers acted as the Duty Flood Engineer during this period. Further particulars may be provided after discovery.

225 The failure by the Flood Engineers to continue or commence Flood Operations and releases in the period 3 January to 5 January 2011 contravened the Flood Mitigation Manual.

PARTICULARS

A. Flood Mitigation Manual, sections 8.3, 8.4.

3-5 January 2011 Breaches

226 In the circumstances pleaded in paragraphs 214-223, in the period 3 January to 5 January 2011, there was a significant risk:

- a) that, unless releases were immediately commenced at Somerset Dam and Wivenhoe Dam, there would be insufficient flood storage capacity in Lake Somerset and Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology; and
- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

227 [Not used]

228 Further, by reason of the matters pleaded at paragraphs 214-223 and 226, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam in the period 3 January to 5 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have:
 - i) continued Flood Operations and releases at Somerset Dam and Wivenhoe Dam throughout the period 3-5 January 2011; or, alternatively,
 - ii) recommenced Flood Operations and releases at Somerset Dam and Wivenhoe Dam in the period 3-5 January 2011;
- c) would have implemented and maintained Strategy W3 at Wivenhoe Dam throughout the period 3-5 January 2011;
- d) would have implemented and maintained Strategy S2 at Somerset Dam throughout the period 3-5 January 2011;
- e) would have caused Somerset Dam and Wivenhoe Dam to release water at rates substantially exceeding the rate of inflow;
- f) [Not used] would have reduced the water level in Lake Somerset to no higher than:
 - i) approximately ~~EL 96.20 m~~ AHD by the end of 5 January 2011; or, alternatively,
 - ii) approximately ~~EL 98.58 m~~ AHD by the end of 5 January 2011; or, alternatively,
 - iii) ~~Temporary Fully Supply Level~~ by the end of 5 January 2011; or, alternatively,
 - iv) ~~Full Supply Level~~ by the end of 5 January 2011;
- g) [Not used] would have reduced the water level in Lake Wivenhoe to no higher than:
 - i) approximately ~~EL 64.23 m~~ AHD by the end of 5 January 2011; or, alternatively,
 - ii) approximately ~~EL 66.56~~ AHD by the end of 5 January 2011; or, alternatively,

- iii) Temporary Fully Supply Level by the end of 5 January 2011; or, alternatively;
- iv) Full Supply Level by the end of 5 January 2011; and
- h) would have continued Flood Operations until Lake Somerset and Lake Wivenhoe were no longer likely to exceed their respective Temporary Full Supply Levels, or alternatively, their Full Supply Levels; and
- i) would have selected and input losses and continuing loss rates equal, or approximate, to those specified in the table below into the Real Time Flood Model to forecast future inflows into Lake Somerset and Lake Wivenhoe to take account of the increased runoff that would be generated from continuing rainfall by reason of the increasingly saturated catchments:

<u>Region</u>	<u>Initial Losses</u>	<u>Continuing Loss Rates</u>
<u>CRE (Cressbrook Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>COO (Cooyar Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>LIN (Brisbane River at Linville Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>EMU (Emu Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>GRE (Gregors Creek Region)</u>	<u>2.1 mm</u>	<u>0.1 mm/hr</u>
<u>SDI (Somerset Dam Inflow Region)</u>	<u>1.0 mm</u>	<u>0.05 mm/hr</u>
<u>WDI (Wivenhoe Dam Inflow Region)</u>	<u>1.0 mm</u>	<u>0.05 mm/hr</u>

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraph 228(b)-(h). (i).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.