

THIRD FURTHER AMENDED STATEMENT OF CLAIM

(Filed pursuant to an order made by Beech-Jones J in the case management conference on 12 February 2016)

COURT DETAILS

Court	Supreme Court of New South Wales
Division	Common Law
Registry	Sydney
Case number	

TITLE OF PROCEEDINGS

Plaintiff	Rodriguez & Sons Pty Ltd (ACN 108 770 681)
First defendant	Queensland Bulk Water Supply Authority trading as Seqwater
Number of defendants	3

FILING DETAILS

Filed for	Rodriguez & Sons Pty Ltd, the plaintiff
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TYPE OF CLAIM

Tort – Negligence – Nuisance

RELIEF CLAIMED

- 1 Damages.
- 2 Interest in accordance with s 100 of the *Civil Procedure Act 2005* (NSW).
- 3 Costs.

PLEADINGS AND PARTICULARS

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A The Plaintiff

- 1 At all material times, the plaintiff, Rodriguez & Sons Pty Ltd (ACN 108 770 681):
- a) was a duly incorporated company according to law and capable of suing;
 - b) conducted or sought to conduct the business of operating a retail sports goods and clothing shop; and
 - c) held a lease over a shopfront in a shopping centre located at 180 Fairfield Road, Fairfield, shop 9 on lot 5 on plan RP 212124, Parish of Yeerongpilly, County of Stanley in the State of Queensland, from which it conducted or sought to conduct that business.

B The Defendants

- 2 At all material times, the first defendant, the Queensland Bulk Water Supply Authority trading as Seqwater (**Seqwater**):
- a) was an entity established under s 6 of the *South East Queensland Water (Restructuring) Act 2007* (Qld) (the **Restructuring Act**);
 - b) was not a body corporate;
 - c) did not represent the State of Queensland; and
 - d) was capable of being sued.
- 3 At all material times, the second defendant, SunWater Limited (ACN 131 034 985) (**SunWater**):
- a) was a government owned corporation within the meaning of s 5 of the *Government Owned Corporations Act 1993* (Qld);
 - b) was a registered public company limited by shares;
 - c) did not represent the State of Queensland; and

d) was capable of being sued.

- 4 At all material times, the third defendant, the State of Queensland was capable of being sued in accordance with s 8 of the *Crown Proceedings Act 1980* (Qld).

C January 2011 Queensland Flood

- 5 In January 2011, the Brisbane River and Bremer River (and their tributaries) flooded causing substantial inundation to areas located downstream of Wivenhoe Dam in the period 9 January 2011 to 24 January 2011.

PARTICULARS

- A. The areas located downstream of Wivenhoe Dam that were substantially inundated in the period 9 January 2011 to 24 January 2011 are indicated by the January 2011 Interim Flood Line Map created by Department of Environment and Resource Management with input from Brisbane City Council (on file with the Plaintiff's solicitors).

D Group Members and Common Questions

- 6 The Group Members for purposes of this proceeding are, subject to paragraph 7 below, all persons who:
- a) held an interest in land (whether in the nature of freehold title, lease or otherwise) and:
- i) who suffered loss or damage (whenever occurring) by reason of the inundation of that land by flood water from the Brisbane River or Bremer River (and their tributaries) in the period 9 January 2011 to 24 January 2011; and, or alternatively,
- ii) whose use or enjoyment of that interest was interfered with by reason of the inundation of that land, ~~or of other land located downstream of Wivenhoe Dam,~~ by flood water from the Brisbane River or Bremer River (and their tributaries) in the

period 9 January 2011 to 24 January 2011 such that they suffered loss or damage; or

- b) owned personal property in the period 9 January 2011 to 24 January 2011 which was damaged or destroyed by reason of the inundation of land on which that property was located by flood water from the Brisbane River or Bremer River (and their tributaries) in the period 9 January 2011 to 24 January 2011; or
- c) ~~[Not Used] regularly conducted a business or enterprise, in whole or in part, at one or more locations located downstream of Wivenhoe Dam and who suffered economic loss by reason of the inundation by flood water from the Brisbane River or Bremer River (and their tributaries) of areas located downstream of Wivenhoe Dam in the period 9 January 2011 to 24 January 2011;~~

AND

- d) either:
 - i) entered into a litigation funding agreement with Bentham IMF Limited ABN 45 067 298 088 (now known as IMF Bentham Limited):
 - (1) as at the date of the commencement of this proceeding; or
 - (2) after the commencement of this proceeding, but on or before the date of filing the Third Amended Statement of Claim on 11 March 2016 ~~20 February 2015~~;in respect of any claim for loss or damage (excluding any claim for personal injury) arising out of the factual matters pleaded in this ~~Further~~ Third Amended Statement of Claim; or
 - ii) have been indemnified by an insurer in respect of any loss or damage (excluding any claim for personal injury) that those persons have suffered arising out of the factual matters pleaded in this ~~Further~~ Third Amended Statement of Claim, where that insurer has entered into a litigation funding agreement with Bentham IMF Limited ABN 45 067 298 088:

- (1) [Not used]
- (2) as at the date of the commencement of this proceeding;
or
- (3) after the commencement of this proceeding, but on or
before the date of filing the Third Amended Statement of
Claim on 11 March 2016 ~~20 February 2015~~;

~~in respect of that loss or damage.~~

- 7 The following persons are not Group Members for purposes of this proceeding:
 - a) the Commonwealth, or any agency or instrumentality thereof;
 - b) the States or Territories, or any agency or instrumentality thereof;
 - c) a Minister of the Commonwealth, a State or Territories; or
 - d) any judicial officer of the Commonwealth, a State or Territories.
- 8 The claims advanced by the plaintiff, on its own behalf, and on behalf of Group Members, in this proceeding:
 - a) are limited to claims for damage to real property, damage to personal property, economic loss, and interference with the use or enjoyment of interests in land resulting in loss (including economic loss) or damage; and
 - b) do not include any claims for loss or damage for, or arising out of, any personal injury or pure economic loss.
- 9 As of the date of the commencement of this proceeding, there are seven or more persons who are Group Members having claims against each defendant as pleaded in this ~~Further~~ Third Amended Statement of Claim.
- 10 The questions of law or fact common to the claims of Group Members in this proceeding are:
 - a) whether, at all material times, Seqwater had authority to operate Somerset Dam and Wivenhoe Dam, including for flood mitigation;

- b) whether Seqwater was authorised or permitted to delegate its rights, powers and obligations to operate Somerset Dam and Wivenhoe Dam under the Seqwater ROL (as defined in paragraph 62 below) to any other person;
- c) whether, at all material times, SunWater had practical control of Somerset Dam and Wivenhoe Dam for conducting Flood Operations (as defined in paragraph 55 below);
- d) whether Seqwater, SunWater and, or alternatively, their employees and agents were required to adhere to the terms of the Flood Mitigation Manual (as defined in paragraph A of the particulars to paragraph 22 below) in conducting Flood Operations at Somerset Dam and Wivenhoe Dam;
- e) whether Seqwater owed the plaintiff and other Group Members the duty of care pleaded in paragraph 144 below;
- f) whether Seqwater owed the plaintiff and other Group Members the duty of care pleaded at paragraphs 145 to 146 below;
- g) whether SunWater owed the plaintiff and other Group Members the duty of care pleaded in paragraph 148 below;
- h) whether each of the Flood Engineers (as defined in paragraph 101 below) owed the plaintiff and other Group Members the duty of care pleaded in paragraph 150;
- i) whether the omissions by the Flood Engineers (or one or more of them) pleaded in paragraphs 212, 229, 246, 268, 289, and 308 occurred;
- j) whether the 16 December Breaches (as defined in paragraph 162 below) occurred;
- k) whether the 17-24 December Breaches (as defined in paragraph 178 below) occurred;
- l) whether the 25 December – 1 January Breaches (as defined in paragraph 191C below) occurred;

- m) whether the 2 January Breaches (as defined in paragraph 213 below) occurred;
- n) whether the 3-5 January Breaches (as defined in paragraph 230 below) occurred;
- o) whether the 6 January Breaches (as defined in paragraph 247 below) occurred;
- p) whether the 7 January Breaches (as defined in paragraph 269 below) occurred;
- q) whether the 8 January Breaches (as defined in paragraph 290 below) occurred;
- r) whether the 9 January Breaches (as defined in paragraph 309 below) occurred;
- s) whether the 10-11 January Breaches (as defined in paragraph 341 below) occurred;
- t) whether, if one or more of the Flood Engineers' Breaches (as defined in paragraph 343 below) occurred, those breaches caused there to be insufficient available capacity in Lake Somerset and Lake Wivenhoe in the period from the evening of 9 January 2011 to 11 January 2011 to store incoming inflows, or otherwise to mitigate effectively the effect of such inflows;
- u) whether, if one or more of the Flood Engineers' Breaches occurred, those breaches caused greater inundation of land downstream of Wivenhoe Dam by flood water than would have otherwise occurred;
- v) the extent to which one or more of the Flood Engineers' Breaches caused greater inundation of land downstream of Wivenhoe Dam by flood water than would have otherwise occurred;
- w) whether the Flood Engineers' Breaches caused greater loss or damage downstream to the plaintiff and Group Members than would have otherwise occurred;

- x) whether, if one or more of the Flood Engineers' Breaches occurred, Seqwater breached Seqwater's Duty of Care as Owner and Occupier (as defined in paragraph 144 below) or Seqwater's Duty as Licensee (as defined in paragraph 145 below);
- y) whether, if one or more of the Flood Engineers' Breaches occurred, SunWater breached SunWater's Duty of Care (as defined in paragraph 148 below);
- z) whether, at all material times in December 2010 and January 2011, the Risk of Interference with Use and Enjoyment (as defined in paragraph 142A below) was reasonably foreseeable by Seqwater or, alternatively, the Flood Engineers;
- aa) whether the release of water from Wivenhoe Dam in the period 9 January 2011 to 19 January 2011 substantially and unreasonably interfered with the use and enjoyment of the interests in land held by Subgroup Members (as defined in paragraph 354 below);
- bb) whether the release of water from Wivenhoe Dam onto land in which Subgroup Members held an interest in the period 9 January 2011 to 19 January 2011, ~~or onto other land located downstream of Wivenhoe Dam,~~ constituted a private nuisance by Seqwater, SunWater and, or alternatively, the Flood Engineers (or one or more of them);
- cc) whether the release of water from Wivenhoe Dam onto land in which Subgroup Members held an interest in the period 9 January 2011 to 19 January 2011, ~~or onto other land located downstream of Wivenhoe Dam,~~ constituted a trespass by Seqwater, SunWater and, or alternatively, the Flood Engineers (or one or more of them);
- dd) whether, if one or more of Flood Engineers' Breaches occurred, Seqwater, SunWater and, or alternatively, the State of Queensland, are vicariously liable for those breaches;
- ee) whether, if the Flood Engineers or one or more of them committed a private nuisance or trespass as alleged in paragraphs 359 and 362, Seqwater, SunWater and, or alternatively, the State of Queensland, are vicariously liable for that nuisance or trespass; and

- ff) whether, and to what extent, the State of Queensland is liable for the conduct of Seqwater, SunWater and, or alternatively, the Flood Engineers, by operation of s 374 of the *Water Supply (Safety and Reliability Act 2008* (Qld) (**Water Supply Act**) (as it then stood).

E Somerset Dam

- 11 The Stanley River in Queensland is dammed by Somerset Dam, a concrete gravity dam situated partly on lot 35 on plan CG2149, Parish of Bowman, County of Canning, in the Region of Somerset.
- 12 Somerset Dam forms Lake Somerset upstream of the dam. In this pleading, “**Lake Somerset**” is used to refer to the reservoir or ponded area of Somerset Dam.
- 13 Water released from Somerset Dam flows south along the Stanley River until it merges with the Brisbane River north of Lake Wivenhoe.
- 14 Somerset Dam is designed for both water supply and flood mitigation purposes.
- 15 Somerset Dam was also designed for hydroelectric power generation and the infrastructure at Somerset Dam includes a hydroelectric power station (however, at all material times, the hydroelectric power station at Somerset Dam was not in operation).
- 16 Of the total capacity of Lake Somerset, a portion is dedicated to water supply (the **drinking water storage compartment**) and a portion is dedicated to flood mitigation (the **flood storage compartment**). There is no discrete storage dedicated to hydropower.
- 17 At all material times, water could be released from Somerset Dam by means of 8 radial gates, 8 sluice gates and 4 cone dispersion type regulator valves.
- 18 The radial gates, sluice gates and regulator valves can be operated in a variety of ways to alter the volume of water discharged from Somerset Dam at any given time.

- 19 The characteristics and capabilities of Somerset Dam enable the dam operator to engage in active flood mitigation by controlling the amount of outflow from the dam.
- 20 At all material times, the Full Supply Level of Somerset Dam was elevation level (EL) 99.0 metres Australian Height Datum (**AHD**). In this pleading, the “**Full Supply Level**” of a dam is the level of the water surface in the ponded area of a dam when the drinking water storage compartment is full and not affected by flood.

PARTICULARS

- A. Water Supply Act, Schedule 3.
- B. *Water Act 2000* (Qld) (the **Water Act**), Schedule 4.
- C. At all material times, the Full Supply Level of Somerset Dam was set by s 72 and Attachment 5 of the *Moreton Resource Operations Plan*, December 2009 (the **Moreton ROP**).
- 21 At all material times, the Full Supply Volume of Somerset Dam was 379,850 megalitres. In this pleading, “**Full Supply Volume**” refers to the volume of water within the ponded area of a dam which corresponds to the Full Supply Level.

PARTICULARS

- A. At all material times, the Full Supply Volume of Somerset Dam was set by s 72 and Attachment 5 of the Moreton ROP.
- 22 At all material times, the capacity of the flood storage compartment of Lake Somerset was approximately 524,000 megalitres.

PARTICULARS

- A. Seqwater, *Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam*, November 2009, Appendix D (the **Flood Mitigation Manual**).
- B. The flood storage compartment is the reservoir capacity that, in effect, sits above the drinking water storage compartment. The

base of the flood storage compartment is the dam's Full Supply Level.

- 23 At all material times, the elevation of the spillway crest of Somerset Dam was EL 100.45 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, Appendix I.

- 24 At all material times, the elevation of the top of the closed radial gates at Somerset Dam was approximately EL 107.46 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, Appendix I.

- 25 At all material times, the elevation of the top of the deck of Somerset Dam was approximately EL 112.34 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, Appendix I.

- 26 Somerset Dam is designed to withstand limited overtopping over the top of the radial gates (but not over the top deck of the dam).

- 27 At all material times, Somerset Dam had a predicted failure level of EL 109.7 m AHD, being the elevation at which it was predicted that water in Lake Somerset would cause the dam to breach and result in an uncontrolled and catastrophic release of water downstream.

PARTICULARS

- A. Flood Mitigation Manual, section 9.3.

F Wivenhoe Dam

- 28 The Brisbane River in Queensland is dammed by Wivenhoe Dam, being a zoned earth fill and rock fill saddle dam at Wivenhoe, locality of Fernvale, situated partly on lot 242 on plan SL12236, Parish of Wivenhoe, County of Cavendish, in the Region of Somerset.

- 29 Wivenhoe Dam forms Lake Wivenhoe immediately upstream of the dam. In this pleading, "**Lake Wivenhoe**" is used to refer to the reservoir or ponded area of Wivenhoe Dam.
- 30 Water flowing into Lake Wivenhoe and through Wivenhoe Dam includes water released through Somerset Dam into the Stanley River immediately upstream of Lake Wivenhoe. When Lake Wivenhoe is at or above Full Supply Level, water in Lake Wivenhoe abuts the face of Somerset Dam.
- 31 In addition to water flowing into Lake Wivenhoe from the Stanley River, Lake Wivenhoe is fed by the Brisbane River and other smaller watercourses adjacent to Lake Wivenhoe.
- 32 Water is also released into Lake Wivenhoe from Splityard Creek Dam, which is an earth and rock fill dam located on the eastern side of Lake Wivenhoe.
- 33 At all material times, Splityard Creek Dam was owned and operated by Tarong Energy Corporation (**Tarong Energy**).
- 34 Splityard Creek Dam is designed for hydroelectric power generation and primarily operates by pumping water from Lake Wivenhoe to a reservoir upstream of Splityard Creek Dam and generating electricity by releasing that water back into Lake Wivenhoe.
- 35 In addition to water deliberately pumped from Lake Wivenhoe, water flows into the reservoir upstream of Splityard Creek Dam from a catchment area of approximately 3.6 km².
- 36 The reservoir upstream of Splityard Creek Dam has a capacity of approximately 28,700 megalitres, and Splityard Creek Dam is capable of releasing water into Lake Wivenhoe at a rate of up to 420 m³/s.
- 37 Water released from Lake Wivenhoe through Wivenhoe Dam flows into the Brisbane River, which then passes near the towns of Lowood and Fernvale, and the suburb of Moggill (among others), before passing through the urban areas of Ipswich and Brisbane and into Moreton Bay.

- 38 Lockyer Creek meets the Brisbane River downstream of Wivenhoe Dam and upstream of Lowood.
- 39 The Bremer River meets the Brisbane River downstream of the intersection between the Lockyer Creek and the Brisbane River, near Moggill.
- 40 Other smaller watercourses also enter the Brisbane River below Wivenhoe Dam.
- 41 Generally, and during times of flood, the extent of flooding in the urban areas downstream of Wivenhoe Dam (including Brisbane and Ipswich) will be a function of the amount of water:
- a) released from Wivenhoe Dam (which itself will be a function of, among other things, the amount of water flowing into Lake Wivenhoe through Somerset Dam, through Splityard Creek Dam, from the Brisbane River and other watercourses upstream of Wivenhoe Dam, and as a result of rainfall over Lake Wivenhoe);
 - b) the inflows into the Brisbane River from Lockyer Creek, the Bremer River and smaller tributaries downstream of Wivenhoe Dam;
 - c) rainfall over the Brisbane River catchment areas downstream of Wivenhoe Dam; and
 - d) catchment runoff into the Brisbane River downstream of Wivenhoe Dam.
- 42 Flood travel time from Wivenhoe Dam to Brisbane City is approximately 30 hours, but may be less as a result of faster moving flows (including flows caused by large volume releases from Wivenhoe Dam).

PARTICULARS

- A. Bureau of Meteorology, Report to Queensland Floods Commission of Inquiry, March 2011, [240].
- 43 Wivenhoe Dam is designed for both water supply and flood mitigation purposes, and Lake Wivenhoe is divided into a drinking water storage compartment and a flood storage compartment.

- 44 Wivenhoe Dam was also designed for hydroelectric power generation and the infrastructure at Wivenhoe Dam includes a hydroelectric power station.
- 45 At all material times, water could be released from Wivenhoe Dam by means of:
- a) a primary spillway with 5 radial gates and two regulator valves (one of which is connected to the hydroelectric power station at Wivenhoe Dam) (the **Primary Spillway**); and
 - b) an auxiliary spillway fitted with 3 erodible fuse plugs (the **Auxiliary Spillway**).

PARTICULARS

A. Flood Mitigation Manual, section 8.2.

- 46 The Primary Spillway and the Auxiliary Spillway are concrete facilities embedded within a portion of the earthen embankment of Wivenhoe Dam.
- 47 The radial gates and regulator valves on the Primary Spillway at Wivenhoe Dam can be operated in a variety of ways to alter the volume of water discharged from Wivenhoe Dam at any given time.
- 48 The characteristics and capabilities of the Primary Spillway at Wivenhoe Dam enable the dam operator to engage in active flood mitigation by controlling the amount of outflow from the Primary Spillway, subject to the dam operator's preparedness to do so.
- 49 Wivenhoe Dam is not designed to be overtopped, and overtopping at Wivenhoe Dam would carry with it a risk of rapid erosion of the earthen embankment of the dam, dam breach and failure, with a consequent catastrophic uncontrolled release from Lake Wivenhoe.
- 50 The erodible fuse plugs in the Auxiliary Spillway are designed so that, before Wivenhoe Dam overtops, the fuse plugs will erode, which would result in uncontrolled releases from Lake Wivenhoe (albeit of smaller volume than if Wivenhoe Dam breached and failed).

51 Other than by preventing Wivenhoe Dam from overtopping, the Auxiliary Spillway cannot be used for flood mitigation.

52 At all material times:

- a) the Full Supply Level of Wivenhoe Dam was EL 67.0 m AHD; and
- b) the Full Supply Volume of Wivenhoe Dam was 1,165,200 megalitres.

PARTICULARS

A. At all material times, the Full Supply Level of Wivenhoe Dam was set by s 72 and Attachment 5 of the Moreton ROP.

53 At all material times:

- a) the flood storage compartment of Lake Wivenhoe had a capacity of approximately 1,420,000 megalitres;
- b) the elevation of the base of the radial gates on the Primary Spillway of Wivenhoe Dam was approximately EL 57.0 m AHD (being the minimum water height at which water may be released through the radial gates);
- c) the elevation of the top of the closed radial gates of Wivenhoe Dam was approximately EL 73.0 m AHD;
- d) the elevation of the top of Wivenhoe Dam was approximately EL 79.1 m AHD;
- e) the respective elevations of the three erodible fuse plugs at the Auxiliary Spillway were EL 75.7 m AHD, EL 76.2 m AHD, and EL 76.7 m AHD; and
- f) the predicted dam failure level of Wivenhoe Dam was EL 80.0 m AHD, being the elevation at which it was predicted that water in Lake Wivenhoe would cause the dam to breach and result in an uncontrolled and catastrophic release of water downstream.

PARTICULARS

- A. Flood Mitigation Manual, sections 8.2, Appendix C and Appendix H.
- B. Seqwater, “Fact Sheet: Somerset and Wivenhoe Dams”, previously available at <http://www.previous.seqwater.com.au/public/sites/default/files/userfiles/file/pdfs/Factsheet-SomersetandWivenhoeDams.pdf> (on file with the plaintiff’s solicitors).
- C. The flood storage compartment is the reservoir capacity that, in effect, sits above the drinking water storage compartment. The base of the flood storage compartment is the dam’s Full Supply Level.

G Flood Mitigation

- 54 The two principal tools available to the operators of Somerset Dam and Wivenhoe Dam to achieve flood mitigation are:
- a) water storage; and
 - b) water release.
- 55 Somerset Dam and Wivenhoe Dam can be operated to mitigate flooding downstream of Wivenhoe Dam:
- a) by storing inflows upstream of Wivenhoe Dam (in Lake Somerset, Lake Wivenhoe or both) to reduce the rate of outflow from Wivenhoe Dam;
 - b) by releasing water from Wivenhoe Dam at rates of outflow that are less than the rate of inflow into Lake Wivenhoe;
 - c) by releasing water from Somerset Dam to preserve flood storage capacity in Lake Somerset in case of further rainfall and inflows;
 - d) by releasing water from Wivenhoe Dam to preserve flood storage capacity in Lake Wivenhoe in case of further rainfall and inflows;

- e) by releasing water from Wivenhoe Dam at rates of outflow that would avoid or minimise flooding downstream of Wivenhoe Dam, taking into account:
 - i) past, current and forecast rainfall over the catchment areas of the Brisbane River and its tributaries downstream of Wivenhoe Dam (and the actual and predicted inflows resulting from such rainfall);
 - ii) current and forecast inflows into the Brisbane River downstream of Wivenhoe Dam; and
 - iii) the current and predicted rate of flow of the Brisbane River and its tributaries downstream of Wivenhoe Dam; and
- f) by a combination of some or all of the activities in (a) to (e).

In this pleading, the deliberate operation of Somerset Dam and Wivenhoe Dam for purposes of flood mitigation by means of one or more of these methods is referred to as “**Flood Operations**”.

- 56 Somerset Dam can be safely operated for flood mitigation up to a water level in Lake Somerset of EL 107.46 m AHD. Once the water level in Lake Somerset exceeds that level, there is a substantial risk of dam failure and releases become essential to protect the dam from breach and failure.
- 57 Wivenhoe Dam can be safely operated for flood mitigation up to a water level in Lake Wivenhoe of EL 74.0 m AHD. Once the water level in Lake Wivenhoe exceeds that level, there is a substantial risk of dam failure and releases become essential to protect the dam from breach and failure.
- 58 By reason of the matters pleaded in paragraphs 56 and 57 respectively, it may be necessary in periods of heavy and prolonged rainfall to make precautionary releases from Somerset Dam and Wivenhoe Dam to preserve sufficient capacity in the dams’ flood storage compartments to safely store further inflows.

- 59 Flood Operations at Somerset Dam and Wivenhoe Dam require that the dam operators determine, and act in accordance with, release strategies taking into account, among other things:
- a) the water levels in Lake Somerset and Lake Wivenhoe;
 - b) the available capacity in the flood storage compartments of each dam;
 - c) current and forecast inflows into Lake Somerset and Lake Wivenhoe (including the forecast effect of further inflows from past rainfall and the potential for further inflows from future rainfall);
 - d) current and forecast inflows into the Brisbane River downstream of Wivenhoe Dam (including the forecast effect of further inflows from past rainfall and the potential for further inflows from future rainfall);
 - e) current and forecast rainfall directly over Lake Somerset or Lake Wivenhoe;
 - f) the sufficiency of the water in Lake Somerset and Lake Wivenhoe to meet the water supply needs of Brisbane and surrounding areas; and
 - g) the circumstance that large volume releases of water from Wivenhoe Dam in a short period may cause greater downstream flooding, and hence greater downstream damage to property, than would be caused if sustained and more moderate releases of water were made over the course of Flood Operations.

PARTICULARS

- A. The requirement to take into account the factors pleaded in subparagraphs 59(a)-(g) arises by reason of:
 - 1. the features and characteristics of Somerset Dam pleaded in paragraphs 11 to 27;
 - 2. the features and characteristics of Wivenhoe Dam pleaded in paragraphs 28 to 53; and

3. the available means by which Somerset Dam and Wivenhoe Dam can be operated to mitigate flooding pleaded in paragraphs 54 to 58 and 60; and
4. the requirements of the Flood Mitigation Manual pleaded in paragraphs 86 to 89 and 102-104.

B. The release strategies referred to are the strategies outlined in the Flood Mitigation Manual according to which the flood engineers responsible for Flood Operations at Somerset Dam and Wivenhoe Dam are to determine the manner, method, timing and volume of water releases from each of Somerset Dam and Wivenhoe Dam.

60 The flood mitigation capabilities of Somerset Dam and Wivenhoe Dam are maximised by operating the two dams in conjunction during Flood Operations.

H Seqwater's Ownership and Control of Somerset Dam and Wivenhoe Dam

61 At all material times, Seqwater owned:

- a) Somerset Dam; and
- b) Wivenhoe Dam.

PARTICULARS

A. Somerset Dam and Wivenhoe Dam were transferred to Seqwater from the South East Queensland Water Corporation Limited with effect from 1 July 2008 by transfer notice issued by Andrew Fraser, Treasurer, under s 67(1) of the Restructuring Act, signed 20 June 2008 and gazetted 26 June 2008.

62 At all material times, Seqwater held a resource operations licence (the **Seqwater ROL**) granted under s 107 of the Water Act to operate both Somerset Dam and Wivenhoe Dam.

PARTICULARS

- A. The Seqwater ROL was signed by RB (Tom) Crothers, General Manager, Water Allocation and Planning, Department of Environment and Resource Management (**DERM**), and was granted on 7 December 2009. The Seqwater ROL was expressed to take effect from that date.
- 63 By operation of s 107A of the Water Act, the effect of the Seqwater ROL was to permit Seqwater to interfere with the flow of water in the Brisbane River and Stanley River, including by operating Somerset Dam and Wivenhoe Dam, where such interference would otherwise be an offence under s 808 of the Water Act.
- 64 On the proper construction of s 107A of the Water Act, Seqwater was not authorised or permitted to delegate its rights, powers and obligations under the Seqwater ROL to any other person.
- 65 By operation of s 110 of the Water Act, and the terms of the Seqwater ROL, it was a condition of the Seqwater ROL that Seqwater comply with the operating arrangements and supply requirements detailed in Chapter 5 of the Moreton ROP (as defined in paragraph C of the particulars to paragraph 20).

PARTICULARS

- A. The Moreton ROP was made and approved under Part 4 of the Water Act to implement the *Water Resource (Moreton) Plan 2007*. The *Water Resource (Moreton) Plan 2007* is subordinate legislation made under ss 38 and 50 of the Water Act. The Moreton ROP commenced on 7 December 2009.
- 66 At all material times, ss 72(3) and 75 of the Moreton ROP required that Seqwater not release water from Somerset Dam or Wivenhoe Dam, unless the release was necessary:
- a) to meet a specified minimum flow rate of 8.64 ML/day from Mount Crosby Weir (other than during times when critical water sharing arrangements were in force); or

- b) to supply downstream demand.
- 67 Section 74 of the Moreton ROP further required that Seqwater minimise the occurrence of adverse environmental impacts by ensuring that any change in the release of water from, inter alia, Somerset Dam and Wivenhoe Dam occur incrementally.
- 68 Section 13 of the Moreton ROP permitted Seqwater to seek an interim program from the Chief Executive of DERM in circumstances where it was unable to comply with the terms of the Seqwater ROL and the Moreton ROP.
- 69 Where the Chief Executive of DERM approved an interim program under s 13 of the Moreton ROP, the approved program prevailed over the terms of the Moreton ROP to the extent of any conflict.

PARTICULARS

- A. Moreton ROP, s 13(10).
- 70 On or around 4 February 2010, Seqwater submitted a Statement of Current Programs to the Chief Executive of DERM for approval under s 13(7) of the Moreton ROP (the **February 2010 Interim Program**).
- 71 The February 2010 Interim Program:
- a) recorded that Seqwater was not complying with the restrictions on the release of water from Somerset Dam and Wivenhoe Dam imposed by s 72(3) of the Moreton ROP; and
 - b) proposed that Seqwater would continue to release water from Somerset Dam and Wivenhoe Dam for flood mitigation purposes.
- 72 On or around 12 March 2010, the delegate of the Chief Executive of DERM approved the February 2010 Interim Program under s 13(7) of the Moreton ROP.

- 73 On or around 27 August 2010, Seqwater sought approval from the Chief Executive of DERM for an updated interim program under s 13(7) of the Moreton ROP (the **August 2010 Interim Program**).
- 74 The August 2010 Interim Program:
- a) recorded that Seqwater was not complying with the restrictions on the release of water from Somerset Dam and Wivenhoe Dam imposed by s 72(3) of the Moreton ROP; and
 - b) proposed that Seqwater would continue to release water from Somerset Dam and Wivenhoe Dam for flood mitigation purposes.
- 75 On or around 3 December 2010, the delegate of the Chief Executive of DERM approved the August 2010 Interim Program under s 13(7) of the Moreton ROP.

PARTICULARS

- A. Letter from Gary Burgess, Acting General Manager, Water Allocation and Planning, DERM, to Alex Fisher, Executive General Manager, Asset Delivery, Seqwater, 3 December 2010.
- 76 By reason of the matters alleged in paragraphs 61 to 75, at all material times, Seqwater had authority to operate Somerset Dam and Wivenhoe Dam for flood mitigation purposes, including by making such releases of water as were necessary to achieve flood mitigation.

I SunWater's Control of Somerset Dam and Wivenhoe Dam

- 77 On or around 13 October 2009, Seqwater entered into an agreement with SunWater styled "Service Level Agreement – Flood Management Services" (the **Flood Management Services Agreement**).

PARTICULARS

- A. The Flood Management Services Agreement was executed on 13 October 2009 on behalf of Seqwater by its Chief Executive Officer, Peter Borrows, and on behalf of SunWater by its Chief Executive, Peter Boettcher.

78 By clauses 3.1 and 3.2 and the Service Schedule to the Flood Management Services Agreement, SunWater agreed to provide, inter alia, the following services to Seqwater:

- a) conducting Flood Operations for Somerset Dam and Wivenhoe Dam in accordance with applicable emergency action plans (**EAPs**), standing operating procedures (**SOPs**), and the Flood Mitigation Manual;
- b) preparing competently to deal with flood events in accordance with applicable EAPs, SOPs, and the Flood Mitigation Manual;
- c) establishing and maintaining a dedicated Flood Control Centre from which Flood Operations at Somerset Dam and Wivenhoe Dam could be conducted;
- d) reviewing SOPs and the Flood Mitigation Manual annually to recommend any necessary changes to Seqwater;
- e) ensuring that SunWater staff, and subcontractors performing services under the Flood Management Services Agreement, were adequately trained;
- f) recommending any necessary maintenance on the Flood Control Centre and Flood Alert Network to Seqwater each year, and performing approved maintenance as agreed from time to time;
- g) testing Seqwater's data collection systems to ensure a timely response once a flood event commenced; and
- h) reporting on flood events within two weeks of the end of each flood event.

PARTICULARS

- A. Flood Management Services Agreement, Service Schedule, clauses 1, 2, 3, 6.

79 By operation of clause 15.11 of the Flood Management Services Agreement, that agreement did not create a partnership, joint venture or agency relationship between Seqwater and SunWater.

- 80 By clause 2.1 of the Flood Management Services Agreement, that agreement was to terminate on 30 June 2010 (unless terminated earlier in accordance with its terms).
- 81 On or around 29 July 2010, Seqwater and SunWater executed a written extension to the Flood Management Services Agreement, which extended the operation of that agreement from 30 June 2010 to 31 July 2010 (the **Deed of Variation and Extension No 1**).

PARTICULARS

- A. The Deed of Variation and Extension No 1 was executed on or around 29 July 2010 by Peter Borrows on behalf of Seqwater and by Peter Boettcher on behalf of Sunwater.
- 82 On or around 30 September 2010, Seqwater and SunWater executed a further written extension to the Flood Management Services Agreement, which extended the operation of that agreement from 31 July 2010 to 31 October 2010 (the **Deed of Variation and Extension No 2**).

PARTICULARS

- A. The Deed of Variation and Extension No 2 was executed on or around 30 September 2010 by Jim Pruss on behalf of Seqwater and by Peter Boettcher on behalf of SunWater.
- 83 On or around 24 December 2010, Seqwater and SunWater executed a further written extension to the Flood Management Services Agreement, which extended that agreement from 31 October 2010 to 28 February 2011 (the **Deed of Variation and Extension No 3**).

PARTICULARS

- A. The Deed of Variation and Extension No 3 was executed on or around 24 December 2010 by Jim Pruss on behalf of Seqwater and by Geoff White on behalf of SunWater.
- 84 By reason of the arrangements pleaded at paragraphs 77 to 83, at all material times, SunWater:

- a) provided flood management services to Seqwater in respect of Somerset Dam and Wivenhoe Dam in accordance with the terms of the Flood Management Services Agreement;
- b) was purportedly authorised by Seqwater to conduct and control Flood Operations at Somerset Dam and Wivenhoe Dam under the Flood Management Services Agreement (as variously amended by the Deed of Variation and Extension No 1, the Deed of Variation and Extension No 2, and the Deed of Variation and Extension No 3); and
- c) had control, as a practical matter, of Somerset Dam and Wivenhoe Dam for purposes of conducting Flood Operations.

J The Flood Mitigation Manual

Status, Purpose and Objectives of the Flood Mitigation Manual

- 85 In or around November 2009, Seqwater prepared the Flood Mitigation Manual, which prescribed the operational procedures for flood mitigation at Somerset Dam and Wivenhoe Dam.
- 86 Seqwater, SunWater and the flood engineers engaged by them to operate Somerset Dam and Wivenhoe Dam were required to adhere to the terms of the Flood Mitigation Manual in conducting Flood Operations at Somerset Dam and Wivenhoe Dam:
- a) in accordance with sections 1.7 and 2.1 of the Flood Mitigation Manual; and
 - b) in the case of SunWater, in accordance with the terms of the Flood Management Services Agreement.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.7 and 2.1.
- B. Flood Management Services Agreement, clauses 3.1, 3.2 and Service Schedule, clause 1.

- 87 The purpose of the Flood Mitigation Manual was to define procedures for Flood Operations at Somerset Dam and Wivenhoe Dam to reduce, so far as practicable, the effects of flooding associated with the dams, including by minimising the potential impact on the life and property of downstream populations.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.1, 1.3.

- 88 The primary objectives of the Flood Mitigation Manual, in descending order of importance, were:

- a) to ensure the structural safety of the dams;
- b) to provide optimum protection of urbanised areas from inundation;
- c) to minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;
- d) to retain storage at Full Supply Level at the conclusion of the Flood Event (as defined in paragraph 102 below); and
- e) to minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 8.4.

- 89 The Flood Mitigation Manual required that, in meeting these objectives, Somerset Dam and Wivenhoe Dam be operated to account for the potential effects of:

- a) closely spaced storms or Flood Events; and
- b) storms lasting 48 hours or more.

PARTICULARS

- A. Flood Mitigation Manual, sections 3.1, 3.2.
- B. Flood Mitigation Manual, Appendix G.

Flood Operations Personnel and Responsibilities

- 90 The Flood Mitigation Manual required that Seqwater nominate one or more suitably qualified persons to undertake the role of Senior Flood Operations Engineer, under whose general direction the procedures of the Flood Mitigation Manual were to be carried out.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.2, 2.3.

- 91 At all material times in December 2010 and January 2011:

- a) two individuals were authorised to perform the function of Senior Flood Operations Engineer in accordance with the Flood Mitigation Manual:
- i) Robert Ayre; and
 - ii) John Ruffini; and
- b) Mr Ayre, in fact, performed the role of Senior Flood Operations Engineer.

PARTICULARS

- A. Seqwater, *Flood Operations Preparedness Report: Wivenhoe, Somerset and North Pine Dam*, October 2010, p 10.
- B. Statement of Robert Arnold Ayre to the Queensland Flood Commission of Inquiry, 23 March 2011, [36].

- 92 At all material times in December 2010 and January 2011:

- a) Mr Ayre was employed by SunWater in the position of Headworks Design Manager, Infrastructure Development Group and Senior Flood Engineer; and
- a) Mr Ruffini was employed by DERM in the position of Director, Water Planning Sciences Branch, Environment and Resource Science Division, Operations and Environmental Regulator Business Group.

PARTICULARS

- A. Statement of Robert Arnold Ayre to the Queensland Flood Commission of Inquiry, 23 March 2011, [39], [42].
- B. Statement of John Lawrence Ruffini to the Queensland Floods Commission of Inquiry, 24 March 2011, [17].

93 Mr Ruffini's services were provided by DERM to SunWater for a fee under informal arrangements between DERM and SunWater.

PARTICULARS

- A. Statement of John Lawrence Ruffini to the Queensland Floods Commission of Inquiry, 24 March 2011, [21]-[24].
- B. Further particulars may be provided after discovery.

94 When rostered on duty, the functions of the Senior Flood Operations Engineer were:

- a) to be in charge of Flood Operations at all times during a "Flood Event" (as defined in the Flood Mitigation Manual);
- b) to set the overall strategy for management of the Flood Event in accordance with the objectives in the Flood Mitigation Manual;
- c) to provide instructions to staff at Somerset Dam and Wivenhoe Dam to make releases of water during Flood Events in accordance with the Flood Mitigation Manual; and
- d) to apply reasonable discretion in managing Flood Events, but only after making a reasonable attempt to consult both the Chairperson of Seqwater and the Chief Executive of DERM.

PARTICULARS

- A. Flood Mitigation Manual, sections 2.2, 2.3, 2.8.

95 The Flood Mitigation Manual required that Seqwater nominate one or more suitably qualified and experienced persons to undertake the role of Flood Operations Engineer.

PARTICULARS

A. Flood Mitigation Manual, sections 1.2, 2.4.

96 At all material times, two individuals were authorised to perform the function of Flood Operations Engineer in accordance with the Flood Mitigation Manual:

- a) Terry Malone; and
- b) John Tibaldi.

PARTICULARS

A. Seqwater, *Flood Operations Preparedness Report: Wivenhoe, Somerset and North Pine Dam*, October 2010, p 10.

97 At all material times:

- a) Mr Malone was employed by Seqwater in the position of Principal Hydrologist, Water Delivery; and
- b) Mr Tibaldi was employed by Seqwater in the position of Principal Engineer, Dam Safety.

98 When rostered on duty, the functions of a Flood Operations Engineer were:

- a) to direct the operation of Somerset Dam and Wivenhoe Dam during a Flood Event in accordance with the general strategy determined by the Senior Flood Operations Engineer;
- b) to follow the Flood Mitigation Manual in managing Flood Events, except where directed by the Senior Flood Operations Engineer to use reasonable discretion; and
- c) to provide instructions to staff at Somerset Dam and Wivenhoe Dam to make releases of water during a Flood Event in accordance with the Flood Mitigation Manual.

PARTICULARS

A. Flood Mitigation Manual, section 2.4.

- 99 The Flood Mitigation Manual required that a Senior Flood Operations Engineer or a Flood Operations Engineer be rostered on call at all times to be in charge of Flood Operations at Somerset Dam and Wivenhoe Dam (the **Duty Flood Operations Engineer**).

PARTICULARS

- A. Flood Mitigation Manual, section 2.2.

- 100 The Flood Mitigation Manual required that the Duty Flood Operations Engineer:
- a) constantly review weather forecasts and catchment rainfall;
 - b) declare a Flood Event if the water level of either Wivenhoe Dam or Somerset Dam was expected to exceed Full Supply Level as a result of prevailing or predicted weather conditions; and
 - c) direct the release of water from Somerset Dam and Wivenhoe Dam during a Flood Event in accordance with the Flood Mitigation Manual.

PARTICULARS

- A. Flood Mitigation Manual, section 2.2.

- 101 In the period December 2010 to January 2011, four individuals acted as Duty Flood Operations Engineer at various times:
- a) Mr Ayre;
 - b) Mr Ruffini;
 - c) Mr Malone; and
 - d) Mr Tibaldi (collectively, the **Flood Engineers**).

Definition of “Flood Event”

- 102 Under the terms of the Flood Mitigation Manual, a “**Flood Event**” was defined to mean a situation where the Duty Flood Operations Engineer expects the water level in Lake Somerset to exceed the Full Supply Level

of Somerset Dam, or the water level in Lake Wivenhoe to exceed the Full Supply Level of Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, section 1.2.

- 103 In the case of Wivenhoe Dam, the definition of “Flood Event” in the Flood Mitigation Manual meant that a Flood Event commenced once the Duty Flood Operations Engineer expected the water level of Lake Wivenhoe to exceed EL 67.0 m AHD.
- 104 In the case of Somerset Dam, the definition of “Flood Event” in the Flood Mitigation Manual meant that a Flood Event commenced once the Duty Flood Operations Engineer expected the water level of Lake Somerset to exceed EL 99.0 m AHD.

Wivenhoe Dam Flood Operations Strategies

- 105 The Flood Mitigation Manual specified four Flood Operations strategies for Wivenhoe Dam during a Flood Event:
- a) Strategy W1;
 - b) Strategy W2;
 - c) Strategy W3; and
 - d) Strategy W4.
- 106 The Flood Mitigation Manual required the Flood Engineers to select the appropriate strategy taking into account:
- a) the objectives of the Flood Mitigation Manual pleaded in paragraph 88, and their relative importance;
 - b) the actual water levels of Lake Somerset and Lake Wivenhoe; and
 - c) the following predictions (which were to be made using the best forecast rainfall and stream flow information available at the time):

- i) the maximum storage levels in Lake Somerset and Lake Wivenhoe;
- ii) the peak flow rate at the Lowood Gauge (excluding Wivenhoe Dam releases); and
- iii) the peak flow rate at the Moggill Gauge (excluding Wivenhoe Dam releases).

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

106A In making predictions as to expected storage levels in Lake Somerset and Lake Wivenhoe, the Flood Engineers were required to consider the following rainfall scenarios:

- a) actual rainfall;
- b) actual rainfall plus 100% of forecast rainfall;
- c) actual rainfall plus 50% of forecast rainfall; and
- d) actual rainfall plus 200% of forecast rainfall.

PARTICULARS

- A. Seqwater, *Flood Procedures Manual: Wivenhoe Dam, Somerset Dam, North Pine Dam, Leslie Harrison Dam, Uncontrolled Spillway Dams*, January 2010 (the **Flood Procedures Manual**), section 3.2.

106B The Flood Engineers were required to consider rainfall hydrographs reflecting each of the rainfall scenarios pleaded in the preceding paragraph in evaluating alternative release strategies from Somerset Dam and Wivenhoe Dam in accordance with the strategies in the Flood Mitigation Manual.

PARTICULARS

- A. Flood Procedures Manual, section 3.2.

- 107 Further, the Flood Mitigation Manual required the Flood Engineers to change strategies as necessary in response to rainfall, changing rainfall forecasts and stream flow conditions, and in order to maximise the flood mitigation benefits of the dams.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

- 108 The Flood Mitigation Manual required the Flood Engineers to select release strategies at Wivenhoe Dam taking into account the operation of Splityard Creek Dam.

PARTICULARS

- A. Flood Mitigation Manual, sections 8.1.

- 109 The Flood Mitigation Manual required the Flood Engineers to select Strategy W1 at Wivenhoe Dam where:

- a) the water level of Lake Wivenhoe exceeded EL 67.25 m AHD; and
- b) was predicted to be less than EL 68.5 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

- 110 Under Strategy W1:

- a) the primary consideration specified by the Flood Mitigation Manual was to minimise disruption to downstream rural life, including by ensuring that downstream rural bridges were not submerged;
- b) the Flood Engineers were required to control releases from Wivenhoe Dam to ensure that the combined flow from Wivenhoe Dam and Lockyer Creek was less than the limiting values specified for Strategy W1 in the Flood Mitigation Manual; and
- c) the Flood Engineers were required to ensure that maximum releases, taking into account the combined flow from Wivenhoe Dam and Lockyer Creek, did not exceed 1,900 m³/s.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

111 The Flood Mitigation Manual required the Flood Engineers to select Strategy W2 where:

- a) the water level of Lake Wivenhoe was predicted to be more than EL 68.5 m AHD, but less than EL 74.0 m AHD;
- b) the maximum peak at Lowood (located downstream of Wivenhoe Dam) was predicted to be less than 3,500 m³/s; and
- c) the maximum peak at Moggill (located downstream of both Wivenhoe Dam and Lowood) was predicted to be less than 4,000 m³/s.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

112 Strategy W2 was described in the Flood Mitigation Manual as a “transition strategy”, where the primary consideration changes from minimising disruption to downstream rural life under Strategy W1 to protecting urban areas from inundation.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

113 Under Strategy W2:

- a) the Flood Engineers were required to control releases taking into account the combined flow of the releases from Wivenhoe Dam, Lockyer Creek and Bremer River (the **Combined Peak Flow**);
- b) the Flood Engineers were required to control releases from Wivenhoe Dam so as to ensure:
 - i) that the Combined Peak Flow at Lowood was the lesser of the natural peak flow (excluding Wivenhoe Dam releases) and 3,500 m³/s; and

- ii) that the Combined Peak Flow at Moggill was the lesser of the natural peak flow (excluding Wivenhoe Dam releases) and 4,000 m³/s.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.
- B. Seqwater, *Operation of Wivenhoe Dam and Somerset Dam January 2011 Flood Event: Explanation of Operational Methods and Decision-Making Practices*, July 2011, [3.4.2].

114 The Flood Mitigation Manual required the Flood Engineers to select Strategy W3 where:

- a) the maximum water level of Lake Wivenhoe was predicted to be more than EL 68.5 m AHD, but less than EL 74.0 m AHD; and
- b) Strategy W2 could not be met.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

115 Under Strategy W3:

- a) the primary consideration specified in the Flood Mitigation Manual was the protection of urban areas from inundation; and
- b) the Flood Engineers were required to control releases to ensure that the maximum combined flow of the Brisbane River at Moggill (taking into account flows from Lockyer Creek and the Bremer River) was 4,000 m³/s, or was minimised in circumstances where it was not possible to limit the combined flow to 4,000 m³/s.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

- 116 The Flood Mitigation Manual required the Flood Engineers to select Strategy W4 where the maximum water level of Lake Wivenhoe was predicted to exceed EL 74.0 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

- 117 Under Strategy W4:

- a) the primary consideration specified in the Flood Mitigation Manual was the protection of the structural safety of the dam; and
- b) there was no limit on the maximum release rate.

PARTICULARS

- A. Flood Mitigation Manual, section 8.4.

- 118 The Flood Mitigation Manual required that, once a Flood Event and water releases commenced, Flood Operations and water releases were to continue at Wivenhoe Dam:

- a) until Lake Wivenhoe returned to Full Supply Level (except in cases where Lake Wivenhoe was below EL 67.5 m AHD and a favourable weather outlook existed); or
- b) until the level of Lake Wivenhoe was reduced below Full Supply Level where such reduction was necessary to ensure that remaining inflows would not result in Lake Wivenhoe exceeding Full Supply Level at the end of the Flood Event.

PARTICULARS

- A. Flood Mitigation Manual, section 8.5.

Somerset Dam Flood Operations Strategies

- 119 The Flood Mitigation Manual dictated that, during a Flood Event, Somerset Dam and Wivenhoe Dam were to be operated in conjunction to maximise the overall flood mitigation capabilities of the two dams.

PARTICULARS

A. Flood Mitigation Manual, section 1.1, 9.1.

120 The Flood Mitigation Manual specified three Flood Operations strategies for Somerset Dam during a Flood Event:

- a) Strategy S1;
- b) Strategy S2; and
- c) Strategy S3.

121 The Flood Mitigation Manual required the Flood Engineers to select the appropriate strategy taking into account:

- a) the objectives of the Flood Mitigation Manual pleaded in paragraph 88 and their relative importance; and
- b) predictions as to the maximum storage levels of Lake Wivenhoe and Lake Somerset, where such predictions were to be made using the best forecast rainfall and stream flow information available at the time.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

122 Further, the Flood Mitigation Manual required the Flood Engineers to change strategies for Somerset Dam as necessary in response to changing rainfall forecasts and stream flow conditions, and in order to maximise the flood mitigation benefits of Somerset Dam and Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

123 The Flood Mitigation Manual required that releases commence at Somerset Dam once the water level in Lake Somerset was expected to exceed EL 99.0 m AHD.

PARTICULARS

A. Flood Mitigation Manual, section 9.2.

124 The Flood Mitigation Manual required the Flood Engineers to select Strategy S1 where:

- a) the water level of Lake Somerset was expected to exceed Full Supply Level (EL 99.0 m AHD); and
- b) the water level of Lake Wivenhoe was expected to be less than the Full Supply Level for Wivenhoe Dam (EL 67.0 m AHD).

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

125 Under Strategy S1, the Flood Engineers were required to raise the crest gates to enable the uncontrolled discharge of water from Lake Somerset at a rate not exceeding the peak rate of inflow into Lake Somerset.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

126 The intent of Strategy S1 specified in the Flood Mitigation Manual was returning Somerset Dam to Full Supply Level, while minimising the impact on rural life upstream of the dam, and taking into account the environmental impacts of the releases.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

127 The Flood Mitigation Manual required the Flood Engineers to select Strategy S2 where:

- a) the water level of Lake Somerset was expected to exceed Full Supply Level (EL 99.0 m AHD); and
- b) the water level of Lake Wivenhoe was expected to exceed its Full Supply Level (EL 67.0 m AHD) but not to exceed EL 75.5 m AHD during the course of the Flood Event.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

128 The intent of Strategy S2 specified in the Flood Mitigation Manual was to maximise the benefits of the flood storage capabilities of Somerset Dam while protecting the structural safety of both Somerset Dam and Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

129 Under Strategy S2, the Flood Engineers were required to control releases taking into account the combined effect thereof on the water levels in Lake Somerset and Lake Wivenhoe, and with a view generally to minimising the impact of the Flood Event below Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

130 The Flood Mitigation Manual required the Flood Engineers to select Strategy S3 where:

- a) the water level of Lake Somerset was expected to exceed Full Supply Level (EL 99.0 m AHD); and
- b) the water level of Lake Wivenhoe was expected to exceed EL 75.5 m AHD during the course of the Flood Event.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

131 Under Strategy S3, the Flood Engineers were permitted to depart from the operating protocols under Strategy S2 where necessary to protect the structural safety of Somerset Dam and to prevent the peak level of Lake Somerset exceeding EL 109.7 m AHD.

PARTICULARS

A. Flood Mitigation Manual, section 9.3.

- 131A The intent of Strategy S3 specified in the Flood Mitigation Manual was to maximise the benefits of the flood storage capabilities of Somerset Dam while protecting the structural safety of both Somerset Dam and Wivenhoe Dam.

PARTICULARS

- A. Flood Mitigation Manual, section 9.3.

- 132 The Flood Mitigation Manual required that, once a Flood Event and water releases commenced, Flood Operations and water releases were to continue at Somerset Dam until:

- a) the lake level of Lake Somerset returned to Full Supply Level (EL 99.0 m AHD); or
- b) the lake level of Lake Somerset was reduced below Full Supply Level where such reduction was necessary to ensure that remaining inflows would not result in Lake Wivenhoe exceeding Full Supply Level at the end of the Flood Event.

PARTICULARS

- A. Flood Mitigation Manual, section 9.4.

K The Real Time Flood Model

- 133 At all material times, Seqwater and SunWater maintained and operated a real time flood monitoring and forecasting system in the Brisbane River Basin and the catchments of Somerset Dam and Wivenhoe Dam.
- 134 That system consisted of more than 100 field stations that automatically recorded rainfall and river heights at selected locations, and which employed radio telemetry to collect, transmit and receive rainfall and stream flow information.
- 135 The data from this real time flood monitoring and forecasting system was transmitted to the Flood Operations Centre operated by SunWater under its Flood Management Services Agreement with Seqwater.

136 Once received in the Flood Operations Centre, the data could be processed by the Flood Engineers using a suite of software tools (collectively referred to as the **Real Time Flood Model**) to estimate likely dam inflows and to evaluate a range of possible inflow and release scenarios based on forecast and potential rainfall.

136A One of the software tools that comprised the Real Time Flood Model was a program known as **FloodOps**, which, amongst other functions, used the data received from the real time flood monitoring and forecasting system for the purposes of performing hydrologic modelling, including computing hydrographs of projected runoff inflow to Somerset Dam and Wivenhoe Dam.

136B To compute hydrographs of projected runoff inflow to Somerset Dam and Wivenhoe Dam using FloodOps, it was necessary for the Flood Engineers to specify certain inputs or assumptions, including inputs or assumptions concerning initial losses and continuing loss rates for different regions in the catchment.

PARTICULARS

- A. An initial loss is the quantity of rainfall in a rain event that FloodOps will assume must fall before any rainfall from that rain event will be converted to runoff.
- B. A continuing loss rate is the quantity of rainfall in a rain event per unit of time that FloodOps will assume is not converted to runoff after the initial loss has been exceeded.

137 At all material times in December 2010 and January 2011, the Flood Operations Centre received various weather forecasts from the Bureau of Meteorology, including:

- a) Quantitative Precipitation Forecasts (**QPFs**) (provided twice a day);
- b) operational forecasting and warning products;
- c) multi-day rainfall forecasts;
- d) flood model results;

- e) direct telephone briefings and email communications; and
- f) ad hoc forecast scenario requests.

PARTICULARS

- A. Bureau of Meteorology, *Report to Queensland Floods Commission of Inquiry*, March 2011, [243]-[257].

- 138 The QPFs provided by the Bureau of Meteorology predicted average rainfall specifically for the catchment areas of Somerset Dam and Wivenhoe Dam for the following 24 hour period.
- 139 The multi-day rainfall forecasts provided by the Bureau of Meteorology predicted average rainfall over the catchment areas of Somerset Dam and Wivenhoe Dam for the following 4 days and the following 8 days.
- 139A At all material times, the best forecast rainfall information available to the Flood Engineers included the 1-day, 4-day and 8-day forecasts provided by the Bureau of Meteorology.
- 140 Once received at the Flood Operations Centre, the forecast information provided by the Bureau of Meteorology could be input into the Real Time Flood Model, which could then model the predicted lake level at Lake Somerset and Lake Wivenhoe based on the amount of rain that had already fallen and the rainfall predicted by the Bureau of Meteorology.
- 141 The Real Time Flood Model, used in conjunction with the forecast information supplied by the Bureau of Meteorology, provided the Flood Engineers with:
- a) the means to make useful predictions as to how past, current and predicted weather conditions would affect water levels in Lake Somerset and Lake Wivenhoe and inflows downstream of Wivenhoe Dam;
 - b) the means to model potential release strategies at Somerset Dam and Wivenhoe Dam so as to make useful predictions as to how those strategies would affect flow rates, water levels and flooding downstream of Wivenhoe Dam;

- c) the means to evaluate a range of potential release strategies at Somerset Dam and Wivenhoe Dam taking into account past, current and predicted weather conditions; and
- d) the means to evaluate proposed release strategies at Somerset Dam and Wivenhoe Dam accounting for a range of possible future weather conditions.

142 At all material times in December 2010 and January 2011, the Real Time Flood Model was available to the Flood Engineers in conducting Flood Operations at Somerset Dam and Wivenhoe Dam.

PARTICULARS

- A. *Seqwater, Operation of Wivenhoe Dam and Somerset Dam January 2011 Flood Event: Explanation of Operational Methods and Decision-Making Practices*, July 2011, [2.1 – 2.2].

L Duties of Care

Risk of Harm

142A At all material times:

- a) there was a risk that a failure properly to conduct Flood Operations at Somerset Dam and Wivenhoe Dam would reduce the available flood storage capacity of Lake Somerset and Lake Wivenhoe during times of flood and necessitate the release of water from Wivenhoe Dam in such volumes as to cause the inundation of real and personal property located downstream of Wivenhoe Dam by water (or increase the extent of such inundation), resulting in damage to that real or personal property (or increased damage to such property) and causing consequential loss arising from such damage (including, but not limited to, loss arising from the disruption of commercial activities using that real or personal property) (**Risk of Harm to Property**); and
- b) there was a risk that a failure properly to conduct Flood Operations at Somerset Dam and Wivenhoe Dam would reduce the available flood storage capacity of Lake Somerset and Lake Wivenhoe during times

of flood and necessitate the release of water from Wivenhoe Dam in such volumes as to cause the inundation of real property located downstream of Wivenhoe Dam (or increase the extent of such inundation), and that the inundation so caused would interfere with the use or enjoyment of that real property by persons holding an interest in that property (**Risk of Interference with Use and Enjoyment**);

- c) ~~there was a risk that a failure properly to conduct Flood Operations at Somerset Dam and Wivenhoe Dam would reduce the available flood storage capacity of Lake Somerset and Lake Wivenhoe during times of flood and necessitate the release of water from Wivenhoe Dam in such volumes as to cause the inundation of areas located downstream of Wivenhoe Dam (or increase the extent of such inundation), and that such inundation would impede or disrupt the commercial activities of businesses or enterprises located downstream of Wivenhoe Dam resulting in economic loss to those businesses or enterprises (**Risk of Harm to Businesses**).~~

142B Each of the Risk of Harm to Property, and the Risk of Interference with Use and Enjoyment ~~and the Risk of Harm to Businesses~~ was not remote or insignificant.

Seqwater's Duty of Care as Owner and Occupier

143 In December 2010 and January 2011:

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

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) 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, and 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, and 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, and 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, and 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, and 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, and Risk of Interference with Use and Enjoyment ~~and 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, and 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, and 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, and 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, and 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, and 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, and 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, and 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 or minimise each of the Risk of Harm to Property, and 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, and 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, and 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.
- 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 or minimise the Risk of Harm to Property, and 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 or minimise the Risk of Harm to Property, and 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, and 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 or minimise the Risk of Harm to Property, and 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 or minimise each of the Risk of Harm to Property, and 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;
 - 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 recommenced or continued Flood Operations and releases 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 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 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 67.20 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 6.30am on 17 December 2010 – EL 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, 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;

- 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 2010.

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 recommenced 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 continued to rise until 29 December 2010, eventually reaching a maximum level of approximately EL 69.33 m AHD at Lake Wivenhoe.

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 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 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]

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 recommenced 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 reduced the water level in Lake Somerset to no higher than:
 - i) approximately 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 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 191A.

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

Shift Start Time	Shift Finish Time	Flood Operations Engineer
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 recommenced or continued Flood Operations and releases at Somerset Dam and Wivenhoe Dam 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]
- g) [Not used]
- 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>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, 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, p 1.

- 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 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, p 1.
 - 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]
- g) [Not used]
- 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:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	2.1 mm	0.1 mm/hr
COO (Cooyar Creek Region)	2.1 mm	0.1 mm/hr

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

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).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [798]-[852].
- D. Christensen Report, Chapter X, [1215]-[1250], [1251]-[1274].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [162]-[188], [268]-[269].

228A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201 and 214-219, 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 5 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 5 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.

228B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219 and 228A, by the end of 5 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 96.18 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 64.21 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), and having continued reasonably Flood Operations since that time, would have reduced the water level in Lake Somerset to no higher than approximately EL 96.20 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 64.18 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 above), would have reduced the water level in Lake Somerset to no higher than approximately EL 98.61 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 66.55 m AHD; or, alternatively,
- d) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Temporary Full Supply Levels; or, alternatively,

- e) 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, [798]-[852].
- C. Christensen Report, Volume 2, pp 170-171.
- D. Christensen Supplemental Report, Chapter VI, [162]-[188], [268]-[269].
- E. Christensen Supplemental Report, Volume 2, pp 48-49, 51-52, 54-55, 107-108.
- F. Christensen Report, Chapter X, [1215]-[1250], [1251]-[1274].

229 In the circumstances pleaded in paragraphs 224-228B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things pleaded in paragraph 228 in the period 3 January to 5 January 2011; and, or alternatively,
- b) failed, by the end of 5 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 228B.

230 In the circumstances 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 3 January to 5 January 2011 (the **3-5 January Breaches**).

R Events of 6 January 2011

Weather Forecasts

231 On 6 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 6 January to 9 January 2011 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 6 January to 13 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 6 January to 9 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 6 January to 13 January 2011.

232 At or around 8:00 am on 6 January 2011, the Bureau of Meteorology forecast rainfall of up to 150 mm in South East Queensland over the following 24 to 48 hours.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 1.

233 At or around 10:21 am on 6 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 30-50 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 168.

234 At or around 4:00 pm on 6 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 20-30 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 169.

Rainfall and Inflows

235 In the 24 hours to 9:00 am on 6 January 2011, there was widespread rainfall throughout the catchment areas of Lake Somerset and Lake Wivenhoe, ranging from 20 mm to 56 mm.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 64.

236 This rainfall, and the associated runoff, resulted in ongoing catchment inflows into Lake Wivenhoe and Lake Somerset throughout the course of 6 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p 154 and Section 9.3, p 169.

Water Level

237 At or around 8:00 am on 6 January 2011:

- a) the water level of Lake Somerset was approximately EL 99.34 m AHD (0.34 m above Full Supply Level) and rising; and
- b) the water level of Lake Wivenhoe:
 - i) was approximately EL 67.31 m AHD (0.31 m above Full Supply Level) and rising; and
 - ii) was above the level at which the Flood Mitigation Manual required releases to commence.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 1.
- B. 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.
- C. Lake Somerset water level at 7.00am on 6 January 2011 – EL 99.34 m AHD
- Seqwater, Technical Situation Report 7, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 74.
- D. Lake Wivenhoe water level at 7.00am on 6 January 2011 – EL 67.31 m AHD
- Seqwater, Technical Situation Report 7, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 74.
- E. Flood Mitigation Manual, sections 1.2, 8.3 and 8.4.

238 Over the course of 6 January 2011:

- a) the water level of Lake Somerset increased from approximately EL 99.27 m AHD to approximately EL 99.51 m AHD by day's end; and
- b) the water level of Lake Wivenhoe increased from approximately EL 67.22 m AHD to approximately EL 67.45 m AHD by day's end.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p 154 and Section 9.3, p 169.

- B. Lake Wivenhoe water level at 10.00 pm on 6 January 2011 – EL 67.44 m AHD

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

Flood Operations

239 At or around 7:00 am on 6 January 2011, Seqwater, SunWater and the Flood Engineers mobilised the Flood Operations Centre.

240 The Flood Engineers on duty on 6 January 2011 were as follows:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Thursday 6/1/2011 07:00	Thursday 6/1/2011 19:00	Mr Malone
Thursday 6/1/2011 19:00	Friday 7/1/2011 07:00	Mr Ayre

240A In using the Real Time Flood Model on 6 January 2011 to predict future inflows into Lake Somerset and Lake Wivenhoe, the Flood Engineers selected and input initial losses and continuing loss rates as follows:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	0 mm and 10mm	2.5 mm/hr
COO (Cooyar Creek Region)	10 mm and 25 mm	2.5 mm/hr
LIN (Brisbane River at Linville Region)	10 mm and 15 mm	2.5 mm/hr
EMU (Emu Creek Region)	10 mm and 25 mm	2.5 mm/hr
GRE (Gregors Creek Region)	0 mm and 10 mm	2.5 mm/hr
SDI (Somerset Dam Inflow Region)	0 mm	2.5 mm/hr
WDI (Wivenhoe Dam Inflow Region)	0 mm and 10 mm	2.5 mm/hr

241 By reason of the matters pleaded at paragraphs 231-237, by 8:00 am on 6 January 2011 at the latest, the Flood Mitigation Manual required the Flood Engineers to continue or commence releases from Somerset Dam and Wivenhoe Dam.

PARTICULARS

A. Flood Mitigation Manual, sections 1.2, 8.3 and 8.4.

242 The Flood Engineers did not continue or commence any releases from Somerset Dam or Wivenhoe Dam after 9:45 am on 6 January 2011.

PARTICULARS

A. Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, Sections 9.2 and 9.3, pp 154 and 169.

6 January 2011 Breaches

243 In the circumstances pleaded in paragraphs 231-238, on 6 January 2011, there was a significant risk that:

- a) 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) without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

244 [Not used]

245 Further, by reason of the matters pleaded at paragraphs 231-238 and 243, a reasonably prudent flood engineer on 6 January 2011:

- a) would have complied with the Flood Mitigation Manual;

- b) would have commenced or continued Flood Operations and releases on 6 January 2011;
- c) would have implemented and maintained Strategy W3 at Wivenhoe Dam;
- d) would have implemented and maintained 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]
- g) [Not used]
- 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:

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

Region	Initial Losses	Continuing Loss Rates
WDI (Wivenhoe Dam Inflow Region)	1.0 mm	0.05 mm/hr

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraph 245(b)-(h).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [853]-[871].
- D. Christensen Report, Chapter X, [1275]-[1289], [1426]-[1452].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [189]-[201].

245A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219 and 231-236, 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 6 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 6 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.

245B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236 and 245A, by the end of 6 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 95.74 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 63.62 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), and having continued reasonably Flood Operations since that time, would have reduced the water level in Lake Somerset to no higher than approximately EL 95.76 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 63.59 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 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 97.64 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 65.30 m AHD; or, alternatively,
- d) having first commenced reasonably prudent Flood Operations on 6 January 2011 (by taking the actions pleaded in paragraph 245 above), would have reduced the water level in Lake Somerset to no higher than approximately EL 98.48 m AHD, and would have reduced the water level in Lake Wivenhoe to approximately EL 66.76 m AHD; or alternatively,
- e) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Temporary Full Supply Levels; or, alternatively,

- f) 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, [853]-[871].
- C. Christensen Report, Chapter X, [1275]-[1289], [1426]-[1452].
- D. Christensen Report, Volume 2, pp 174-175, 362-363.
- E. Christensen Supplemental Report, Chapter VI, [189]-[201].
- F. Christensen Supplemental , Volume 2, pp 57-58, 110-111.

246 In the circumstances pleaded in paragraphs 239-245B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things pleaded in paragraph 245 on 6 January 2011; and, or alternatively,
- b) failed, by the end of 6 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 245B.

247 In the circumstances 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 6 January 2011 (the **6 January Breaches**).

S Events of 7 January 2011

Weather Forecasts

248 On 7 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 7 January to 10 January 2011 predicted 50-150 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 7 January to 14 January 2011 predicted 75-200 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 7 January to 10 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 7 January to 14 January 2011.

249 At or around 10:03 am on 7 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 20-30 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 170.

250 At or around 4:04 pm on 7 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 20-30 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 171.

Rainfall and Inflows

251 In the 24 hours to 9:00 am on 7 January 2011, there was widespread rainfall throughout the catchment areas for Lake Somerset and Lake Wivenhoe, ranging from 10 mm to 30 mm.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 65.

252 Catchment inflows into Lake Wivenhoe and Lake Somerset continued in significant volumes throughout the course of 7 January 2011.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 154-155 and Section 9.3, p 169.

Water Level

253 At or around 6:07 am on 7 January 2011:

- a) the water level of Lake Somerset was approximately EL 99.59 m AHD; and
- b) the water level of Lake Wivenhoe was approximately EL 67.64 m AHD.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 7.
- B. Lake Somerset water level at 6.00am on 7 January 2011 – EL 99.59 m AHD

Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, p 169.
- C. Lake Wivenhoe water level at 6.00am on 7 January 2011 – EL 67.64 m AHD

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

254 At all times during the morning of 7 January 2011, the water level in Lake Wivenhoe was above the level at which the Flood Mitigation Manual required releases from Wivenhoe Dam to commence.

255 Over the course of 7 January 2011:

- a) the water level of Lake Somerset increased from approximately EL 99.52 m AHD (0.52 m above Full Supply Level) to approximately EL 100.28 m AHD (1.28 m above Full Supply Level) by day's end; and
- b) the water level of Lake Wivenhoe increased from approximately EL 67.46 m AHD (0.46 m above Full Supply Level) to approximately EL 68.28 m AHD (1.28 m above Full Supply Level) by day's end.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p 154-155 and Section 9.3, p 169.

B. Lake Wivenhoe water level at 12.00 am on 7 January 2011 – EL 67.46 m AHD

Lake Wivenhoe water level at 10.00 pm on 7 January 2011 – EL 68.26 m AHD

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

Flood Operations

256 The Flood Engineers on duty on 7 January 2011 were as follows:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Thursday 6/1/2011 19:00	Friday 7/1/2011 07:00	Mr Ayre
Friday 7/1/2011 07:00	Friday 7/1/2011 19:00	Mr Malone
Friday 7/1/2011 19:00	Saturday 8/1/2011 07:00	Mr Ruffini

256A In using the Real Time Flood Model on 7 January 2011 to predict future inflows into Lake Somerset and Lake Wivenhoe, the Flood Engineers selected and input initial losses and continuing loss rates as follows:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	10mm	2.5 mm/hr
COO (Cooyar Creek Region)	10 mm	2.5 mm/hr
LIN (Brisbane River at Linville Region)	15 mm	2.5 mm/hr
EMU (Emu Creek Region)	30 mm	2.5 mm/hr
GRE (Gregors Creek Region)	10 mm	2.5 mm/hr
SDI (Somerset Dam Inflow Region)	0 mm	2.5 mm/hr
WDI (Wivenhoe Dam Inflow Region)	0 mm	2.5 mm/hr

257 The Flood Engineers did not commence releases from Wivenhoe Dam until approximately 3:00 pm on 7 January 2011.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, Section 9.2, p 155 and Appendix L, p 1.*

258 Once the Flood Engineers commenced releases from Wivenhoe Dam they did so:

- a) operating under Strategy W1; or alternatively
- b) at rates consistent with Strategy W1.

259 The Flood Engineers continued to operate under Strategy W1, or continued to release water from Wivenhoe Dam at rates consistent with Strategy W1, throughout the remainder of 7 January 2011.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p 155 and Appendix L, pp 1-3.

260 Even after the Flood Engineers commenced releases from Wivenhoe Dam, rates of inflow into Lake Wivenhoe substantially exceeded rates of outflow throughout the remainder of 7 January 2011.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p 155.

261 The Flood Engineers did not commence releases from Somerset Dam until approximately 7:00 pm on 7 January 2011.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.3, p 169 and Appendix L, p 65.

262 Once the Flood Engineers commenced releases from Somerset Dam they did so:

- a) operating under Strategy S1; or alternatively
- b) at rates consistent with Strategy S1.

263 The Flood Engineers continued to operate under Strategy S1, or continued to release water from Somerset Dam at rates consistent with Strategy S1, throughout the remainder of 7 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.3, p 169.

264 Even after the Flood Engineers commenced releases from Somerset Dam, rates of inflow substantially exceeded rates of outflow throughout the remainder of 7 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.3, p 169.

7 January 2011 Breaches

265 In the circumstances pleaded in paragraphs 248-255, on 7 January 2011, there was a substantial risk:

- a) that, unless releases were commenced at Somerset Dam and Wivenhoe Dam:
 - i) in accordance with Strategy S2 and Strategy W3 respectively; and, or alternatively,
 - ii) at rates substantially in excess of the rate of inflow;

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.

266 [Not used]

267 Further, by reason of the matters pleaded at paragraphs 248-255 and 265, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 7 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have commenced releases at Somerset Dam and Wivenhoe Dam as soon as possible, and in any event, earlier than 3:00 pm;
- c) would have implemented and maintained Strategy W3 at Wivenhoe Dam;
- d) would have implemented Strategy S2 at Somerset Dam until approximately 7:00 pm and then adopted Strategy S3;
- e) would have caused Somerset Dam to release water at rates approximating the rate of inflow;
- f) would have caused Wivenhoe Dam to release water at rates exceeding the rate of inflow; and
- g) [Not used]
- h) [Not used]
- 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:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	2.1 mm	0.07 mm/hr
COO (Cooyar Creek Region)	2.1 mm	0.07 mm/hr
LIN (Brisbane River at Linville Region)	2.1 mm	0.07 mm/hr
EMU (Emu Creek Region)	2.1 mm	0.07 mm/hr

Region	Initial Losses	Continuing Loss Rates
GRE (Gregors Creek Region)	2.1 mm	0.07 mm/hr
SDI (Somerset Dam Inflow Region)	1.0 mm	0.03 mm/hr
WDI (Wivenhoe Dam Inflow Region)	1.0 mm	0.03 mm/hr

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraph 267(b)-(h).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [872]-[906].
- D. Christensen Report, Chapter X, [1290]-[1325], [1453]-[1475], [1573]-[1602].
- E. Christensen, Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [202]-[211].

267A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236 and 248-252, 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 7 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 7 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.

267B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252 and 267A, by the end of 7 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 96.42 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 63.31 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), and having continued reasonably Flood Operations since that time, would have reduced the water level in Lake Somerset to no higher than approximately EL 96.44 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 63.27 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 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 97.10 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 64.59 m AHD; or, alternatively,
- d) having first commenced reasonably prudent Flood Operations on 6 January 2011 (by taking the actions pleaded in paragraph 245 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 98.28 m AHD, and would have

reduced the water level in Lake Wivenhoe to approximately EL 65.88 m AHD; or alternatively,

- e) having first commenced reasonably prudent Flood Operations on 7 January 2011 (by taking the actions pleaded in paragraph 267 above), would have reduced the water level in Lake Somerset to no higher than approximately EL 99.41 m AHD, and would have reduced the water level in Lake Wivenhoe to approximately EL 67.44 m AHD; or alternatively,
- f) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Temporary Full Supply Levels; or, alternatively,
- g) 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, [872]-[906].
- C. Christensen Report, Chapter X, [1290]-[1325], [1453]-[1475], [1573]-[1602].
- D. Christensen Report, Volume 2, pp 178-179, 366-367, 412-413.
- E. Christensen Supplemental Report, Chapter VI, [202]-[211].
- F. Christensen Supplemental Report, Volume 2, pp 60-61, 113-114.

268 In the circumstances pleaded in paragraphs 256-267B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things pleaded in paragraph 267 on 7 January 2011; and, or alternatively,
- b) failed, by the end of 7 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 267B.

269 In the circumstances 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 7 January 2011 (the **7 January Breaches**).

T Events of 8 January 2011

Weather Forecasts

270 On 8 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 8 January to 11 January 2011 predicted 100-300 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 8 January to 15 January 2011 predicted 100-320 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 8 January to 11 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 8 January to 15 January 2011.

271 At or around 6:00 pm on 7 January 2011, the Flood Engineers were notified that the Bureau of Meteorology was predicting further high rainfall totals for South East Queensland over the following four days as follows:

- a) Saturday, 8 January 2011: 15 to 50 mm rainfall;
- b) Sunday, 9 January 2011: 50-100 mm widespread rainfall;
- c) Monday, 10 January 2011: 50-100 mm widespread rainfall; and
- d) Tuesday, 11 January 2011: 25-50 mm rainfall.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 10.

272 At or around 10:03 am on 8 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 30-50 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 172.

273 At or around 4:00 pm on 8 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 30-50 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 173.

Rainfall and Inflows

274 In the 24 hours to 9:00 am on 8 January 2011, there was widespread rainfall throughout the catchment areas for Lake Somerset and Lake Wivenhoe, with as much as 100 mm of rainfall in some areas.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 66.

275 Catchment inflows into Lake Wivenhoe and Lake Somerset continued in significant volumes throughout the course of 8 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 155-156 and Section 9.3, pp 169-170.

Water Level

276 At or around 6:32 am on 8 January 2011:

- a) the water level of Lake Somerset was approximately EL 100.42 m AHD and rising steadily; and
- b) the water level at Lake Wivenhoe was approximately EL 68.45 m AHD and rising steadily.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, pp 13-14.

- B. Lake Somerset water level at 6.00am on 8 January 2011 – EL 100.43 m AHD

Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, p 170.

- C. Lake Wivenhoe water level at 6.00am on 8 January 2011 – EL 68.46 m AHD

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

- D. Lake Somerset water level at 5.00am on 8 January 2011 – EL 100.42 m AHD

Seqwater, Technical Situation Report 8, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 76.

- E. Lake Wivenhoe water level at 6.00am on 8 January 2011 – EL 68.45 m AHD

Seqwater, Technical Situation Report 8, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 77.

- 277 At or around 8:00 am on 8 January 2011, the water level in Lake Wivenhoe rose to exceed approximately EL 68.50 m AHD.

PARTICULARS

- A. Lake Wivenhoe water level at 8.00am on 8 January 2011 – EL 68.52 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. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, p155.

- 278 Over the course of 8 January 2011:

- a) the water level of Lake Somerset increased from approximately EL 100.31 m AHD (1.31 m above Full Supply Level) to approximately EL 100.46 m AHD (1.46 m above Full Supply Level), before reducing to approximately EL 100.33 m AHD (1.33 m above Full Supply Level) by day's end; and
- b) the water level of Lake Wivenhoe increased from approximately EL 68.32 m AHD (1.32 m above Full Supply Level) to approximately EL 68.65 m AHD (1.65 m above Full Supply Level) by day's end.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 155-156 and Section 9.3, p 170.

B. Lake Wivenhoe water level at 12.00am on 8 January 2011 – EL 68.32 m AHD

Lake Wivenhoe water level at 11.00 pm on 8 January 2011 – EL 68.65 m AHD

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

Flood Operations

279 The Flood Engineers on duty on 8 January 2011 were as follows:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Friday 7/1/2011 19:00	Saturday 8/1/2011 07:00	Mr Ruffini
Sat 8/1/2011 07:00	Saturday 8/1/2011 19:00	Mr Ayre
Sat 8/1/2011 19:00	Sunday 9/1/2011 07:00	Mr Tibaldi

279A In using the Real Time Flood Model on 8 January 2011 to predict future inflows into Lake Somerset and Lake Wivenhoe, the Flood Engineers selected and input initial losses and continuing loss rates as follows:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	10mm	2.5 mm/hr
COO (Cooyar Creek Region)	10 mm and 30 mm	0.5 mm/hr
LIN (Brisbane River at Linville Region)	15 mm and 30 mm	0.5 mm/hr
EMU (Emu Creek Region)	30 mm	0.5 mm/hr
GRE (Gregors Creek Region)	10 mm and 40 mm	0.5 mm/hr
SDI (Somerset Dam Inflow Region)	0 mm and 15 mm	0.5 mm/hr
WDI (Wivenhoe Dam Inflow Region)	0 mm	2.5 mm/hr

- 280 Throughout Mr Ruffini's shift on 8 January 2011, Mr Ruffini:
- a) operated Wivenhoe Dam under Strategy W1, or maintained a release strategy at Wivenhoe Dam consistent with Strategy W1;
 - b) did not implement Strategy W3 at Wivenhoe Dam;
 - c) operated Somerset Dam under Strategy S1, or maintained a release strategy at Somerset Dam consistent with Strategy S1; and
 - d) did not implement a release strategy at Somerset Dam consistent with Strategy S2.
- 281 Throughout Mr Ayre's shift on 8 January 2011, Mr Ayre:
- a) operated Wivenhoe Dam under Strategy W1, or maintained a release strategy at Wivenhoe Dam consistent with Strategy W1; and
 - b) did not implement Strategy W3 at Wivenhoe Dam.
- 282 At or around 11:30 am, Mr Ayre directed that the release strategy at Somerset Dam be changed from Strategy S1 to Strategy S2.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, Section 9.3, p 170 and Appendix L, p 66.*
- 283 The decision by Mr Ayre to increase substantially the rate of outflow from Somerset Dam while not implementing a corresponding increase in the rate of outflow from Wivenhoe Dam increased the risk that there would be insufficient flood storage capacity in Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology.
- 284 [Not used]

8 January 2011 Breaches

285 In the circumstances pleaded in paragraphs 270-278, on 8 January 2011, there was a substantial risk:

- a) that, unless releases were commenced at Somerset Dam and Wivenhoe Dam:
 - i) in accordance with Strategy S2 and Strategy W3 respectively; and, or alternatively,
 - ii) at rates substantially in excess of the rate of inflow;

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.

286 Further, and in the alternative to paragraph 285, in the circumstances pleaded in paragraphs 270-278 and 282-283, on 8 January 2011, there was a substantial risk:

- a) that, unless releases were commenced at Wivenhoe Dam at a rate substantially in excess of the rate of outflow from Somerset Dam, there would be insufficient flood storage capacity in 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.

287 [Not used]

288 Further, by reason of the matters pleaded at paragraphs 270-278 and 285-286, a reasonably prudent flood engineer on 8 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have implemented and maintained Strategy W3 at Wivenhoe Dam;
- c) would have implemented and maintained Strategy S3 at Somerset Dam;
- d) would have caused Wivenhoe Dam to release water at rates exceeding the rate of inflow;
- e) would not have substantially increased the rate of outflow from Somerset Dam without implementing a corresponding increase in the rate of outflow from Wivenhoe Dam; and
- f) [Not used]
- g) [Not used]
- h) 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:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	2.1 mm	0.05 mm/hr
COO (Cooyar Creek Region)	2.1 mm	0.05 mm/hr
LIN (Brisbane River at Linville Region)	2.1 mm	0.05 mm/hr
EMU (Emu Creek Region)	2.1 mm	0.05 mm/hr
GRE (Gregors Creek Region)	2.1 mm	0.05 mm/hr
SDI (Somerset Dam Inflow Region)	1.0 mm	0.02 mm/hr
WDI (Wivenhoe Dam Inflow Region)	1.0 mm	0.02 mm/hr

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraph 288(b)-(g).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [907]-[926].
- D. Christensen Report, Chapter X, [1326]-[1340], [1476]-[1490], [1603]-[1618], [1703]-[1725].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [212]-[221].

288A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252 and 270-275, 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 8 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 8 January 2011:

- a) that, unless substantial releases were made from 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.

288B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252, 270-275 and 288A, by the end of 8 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 kept the water level in Lake Somerset to no higher than approximately EL 96.71 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 62.80 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), and having continued reasonably Flood Operations since that time, would have reduced the water level in Lake Somerset to no higher than approximately EL 96.73 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 62.79 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 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 96.42 m AHD, and would have reduced the water level in Lake Wivenhoe to no higher than approximately EL 63.93 m AHD; or, alternatively,
- d) having first commenced reasonably prudent Flood Operations on 6 January 2011 (by taking the actions pleaded in paragraph 245 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 97.63 m AHD, and would have reduced the water level in Lake Wivenhoe to approximately EL 64.83 m AHD; or alternatively,
- e) having first commenced reasonably prudent Flood Operations on 7 January 2011 (by taking the actions pleaded in paragraph 267 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 98.80 m AHD, and would have

reduced the water level in Lake Wivenhoe to approximately EL 66.45 m AHD; or alternatively,

- f) having first commenced reasonably prudent Flood Operations on 8 January 2011 (by taking the actions pleaded in paragraph 288 above), would have reduced the water level in Lake Somerset to no higher than approximately EL 100.14 m AHD, and would have reduced the water level in Lake Wivenhoe to approximately EL 67.58 m AHD; or alternatively,
- g) would have reduced the water levels in Lake Somerset and Lake Wivenhoe to their respective Temporary Full Supply Levels; or, alternatively,
- h) 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, [907]-[926].
- C. Christensen Report, Chapter X, [1326]-[1340], [1476]-[1490], [1603]-[1618], [1703]-[1725].
- D. Christensen Report, Volume 2, pp 182-183, 370-371, 416-417, 456-457.
- E. Christensen Supplemental Report, Chapter VI, [212]-[221].
- F. Christensen Supplemental Report, Volume 2, 63-64, 116-117.

289 By reason of the matters pleaded in paragraphs 279-288B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things in pleaded in paragraph 288 on 8 January 2011; and, or alternatively,
- b) failed, by the end of 8 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 288B.

290 In the circumstances 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 8 January 2011 (the **8 January Breaches**).

U Events of 9 January 2011

Weather Forecasts

291 On 9 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 9 January to 12 January 2011 predicted 75-300 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 9 January to 16 January 2011 predicted 100-320 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 9 January to 12 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 9 January to 16 January 2011.

292 At or around 10:03 am on 9 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 40-60 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 174.

293 At or around 4:00 pm on 9 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 50-80 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 175.

Rainfall and Inflows

294 In the 24 hours to 9:00 am on 9 January 2011, there was widespread rainfall recorded throughout the catchment areas for Lake Somerset and Lake Wivenhoe, with up to 43 mm of rainfall in some areas.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 67.

295 Catchment inflows into Lake Wivenhoe and Lake Somerset continued in significant volumes throughout the course of 9 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 156-157 and Section 9.3, pp 170-171.

Water Level

296 At or around 6:15 am on 9 January 2011:

- a) the water level of Lake Somerset was at approximately EL 100.27 m AHD and falling slowly; and
- b) the water level at Lake Wivenhoe was at approximately EL 68.58 m AHD and falling slowly.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, pp 17-18.

B. Lake Somerset water level at 6.00am on 9 January 2011 – EL 100.27 m AHD

Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, p 170.

C. Lake Wivenhoe water level at 6.00am on 9 January 2011 – EL 68.58 m AHD

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

D. Lake Somerset water level at 7.32am on 9 January 2011 – EL 100.27 m AHD

Seqwater, Technical Situation Report 9, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 78.

E. Lake Wivenhoe water level at 7.32am on 9 January 2011 – EL 68.58 m AHD

Seqwater, Technical Situation Report 9, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix F, p 79.

297 At or about 8:00 am on 9 January 2011, the water level in Lake Wivenhoe had exceeded approximately EL 68.50 m AHD for over 24 hours.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp155-156.

298 Over the course of 9 January 2011:

- a) the water level of Lake Somerset first decreased from approximately EL 100.32 m AHD (1.32 m above Full Supply Level) to approximately EL 100.27 m AHD, before increasing to approximately EL 102.22 m AHD (3.22 m above Full Supply Level) by day's end; and
- b) the water level of Lake Wivenhoe first decreased from approximately EL 68.64 m AHD (1.64 m above Full Supply Level) to approximately EL 68.53 m AHD, before increasing to approximately EL 69.60 m AHD (2.60 m above Full Supply Level) by day's end.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 156-157 and Section 9.3, pp 170-171.
- B. Lake Wivenhoe water level at 12.00am on 9 January 2011 – EL 68.64 m AHD

Lake Wivenhoe water level at 10.00am on 9 January 2011 – EL 68.53 m AHD

Lake Wivenhoe water level at 11.00 pm on 9 January 2011 – EL 69.60 m AHD

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

Flood Operations

299 The Flood Engineers on duty on 9 January 2011 were as follows:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Sat 8/1/2011 19:00	Sunday 9/1/2011 07:00	Mr Tibaldi
Sunday 9/1/2011 07:00	Sunday 9/1/2011 19:00	Mr Malone

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Sunday 9/1/2011 19:00	Monday 10/1/2011 07:00	Mr Ruffini Mr Ayre

299A In addition to the rostered shifts pleaded in the preceding paragraph:

- a) All four Flood Engineers attended a meeting at 3:30 pm on 9 January 2011 to discuss and agree the appropriate flood mitigation strategy given the prevailing and forecast conditions; and
- b) Mr Malone remained at the Flood Operations Centre until approximately 10:00 pm on 9 January and assisted Mr Ruffini and Mr Ayre in conducting Flood Operations from 7:00 pm until approximately 10:00 pm.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, pp 33-34.*

299B In using the Real Time Flood Model on 9 January 2011 to predict future inflows into Lake Somerset and Lake Wivenhoe, the Flood Engineers selected and input initial losses and continuing loss rates as follows:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	10mm	2.5 mm/hr
COO (Cooyar Creek Region)	30 mm	0.5 mm/hr
LIN (Brisbane River at Linville Region)	30 mm	0.5 mm/hr
EMU (Emu Creek Region)	30 mm	0.5 mm/hr
GRE (Gregors Creek Region)	40 mm	0.5 mm/hr
SDI (Somerset Dam Inflow Region)	15 mm	0.5 mm/hr
WDI (Wivenhoe Dam Inflow Region)	0 mm	2.5 mm/hr

300 At or around 8:15 am on 9 January 2011, Mr Malone directed that releases from Somerset Dam be increased, while releases at Wivenhoe Dam were left substantially unchanged.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix L, pp 7-8, 67.

301 The decision by Mr Malone to increase substantially the rate of outflow from Somerset Dam while not implementing a corresponding increase in the rate of outflow from Wivenhoe Dam increased the risk that there would be insufficient flood storage capacity in Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology.

301A Each of the other three Flood Engineers was notified that Mr Malone had increased the release rate from Somerset Dam, without a corresponding increase in the release rate from Wivenhoe Dam, at or around 8:15 am on 9 January 2011.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix L, p 67.

302 Until 3:30 pm on 9 January 2011 at the earliest, Mr Malone:

- a) operated Wivenhoe Dam under Strategy W1 or W2, or maintained a release strategy at Wivenhoe Dam consistent with Strategy W1 or Strategy W2; and
- b) did not implement Strategy W3 at Wivenhoe Dam.

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix M, p 82.

303 The Flood Engineers did not implement Strategy W3 at Wivenhoe Dam, or a release strategy consistent with Strategy W3, until the afternoon of 9 January 2011 at the earliest.

9 January 2011 Breaches

304 In the circumstances pleaded in paragraphs 291-298, on the morning of 9 January 2011, there was a substantial risk:

a) that, unless releases were immediately commenced at Somerset Dam and Wivenhoe Dam:

i) in accordance with Strategy S2 and Strategy W3 respectively; and, or alternatively,

ii) at rates substantially in excess of the rate of inflow;

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.

305 Further, and in the alternative to paragraph 304, in the circumstances pleaded in paragraphs 291-298 and 300-302, on 9 January 2011, there was a substantial risk:

a) that, unless releases were commenced at Wivenhoe Dam at a rate substantially in excess of the rate of outflow from Somerset Dam, there would be insufficient flood storage capacity in 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.

306 [Not used]

307 Further, by reason of the matters pleaded at paragraphs 291-298 and 304-305, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on the morning of 9 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have immediately implemented and maintained Strategy W3 at Wivenhoe Dam;
- c) would have implemented and maintained Strategy S3 at Somerset Dam and Strategy W3 at Wivenhoe Dam;
- d) would not have implemented Strategy S2 at Somerset Dam, or substantially increased releases from Somerset Dam into Lake Wivenhoe, without also implementing Strategy W3 at Wivenhoe Dam or otherwise ensuring that the rate of outflow from Wivenhoe Dam substantially exceeded the rate of outflow from Somerset Dam;
- e) would have commenced storing inflows in Lake Somerset by ensuring that releases from Lake Somerset were substantially less than the rate of inflow; and
- f) [Not used]
- g) [Not used]
- h) 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:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	2.1 mm	0.05 mm/hr
COO (Cooyar Creek Region)	2.1 mm	0.05 mm/hr

Region	Initial Losses	Continuing Loss Rates
LIN (Brisbane River at Linville Region)	2.1 mm	0.05 mm/hr
EMU (Emu Creek Region)	2.1 mm	0.05 mm/hr
GRE (Gregors Creek Region)	2.1 mm	0.05 mm/hr
SDI (Somerset Dam Inflow Region)	1.0 mm	0.02 mm/hr
WDI (Wivenhoe Dam Inflow Region)	1.0 mm	0.02 mm/hr

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraph 307(b)-(g).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [927]-[952].
- D. Christensen Report, Chapter X, [1341]-[1356], [1491]-[1506], [1619]-[1635], [1726]-[1741], [1806]-[1829].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [222]-[232].

307A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252, 270-275 and 291-295, 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 9 January 2011 (contrary to what occurred in fact), there would have remained a significant risk as at 9 January 2011:

- a) that, unless substantial releases were made from 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;

- b) that, without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

307B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252, 270-275, 291-295 and 307A, by the end of 9 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 kept the water level in Lake Somerset to no higher than approximately EL 100.42 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 64.13 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), and having continued reasonably Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 100.43 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 64.12 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 100.20 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 64.82 m AHD; or, alternatively,
- d) having first commenced reasonably prudent Flood Operations on 6 January 2011 (by taking the actions pleaded in paragraph 245 above), and having continued reasonably prudent Flood Operations

since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 101.06 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 65.36 m AHD; or alternatively,

- e) having first commenced reasonably prudent Flood Operations on 7 January 2011 (by taking the actions pleaded in paragraph 267 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 101.90 m AHD, and would have reduced the water level in Lake Wivenhoe to approximately EL 66.51 m AHD; or alternatively,
- f) having first commenced reasonably prudent Flood Operations on 8 January 2011 (by taking the actions pleaded in paragraph 288 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 102.85 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 67.67 m AHD; or alternatively,
- g) having first commenced reasonably prudent Flood Operations on 9 January 2011 (by taking the actions pleaded in paragraph 307 above), would have kept the water level in Lake Somerset to no higher than approximately EL 102.98 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 68.83 m AHD; or alternatively,
- h) would have reduced the water level in Lake Wivenhoe to, or maintained the water level in Lake Wivenhoe at, Temporary Full Supply Level; or, alternatively,
- i) would have reduced the water level in Lake Wivenhoe to, or maintained the water level in Lake Wivenhoe at, Full Supply Level.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- B. Christensen Report, Chapter VIII, [927]-[952].

- C. Christensen Report, Chapter X, [1341]-[1356], [1491]-[1506], [1619]-[1635], [1726]-[1741], [1806]-[1829].
- D. Christensen Report, Volume 2, pp 186-187, 374-375, 420-421, 460-461, 496-497
- E. Christensen Supplemental Report, Chapter VI, [222]-[232].
- F. Christensen Supplemental Report, Volume 2, pp 66-67, 119-120.

308 By reason of the matters pleaded in paragraphs 299-307B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things in pleaded in paragraph 307 on 9 January 2011; and, or alternatively,
- b) failed, by the end of 9 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 307B.

309 In the circumstances 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 9 January 2011 (the **9 January Breaches**).

V Events of 10 January to 11 January 2011

Weather Forecasts

310 On 10 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 10 January to 13 January 2011 predicted 75-225 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 10 January to 17 January 2011 predicted 75-225 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 10 January to 13 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 10 January to 17 January 2011.

311 On 11 January 2011:

- a) the Bureau of Meteorology 4-day forecast for 11 January to 14 January 2011 predicted 40-120 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 11 January to 18 January 2011 predicted 40-120 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 11 January to 14 January 2011.
- B. Bureau of Meteorology, Poor Man's Ensemble forecast for period 11 January to 18 January 2011.

312 At or around 10:03 am on 10 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 50-100 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 176.

313 At or around 4:00 pm on 10 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 25-50 mm (with isolated falls of up to 100 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 177.

314 At or around 10:14 am on 11 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall in excess of 100 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 178.

315 At or around 4:13 pm on 11 January 2011, the Bureau of Meteorology issued a QPF predicting rainfall of 50-100 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 179.

Rainfall and Inflows

316 In the 24 hours to 9:00 am on 10 January 2011, there was widespread and heavy rainfall recorded throughout the catchment areas for Lake Somerset and Lake Wivenhoe, with up to 284 mm of rainfall in some areas.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 68.

317 Catchment inflows into Lake Wivenhoe and Lake Somerset continued in significant volumes throughout the course of 10 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 157-158 and Section 9.3, p 171.

318 In the 24 hours to 9:00 am on 11 January 2011, there was widespread and heavy rainfall recorded throughout the catchment areas for Lake Somerset and Lake Wivenhoe, with up to 131 mm of rainfall in some areas.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 6.3, p 69.

319 Catchment inflows into Lake Wivenhoe and Lake Somerset continued in significant volumes throughout the course of 11 January 2011.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 158-159 and Section 9.3, pp 171-172.

320 The inflows into Lake Wivenhoe on 10 and 11 January 2011 included substantial inflows from Splyard Creek Dam caused by the release of water through that dam.

321 The release of water from Splyard Creek Dam into Lake Wivenhoe in the period 10 to 11 January 2011 increased the risk that there would be insufficient flood storage capacity in Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology.

Water Level

322 At or around 1:14 am on 10 January 2011:

- a) the water level of Lake Somerset was at approximately EL 102.22 m AHD and rising quickly; and

- b) the water level at Lake Wivenhoe was at approximately EL 69.60 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, pp 23-24.

323 At or around 6:30 am on 10 January 2011:

- a) the water level of Lake Somerset was at approximately EL 102.84 m AHD and rising quickly; and
- b) the water level at Lake Wivenhoe was at approximately EL 70.77 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, pp 25-26.

324 At or around 12:16 pm on 10 January 2011:

- a) the water level of Lake Somerset was at approximately EL 103.11 m AHD and rising quickly; and
- b) the water level at Lake Wivenhoe was at approximately EL 71.95 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, pp 28-29.

325 At or around 6:43 pm on 10 January 2011:

- a) the water level of Lake Somerset was at approximately EL 103.46 m AHD and rising; and

- b) the water level at Lake Wivenhoe was at approximately EL 72.92 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 30.

326 At or around 11:56 pm on 10 January 2011:

- a) the water level of Lake Somerset was at approximately EL 103.40 m AHD and falling slowly; and
- b) the water level at Lake Wivenhoe was at approximately EL 73.22 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 32.

327 At or around 6:12 am on 11 January 2011:

- a) the water level of Lake Somerset was at approximately EL 103.27 m AHD and falling slowly; and
- b) the water level at Lake Wivenhoe was at approximately EL 73.51 m AHD and rising quickly.

PARTICULARS

- A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix E, p 34.

328 A substantial contributing cause of the rise in level of Lake Wivenhoe in the period 9 to 11 January 2011 was the actions of the Flood Engineers, or one or more of them, in releasing significant volumes of water from Somerset Dam into Lake Wivenhoe in circumstances where there were already large inflows into Wivenhoe Dam, and where such releases were unnecessary

given the available capacity of the flood storage compartment of Lake Somerset.

Flood Operations

329 The Flood Engineers on duty on 10 and 11 January 2011 were as follows:

Shift Start Time	Shift Finish Time	Flood Operations Engineer
Sunday 9/1/2011 19:00	Monday 10/1/2011 07:00	Mr Ruffini Mr Ayre
Monday 10/1/2011 07:00	Monday 10/1/2011 19:00	Mr Malone Mr Tibaldi
Monday 10/1/2011 19:00	Tuesday 11/1/2011 07:00	Mr Ruffini Mr Ayre
Tuesday 11/1/2011 07:00	Tuesday 11/1/2011 19:00	Mr Malone Mr Tibaldi
Tuesday 11/1/2011 19:00	Wednesday 12/1/2011 7:00	Mr Ruffini Mr Ayre

329A In addition to the rostered shifts pleaded in the preceding paragraph:

- a) all four Flood Engineers met at or around the end of each shift on 10 and 11 January to discuss and agree the appropriate flood mitigation strategy given the prevailing and forecast conditions;
- b) Mr Ayre and Mr Ruffini assisted Mr Malone and Mr Tibaldi in conducting Flood Operations from approximately 1:00 pm on 11 January 2011; and
- c) Mr Malone and Mr Tibaldi assisted Mr Ayre and Mr Ruffini in conducting Flood Operations until approximately 11:00 pm on 11 January 2011.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam, 2 March 2011, p 34.*

329B In using the Real Time Flood Model on 10 and 11 January 2011 to predict future inflows into Lake Somerset and Lake Wivenhoe, the Flood Engineers selected and input initial losses and continuing loss rates as follows:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	10mm	2.5 mm/hr
COO (Cooyar Creek Region)	30 mm	0.5 mm/hr
LIN (Brisbane River at Linville Region)	30 mm	0.5 mm/hr
EMU (Emu Creek Region)	30 mm	0.5 mm/hr
GRE (Gregors Creek Region)	40 mm	0.5 mm/hr
SDI (Somerset Dam Inflow Region)	15 mm	0.5 mm/hr
WDI (Wivenhoe Dam Inflow Region)	0 mm	2.5 mm/hr

330 Throughout 10 and 11 January 2011, the Flood Engineers released water from Wivenhoe Dam at substantial rates of discharge (between approximately 1,462 m³/s and 7,464 m³/s).

PARTICULARS

A. Seqwater, *January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2, pp 158-159.

331 The water released from Wivenhoe Dam on 10 and 11 January 2011 was released in such volumes and at such rates that urban flooding downstream of Wivenhoe Dam was certain or, alternatively, very likely, to occur.

332 Notwithstanding the matters pleaded in paragraph 328, the Flood Engineers did not discontinue making substantial releases from Lake Somerset into Lake Wivenhoe until around 8:30 am on 11 January 2011.

PARTICULARS

- A. *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Appendix L, p 70.
- 333 By making substantial and unnecessary releases from Somerset Dam into Lake Wivenhoe in the period 10-11 January, the Flood Engineers, or one or more of them, increased the risk that there would be insufficient flood storage capacity in Lake Wivenhoe to store incoming flows should further rainfall occur in accordance with, or in excess of, that forecast by the Bureau of Meteorology.
- 334 Further, the Flood Engineers did not take any steps on or before around 6:00 pm on 11 January 2011:
- a) to inform Tarong Energy that conditions were such that releases from Splityard Creek Dam into Wivenhoe Dam would increase the risk of flooding downstream of Wivenhoe Dam; or
 - b) to request that Tarong Energy refrain from releasing water into Lake Wivenhoe.
- 335 Had the Flood Engineers requested that Tarong Energy refrain from releasing water from Splityard Creek Dam on 10 and 11 January 2011, Tarong Energy would have complied with that request.

PARTICULARS

- A. That Tarong Energy would have complied with the request is to be inferred from the circumstance that Tarong Energy did comply with a request to that effect when it was ultimately made by the Flood Engineers at or around 6:30 pm on 11 January 2011.
- B. Statement of Andrew Krotewicz to the Queensland Flood Commission of Inquiry, 13 September 2011, ATK-6.
- 336 The failure of the Flood Engineers to take the steps pleaded in paragraph 334 before 6:00 pm on 11 January 2011 increased the risk that they would be required to release water from Wivenhoe Dam in the following hours or

days in volumes that would cause flooding in urban areas downstream of Wivenhoe Dam.

PARTICULARS

- A. The effect of the failure pleaded in Paragraph 334 of the SOC on the water level in Wivenhoe Dam is that described in Tarong Energy's report entitled *January 2011 Exceptional Rainfall Event: Review of Events and Actions*, February 2011, Appendix 7.

10-11 January 2011 Breaches

337 In the circumstances pleaded in paragraphs 310-328, on 10 and 11 January 2011, there was a substantial risk:

- a) that, unless releases into Lake Wivenhoe from Somerset Dam and Splityard Creek Dam were immediately stopped there would be insufficient flood storage capacity in 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, or more such flooding than would otherwise be necessary if releases from Somerset Dam and Splityard Creek Dam were stopped on 10 and 11 January 2011.

338 [Not used]

339 Further, by reason of the matters pleaded at paragraphs 310-328 and 337, a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 10 and 11 January 2011:

- a) would have complied with the Flood Mitigation Manual;
- b) would have significantly reduced releases from Somerset Dam into Lake Wivenhoe;
- c) would have immediately informed Tarong Energy that the conditions were such that releases from Splityard Creek Dam into Wivenhoe

Dam would increase the risk of flooding downstream of Wivenhoe Dam;

- d) would have immediately requested that Tarong Energy discontinue releasing water into Lake Wivenhoe;
- e) would have continued storing inflows in Lake Somerset by ensuring that releases from Lake Somerset were substantially less than the rate of inflow;
- f) [Not used]
- g) [Not used]
- h) [Not used]
- i) [Not used]
- j) 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:

Region	Initial Losses	Continuing Loss Rates
CRE (Cressbrook Creek Region)	2.1 mm	0.05 mm/hr
COO (Cooyar Creek Region)	2.1 mm	0.05 mm/hr
LIN (Brisbane River at Linville Region)	2.1 mm	0.05 mm/hr
EMU (Emu Creek Region)	2.1 mm	0.05 mm/hr
GRE (Gregors Creek Region)	2.1 mm	0.05 mm/hr
SDI (Somerset Dam Inflow Region)	1.0 mm	0.02 mm/hr
WDI (Wivenhoe Dam Inflow Region)	1.0 mm	0.02 mm/hr

PARTICULARS

- A. A reasonably prudent flood engineer would have complied with the Flood Mitigation Manual by taking the actions pleaded in paragraphs 339(b)-(i).
- B. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- C. Christensen Report, Chapter VIII, [953]-[998].
- D. Christensen Report, Chapter X, [1357]-[1390], [1507]-[1540], [1636]-[1669], [1742]-[1773], [1830]-[1862], [1896]-[1937].
- E. Christensen Supplemental Report, Volume 2, pp 4-5.
- F. Christensen Supplemental Report, Chapter VI, [233]-[253], [268]-[269].

339A Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252, 270-275, 291-295 and 310-319, 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 10 January 2011 (contrary to what occurred in fact), there would have remained a significant risk on 10 January 2011 that:

- a) unless releases were continued at 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) without such capacity, subsequent releases would be necessary in volumes that would cause urban flooding downstream of Wivenhoe Dam.

339B Further, by reason of the matters pleaded in paragraphs 151-152, 163A-165, 170-170A, 174, 179A-182, 192-201, 214-219, 231-236, 248-252, 270-275, 291-295, 310-319 and 339A, by the end of 10 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 kept the water level in Lake Somerset to no higher than approximately EL 103.28 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 67.99 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), and having continued reasonably Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 103.31 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 68.00 m AHD; or, alternatively,
- c) having first commenced reasonably prudent Flood Operations on 5 January 2011 (by taking the actions pleaded in paragraph 228 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 103.18 m AHD, and would have kept the water level in Lake Wivenhoe to no higher than approximately EL 68.42 m AHD; or, alternatively,
- d) having first commenced reasonably prudent Flood Operations on 6 January 2011 (by taking the actions pleaded in paragraph 245 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 103.58 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 68.99 m AHD; or alternatively,
- e) having first commenced reasonably prudent Flood Operations on 7 January 2011 (by taking the actions pleaded in paragraph 267 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 104.00 m AHD, and would have kept

the water level in Lake Wivenhoe to approximately EL 70.05 m AHD;
or alternatively,

- f) having first commenced reasonably prudent Flood Operations on 8 January 2011 (by taking the actions pleaded in paragraph 288 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 104.65 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 71.10 m AHD;
or alternatively,
- g) having first commenced reasonably prudent Flood Operations on 9 January 2011 (by taking the actions pleaded in paragraph 307 above), and having continued reasonably prudent Flood Operations since that time, would have kept the water level in Lake Somerset to no higher than approximately EL 104.72 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 71.64 m AHD;
or alternatively,
- h) having first commenced reasonably prudent Flood Operations on 10 January 2011 (by taking the actions pleaded in paragraph 339 above), would have kept the water level in Lake Somerset to no higher than approximately EL 104.39 m AHD, and would have kept the water level in Lake Wivenhoe to approximately EL 72.47 m AHD.

PARTICULARS

- A. Flood Mitigation Manual, sections 1.1, 3.1, 8.4, 8.5, 9.3, 9.4.
- B. Christensen Report, Chapter VIII, [953]-[975].
- C. Christensen Report, Chapter X, [1357]-[1373], [1507]-[1523], [1636]-[1651], [1742]-[1756], [1830]-[1845], [1896]-[1920].
- D. Christensen Report, Volume 2, pp 190-191, 378-379, 424-425, 464-465, 500-501.
- E. Christensen Supplemental Report, Chapter VI, [233]-[244], [268]-[269].

F. Christensen Supplemental Report, Volume 2, pp 69-70, 122-123, 150-151.

340 By reason of the matters pleaded in paragraphs 310-339B, the Flood Engineers (or one or more of them):

- a) failed to do one or more of the things pleaded in paragraph 339 in the period 10 January to 11 January 2011; and, or alternatively,
- b) failed, by the end of 10 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 339B.

341 In the circumstances 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 10 and 11 January 2011 (the **10-11 January Breaches**).

W Causation and Loss

342 In the period 9 January to 11 January 2011, there was substantial rainfall in the catchment areas of Lake Somerset and Lake Wivenhoe, which generated significant runoff volumes into Lake Somerset and Lake Wivenhoe.

343 By reason of one or more of:

- a) the 16 December Breaches;
- b) the 17-24 December Breaches;
- c) 25 December – 1 January Breaches;
- d) 2 January Breaches;
- e) the 3-5 January Breaches;
- f) the 6 January Breaches;
- g) the 7 January Breaches;

- h) the 8 January Breaches; and
- i) the 9 January Breaches; and
- j) the 10-11 January Breaches (collectively, the **Flood Engineers' Breaches**);

there was insufficient available capacity in Lake Somerset and Lake Wivenhoe in the period from the evening of 9 January to 11 January 2011 to store incoming inflows, or to mitigate effectively the effect of such inflows.

- 344 In circumstances where rainfall and inflows were ongoing in the period 9 January to 11 January 2011, the lack of available flood storage capacity at Lake Somerset and Lake Wivenhoe necessitated the release of large volumes of water from Wivenhoe Dam in order to protect the structural integrity of Wivenhoe Dam.

PARTICULARS

- A. The volume of water released from Wivenhoe Dam in the period 9 January 2011 to 19 January 2011 is that reported by Seqwater in its report entitled *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2.

- 345 In the period from the evening of 9 January to 19 January 2011, the Flood Engineers caused Wivenhoe Dam to release water in large volumes, causing flooding of urban land downstream of Wivenhoe Dam.

PARTICULARS

- A. The volume of water released from Wivenhoe Dam in the period 9 January 2011 to 19 January 2011 is that reported by Seqwater in its report entitled *Seqwater, January 2011 Flood Event: Report on the Operation of Somerset Dam and Wivenhoe Dam*, 2 March 2011, Section 9.2.

- 346 The large volume releases from Wivenhoe Dam in the period 9 January 2011 to 19 January 2011:

- a) would not have been necessary, or would have been of smaller volume, had the Flood Engineers not committed one or more of the Flood Engineers' Breaches;
- b) caused:
 - i) flooding downstream of Wivenhoe Dam in circumstances where such flooding would not have otherwise occurred had the Flood Engineers not committed one or more of the Flood Engineers' Breaches; or
 - ii) greater flooding downstream of Wivenhoe Dam than would have occurred had the Flood Engineers not committed one or more of the Flood Engineers' Breaches;

(both are referred to in this pleading for convenience as "**Greater Flooding**");

PARTICULARS

- A. The Greater Flooding was more extensive than the flooding downstream of Wivenhoe Dam that would have occurred absent the Flood Engineers' Breaches, both in terms of the geographical extent of downstream flooding and the depths of the flood waters in the flooded areas.
- B. The approximate geographic extent of Greater Flooding is indicated in the map that is Schedule A to this ~~Further~~ Third Amended Statement of Claim. The area shaded red indicates the extent of inundation had Somerset Dam and Wivenhoe Dam not been negligently operated and the area shaded orange indicates the geographic extent of Greater Flooding.
- C. The extent of Greater Flooding in terms of depth can be inferred from the geographical extent of such flooding. It is a function of the difference between the elevation levels of the areas that flooded in fact, and the elevation levels of those areas which would have flooded even absent the Flood Engineers' Breaches according to the map in Schedule A.

- D. Further particulars of the precise extent of Greater Flooding (both in terms of geographic extent and depth) will be provided upon service of the plaintiff's expert hydrology evidence.
- c) caused loss or damage to the plaintiff and the Group Members in circumstances where the plaintiff and the Group Members:
 - i. would not have suffered any loss or damage; or
 - ii. would have suffered lesser loss or damage;had the Flood Engineers not committed one or more of the Flood Engineers' Breaches.

347 By reason of the matters pleaded in paragraphs 342-346, the Flood Engineers' Breaches, or one or more of them, caused loss or damage to the plaintiff;

PARTICULARS

- A. The premises from which the plaintiff conducted its business was inundated with water on or around 12 January 2011. The flood water did not recede from the premises until on or around 14 January 2011.
- B. The plaintiff's business had to be closed from 11 January 2011 (due to the likelihood of imminent inundation) until 26 May 2011 as a result of the inundation with water. The plaintiff was not able to continue operating its business for that period.
- C. The plaintiff suffered loss and damage as a result of the inundation.
- D. The plaintiff's loss and damage consists of:
 - a. damage caused to fixtures, fittings, stock and equipment as a result of the inundation;
 - b. loss of sales and profits for the period in which the premises had to be closed;

- c. costs associated with repairs and restoration of the premises; and
- d. costs associated with hiring a storage facility in which to store stock and equipment that was not damaged by the flood.

E. The plaintiff's loss is quantified in the expert report of Martin Cairns of Sapere Research Group Limited dated 29 June 2015.

348 The loss or damage pleaded in the preceding paragraph was the natural and foreseeable consequence of one or more of the Flood Engineers' Breaches.

X Direct Liability of Seqwater and SunWater in Negligence

Direct Liability of Seqwater in Negligence

349 In circumstances where the Flood Engineers (or one or more of them) committed one or more of the Flood Engineers' Breaches in the period 16 December 2010 to 11 January 2011, Seqwater breached:

- a) Seqwater's Duty as Owner and Occupier; and, or alternatively,
- b) Seqwater's Duty as Licensee; ~~and~~.

and thereby caused Greater Flooding.

350 In circumstances where the Flood Engineers' Breaches, or one or more of them, caused loss or damage to the plaintiff as pleaded in paragraph 347, Seqwater's breach of:

- a) Seqwater's Duty as Owner and Occupier; and, or alternatively,
- b) Seqwater's Duty as Licensee;

caused the loss or damage to the plaintiff pleaded in paragraph 347.

PARTICULARS

- A. The particulars to paragraph 347 are repeated.

Liability of SunWater in Negligence

- 351 At all material times in the period from 16 December 2010 to 11 January 2011, SunWater:
- a) had practical control of Flood Operations at Somerset Dam and Wivenhoe Dam; and
 - b) was able to supervise and control the Flood Engineers in the conduct of the Flood Operations at Somerset Dam and Wivenhoe Dam.
- 352 In circumstances where the Flood Engineers (or one or more of them) committed one or more of the Flood Engineers' Breaches in the period 16 December 2010 to 11 January 2011, and SunWater had supervision and control over the conduct of the Flood Operations by the Flood Engineers in that period, SunWater breached its duty of care to the plaintiff and other Group Members and thereby caused Greater Flooding.
- 353 In circumstances where the Flood Engineers' Breaches, or one or more of them, caused loss or damage to the plaintiff as pleaded in paragraph 347, SunWater's breach of its duty of care caused the loss or damage to the plaintiff pleaded in paragraph 347.

PARTICULARS

- A. The particulars to paragraph 347 are repeated.

Y Private Nuisance and Trespass

- 354 Further, and in the alternative to the allegations in negligence above, the plaintiff brings these proceedings on its own behalf and on behalf of those Group Members who held an interest in land located downstream of Wivenhoe Dam (whether in the nature of freehold title, lease or otherwise), and whose use or enjoyment of that interest was interfered with by reason of the inundation by water in the period 9 January 2011 to 24 January 2011

of that land, ~~or other land located downstream of Wivenhoe Dam~~
(**Subgroup Members**).

355 Paragraphs 143, 147 and 149 are repeated.

356 At all material times in December 2010 and January 2011, the Risk of Interference with Use and Enjoyment was reasonably foreseeable by the Flood Engineers.

357 In the period 9 January to 19 January 2011, the Flood Engineers (or one or more of them) released water from Wivenhoe Dam in volumes that caused Greater Flooding of land in which the plaintiff and other Subgroup Members held interests such that the plaintiff and Subgroup Members suffered loss or damage.:-

- a) ~~Greater Flooding of land in which the plaintiff and other Subgroup Members held interests; and~~
- b) ~~land in which the plaintiff and other Subgroup Members held interests to become inaccessible or practically unusable because of Greater Flooding of other land located downstream of Wivenhoe Dam;~~
~~such that Subgroup Members suffered loss or damage.~~

358 The releases of water made by the Flood Engineers in the period 9 January to 19 January 2011 were practicably avoidable and would have been unnecessary, or of smaller volume, had the Flood Engineers made sufficient precautionary releases from Wivenhoe Dam in the period 16 December 2010 to 9 January 2011.

359 In the premises:

- a) the releases of water made from Wivenhoe Dam in the period 9 January to 19 January 2011 substantially and unreasonably interfered with the use or enjoyment of interests in land held by the plaintiff and other Subgroup Members; and
- b) constituted a private nuisance.

360 Further:

- a) the nuisance arose on land owned and controlled by Seqwater;
- b) Seqwater was the sole entity with lawful authority to release water from Somerset Dam and Wivenhoe Dam under the Water Act;
- c) Seqwater permitted SunWater and the Flood Engineers to conduct Flood Operations at Somerset Dam and Wivenhoe Dam;
- d) the conduct of Flood Operations at Somerset Dam and Wivenhoe Dam carried with it the inherent risk of the nuisance;
- e) Seqwater knew, or ought reasonably to have known, that the Flood Engineers (or one or more of them) had caused the nuisance by failing to make sufficient precautionary releases in the period 16 December 2010 to 9 January 2011; and
- f) Seqwater failed to take reasonable steps to bring the nuisance to an end or to prevent the nuisance from interfering with the use or enjoyment of interests in land held by the plaintiff and other Subgroup Members.

361 By reason of the matters pleaded in paragraph 360, to the extent the pleaded nuisance was caused by the Flood Engineers (or one or more of them), Seqwater is directly liable for the nuisance.

362 Further, and in the alternative to paragraph 359, the releases of water from Wivenhoe Dam in the period 9 January to 19 January 2011 constituted a trespass to land committed by the Flood Engineers (or one or more of them) to the extent that the released water entered onto any land in which the plaintiff or any Subgroup Members held an interest.

Z Vicarious Liability

Vicarious Liability of Seqwater

363 To the extent that Mr Tibaldi committed one or more of:

- a) the 16 December Breaches;
- b) the 17-24 December Breaches;

- c) the 25 December – 1 January Breaches;
- d) the 3-5 January Breaches;
- e) the 8 January Breaches;
- f) the 9 January Breaches; and
- g) the 10-11 January Breaches;

those breaches were in the course of Mr Tibaldi's employment.

364 To the extent that Mr Malone committed one or more of:

- a) the 16 December Breaches;
- b) the 17-24 December Breaches;
- c) the 25 December – 1 January Breaches;
- d) the 2 January Breaches;
- e) the 3-5 January Breaches;
- f) the 6 January Breaches;
- g) the 7 January Breaches;
- h) the 8 January Breaches;
- i) the 9 January Breaches; and
- j) the 10-11 January Breaches;

those breaches were in the course of Mr Malone's employment.

365 Seqwater was accordingly vicariously liable for each of the Flood Engineers' Breaches committed by:

- a) Mr Tibaldi; or
- b) Mr Malone.

366 To the extent Mr Tibaldi engaged in the conduct pleaded in paragraph 357, that conduct was in the course of Mr Tibaldi's employment.

367 To the extent Mr Malone engaged in the conduct pleaded in paragraph 357, that conduct was in the course of Mr Malone employment.

368 Seqwater was accordingly vicariously liable for the nuisance or trespass alleged in paragraphs 354-359 and 362 to the extent that that nuisance or trespass was caused by:

- a) Mr Tibaldi; or
- b) Mr Malone.

Vicarious Liability of SunWater

369 To the extent that Mr Ayre committed one or more of:

- a) the 17-24 December Breaches;
- b) the 25 December – 1 January Breaches;
- c) the 2 January Breaches;
- d) the 3-5 January Breaches;
- e) the 6 January Breaches;
- f) the 7 January Breaches;
- g) the 8 January Breaches;
- h) the 9 January Breaches; and
- i) the 10-11 January Breaches;

those breaches were in the course of Mr Ayre's employment.

370 SunWater was accordingly vicariously liable for each of the Flood Engineers' Breaches committed by Mr Ayre.

371 To the extent Mr Ayre engaged in the conduct pleaded in paragraph 357, that conduct was in the course of Mr Ayre's employment.

372 SunWater was accordingly vicariously liable for the nuisance or trespass alleged in paragraphs 354-359 and 362 to the extent that that nuisance or trespass was caused by Mr Ayre.

Vicarious Liability of the State of Queensland

373 To the extent that Mr Ruffini committed one or more of:

- a) the 17-24 December Breaches;
- b) the 25 December – 1 January Breaches;
- c) the 3-5 January Breaches;
- d) the 7 January Breaches;
- e) the 8 January Breaches;
- f) the 9 January Breaches; and
- g) the 10-11 January Breaches;

those breaches were in the course of Mr Ruffini's employment.

374 The State of Queensland was accordingly vicariously liable for each of the Flood Engineers' Breaches committed by Mr Ruffini.

375 To the extent Mr Ruffini engaged in the conduct pleaded in paragraph 357, that conduct was in the course of Mr Ruffini's employment.

376 The State of Queensland was accordingly vicariously liable for the nuisance or trespass alleged in paragraphs 354-359 and 362 to the extent that that nuisance or trespass was caused by Mr Ruffini.

377 Further, and in the alternative to paragraphs 374 and 376, to that extent that the State of Queensland is not vicariously liable for the Flood Engineers' Breaches committed by Mr Ruffini, or the alleged nuisance or trespass by Mr Ruffini, as a result of the arrangements pleaded in paragraph 93, SunWater is vicariously liable for:

- a) each of the Flood Engineers' Breaches alleged in paragraph 373 committed by Mr Ruffini; and
- b) the nuisance or trespass alleged in paragraphs 354-359 and 362 to the extent that that nuisance or trespass was caused by Mr Ruffini.

AA Section 374 of the Water Supply Act

378 On or around 22 December 2010, the Chief Executive of DERM approved the Flood Mitigation Manual for a period of 5 years under s 371 of the Water Supply Act.

PARTICULARS

- A. Queensland, *Queensland Government Gazette*, Vol 353 No 15, 22 January 2010, p 127.

379 By reason of the matters pleaded in paragraph 378, to the extent that Section 374 of the Water Supply Act would prevent civil liability attaching to one or more of:

- a) Seqwater;
- b) SunWater; and
- c) the Flood Engineers;

that liability attaches to the State of Queensland by operation of Section 374(3) of the Water Supply Act.

BB Relief

380 The plaintiff, on its own behalf and on behalf of other Group Members, claims relief as follows:

- a) from Seqwater:
 - i) damages;
 - ii) interest in accordance with s 100 of the *Civil Procedure Act 2005* (NSW); and

- iii) costs;
- b) from SunWater:
 - i) damages;
 - ii) interest in accordance with s 100 of the *Civil Procedure Act 2005* (NSW); and
 - iii) costs;
- c) from the State of Queensland:
 - i) damages;
 - ii) interest in accordance with s 100 of the *Civil Procedure Act 2005* (NSW); and
 - iii) costs.

SIGNATURE OF LEGAL REPRESENTATIVE

I certify under section 347 of the Legal Profession Act 2004 that there are reasonable grounds for believing on the basis of provable facts and a reasonably arguable view of the law that the claim for damages in these proceedings has reasonable prospects of success.

I have advised the plaintiffs that court fees may be payable during these proceedings. These fees may include a hearing allocation fee.

Signature



Capacity

Solicitor on the record

Date of signature

11 March 2016

NOTICE TO DEFENDANT

If you do not file a defence within 28 days of being served with this statement of claim:

- You will be in default in these proceedings.
- The court may enter judgment against you without any further notice to you.

The judgment may be for the relief claimed in the statement of claim and for the plaintiff's costs of bringing these proceedings. The court may provide third parties with details of any default judgment entered against you.

HOW TO RESPOND

Please read this statement of claim very carefully. If you have any trouble understanding it or require assistance on how to respond to the claim you should get legal advice as soon as possible.

You can get further information about what you need to do to respond to the claim from:

- A legal practitioner.
- LawAccess NSW on 1300 888 529 or at www.lawaccess.nsw.gov.au.
- The court registry for limited procedural information.

You can respond in one of the following ways:

- 1 If you intend to dispute the claim or part of the claim,** by filing a defence and/or making a cross-claim.
- 2 If money is claimed, and you believe you owe the money claimed, by:**
 - Paying the plaintiff all of the money and interest claimed. If you file a notice of payment under UCPR 6.17 further proceedings against you will be stayed unless the court otherwise orders.
 - Filing an acknowledgement of the claim.
 - Applying to the court for further time to pay the claim.
- 3 If money is claimed, and you believe you owe part of the money claimed, by:**
 - Paying the plaintiff that part of the money that is claimed.
 - Filing a defence in relation to the part that you do not believe is owed.

Court forms are available on the UCPR website at www.lawlink.nsw.gov.au/ucpr or at any NSW court registry.

REGISTRY ADDRESS

Street address	Supreme Court of NSW Law Courts Building 184 Phillip Street SYDNEY NSW 2000
Postal address	GPO Box 3 SYDNEY NSW 2001
Telephone	(02) 9230 8111

AFFIDAVIT VERIFYING

Name Vicente Rodriguez
Address C/- Pluta Accountants
858 Oxley Road
Corinda QLD 4075
Occupation Director of Rodriguez & Sons Pty Ltd
Date 11 March 2016

I say on oath:

- 1 I am the sole director of Rodriguez & Sons Pty Ltd (ACN 108 770 681).
- 2 I believe that the allegations of fact in the statement of claim are true.

SWORN at BRISBANE

Signature of deponent



Name of witness

Vavaa Mawuli

Address of witness

Level 8, 179 North Quay, Brisbane QLD 4000

Capacity of witness

Solicitor

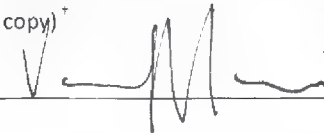
And as a witness, I certify the following matters concerning the person who made this affidavit (the deponent):

- 1 I saw the face of the deponent.
- 2 I have confirmed the deponent's identity using the following identification document:

Driver's Licence

Identification document relied on (may be original or certified copy)†

Signature of witness



PARTY DETAILS

PARTIES TO THE PROCEEDINGS

Plaintiff

Rodriguez & Sons Pty Ltd (ACN 108 770 681)

Defendants

Queensland Bulk Water Supply Authority trading as Seqwater (First Defendant)

SunWater Limited (ACN 131 034 985) (Second Defendant)

State of Queensland (Third Defendant)

FURTHER DETAILS ABOUT PLAINTIFF

Plaintiff

Name Rodriguez & Sons Pty Ltd (ACN 108 770 681)

Address C/- Pluta Accountants

85 Oxley Road

Corinda QLD 4075

Legal representative for plaintiff

Name Rebecca Gilsenan

Practising certificate number

Firm Maurice Blackburn Pty Ltd

Address Level 32, 201 Elizabeth Street

Sydney NSW 2000

DX address	DX 13002, Sydney Market Street
Telephone	(02) 9261 1488
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Email	RGilsenan@mauriceblackburn.com.au
Electronic service address	RGilsenan@mauriceblackburn.com.au

DETAILS ABOUT DEFENDANTS

First defendant

Name	Queensland Bulk Water Supply Authority trading as Seqwater
Address	C/- King and Wood Mallesons Level 33, Waterfront Place 1 Eagle Street Brisbane QLD 4000

Second defendant

Name	SunWater Limited (ACN 131 034 985)
Address	C/- Norton Rose Fulbright Level 18, Grosvenor Place 225 George Street Sydney NSW 2000

Third defendant

Name	State of Queensland
Address	C/- Crown Law, Department of Attorney General and Justice State Law Building 50 Ann Street Brisbane QLD 4000

SCHEDULE A

Indicative Comparison Map: Actual Flood vs Non-Negligent Operation