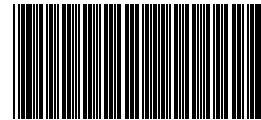




Filed: 27 November 2017 5:12 PM



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Amended Defence

COURT DETAILS

Court	Supreme Court of NSW
Division	Common Law
List	Common Law General
Registry	Supreme Court Sydney
Case number	2014/00200854

TITLE OF PROCEEDINGS

First Plaintiff	Rodriguez & Sons Pty Ltd ACN 108770681
First Defendant	Queensland Bulk Water Supply Authority trading as Seqwater
Second Defendant	SunWater Limited (ACN 131 034 985)
Number of Defendants	3

FILING DETAILS

Filed for	State of Queensland, Defendant 3
Legal representative	Lea Armstrong
Legal representative reference	
Telephone	(02) 9224 5000

ATTACHMENT DETAILS

In accordance with Part 3 of the UCPR, this coversheet confirms that both the Lodge Document, along with any other documents listed below, were filed by the Court.

Amended Defence (Amended Defence of Third Defendant - Rodriguez.pdf)

[attach.]

Form 7A (version 4)
UCPR 14.3

AMENDED DEFENCE OF THIRD DEFENDANT

COURT DETAILS

Court	Supreme Court of New South Wales
Division	Common Law
Registry	Sydney
Case number	2014/200854

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	State of Queensland, Third Defendant
Filed in relation to	Plaintiff's claim
Legal representative	Crown Solicitor, Queensland
Legal representative reference	PRE052/1942
Contact name and telephone	Mr Chris Gasteen, (07) 3239 0292
Contact email	chris.gasteen@crownlaw.qld.gov.au

PLEADINGS AND PARTICULARS

1. As to paragraph 1 of the ~~Further~~ Fifth Amended Statement of Claim (**Statement of Claim**), the third defendant (**the State**):
 - (a) admits sub-paragraph 1(a);
 - (b) does not admit sub-paragraphs 1(b) and 1(c).
2. The State admits paragraph 2 of the Statement of Claim.
3. The State admits paragraph 3 of the Statement of Claim.
4. The State admits paragraph 4 of the Statement of Claim.

Group Members and Common Questions

5. As to paragraph 5 of the Statement of Claim, the State:

- (a) admits that in January 2011, the Brisbane and Bremer Rivers and their tributaries flooded causing substantial inundation to areas located downstream of Wivenhoe Dam;
 - (b) does not admit that such inundation occurred in the period 9 to 24 January 2011;
 - (c) says that the flood level in the Brisbane River peaked at the Brisbane Port Office gauge at about 4.46 m Australian Height Datum (**AHD**) on Thursday, 13 January 2011 at about 03:00 and thereafter receded to about 1.1 m AHD on Sunday, 16 January 2011 at about midnight;
 - (d) does not admit that the areas of inundation caused by flooding of the Brisbane and Bremer Rivers and their tributaries are as indicated on the map referred to in the particulars to paragraph 5 of the Statement of Claim.
6. As to paragraphs 6, 7, 8, 9 and 10 of the Statement of Claim, the State:
- (a) does not know the identity of the Group Members having sought, but been refused, particulars of the Group Members;
 - (b) by reason of (a), does not admit the allegations.

Somerset Dam

- 7. The State admits paragraph 11 of the Statement of Claim.
- 8. The State admits paragraph 12 of the Statement of Claim.
- 9. The State admits paragraph 13 of the Statement of Claim.
- 10. The State admits paragraph 14 of the Statement of Claim.
- 11. The State admits paragraph 15 of the Statement of Claim.
- 12. The State admits paragraph 16 of the Statement of Claim.
- 13. As to paragraphs 17 and 18 of the Statement of Claim, the State:
 - (a) says that:
 - (i) there is a risk of cavitation damage to the cone dispersion valves when the level of Lake Wivenhoe produces tail waters more than elevation level 68.6 m AHD ("**EL**") below Lake Somerset;
 - (ii) in practice the cone dispersion valves were not used when the tail waters of Lake Wivenhoe rose above EL 68.6;
 - (b) otherwise admits the allegations.
- 14. As to paragraph 19 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters stated in response to paragraphs 127 to 129 of the Statement of Claim below;
 - (b) says that:
 - (i) prior to December 2010 there had been a number of engineering assessments of the capabilities of Somerset Dam as a result of which there was uncertainty as to the security of the dam at high lake levels;
 - (ii) if Somerset Dam failed that could cause a cascading failure of Wivenhoe Dam resulting in devastating downstream flooding;
 - (c) Mr Ruffini was aware of the facts and matters pleaded in preceding subparagraph in December 2010 and January 2011;
 - (d) otherwise admits the allegations.
15. As to paragraph 20 of the Statement of Claim, the State:
- (a) admits that the Full Supply Level (**FSL**) of Lake Somerset was EL 99.0;
 - (b) says that the Manual of Operational Procedures for Flood Mitigation at Wivenhoe Dam and Somerset Dam, Revision 7, November 2009 (**Flood Mitigation Manual**) defines the FSL as "*the level of the water surface when the reservoir is at maximum operating level, excluding periods of flood discharge*";
 - (c) otherwise denies the allegations.
16. The State admits paragraph 21 of the Statement of Claim.
17. As to paragraph 22 of the Statement of Claim, the State:
- (a) admits that the capacity of the flood storage compartment of Lake Somerset was approximately 524,000 ML taking the upper limit as the crest level of Somerset Dam (being approximately EL 107.5);
 - (b) says that when the water level of Somerset Dam is at FSL the flood storage compartment is empty;
 - (c) otherwise denies the allegations.
18. The State admits paragraph 23 of the Statement of Claim.
19. The State admits paragraph 24 of the Statement of Claim.
20. The State admits paragraph 25 of the Statement of Claim.
21. As to paragraph 26 of the Statement of Claim:

- (a) does not admit that in December 2010 and January 2011 Somerset Dam had the capacity to withstand overtopping;
 - (b) admits that Somerset Dam was designed to withstand limited overtopping over the radial gates but not over the top deck of the Dam;
 - (c) repeats and relies upon the matters pleaded in response to paragraph 19 to the Statement of claim.
22. As to paragraph 27 of the Statement of Claim, the State:
- (a) says that EL 109.7 represented the likely failure level for Somerset Dam assuming all gates are fully open;
 - (b) repeats and replies upon the matters pleaded in response to paragraphs 19 and 26 of the Statement of Claim above;
 - (c) otherwise admits the allegations.

Wivenhoe Dam

23. The State admits paragraph 28 of the Statement of Claim.
24. The State admits paragraph 29 of the Statement of Claim.
25. As to paragraph 30 of the Statement of Claim, the State:
- (a) denies the allegation that water in Lake Wivenhoe abuts the face of Somerset Dam when Lake Wivenhoe is at FSL;
 - (b) otherwise admits the allegations.
26. The State admits paragraph 31 of the Statement of Claim.
27. The State admits paragraph 32 of the Statement of Claim.
28. The State admits paragraph 33 of the Statement of Claim.
29. The State admits paragraph 34 of the Statement of Claim.
30. The State admits paragraph 35 of the Statement of Claim.
31. The State admits paragraph 36 of the Statement of Claim.
32. The State admits paragraph 37 of the Statement of Claim.
33. The State admits paragraph 38 of the Statement of Claim.
34. The State admits paragraph 39 of the Statement of Claim.
35. The State admits paragraph 40 of the Statement of Claim.

36. The State admits paragraph 41 of the Statement of Claim.
37. As to paragraph 42 of the Statement of Claim, the State:
 - (a) says that the flood travel time from Wivenhoe Dam to Brisbane City is approximately 26 hours, but may depend upon a variety of factors including flood magnitude;
 - (b) otherwise denies the allegation.
38. As to paragraph 43 of the Statement of Claim, the State:
 - (a) denies that Lake Wivenhoe has a compartment described as a "drinking water storage compartment";
 - (b) says that the compartment other than flood storage is properly to be described as that to be used for "supply";
 - (c) says that when the water level of Wivenhoe Dam is at FSL the flood storage compartment is empty;
 - (d) otherwise admits the allegations.
39. As to paragraph 44 of the Statement of Claim, the State:
 - (a) denies the allegations;
 - (b) says that Wivenhoe Dam was not designed for hydroelectric power generation.
40. The State admits paragraph 45 of the Statement of Claim.
41. As to paragraph 46 of the Statement of Claim, the State:
 - (a) admits that the Primary and the Auxiliary Spillways have elements of concrete embedded within a portion of the earthen embankment of Wivenhoe Dam;
 - (b) says that the spillways are constructed as depicted at pages 71 and 73 of the Flood Mitigation Manual;
 - (c) otherwise denies the allegations.
42. The State admits paragraph 47 of the Statement of Claim.
43. As to paragraph 48 of the Statement of Claim, the State:
 - (a) admits 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;

- (b) says that the Flood Mitigation Manual directs the manner in which the Flood Engineers are to operate the Primary Spillway;
- (c) otherwise denies the allegations.
44. The State admits paragraph 49 of the Statement of Claim.
45. As to paragraph 50 of the Statement of Claim, the State:
- (a) admits that the erodible fuse plugs in the Auxiliary Spillway are designed so that, before Wivenhoe Dam overtops, the fuse plugs erode;
- (b) otherwise denies the allegations.
46. As to paragraph 51 of the Statement of Claim, the State:
- (a) repeats and relies upon its response to paragraph 50 of the Statement of Claim above;
- (b) otherwise admits the allegations.
47. The State admits paragraph 52 of the Statement of Claim.
48. The State admits paragraph 53 of the Statement of Claim.

Flood Mitigation

49. As to paragraphs 54, 55, 56, 57, 58 and 59 of the Statement of Claim, the State:
- (a) says that the Flood Mitigation Manual materially contained the following provisions:

1. INTRODUCTION

1.1 Preface

Given their potential significant impact on downstream populations, it is imperative that Wivenhoe and Somerset Dams be operated during flood events in accordance with clearly defined procedures to minimise impacts to life and property. This manual outlines these procedures and is an approved Flood Mitigation Manual under Water Supply Act 2008.

...

The primary objectives of the procedures contained in this Manual are essentially the same as those contained in previous Manual versions. These objectives in order of importance are:

- *Ensure the structural safety of the dams;*
- *Provide optimum protection of urbanised areas from inundation;*
- *Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;*
- *Retain the storage at Full Supply Level at the conclusion of the Flood Event.*
- *Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.*

In meeting these objectives, the dams must be operated to account for the potential effects of closely spaced Flood Events. Accordingly, normal procedures require stored floodwaters to be emptied from the dams within seven days of the flood event peak passing through the dams.

Wivenhoe Dam and Somerset Dam are operated in conjunction so as to maximise the overall flood mitigation capabilities of the two dams. The procedures outlined in this Manual are based on the operation of the dams in tandem.

...

1.3 Purpose of Manual

The purpose of this Manual is to define procedures for the operation of Wivenhoe Dam and Somerset Dam to reduce, so far as practicable, the effects of flooding associated with the dams. This is achieved by the proper control and regulation in time of the flood release infrastructure at the dams, with due regard to the safety of the dam structures.

The procedures in this Manual have been developed on the basis that the community is to be protected to the maximum extent practical against flood hazards recognising the limitations on being able to:

- *Obtain accurate forecasts of rainfall during flood events;*
- *Accurately estimate flood run-off within the dam catchments;*
- *Identify all potential flood hazards and their likelihood;*
- *Remove or reduce community vulnerability to flood hazards;*
- *Effectively respond to flooding;*
- *Provide resources in a cost effective manner.*

...

1.5 Application and Effect

The procedures in this Manual apply to the operation of Wivenhoe Dam and Somerset Dam for the purpose of flood mitigation, and operation in accordance with the manual shall give the protection from liability provided by Section 374 of the Act.

...

1.7 Observance of Manual

This Manual contains the operational procedures for Wivenhoe Dam and Somerset Dam for the purposes of flood mitigation and must be used for the operation of the dams during flood events.

...

2. DIRECTION OF OPERATIONS

2.1 Statutory Operation

Pursuant to the provisions of the Act, Seqwater is responsible for operating and maintaining the dams in accordance with this Manual in order to retain the protection from liability afforded by the Act. Operators, employees, agents, and contractors working for Seqwater must also comply with this Manual to obtain the protection of the Act.

...

3. FLOOD MITIGATION OBJECTIVES

3.1 General

To meet the purpose of the flood operational procedures in this Manual, the following objectives, listed in descending order of importance, are as follows:

- *Ensure the structural safety of the dams;*
- *Provide optimum protection of urbanised areas from inundation;*
- *Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;*

- *Retain the storage at Full Supply Level at the conclusion of the Flood Event.*
- *Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.*

In meeting these objectives, the dams must be operated to account for the potential effects of closely spaced Flood Events. Accordingly, normal procedures require stored floodwaters to be emptied from the dams within seven days of the flood event peak passing through the dams.

Additionally, the auxiliary spillway constructed at Wivenhoe Dam in 2005 incorporates fuse plugs. Triggering of a fuse plug will increase floods levels downstream. Where possible, gate operations at both Wivenhoe and Somerset dams should be formulated to prevent operation of the fuse plug. This potential scenario is possible only when the forecast peak water level for Wivenhoe Dam just exceeds the trigger level for the fuse plug and sufficient time is available to alter releases.

3.2 Structural Safety of Dams

The structural safety of the dams must be the first consideration in the operation of the dams for the purpose of flood mitigation.

Extreme Floods and Closely Spaced Large Floods

... The discharges from the dams should be regulated so as to have little impact on the urban reaches of the Brisbane River, taking into account inflows into the river downstream of the dams. However, the seven day drainage requirement may result in submergence of some bridges. Regardless, the level of flooding as a result of emptying stored floodwaters after the peak has passed is to be less than the flood peak unless accelerated release is necessary to reduce the risk of overtopping.

3.3 Inundation of Urban Areas

... The peak flows of floods emanating from the upper catchments of Brisbane and Stanley Rivers can be reduced by controlling flood releases from the dams, while taking into account flooding derived from the lower Brisbane River catchments.

3.4 Disruption to Rural Areas

... The operation of the dams should not prolong this inundation unnecessarily. ...

3.5 Retain the storage at Full Supply Level at the Conclusion of the Flood Event

As the dams are the primary urban water supply for South East Queensland, it is important that all opportunities to fill the dams are taken. There should be no reason why the dams should not be full following a Flood Event.

3.6 Minimising Impacts to Riparian Flora and Fauna

During the drain down phase, consideration is to be given to minimising the impacts on riparian flora and fauna. In particular, strategies aimed at reducing fish deaths in the vicinity of the dam walls are to be instigated, provided such procedures do not adversely impact on other flood mitigation objectives. Additionally, when determining the time interval between successive gate closures consideration should also be given to reducing potential bank slumping. Rapid draw down of stream levels where banks are saturated

should be avoided if this can be managed within the other flood mitigation objectives.

5. FLOOD MONITORING AND FORECASTING SYSTEM

5.2 Operation

The Senior Flood Operations and Flood Operations Engineers use the RTFM for flood monitoring and forecasting during flood events to operate the dams in accordance with this Manual. This is done by optimising releases of water from the dams to minimise the impacts of flooding in accordance with the objectives and procedures contained in this Manual.

8. WIVENHOE DAM FLOOD OPERATIONS

8.1 Introduction

... Maximum overall flood mitigation effect will be achieved by operating Wivenhoe Dam in conjunction with Somerset Dam.

The reservoir volume above FSL of EL 67.0 is available as temporary flood storage. How much of the available flood storage compartment is utilised, will depend on the initial reservoir level below FSL, the magnitude of the flood being regulated and the procedures adopted.

8.3 Initial Flood Control Action

Once a Flood Event is declared, an assessment is to be made of the magnitude of the Flood Event, including:

- A prediction of the maximum storage levels in Wivenhoe and Somerset Dams.
- A prediction of the peak flow rate at the Lowood Gauge excluding Wivenhoe Dam releases.
- A prediction of the peak flow rate at the Moggill Gauge excluding Wivenhoe Dam releases.

The spillway gates are not to be opened for flood control purposes prior to the reservoir level exceeding EL 67.25.

8.4 Flood Operations Strategies

There are four strategies (W1 to W4) used when operating Wivenhoe Dam during a flood event as outlined below. These strategies are based on the Flood Objectives of this manual. As outlined in Section 3, the objectives, listed in descending order of importance, are as follows:

- Ensure the structural safety of the dams;
- Provide optimum protection of urbanised areas from inundation;
- Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;
- Retain the storage at Full Supply Level at the conclusion of the Flood Event.
- Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.

Within any strategy, consideration is always given to these objectives in this order, when making decisions on dam releases.

The strategy chosen at any point in time will depend on the actual levels in the dams and the following predictions, which are to be made using the best forecast rainfall and stream flow information available at the time:

- Maximum storage levels in Wivenhoe and Somerset Dams.

- Peak flow rate at the Lowood Gauge (excluding Wivenhoe Dam releases).
- Peak flow rate at the Moggill Gauge (excluding Wivenhoe Dam releases).

Strategies are likely to change during a flood event as forecasts change and rain is received in the catchments. It is not possible to predict the range of strategies that will be used during the course of a flood event at the commencement of the event. Strategies are changed in response to changing rainfall forecasts and stream flow conditions to maximise the flood mitigation benefits of the dams.

When determining dam outflows within all strategies, peak outflow should generally not exceed peak inflow. ...

8.5 Gate Closing Strategies

In general, gate closing commences when the level in Wivenhoe Dam begins to fall and is generally to occur in the reverse order to opening. The final gate closure should occur when the lake level has returned to Full Supply Level. The following requirements must be considered when determining gate closure sequences:

- Where possible, total releases during closure should not produce greater flood levels downstream than occurred during the flood event.
- The maximum discharge from the dam during closure should generally be less than the peak inflow into Wivenhoe Dam experienced during the event. The discharge from Wivenhoe Dam includes discharge from triggered fuse plugs, gates, regulator cone dispersion valve and hydro release.
- If, at the time the lake level in Wivenhoe Dam begins to fall, the combined flow at Lowood is in excess of 3,500 m³/s then the combined flow at Lowood is to be reduced to 3,500 m³/s as quickly as practicable.
- The aim should always be to empty stored floodwaters stored above EL 67.0m within seven days after the flood peak has passed through the dams. However, provided a favourable weather outlook is available, this requirement can be relaxed for the volume between EL 67.0m and EL 67.5m, to obtain positive environmental outcomes.
- If the flood storage compartments of Wivenhoe Dam and Somerset Dam can be emptied within seven days, the maximum flow in the Brisbane River at Lowood should not exceed 3,500m³/s.
- To minimise the stranding of fish downstream of the dam, final closure sequences should consider Seqwater policies relating to fish protection at the dam.

There may be a need to take into account base flow when determining final gate closure. This may mean that the lake level temporarily falls below Full Supply Level to provide for a full dam at the end of the Flood Event.

8.6 Gate Operation Sequences

Radial Gate Opening Operations

When dam outflows are less than 4,000m³/s, rapid opening of the radial gates can cause undesirable rapid rises in downstream river levels. Accordingly, when dam outflows are less than 4,000m³/s, the aim in opening radial gates is to operate the gates one at a time at intervals that will minimise adverse impacts on the river system. The table below shows the target minimum interval for gate operations in these circumstances. This target interval can

be reduced if the gates are at risk of being overtopped or the safety of the dam is at risk.

...

Normal Gate Operation Sequences

Under normal operation, only one gate is to be opened at any one time and the sequences shown in the table below are to be adopted. Generally gates are operated in the order of 3, 2, 4, 1, 5. Variations are allowed at any time to protect the structural safety of the dam.

...

9 SOMERSET DAM FLOOD OPERATIONS

9.1 Introduction

Somerset Dam is capable of being operated in a number of ways to regulate Stanley River floods. Somerset Dam and Wivenhoe Dam are to be operated in conjunction to optimise the flood mitigation benefits downstream of Wivenhoe Dam. ...

9.2 Initial Flood Control Action

Once a Flood Event is declared, all radial gates are to be fully opened and all sluice gates and regulator valves are to be fully closed. An assessment is to be made of the magnitude of the Flood Event, including a prediction of the maximum storage levels in Wivenhoe and Somerset Dams.

9.3 Flood Operations Strategies

There are three strategies used when operating Somerset Dam during a flood event as outlined below. These strategies are based on the Flood Objectives of this manual. The strategy chosen at any point in time will depend on predictions of the maximum storage levels in Wivenhoe and Somerset Dams which are to be made using the best forecast rainfall and stream flow information available at the time.

Strategies are likely to change during a flood event as forecasts change and rain is received in the catchments. It is not possible to predict the range of strategies that will be used during the course of a flood event at the commencement of the event. Strategies are changed in response to changing rainfall forecasts and stream flow conditions to maximise the flood mitigation benefits of the dams.

When calculating the impacts of flood releases from Somerset Dam, the gate opening sequences outlined in Section 9.5 should be used to determine likely outflow rates from the dam.

A flow chart showing how best to select the appropriate strategy to use at any point in time is shown below:

...

- (b) subject to complying with the provisions of the Flood Mitigation Manual referred to in sub-paragraph (a) above, admits that:
 - (i) the two principal tools available to the operators of Somerset Dam and Wivenhoe Dam to achieve flood mitigation are water storage and water releases;

- (ii) Somerset Dam and Wivenhoe Dam can be operated to mitigate flooding downstream of Wivenhoe Dam by adopting the strategies for the operation of those dams provided for in the Flood Mitigation Manual which, depending upon the strategy to be adopted, may include:
 - (1) storing inflows in Lake Somerset;
 - (2) storing inflows in Lake Wivenhoe;
 - (3) regulating the rates and timing of outflows from Wivenhoe Dam;
 - (4) regulating the rates and timing of outflows from Somerset Dam in conjunction with the operation of Wivenhoe Dam;
- (c) admits that the flood mitigation capabilities of Somerset Dam and Wivenhoe Dam are maximised by operating the two dams in conjunction during Flood Operations in the manner described in the Flood Mitigation Manual;
- (d) says that at a height of EL 107.45 water commences to flow over the Somerset Dam crest gates;
- (e) says that the peak level of Somerset Dam cannot exceed EL 109.7;
- (f) repeats and relies upon the matters pleaded in response to paragraph 19 of the Statement of Claim above;
- (g) says that when the water level of Wivenhoe Dam reaches EL 74.0 Strategy W4 normally comes into effect;
- (h) says that the intent of Strategy W4 is to ensure the safety of the dam while limiting downstream impacts as much as possible;
- (i) says that under Strategy W4 the release rate is increased as the safety of the dam becomes a priority and that opening of the gates is to occur generally in accordance with the requirements of Section 8.6 of the Flood Mitigation Manual until the storage level of Wivenhoe Dam begins to fall;
- (j) says that there are no restrictions on gate opening increments or gate operating frequency once the storage level in Wivenhoe Dam exceeds EL 74.0;
- (k) says that Flood Operations for Somerset Dam and Wivenhoe Dam require that the dam operators determine, and act in accordance with, release strategies taking into account, among other things:
 - (i) the levels in Lake Somerset and Lake Wivenhoe;
 - (ii) the available capacity in the flood storage compartments of each dam;

- (iii) current and forecast inflows into Lake Somerset and Lake Wivenhoe;
- (iv) current and forecast inflows into the Brisbane River downstream of Wivenhoe Dam;
- (v) current and forecast rainfall in the Lake Somerset and Lake Wivenhoe catchments;
- (vi) current and forecast rainfall directly over Lake Somerset or Lake Wivenhoe;
- (vii) the obligation under the Flood Mitigation Manual not to reduce the level of the dams below FSL;
- (viii) current and forecast rainfall in the Brisbane River catchment areas not controlled by the dams including Lockyer Creek and Bremer River Catchments which:
 - (1) cover an area in the order of 6,500 km² being approximately half of the Brisbane River catchment;
 - (2) may vary in intensity, duration and distribution;
- (ix) the necessity to give emergency and other authorities and the public sufficient time to prepare for community isolations, the closure of bridges and roads, and to undertake evacuations;
- (l) otherwise denies the allegations.

50. The State admits paragraph 60 of the Statement of Claim.

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

51. The State admits paragraph 61 of the Statement of Claim.

52. The State admits paragraph 62 of the Statement of Claim.

53. The State admits paragraph 63 of the Statement of Claim.

54. The State admits paragraph 64 of the Statement of Claim.

55. The State admits paragraph 65 of the Statement of Claim.

56. The State admits paragraph 66 of the Statement of Claim.

57. The State admits paragraph 67 of the Statement of Claim.

58. As to paragraphs 68 and 69 of the Statement of Claim, the State admits section 13 of the Moreton ROP was to the effect stated.
59. As to paragraph 70 of the Statement of Claim, the State:
- (a) says that the Statement of Current Programs to which reference is made, was:
 - (i) for the purposes of section 13(3)(a) of the Moreton ROP;
 - (ii) the first step towards obtaining the Chief Executive's approval of an Interim Program under section 13 of the Moreton ROP;
 - (b) otherwise admits the allegations.
60. As to paragraphs 71 and 72 of the Statement of Claim, the State:
- (a) admits the Statement of Current Programs submitted on 4 February 2010:
 - (i) recorded and proposed the matters referred to sub-paragraphs 71(a) and (b) of the Statement of Claim;
 - (ii) was approved by the delegate of the Chief Executive of DERM on or about 12 March 2010;
 - (b) repeats and relies upon the matters stated in the preceding paragraph in response to paragraph 70 of the Statement of Claim above;
 - (c) otherwise denies the allegations.
61. As to paragraph 73 of the Statement of Claim, the State:
- (a) admits that, on or about 27 August 2010, Seqwater sought approval from the Chief Executive of DERM for an interim program under section 13(3)(b) of the Moreton ROP;
 - (b) says that:
 - (i) such program was not an "updated" interim program;
 - (ii) there existed no lawful authority (in the Moreton ROP or otherwise) for an interim program to be updated or amended by a person other than the Chief Executive;
 - (c) otherwise denies the allegations.
62. As to paragraph 74 of the Statement of Claim, the State:
- (a) says that the source of rules governing the release of water for flood mitigation purposes was the Flood Mitigation Manual;

(b) otherwise denies the allegations.

63. The State admits paragraph 75 of the Statement of Claim.

64. The State denies the allegations in paragraph 76 of the Statement of Claim.

SunWater's Control of Somerset Dam and Wivenhoe Dam

65. The State does not admit paragraph 77 of the Statement of Claim.

66. The State does not admit paragraph 78 of the Statement of Claim.

67. The State does not admit paragraph 79 of the Statement of Claim.

68. The State does not admit paragraph 80 of the Statement of Claim.

69. The State does not admit paragraph 81 of the Statement of Claim.

70. The State does not admit paragraph 82 of the Statement of Claim.

71. The State does not admit paragraph 83 of the Statement of Claim.

72. The State does not admit paragraph 84 of the Statement of Claim.

The Flood Mitigation Manual

73. As to paragraph 85 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual was:

(i) the Revision 7 of the Flood Mitigation Manual, the previous iterations of the Flood Mitigation Manual being dated 27 October 1968 (Revision 0); 6 October 1992 (Revision 1); 13 November 1997 (Revision 2); 24 August 1998 (Revision 3); 6 September 2002 (Revision 4); 4 October 2004 (Revision 5) and 20 December 2004 (Revision 6);

(ii) based upon the previous iterations of the Flood Mitigation Manual referred to in sub-paragraph (a)(i) above;

(iii) prepared under s 370 of the *Water Supply (Safety and Reliability) Act 2008* (Qld) (**Water Supply Act**);

(iv) submitted to the Chief Executive for approval under s 371 of that Act;

(v) approved under that Act on 22 December 2009;

(b) says that the Flood Mitigation Manual was a technical document drafted by engineers and addressed to, and intended to be interpreted by, experienced engineers trained in respect of, and familiar with, Somerset Dam and Wivenhoe Dam, the dam catchments and operation of those dams;

- (c) says that properly interpreted, the Flood Mitigation Manual did not:
 - (i) authorise, permit or require the Flood Engineers to reduce the levels of the dams below FSL in the manner alleged in the Statement of Claim;
 - (ii) require the Flood Engineers to make operational decisions in relation to releases of water in the dams based upon weather forecasts in the manner alleged in the Statement of Claim;
- (d) in the alternative, says that an interpretation of the Flood Mitigation Manual that it did not:
 - (i) authorise, permit or require the Flood Engineers to reduce the levels of the dams below FSL in the manner alleged in the Statement of Claim;
 - (ii) require the Flood Engineers to make operational decisions in relation to releases of water in the dams based upon weather forecasts in the manner alleged in the Statement of Claim,

was an interpretation that was within the range of reasonable interpretations open to experienced engineers in the field of dam operations;

- (e) otherwise admits the allegations.

74. As to paragraph 86 of the Statement of Claim, the State:

- (a) admits that the Flood Engineers were required to adhere to the terms of the Flood Mitigation Manual;
- (b) says that the obligation of the Flood Engineers to adhere to the terms of the Flood Mitigation Manual derived from:
 - (i) the terms of the Flood Mitigation Manual pleaded in sub-paragraph 19(a) above;
 - (ii) the *Water Supply Act*;
- (c) otherwise does not admit the allegations, being directed to the First and Second Defendants.

75. As to paragraph 87 of the Statement of Claim, the State:

- (a) says that the purpose of the Flood Mitigation Manual was as stated in the Flood Mitigation Manual Sections 1.1 and 1.3;
- (b) otherwise denies the allegations.

76. As to paragraph 88 of the Statement of Claim, the State:

- (a) says that the objectives of the Flood Mitigation Manual were as stated in the Flood Mitigation Manual Sections 1.1, 3, 8 and 9;
- (b) otherwise denies the allegations.

77. As to paragraph 89 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual:
 - (i) in Sections 3.1 and 3.2, relevantly provided as stated in response to paragraphs 54 to 59 of the Statement of Claim above;
 - (ii) in Appendix G, relevantly provided as follows:

Floods in the Brisbane River catchment above Wivenhoe Dam can originate in either the Stanley River or upper Brisbane River catchment or both. Both of the dams are capable of being operated in a number of ways, each of which will reduce the flow downstream. Indicative inflows for the dams for 48 hour storm events (the critical duration for Wivenhoe Dam) are shown in the graph below ...

- (b) otherwise denies the allegations.

78. As to paragraph 90 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided in Sections 1.2 and 2.3, as follows:

“Senior Flood Operations Engineer” means a person designated in accordance with Section 2.3 of this Manual under whose general direction the procedures in this Manual must be carried out.

...

2.3 Designation and Responsibilities of Senior Flood Operations Engineer

Seqwater must nominate one or more suitably qualified and experienced persons to undertake the role of Senior Flood Operations Engineer. If approved by the Chief Executive, these persons can be authorised in the Schedule of Authorities (see Section 2.6). When rostered on duty during a Flood Event, the responsibilities of the Senior Flood Engineer are as follows:

- *Set the overall strategy for management of the Flood Event in accordance with the objectives of this Manual.*
- *Provide instructions to site staff to make releases of water from the Dams during Flood Events that are in accordance with this Manual.*
- *Apply reasonable discretion in managing a Flood Event as described in Section 2.8.*

- (b) otherwise denies the allegations.

79. As to paragraph 91 of the Statement of Claim, the State:

- (a) says that Mr Ruffini was approved by the Chief Executive to act as Senior Flood Operations Engineer and could act as the designated Senior Flood Operations Engineer when authorised to do so;
- (b) says that Mr Ruffini acted in the position of Senior Flood Operations Engineer between at about 16:00 on 10 December 2010 and on or about 18 December 2010 when Mr Ayre was on leave;
- (c) with the exception of the period between at about 16:00 on 10 December 2010 and on or about 18 December 2010, denies that Mr Ruffini was designated to perform the function of Senior Flood Operations Engineer;
- (d) says that at all material times in December 2010 and January 2011 (save for a period when he was on leave between on or about 10 December 2010 and on or about 18 December 2010), Mr Ayre was the designated Senior Flood Operations Engineer and fulfilled the functions of that position;
- (e) otherwise denies the allegations in so far as those allegations relate to Mr Ruffini.

80. As to paragraph 92 of the Statement of Claim, the State:

- (a) admits the allegations contained in the second sub-paragraph "a)" (*sic*);
- (b) otherwise does not admit the allegations.

81. As to paragraph 93 of the Statement of Claim, the State:

- (a) says that the services of Mr Ruffini were provided to SunWater pursuant to a Memorandum of Understanding dated in or about February 2001 (**MOU**);
- (b) the MOU recorded, *inter alia*, that:
 - (i) the Department of Natural Resources (DNR) would provide the services of Mr Ruffini to SunWater to undertake duties defined in Schedule 1 to the MOU;
 - (ii) by Schedule 1 to the MOU, Mr Ruffini was to perform his duties as Flood Operations Engineer on behalf of SunWater;
- (c) otherwise admits the allegation.

82. As to paragraph 94 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided:

- (i) in Section 2.3, as set out in response to paragraph 90 of the Statement of Claim above;
- (ii) in Sections 2.2 and 2.8 as follows:

2.2 Operational Arrangements

For the purposes of operation of the dams during Flood Events, Seqwater must ensure that:

...

- *A Senior Flood Operations Engineer is designated to be in the charge of Flood Operations at all times during a Flood Event.*

2.8 Reasonable Discretion

If in the opinion of the Senior Flood Operations Engineer, it is necessary to depart from the procedures set out in this Manual to meet the flood mitigation objectives set out in Section 3, the Senior Flood Operations Engineer is authorised to adopt such other procedures as considered necessary subject to the following:

- *Before exercising discretion under this Section of the Manual with respect to flood mitigation operations, the Senior Flood Operations Engineer must make a reasonable attempt to consult with both the Chairperson and Chief Executive;*
- *The Chief Executive would normally authorise any departures from the Manual. However if the Chief Executive cannot be contacted within a reasonable time, departures from the Manual can be authorised by Chairperson.*
- *If both the Chairperson and the Chief Executive cannot be contacted within a reasonable time, the Senior Flood Operations Engineer may proceed with the procedures considered necessary and report such action at the earliest opportunity to the Chairperson and Chief Executive.*

- (b) otherwise denies the allegations.

83. As to paragraph 95 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided in Sections 1.2 and 2.4 as follows:

1.2

“Flood Operations Engineer” means a person designated to direct flood operations at the dams in accordance with Section 2.4 of this Manual.

2.4 Designation and Responsibilities of Flood Operations Engineer

Seqwater must nominate one or more suitably qualified and experienced persons to undertake the role of Flood Operations Engineer. If approved by the Chief Executive, these persons can be authorised in the Schedule of Authorities (see Section.2.6). When rostered on duty during a Flood Event, the responsibilities of the Flood Engineer are as follows:

- *Direct the operation of the dams during a flood event in accordance with the general strategy determined by the Senior Flood Operations Engineer.*
- *Follow any direction from the Senior Flood Operations Engineer in relation to applying reasonable discretion in managing a Flood Event as described in Section 2.8. Unless otherwise directed, a Flood Operations Engineer is to follow this Manual in managing Flood Events and is not to apply reasonable discretion unless directed by the Senior Flood Operations Engineer or the Chief Executive.*
- *Provide instructions to site staff to make releases of water from the Dams during Flood Events that are in accordance with this Manual;*

...

(b) otherwise denies the allegations.

84. As to paragraph 96 of the Statement of Claim, the State:

(a) says that Mr Ruffini also was authorised to perform the function of a Flood Operations Engineer and acted in that capacity at all times when he was rostered on duty in the Flood Operations Centre between:

- (i) 2 and 10 December 2010;
- (ii) 18 December 2010 and 14 January 2011;

(b) otherwise admits the allegation.

85. The State admits paragraph 97 of the Statement of Claim.

86. As to paragraph 98 of the Statement of Claim, the State:

- (a) repeats and relies upon the provisions of Section 2.4 of the Flood Mitigation Manual as set out in response to paragraph 95 of the Statement of Claim above;
- (b) otherwise denies the allegations.

87. As to paragraph 99 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided in Section 2.2 as set out in response to paragraph 94 of the Statement of Claim above and paragraph 100 of the Statement of Claim below;
- (b) otherwise denies the allegations.

88. As to paragraph 100 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

2.2 Operational Arrangements

...

- *A Duty Flood Operations Engineer is on call at all times. The Duty Flood Operations Engineer must constantly review weather forecasts and catchment rainfall and must declare a Flood Event if the water level of either*

Wivenhoe or Somerset Dam is expected to exceed Full Supply Level as a result of prevailing or predicted weather conditions.

...

- *Release of water at the dams during Flood Events is carried out under the direction of the Duty Flood Operations Engineer”;*

(b) says that Section 2.4 of the Flood Mitigation Manual further relevantly provided as set out in response to paragraph 95 of the Statement of Claim above;

(c) otherwise denies the allegations.

89. The State admits paragraph 101 of the Statement of Claim.

90. The State admits paragraph 102 of the Statement of Claim.

91. The State admits paragraph 103 of the Statement of Claim.

92. The State admits paragraph 104 of the Statement of Claim.

93. The State admits paragraph 105 of the Statement of Claim.

94. As to paragraphs 106 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

8.4 Flood Operations Strategies

There are four strategies (W1 to W4) used when operating Wivenhoe Dam during a flood event as outlined below. These strategies are based on the Flood Objectives of this manual. As outlined in Section 3, the objectives, listed in descending order of importance, are as follows:

- *Ensure the structural safety of the dams;*
- *Provide optimum protection of urbanised areas from inundation;*
- *Minimise disruption to rural life in the valleys of the Brisbane and Stanley Rivers;*
- *Retain the storage at Full Supply Level at the conclusion of the Flood Event.*
- *Minimise impacts to riparian flora and fauna during the drain down phase of the Flood Event.*

Within any strategy, consideration is always given to these objectives in this order, when making decisions on dam releases.

The strategy chosen at any point in time will depend on the actual levels in the dams and the following predictions, which are to be made using the best forecast rainfall and stream flow information available at the time:

- *Maximum storage levels in Wivenhoe and Somerset Dams.*
- *Peak flow rate at the Lowood Gauge (excluding Wivenhoe Dam releases).*
- *Peak flow rate at the Moggill Gauge (excluding Wivenhoe Dam releases).*

Strategies are likely to change during a flood event as forecasts change and rain is received in the catchments. It is not possible to predict the range of strategies that will be used during the course of a flood event at the commencement of the event. Strategies are changed in response to changing rainfall forecasts and stream flow conditions to maximise the flood mitigation benefits of the dams.

When determining dam outflows within all strategies, peak outflow should generally not exceed peak inflow. A flowchart showing how best to select the appropriate strategy to use at any point in time is shown below:

[flowchart not inserted but will be referred to and relied upon at the trial]

- (b) otherwise denies the allegations.
95. As to paragraphs 106A and 106B of the Statement of Claim, the State:
- (a) denies the allegations;
 - (b) says that the 'Flood Procedures Manual' referred to in paragraph 106A was a draft document which had not been approved for operational use;
 - (c) says that Section 3.2 of the Flood Procedures Manual relevantly provided that the rainfall scenarios referred to are 'cases [that] can be used as a guide'.
96. As to paragraph 107 of the Statement of Claim, the State:
- (a) says that the Flood Mitigation Manual relevantly provided in Section 8.4 as set out in response to paragraph 106 of the Statement of Claim above;
 - (b) otherwise denies the allegations.
97. As to paragraph 108 of the Statement of Claim, the State:
- (a) says that the Flood Mitigation Manual relevantly provided in Section 8.1 as set out in response to paragraph 106 of the Statement of Claim above;
 - (b) otherwise denies the allegations.

Strategy W1

98. As to paragraphs 109 and 110 of the Statement of Claim, the State:
- (a) says that the Flood Mitigation Manual relevantly provided:

Strategy W1 – The Primary Consideration is Minimising Disruption to Downstream Rural Life	
Conditions	<ul style="list-style-type: none"> • Wivenhoe Storage Level predicted to be less than 68.50 m AHD • Maximum release predicted to be less than 1,900 m³/s

- | | |
|--|--|
| | <ul style="list-style-type: none"> • The primary consideration is minimising disruption to downstream rural life |
|--|--|

The intent of Strategy W1 is to not to submerge the bridges downstream of the dam prematurely (see Appendix I). The limiting condition for Strategy W1 is the submergence of Mt Crosby Weir Bridge that occurs at approximately 1,900 m³/s.

For situations where flood rains are occurring on the catchment upstream of Wivenhoe Dam and only minor rainfall is occurring downstream of the dam, releases are to be regulated to limit, as much as appropriate in the circumstances, downstream flooding.

The following strategies require a great deal of control over releases and knowledge of discharges from Lockyer Creek. In general, the releases from Wivenhoe Dam are controlled such that the combined flow from Lockyer Creek and Wivenhoe Dam is less than the limiting values to delay the submergence of particular bridges. The diagram above shows the location of the impacted bridges and the approximate river flow rate at which they are closed to traffic.

Strategy W1A Twin Bridges, Savages Crossing and Colleges Crossing

**Lake Level greater than 67.25 m AHD
[Maximum Release 110 m³/s]**

Firstly, endeavour to maintain Twin Bridges trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 50 m³/s.

Once Twin Bridges is closed to traffic, endeavour to maintain Savages Crossing trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 110 m³/s.

Once Savages Crossing is closed to traffic, endeavour to maintain College's Crossing trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 175 m³/s. Note that College's Crossing can be impacted by tidal influences.

When the flood event subsides, all gates are to be closed when the dam achieves FSL in accordance with Section 8.5.

Strategy W1B College's Crossing and Burtons Bridge

**Lake Level greater than 67.50 m AHD
[Maximum Release 380 m³/s]**

No consideration is given to maintaining Twin Bridges or Savages Crossing open.

Endeavour to maintain College's Crossing trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 175 m³/s.

Once College's Crossing is closed to traffic, endeavour to maintain Burtons Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 430 m³/s.

Strategy W1C Burtons Bridge and Kholo Bridge

**Lake Level greater than 67.75 m AHD
[Maximum Release 500 m³/s]**

No consideration is given to maintaining College's Crossing open.

Endeavour to maintain Burtons Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 430 m³/s.

Once Burtons Bridge is closed to traffic, endeavour to maintain Kholo Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 550 m³/s.

**Strategy W1D Kholo Bridge and Mt Crosby Weir Bridge
Lake Level greater than 68.00 m ADH**

[Maximum Release 1900 m³/s]

No consideration is given to maintaining Burtons Bridge open.
Endeavour to maintain Kholo Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 550 m³/s.

Once Kholo Bridge is closed to traffic, endeavour to maintain Mt Crosby Weir Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 1900 m³/s.

Strategy W1E Mt Crosby Weir Bridge and Fernvale Bridge

**Lake Level greater than 68.25 m AHD
[Maximum Release 1900 m³/s]**

No consideration is given to maintaining Kholo Bridge open.
Endeavour to maintain Mt Crosby Weir Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 1900 m³/s.

Once Mt Crosby Weir Bridge is closed to traffic, endeavour to maintain Fernvale Bridge trafficable by limiting the combined flows from Wivenhoe Dam and Lockyer Creek to a maximum of 2000 m³/s.

If the level reaches EL 68.5 m AHD in Wivenhoe Dam, switch to Strategy W2 or W3 as appropriate.

- (b) otherwise denies the allegations.

Strategy W2

99. As to paragraphs 111 to 113 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

Strategy W2 – Strategy W2 is a Transition Strategy where the primary consideration changes from Minimising Impact to Downstream Rural Life to Protecting Urban Areas from Inundation.

Conditions	<ul style="list-style-type: none"> • <i>Wivenhoe Storage Level predicted to be between 68.50 and 74.00 m AHD</i> • <i>Maximum Release predicted to be less than 3,500 m³/s</i> • <i>This is a transition strategy in which the primary consideration changes from minimising disruption to downstream rural life to protecting urban areas from inundation</i> • <i>Lower level objectives are still considered when making decisions on water releases. Objectives are always considered in order of importance</i>
-------------------	---

The intent of Strategy W2 is limit the flow in the Brisbane River to less than the naturally occurring peaks at Lowood and Moggill, while remaining within the upper limit of non-damaging floods at Lowood (3,500 m³/s). In these instances, the combined peak river flows should not exceed those shown in the following table:

LOCATION	TARGET MAXIMUM FLOW IN THE BRISBANE RIVER
<i>Lowood</i>	<i>The lesser of:</i> <ul style="list-style-type: none"> • <i>the natural peak flow at Lowood excluding Wivenhoe Dam releases, and;</i> • <i>3,500m³/s.</i>
<i>Moggill</i>	<i>The lesser of:</i> <ul style="list-style-type: none"> • <i>the natural peak flow at Moggill excluding Wivenhoe Dam releases, and;</i> • <i>4,000m³/s.</i>

(b) otherwise denies the allegations.

Strategy W3

100. As to paragraphs 114 to 115 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

Strategy W3 – The primary consideration is Protecting Urban Areas from Inundation

Conditions	<ul style="list-style-type: none"> • <i>Wivenhoe Storage Level predicted to be between 68.50 and 74.00 m AHD</i> • <i>Maximum Release should not exceed 4,000 m³/s</i> • <i>The primary consideration is protecting urban areas from inundation</i> • <i>Lower level objectives are still considered when making decisions on water releases.</i>
-------------------	--

	Objectives are always considered in order of importance
--	--

The intent of Strategy W3 is to limit the flow in the Brisbane River at Moggill to less than 4000 m³/s, noting that 4000 m³/s at Moggill is the upper limit of non-damaging floods downstream. The combined peak river flow targets for Strategy W3 are shown in the following table. In relation to these targets, it should be noted that depending on natural flows from the Lockyer and Bremer catchments, it may not be possible to limit the flow at Moggill to below 4000 m³/s. In these instances, the flow at Moggill is to be kept as low as possible.

TIMING	TARGET MAXIMUM FLOW IN THE BRISBANE RIVER
<i>Prior to the naturally occurring peak at Moggill (excluding Wivenhoe Dam releases).</i>	<i>The flow at Moggill is to be minimised.</i>
<i>After the naturally occurring peak at Moggill (excluding Wivenhoe Dam releases).</i>	<i>The flow at Moggill is to be lowered to 4,000m³/s as soon as possible.</i>

(b) otherwise denies the allegations.

Strategy W4

101. As to paragraphs 116 and 117 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

Strategy W4 – The primary consideration is Protecting the Structural Safety of the Dam

Conditions	
	<ul style="list-style-type: none"> • Wivenhoe Storage Level predicted to exceed 74.00m AHD • No limit on Maximum Release rate • The primary consideration is protecting the structural safety of the dam • Lower level objectives are still considered when making decisions on water releases. Objectives are always considered in order of importance

The intent of Strategy W4 is to ensure the safety of the dam while limiting downstream impacts as much as possible.

This strategy normally comes into effect when the water level in Wivenhoe Dam reaches 74.0 m AHD. However the Senior Flood Operations Engineer may seek to invoke the discretionary powers of Section 2.8 if earlier commencement is able to prevent triggering of a fuse plug.

Under Strategy W4 the release rate is increased as the safety of the dam becomes the priority. Opening of the gates is to occur generally in accordance with the requirements of Section 8.6, until the storage level of Wivenhoe Dam begins to fall.

There are no restrictions on gate opening increments or gate operating frequency once the storage level exceeds 74.0 AHD, as the safety of the dam is of primary concern at these storage levels. However, the impact of rapidly increasing discharge from Wivenhoe Dam on downstream reaches should be considered when determining gate opening sequences.

Strategy W4A - No Fuse Plug Initiation Expected

**Lake Level between 74.0 and 75.5 m AHD
[No Maximum Release]**

Strategy 4A applies while all indications of the peak flood level in Wivenhoe Dam are that it will be insufficient to trigger operation of the first bay of the fuse plug by reaching 75.5 m AHD.

Gate openings are generally to occur at the minimum intervals and sequences as specified in Section 8.6 until the storage level of Wivenhoe Dam begins to fall. However, to protect the safety of the dam, minimum opening intervals can be reduced and gate opening sequences can be modified.

Strategy W4B - Fuse Plug Initiation Possible

**Lake Level greater than 75.5 m AHD
[No Maximum Release]**

Strategy W4B applies once indications are the peak flood level in Wivenhoe Dam may exceed EL75.5 and trigger the fuse plug under normal operations. Two scenarios are possible under this strategy. The first scenario is where it may be possible to prevent fuse plug initiation by early opening of the gates. The second scenario is where fuse plug initiation cannot be avoided. The actions associated with these scenarios are contained in the following table:

SCENARIO	ACTION
Potential to keep lake level below EL 75.5 by early opening of the gates and/or varying the operational procedures at Somerset.	<p>The following actions can be used to prevent initiation of the fuse plug provided the safety of the dams is not compromised:</p> <ul style="list-style-type: none"> • Retain water in Somerset Dam (See Somerset Dam Strategy S3 for guidelines). • Bring the gate operation sequence forward to increase discharge from the dam. <p>In addition to dam safety issues, the impact of rapidly increasing discharge from Wivenhoe Dam</p>

	<i>on downstream reaches should be considered when determining the rate of gate openings.</i>
<i>Fuse plug initiation cannot be avoided.</i>	<p><u>PRIOR TO FUSE PLUG INITIATION</u></p> <p><i>If possible, the gates are to be raised at a rate to ensure they are out of the water before the initiation of the first fuse plug. The gates should be in the fully open position before the dam water level reaches 75.7 m AHD.</i></p> <p><u>FOLLOWING FUSE PLUG INITIATION</u></p> <p><i>The impact of rapidly changing discharge from Wivenhoe Dam on downstream reaches should be considered when determining the rate of gate closings in these circumstances. However, once a fuse plug is initiated, the flood storage at the dam is to be drained as quickly as possible within the gate closure sequence.</i></p>

(b) otherwise denies the allegations.

Gate closing strategies

102. As to paragraph 118 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

8.5 Gate Closing Strategies

In general, gate closing commences when the level in Wivenhoe Dam begins to fall and is generally to occur in the reverse order to opening. The final gate closure should occur when the lake level has returned to Full Supply Level. The following requirements must be considered when determining gate closure sequences:

- *Where possible, total releases during closure should not produce greater flood levels downstream than occurred during the flood event.*
- *The maximum discharge from the dam during closure should generally be less than the peak inflow into Wivenhoe Dam experienced during the event. The discharge from Wivenhoe Dam includes discharge from triggered fuse plugs, gates, regulator cone dispersion valve and hydro release.*
- *If, at the time the lake level in Wivenhoe Dam begins to fall, the combined flow at Lowood is in excess of 3,500 m³/s then the combined flow at Lowood is to be reduced to 3,500 m³/s as quickly as practicable.*
- *The aim should always be to empty stored floodwaters stored above*

EL 67.0m within seven days after the flood peak has passed through the dams. However, provided a favourable weather outlook is available, this requirement can be relaxed for the volume between EL 67.0m and EL 67.5m, to obtain positive environmental outcomes.

- *If the flood storage compartments of Wivenhoe Dam and Somerset Dam can be emptied within seven days, the maximum flow in the Brisbane River at Lowood should not exceed 3,500 m³/s.*
- *To minimise the stranding of fish downstream of the dam, final closure sequences should*

There may be a need to take into account base flow when determining final gate closure. This may mean that the lake level temporarily falls below Full Supply Level to provide for a full dam at the end of the Flood Event.

- (b) otherwise denies the allegations.

Somerset Dam Flood Operations Strategies

103. As to paragraph 119 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided in Section 8.4 as set out in response to paragraph 87 of the Statement of Claim above;
- (b) says that the Flood Mitigation Manual relevantly provided in Section 9.1:

... Somerset and Wivenhoe Dam are to be operated in conjunction to optimise the flood mitigation benefits downstream of Wivenhoe

- (c) otherwise denies the allegations.

104. The State admits paragraph 120 of the Statement of Claim.

105. As to paragraphs 121 to 123 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided in Section 9.3:

9.3 Flood Operations Strategies *There are three strategies used when operating Somerset Dam during a flood event as outlined below. These strategies are based on the Flood Objectives of this manual. The strategy chosen at any point in time will depend on predictions of the maximum storage levels in Wivenhoe and Somerset Dams which are to be made using the best forecast rainfall and stream flow information available at the time.*

Strategies are likely to change during a flood event as forecasts change and rain is received in the catchments. It is not possible to predict the range of strategies that will be used during the course of a flood event at the commencement of the event. Strategies are changed in response to changing rainfall forecasts and stream flow conditions to maximise the flood mitigation benefits of the dams.

When calculating the impacts of flood releases from Somerset Dam, the gate opening sequences outlined in Section 9.5 should be used to determine likely outflow rates from the dam.

A flow chart showing how best to select the appropriate strategy to use at any point in time is shown below:

...

[flowchart not inserted but will be referred to and relied upon at the trial]

- (b) otherwise denies the allegations.

Strategy S1

106. As to paragraphs 124 to 126 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided:

Strategy S1 – Minimising Impact on Rural Life Upstream	
Conditions	<ul style="list-style-type: none"> • Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam not expected to reach EL 67.0 (FSL) during the course of the Flood Event.

The intent of this strategy is to return the dam to full supply level while minimising the impact on rural life upstream of the dam. Consideration is also given to minimising the downstream environmental impacts from the release.

The crest gates at Somerset Dam are raised to enable uncontrolled discharge. The Regulator Valves and Sluice gates are to be used to maintain the level in Somerset dam below EL 102.0 (deck level of Mary Smokes Bridge). The release rate from Somerset dam is not to exceed the peak inflow into the dam.

- (b) otherwise denies the allegations.

Strategy S2

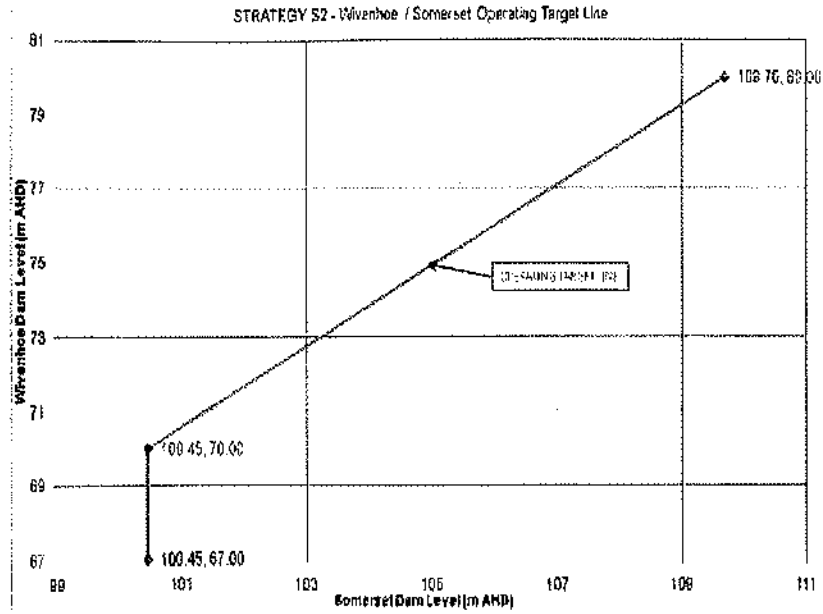
107. As to paragraphs 127 to 129 of the Statement of Claim, the State:

- (a) says that the Flood Mitigation Manual relevantly provided:

Strategy S2 – Minimise Impacts below Wivenhoe Dam	
Conditions	<ul style="list-style-type: none"> • Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam level expected to exceed EL 67.0 (FSL) but not exceed EL 75.5 (fuse plug initiation) during the course of the Flood Event.

The intent of this strategy is to maximise the benefits of the flood storage capabilities of the dam while protecting the structural safety of both dams. The table below contains the operating conditions and actions for Strategy S2.

CONDITION	ACTION
<i>Wivenhoe rising and Somerset level below EL 100.45.</i>	<i>The crest gates are raised to enable uncontrolled discharge. The low level regulators and sluices are generally kept closed.</i>
<i>Wivenhoe rising and Somerset level above EL 100.45.</i>	<i>The crest gates are raised to enable uncontrolled discharge. Operations are to target a correlation of water levels in Somerset Dam and Wivenhoe Dam as set out in the graph below. The operations target line shown on this graph is to generally be followed as the flood event progresses. The release rate from Somerset Dam is generally not to exceed the peak inflow into the dam.</i>
<i>Wivenhoe falling and Somerset level above EL 100.45.</i>	<i>The opening of the regulators and sluices generally should not cause Wivenhoe Dam to rise significantly. The release rate from Somerset Dam is generally not to exceed the peak inflow into the dam.</i>
<i>The Flood Event has emanated mainly from the Stanley River catchment without significant runoff in the Upper Brisbane River catchment</i>	<i>The crest gates at Somerset Dam are raised to enable uncontrolled discharge. The Regulator Valves and Sluice gates are to be used to maintain the level in Somerset dam below EL 102.0 (deck level of Mary Smokes Bridge). The release rate from Somerset Dam is generally not to exceed the peak inflow into the dam.</i>



Notes:

- The Operating Target Line was selected following an optimisation study. The Target Line was selected based on the following factors:
 - Equal minimisation of flood level peaks in both dams in relation to their associated dam failure levels.
 - Minimisation of flows in the Brisbane River downstream of Wivenhoe Dam.
 - Consideration of the time needed at the onset of a Flood Event to properly assess the magnitude of the event and the likely impacts, so that the likely optimal strategy to maximise the Flood Mitigation benefits of the storages can be selected.
- The levels of 109.70 m AHD and 80.00 m AHD represent the likely failure level for Somerset Dam and the level at the top of the Wivenhoe Dam Wave Wall respectively. Note that the failure level of 109.70 m AHD for Somerset Dam assumes all radial gates are fully open and this failure level will be reduced if this cannot be achieved.
- The target point on the operating target line at any point in time is based on the maximum storage levels in Wivenhoe and Somerset Dams using the best forecast rainfall and stream flow information available at the time.
- Gate operations will enable the movement of the duty point towards the target line in a progressive manner. It will not necessarily be possible to adjust the duty point directly towards the target line in a single gate operation.

(b) otherwise denies the allegations.

Strategy S3

108. As to paragraphs 130 to 131A of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

Strategy S3 – Protect the Structural Safety of the Dam	
Conditions	<ul style="list-style-type: none"> Somerset Dam Level expected to exceed EL 99.0 and Wivenhoe Dam level expected to exceed EL 75.5 (fuse plug initiation) during the course of the Flood Event.

The intent of this strategy is to maximise the benefits of the flood storage capabilities of the dam while protecting the structural safety of both dams.

In addition to the operating protocols used in Strategy S2, to prevent fuse plug initiation, consideration can be given to temporary departure from the operating protocols contained in this strategy under the following conditions:

- *The safety of Somerset Dam is the primary consideration and cannot be compromised.*
- *The peak level in Somerset dam cannot exceed EL 109.7.*

(b) otherwise denies the allegations.

Gate Closing Strategies

109. As to paragraph 132 of the Statement of Claim, the State:

(a) says that the Flood Mitigation Manual relevantly provided:

9.4 Gate Closing Strategies

In general, gate closing commences when the level in Somerset Dam begins to fall and is generally to occur in the reverse order to opening. The final gate closure should occur when the lake level has returned to Full Supply Level. The following requirements must be considered when determining gate closure sequences:

- *Unless determined otherwise by the Senior Flood Operations Engineer in accordance with Section 2.8, the aim should be to empty stored floodwaters within seven days after the flood peak has passed through the dams.*
- *To minimise the stranding of fish downstream of the dam, final closure sequences should consider Seqwater policies relating to fish protection at the dam.*

There may be a need to take into account base flow when determining final gate closure. This may mean that the lake level temporarily falls below Full Supply Level to provide for a full dam at the end of the Flood Event.

(b) otherwise denies the allegations.

The Real Time Flood Model

110. As to paragraphs 133, 134, 135, 136 and 136A of the Statement of Claim, the State:

- (a) admits that a real time flood monitoring and forecasting system known as the "Real Time Flood Model" (**RTFM**) was used by the Flood Engineers during December 2010 and January 2011;
- (b) says that the RTFM comprised two integrated modules known respectively as "FLOOD-Col" and "FLOOD-Ops";
- (c) says that FLOOD-Col was the module used continuously to collect real time data from gauges in the sub-catchments above and below Somerset Dam and Wivenhoe Dam;
- (d) says that real time data was transmitted by radio telemetry from gauges to the Flood Operations Centre;
- (e) says that FLOOD-Ops was the module comprising modelling software:
 - (i) used to analyse and calibrate the real time data received by FLOOD-Col;
 - (ii) used to predict runoff and generate hydrographs of runoff;
 - (iii) into which further information including rainfall forecast information could be input to derive inflow hydrographs;
- (f) says that Operations Spreadsheets were produced from the output of FLOOD-Ops for the purpose of, *inter alia*, determining gate operations strategies for Wivenhoe Dam and Somerset Dam in accordance with the Flood Mitigation Manual;
- (g) says that the flood behaviour of the Brisbane River catchment is complex because:
 - (i) there are several major waterways within the basin with each tributary possessing individual catchment characteristics, runoff response from rainfall, and routing behaviour which influences the timing and hydrograph shape of floods moving down the waterways;
 - (ii) rain does not fall evenly across the catchments, and rainfall patterns are not predictable on a catchment scale;
- (h) says that the RTFM provided the Flood Engineers with a modelling tool which was calibrated for sub-catchments, but whose utility depended upon professional judgement being applied at several points in the modelling process;
- (i) says that the Flood Engineers were required to exercise professional judgement in, *inter alia*:

- (i) continually assessing the reliability of real time data received by FLOOD-Col and filtering data determined to be unreliable;
 - (ii) spatially and temporally estimating and distributing observed and forecast rainfall within the catchments above and below Wivenhoe Dam and Somerset Dam;
 - (iii) monitoring and adjusting processes within the RTFM to match model results and hydrographs with real time data;
 - (iv) routing catchment runoff to estimate the shape, timing and magnitude of flood peaks;
 - (v) evaluating flow data and outputs from FLOOD-Ops in predicting inflows to Wivenhoe Dam and Somerset Dam and inflows to the Brisbane River from tributaries below those dams;
 - (vi) evaluating the outputs from FLOOD-Ops to produce Operations Spreadsheets;
 - (vii) analysing predicted inflows to determine gate operational strategies;
 - (viii) assessing outputs from FLOOD-Ops against Operations Spreadsheets to determine when Operations Spreadsheets are out of date as a result of further rainfall events within the catchments;
- (j) otherwise denies the allegations.

111. As to paragraph 136B of the Statement of Claim, the State:

- (a) admits that, in modelling hydrographs of projected inflows into Somerset Dam and Wivenhoe Dam using the RTFM, it was necessary for the flood engineers to specify initial and continuing loss rates for locations within the catchments;
- (b) says that the selection of loss rates reflects the exercise of judgements by the Flood Engineers to adjust the output from the RTFM:
 - (i) to account for antecedent wetness within the catchments;
 - (ii) to account for variations in temporal and spatial distribution and intensity of rainfall within the catchments;
 - (iii) to compensate for inaccurate or inadequate data;
 - (iv) to ensure an accurate correlation between the calculated hydrograph and the recorded hydrograph;
- (c) otherwise denies the allegations.

112. As to paragraphs 137 and 138 of the Statement of Claim, the State:

- (a) admits the allegations in sub-paragraphs 137(a), (b), (e) and (f);
- (b) says that QPFs were issued at 10:00 and 16:00 and forecast catchment average rainfall for the Lake Somerset and Lake Wivenhoe catchment for the 24 hour period from the time of issue;
- (c) says multi-day rainfall Poor Man's Ensemble maps (**PME**) 1, 4 and 8 day forecasts and flood model results were published twice each day by the BoM on the internet;
- (d) says that the Statement of Claim refers to daily PME's without identifying which of the daily PME's published for that particular day are referred to;
- (e) in so far as this Amended Defence refers to PME 1, 4 and 8 day forecasts in response to allegations contained in the Statement of Claim, the Amended Defence refers to the PME forecasts identified by the Plaintiff's expert, Dr Christensen in Figure 39 in Volume 2 of his Report dated 19 February 2015 referred to in the Statement of Claim;
- (f) says that BoM also published information and maps predicting rain at or above specified quantities expressed as a percentage for daily forecasts 1 to 5 days;
- (g) says that the Flood Engineers had subscriber access through the internet to ACCESS R SILO 72 hour forecast information;
- (h) otherwise denies the allegations in sub-paragraphs 137(c) and (d) and paragraph 138.

113. As to paragraphs 139, 139A, 140, 141 and 142 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 137 and 138 of the Statement of Claim above;
- (b) admits the allegations contained in paragraph 142;
- (c) says that the process of inputting rainfall forecast information into the RTFM required the Flood Engineers to exercise professional judgement in spatially and temporally estimating and distributing observed and forecast rainfall within the catchments above and below Wivenhoe Dam and Somerset Dam;
- (d) admits that once forecast information was input into the RTFM, the model could provide a prediction as to inflows to Wivenhoe Dam and Somerset Dam and inflows to the Brisbane River from tributaries below those dams;

- (e) says that:
 - (i) the BoM short to medium term (0-48 hr) forecasts of rainfall had demonstrated considerable error in the prediction of the location, amount and timing of rainfall events at the scale of the Wivenhoe Dam and Somerset Dam catchments;
 - (ii) the BoM longer term forecasts (4-day and 8-day) were less reliable;
- (f) says that BoM forecast models cannot be relied on to capture the development of rainfall events at extended (4-day and 8-day) timescales;
- (g) says that BoM forecast models have less accuracy at the catchment scale relevant to dam operations for higher rainfall intensities;
- (h) says that BoM 8 day rainfall forecast may provide some indication of the flood-producing potential of systems but models cannot be relied upon to capture the development of rainfall events at that timescale;
- (i) says that by reason of the matters pleaded in sub-paragraphs (e) to (h) above, it was difficult to predict the actual location, timing and intensity of rain within the Brisbane River Basin, where operation of Wivenhoe Dam and Somerset Dam requires consideration of both upstream and downstream rainfall and inflows;
- (j) says that dam operational decisions based on uncertain rainfall forecast information may produce worse outcomes than decisions based on actual rainfall observations;
- (k) says that BoM had qualified reliance upon forecasts in making dam operational decisions;

Particulars

Document entitled "Rainfall Forecasting for the Wivenhoe Dam Catchment" dated 24 July 2006 attached to an email from Peter Baddiley and Rob Drury dated 1 December 2010.

- (l) subject to the matters pleaded in sub-paragraphs (c) to (k) above, admits sub-paragraphs 141(c) and (d) of the Statement of Claim;
- (m) otherwise denies the allegations.

Duties of Care

Risk of Harm

114. As to paragraphs 142A and 142B of the Statement of Claim, the State:

- (a) admits that there existed a risk of harm if there was a failure properly to conduct flood operations at Somerset Dam and Wivenhoe Dam;
- (b) denies that the risk of harm was that pleaded in paragraph 142A of the Statement of Claim;
- (c) says that, between 9 and 11 January 2011, part of the Extreme Rainfall Event pleaded in paragraph 261 below occurred over Wivenhoe Dam, Somerset Dam and their catchments which resulted in the level of water in Wivenhoe Dam rising above EL 74 and necessitated releases of water from Wivenhoe Dam under Strategy W4;
- (d) in relation to claims alleged against Mr Ruffini, says that properly characterised, the risk of harm was whether, by not departing from the general strategy for management of the Flood Event determined by the Senior Flood operations Engineer when he was on duty in the Flood Operations Centre in January 2011, there was a risk that an extreme rainfall event of the kind which occurred between 9 and 11 January 2011 might occur such as would necessitate the releases of water from Wivenhoe Dam which were made, resulting in greater inundation to property downstream of Wivenhoe Dam;
- (e) otherwise denies the allegations.

115. As to paragraphs 143 to 146 of the Statement of Claim, the State:

- (a) says that the Extreme Rainfall Event was not reasonably foreseeable prior to approximately 11:00 on 9 January 2011;
- (b) says further that
- (c) as at 11:00 on 9 January 2011 the full magnitude of the rainfall that subsequently occurred on 10 and 11 January 2011 was not reasonably foreseeable;
- (d) says further that the plaintiff has not identified the 'Group Members';
- (e) otherwise does not admit paragraphs 143 to 146 because those paragraphs make no allegation against the State.

116. As to paragraphs 147 to 148 of the Statement of Claim, the State:

- (a) repeats and relies on sub-paragraphs (a) and (b) of the preceding paragraph of the Amended Defence;
- (b) otherwise does not admit paragraphs 147 to 148 because those paragraphs make no allegation against the State.

117. As to paragraphs 149 and 150 of the Statement of Claim, the State:

- (a) denies the allegations in sub-paragraph 149(a);
- (b) says that the conduct of flood operations at Somerset Dam and Wivenhoe Dam could be inherently dangerous and extremely hazardous depending upon the size, nature and extent of the flood event;
- (c) says that the purpose of flood operations by the Flood Engineers included mitigating the danger created by flood events;
- (d) says that the Flood Engineers did not owe the Group Members or the Plaintiff a duty to take reasonable care in the operation of the Dams as alleged because:
 - (i) the Flood Engineers and the First and Second Defendant, in undertaking flood mitigation, were exercising independent functions of a public or other authority;
 - (ii) the Flood Engineers did not do an act or make an omission that was, in the circumstances and for the purposes of s 36 of the *Civil Liability Act 2003* (Qld), so unreasonable that no public or other authority, having such functions, could consider the Flood Engineers to have acted other than reasonably;
 - (iii) the operation of the dams involved a balance of considerations of which flood mitigation was one, but which also included:
 - (1) the safety of Wivenhoe and Somerset Dams;
 - (2) preservation of water below FSL for drinking water, domestic and industry supply;
 - (3) making such releases as required to maintain a minimum flow downstream from the Dams;
 - (iv) the considerations referred in the preceding sub-paragraph (iii) were prescribed by the *Water Supply Act* and the Flood Mitigation Manual (made and approved pursuant to that Act);
 - (v) the balancing of those considerations:
 - (1) was not a function or responsibility of the Flood Engineers;
 - (2) was reflected in the terms of the Flood Mitigation Manual, including the strategies it contained and the circumstances in which it required the selection of one or other of such strategies;

- (vi) such criteria are not ones that offer standards by reference to which the reasonableness of the Flood Engineers' acts or omissions might be determined by a Court.

Events 1 December 2010 to 16 December 2010

118. As to paragraph 151 of the Statement of Claim, the State:

- (a) says that rainfall between 1 December 2010 and 15 December 2010 was of low intensity and scattered throughout the Wivenhoe and Somerset catchments;
- (b) otherwise denies the allegations.

119. The State admits paragraph 152 of the Statement of Claim.

120. The State admits paragraph 153 of the Statement of Claim.

121. The State admits paragraph 154 of the Statement of Claim.

122. As to paragraph 155 of the Statement of Claim, the State:

- (a) says that:
 - (i) releases of approximately 50m³/s were made from Wivenhoe Dam in the period from 1 December 2010 until approximately 12:30 on 13 December 2010 through the regulator and hydro;
 - (ii) at about 12:30 on 13 December 2010 the regulator was closed;
 - (iii) from about 13:00 to 15:30 on 13 December 2010 Gate 3 was opened progressively to 3.0 m;
 - (iv) from about 15:30 on 13 December 2010 for the remainder of that day, releases from Gate 3 were approximately 290 m³/s with the hydro continuing to release approximately 13 m³/s resulting in total releases being just over 300 m³/s;
 - (v) on 2 December 2010, 3 December 2010, 4 December 2010 and continuously from 6 December 2010 until approximately midday on 13 December 2010 releases at Somerset Dam were made through a regulator;
 - (vi) at about midday on 13 December 2010 for the remainder of that day, two regulators were opened to release approximately 138 m³/s at Somerset Dam;
- (b) otherwise denies the allegations.

123. As to paragraph 156 of the Statement of Claim, the State:

- (a) says that:
 - (i) because Wivenhoe Dam was nearing FSL, by Wivenhoe Directive 2, releases from Gate 3 were progressively closed from 08:00 on 16 December 2010;
 - (ii) after closure of Gate 3 releases then continued through the hydro at the rate of approximately 13 m³/s;
 - (iii) from approximately 13:00, immediately after fish recovery operations, until 18:00 on 17 December 2010 releases continued from Wivenhoe Dam at the rate of approximately 50 m³/s through the regulator and hydro;
 - (iv) at Somerset Dam, releases continued through two regulators until the afternoon of 16 December 2010, when one of the regulators was closed and thereafter releases continued through one regulator at the rate of approximately 69 m³/s;
- (b) says that at no time on 16 December 2010 did the water reach the trigger level for the opening of gates at either Wivenhoe or Somerset Dams under the Flood Mitigation Manual;
- (c) otherwise denies the allegations.

124. As to paragraph 157 of the Statement of Claim, the State:

- (a) admits that, from around 10:30 on 16 December 2010, no Flood Engineer was rostered on duty at the Flood Operations Centre to carry out dam operations at Wivenhoe and Somerset Dams;
- (b) says that at all material times after 10:30 on 16 December 2010:
 - (i) the Flood Operations Centre remained mobilised with a Flood Engineer on duty carrying out dam operations at North Pine Dam and also monitoring rainfall in the region;
 - (ii) a Flood Engineer was rostered on call monitoring the Wivenhoe and Somerset catchments and levels in those Dams;
 - (iii) releases at Wivenhoe Dam and Somerset Dam continued in the manner pleaded in response to paragraph 156 of the Statement of Claim above;
 - (iv) immediately it became apparent that the continued releases through the regulators could not be reasonably expected to bring each of Lake

Wivenhoe and Lake Somerset down to FSL within seven days, the Flood Operations Centre was mobilised from 07:00 on 17 December 2010 for dam operations at Wivenhoe Dam and Somerset Dam;

(c) otherwise denies the allegations.

125. As to paragraph 158 of the Statement of Claim, the State:

(a) repeats its responses to paragraphs 155 to 157 of the Statement of Claim above;

(b) says that:

(i) the Dam Level email received by the Flood Engineer on duty at approximately 10:04 advised that the level of Lake Wivenhoe was EL 67.10 at 10:00 on 16 December 2010;

(ii) the level of Lake Wivenhoe was in fact EL 67.07;

(c) otherwise admits the allegations in sub-paragraphs 158 (b), (e) and (f);

(d) as to sub-paragraphs 158(c) and (g):

(i) admits that inflows into both Lake Wivenhoe and Lake Somerset continued;

(ii) does not admit that the inflows were "flood inflows";

(iii) says that:

(1) the inflows comprised in whole or in substantial part base flows, and were ordinarily expected inflows reasonably managed by the regulators;

(2) at approximately 23:00 on 13 December 2010 the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201012132300**);

(3) SDWD-201012132300 Operations Spreadsheets remained relevant and in use in the Flood Operations Centre until the morning of 16 December 2010;

(4) SDWD-201012132300 predicted that Wivenhoe Dam would return to FSL by approximately 20 December 2010 and that Somerset Dam would return to FSL by approximately 17 December 2010;

(iv) in the premises, as at 16 December 2010 it was reasonably to be expected that releases from regulators would bring both Lake Wivenhoe and Lake

Somerset to FSL within seven days conformably with the Flood Mitigation Manual;

(e) as to sub-paragraph 158(d):

(i) says that:

- (1) the QPF for catchment average rainfall for the 24 hour period from 10:00 on 16 December 2010 to 10:00 on 17 December 2010 was 10 mm to 20 mm with isolated falls to 40 mm;
- (2) the 1 day PME forecast for 16 December 2010 was for continuing rain of between 1 mm to 5 mm;
- (3) inflows resulting from rainfalls of the magnitude forecast by the 1, 4 and 8 day PME forecasts, if they occurred, could be adequately managed by continued releases made through dam regulators and, if necessary, gate operations;

(f) otherwise denies the allegations.

126. ~~[Not used] As to paragraph 158A of the Statement of Claim, the State:~~

- ~~(a) says that the Flood Engineers were not authorised to make releases below FSL to create "flood storage capacity";~~
- ~~(b) denies the allegations.~~

127. ~~[Not used] As to paragraph 160 of the Statement of Claim, the State:~~

- ~~(a) admits the allegations contained in sub-paragraph 160(a);~~
- ~~(b) repeats and relies upon the matters pleaded in response to paragraphs 158 and 158A of the Statement of Claim above;~~
- ~~(c) denies that a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 16 December 2010 would have acted in the manner alleged in sub-paragraphs 160(b) to (h) inclusive.~~

128. ~~[Not used] As to paragraphs 161 and 162 of the Statement of Claim, the State:~~

- ~~(a) repeats and relies upon its responses to paragraphs 158 to 160 of the Statement of Claim above;~~
- ~~(b) denies that any of the Flood Engineers breached a duty of care to the plaintiff or other Group Members on 16 December 2010;~~

- (c) ~~says that the operation of Wivenhoe Dam and Somerset Dam on 16 December 2010 was not causative of flooding which occurred in January 2011;~~
- (d) ~~otherwise denies the allegations.~~

129. As to paragraph 163 of the Statement of Claim, the State:

- (a) says that on 16 December 2010:
 - (i) the water level in Lake Wivenhoe fell from a peak of approximately EL 67.30 at 15:00 on 13 December 2010 to approximately EL 67.07 at 07:00 on 16 December 2010;
 - (ii) the water level in Lake Wivenhoe subsequently began to rise from after 11:00 to reach approximately EL 67.17 at 06:30 on 17 December 2010;
- (b) otherwise denies the allegations.

130. As to paragraph 163A of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day forecast published on 17 December 2010 for 18 December to 21 December 2010:
 - (1) forecast between 50 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (2) to the extent that it forecast rainfall in excess of 100 mm, forecast that rain to affect only a small area in the north of the catchments;
 - (ii) the BoM 8 day PME forecast published on 17 December 2010 for 18 December to 25 December 2010 forecast between 100 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (iii) the BoM 1 day PME forecast published on 17 December for 18 December 2010 predicted between 10 mm and 25 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 11:26 and 16:00 on 17 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of 20 mm to 50 mm for the 24 hour period to 09:00 and 15:00 on 18 December 2010 respectively;
- (d) otherwise denies the allegations.

131. As to paragraph 163B of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 18 December 2010 for 19 December to 22 December 2010:
 - (1) forecast between 50 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (2) to the extent that it forecast rainfall in excess of 100 mm, forecast that rain to affect only a small area in the north of the catchments;
 - (ii) the BoM 8 day PME forecast published on 18 December 2010 for 19 December to 26 December 2010 forecast between 50 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (iii) the BoM 1 day forecast published on 18 December 2010 for 19 December 2010 forecast between 50 and 100mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 18 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of, respectively:
 - (i) 10 mm to 15 mm for the 24 hour period to 09:00 on 19 December 2010;
 - (ii) 25 mm to 35mm for the 24 hour period to 15:00 on 19 December 2010;
- (d) otherwise denies the allegations.

132. As to paragraph 163C of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 19 December 2010 for 20 December to 23 December 2010:
 - (1) forecast between 5 mm to 100 mm of rainfall in the Wivenhoe and Somerset catchments;

- (2) to the extent that it forecast rainfall in excess of 50 mm, forecast that rain to affect only a small area in the east of the catchments;
- (ii) the BoM 8 day PME forecast published on 19 December 2010 for 20 December to 27 December 2010 forecast between 25 mm to 100 mm of rainfall in the Wivenhoe and Somerset catchments;
- (iii) the BoM 1 day PME forecast published on 19 December 2010 for 20 December 2010 predicted between 1 mm and 15 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 19 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of, respectively:
 - (i) 40 mm to 50 mm for the 24 hour period to 09:00 on 20 December 2010;
 - (ii) 10 mm to 15mm for the 24 hour period to 15:00 on 20 December 2010;
- (d) otherwise denies the allegations.

133. As to paragraph 163D of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 20 December 2010 for 21 December to 24 December 2010 predicted 15 mm to 100 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (ii) the BoM 8 day PME forecast published on 20 December 2010 for 21 December to 28 December 2010 predicted 100 mm to 200 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (iii) the BoM 1 day PME forecast published on 20 December 2010 for 21 December 2010 predicted zero to 1 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 20 December 2010 forecast for the Wivenhoe and Somerset catchments zero rainfall for the 24 hour period to 09:00 on 21 December 2010 and the 24 hour period to 15:00 on 21 December 2010 respectively;
- (d) otherwise denies the allegations.

134. As to paragraph 163E of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 21 December 2010 for 22 December to 25 December 2010:
 - (1) forecast between 25 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (2) to the extent that it forecast rainfall in excess of 100 mm, forecast that rain to affect only a small area in the east of the catchments;
 - (ii) the BoM 8 day PME forecast published on 21 December 2010 for 22 December to 29 December 2010 forecast between 100 mm to 200 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (iii) the BoM 1 day PME forecast published on 21 December 2010 for 22 December 2010 predicted 15 mm to 100mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 21 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of, respectively:
 - (i) zero to 2 mm for the 24 hour period to 09:00 on 22 December 2010;
 - (ii) 10 mm to 20mm for the 24 hour period to 15:00 on 22 December 2010;
- (d) otherwise denies the allegations.

135. As to paragraph 163F of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 22 December 2010 for 23 December to 26 December 2010 forecast between 25 mm to 100 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (ii) the BoM 8 day PME forecast published on 22 December 2010 for 23 December to 30 December 2010:

- (1) forecast 100 mm to 200 mm of rainfall in the Wivenhoe and Somerset catchments;
- (2) forecast the most intense rainfall to fall outside the Wivenhoe and Somerset catchments in the catchments below Wivenhoe Dam;
- (iii) the BoM 1 day PME forecast published on 22 December 2010 for 23 December 2010 predicted between 5 mm and 15 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 22 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of 15 mm to 30 mm for the 24 hour period to 09:00 on 23 December 2010 and the 24 hour period to 15:00 on 23 December 2010 respectively;
- (d) otherwise denies the allegations.

136. As to paragraph 163G of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 23 December 2010 for 24 December to 27 December 2010 predicted 50 mm to 150 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (ii) the BoM 8 day PME forecast published on 23 December 2010 for 24 December to 31 December 2010 predicted 100 mm to 200 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) the BoM 1 day PME forecast published on 23 December 2010 for 24 December 2010 predicted between 5 mm and 50 mm of rainfall in the Wivenhoe and Somerset catchments;
- (d) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 23 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of respectively:
 - (i) 10 mm to 20 mm for the 24 hour period to 09:00 on 24 December 2010;
 - (ii) 5 mm to 10 mm for the 24 hour period to 15:00 on 24 December 2010;
- (e) otherwise denies the allegations.

137. As to paragraph 163H of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 24 December 2010 for 25 December to 28 December 2010 predicted between 100 mm to 300 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (ii) the BoM 8 day PME forecast published on 24 December 2010 for 25 December 2010 to 1 January 2011 predicted 150 mm to 300 mm of rainfall in the Wivenhoe and Somerset catchments;
 - (iii) the BoM 1 day PME forecast published on 24 December 2010 for 25 December 2010 predicted between 1 mm and 10 mm of rainfall in the Wivenhoe and Somerset catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 24 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of respectively:
 - (i) 25 mm to 35 mm for the 24 hour period to 09:00 on 25 December 2010;
 - (ii) 20 mm to 30 mm for the 24 hour period to 15:00 on 25 December 2010;
- (d) otherwise denies the allegations.

138. The State admits paragraph 164 of the Statement of Claim.

139. As to paragraph 165 of the Statement of Claim, the State:

- (a) admits the cumulative total of average daily rainfall for the period 17 December 2010 to 24 December 2010:
 - (i) in the Stanley catchment, was approximately 115 mm;
 - (ii) in the Upper Brisbane catchment, was approximately 71 mm;
- (b) says that:
 - (i) most of the rain that fell in the Lake Somerset and Lake Wivenhoe catchments did so in the 36-hour period to 09:00 on 20 December 2010;
 - (ii) from 09:00 on 20 December 2010:
 - (1) to 09:00 on 24 December 2010 no rain fell within the upper Brisbane catchment;

- (2) to 09:00 on 24 December 2010 approximately 14 mm of average rain fell within the Stanley catchment, approximately 11 mm of which fell in the 24 hours to 09:00 on 23 December 2010;
- (3) heavy rain fell in the catchments downstream of Wivenhoe Dam.

140. As to paragraph 166 of the Statement of Claim, the State:

- (a) says that the water level in Lake Wivenhoe rose from approximately EL 67.07 at 11:00 on 16 December 2010 to a peak of approximately EL 68.22 at 03:00 on 21 December 2010 before falling to approximately EL 67.07 at 10:00 on 24 December 2010;
- (b) says that the water level in Lake Somerset:
 - (i) between approximately 06:30 on 17 December and 07:30 on 18 December 2010, rose from approximately EL 99.32 to approximately EL 99.67;
 - (ii) between 07:30 on 18 December and 07:00 on 19 December 2010 fell to approximately EL 99.56;
 - (iii) between 07:00 on 19 December and 16:00 on 19 December 2010 fell slightly before again rising;
 - (iv) reached its maximum level of approximately EL 100.43 at 13:00 in the afternoon of Monday 20 December 2010;
 - (v) between 13:00 on 20 December 2010 and day's end on 21 December 2010 fell to approximately EL 99.84;
- (c) continued to fall from approximately EL 99.84 at 00:00 on 22 December 2010 to approximately EL 99.09 at 08:00 on 23 December 2010 before rising to approximately EL 99.18 at 05:00 on 24 December 2010;
- (d) otherwise denies the allegations.

141. As to paragraph 167 of the Statement of Claim, the State:

- (a) says that:
 - (i) the Mid December event is recorded as having had a start time of 09:00 on 16 December 2010 for the purposes of providing event data;
 - (ii) at about 07:00 on 17 December 2010 Mr Malone issued Situation Report 1 in respect of Wivenhoe and Somerset Dams;
- (b) otherwise admits that the Flood Operations Centre is recorded as having been mobilised at 10:00 on 17 December 2010 for the Mid December event.

142. The State admits paragraph 168 of the Statement of Claim.

143. As to paragraph 169 of the Statement of Claim, the State:

(a) says that:

- (i) Mr Ruffini commenced his shift at approximately 16:00 on 17 December 2010;
- (ii) at all material times on the 17 December 2010 until approximately 18:00, water was being released at 50 m³/s through the regulator and hydro at Wivenhoe Dam;
- (iii) at about 17:30 Mr Ruffini issued Wivenhoe Directive 1 which directed:
 - (1) the closure of the regulator and opening of Gate 3 to 0.5 m at 18:00;
 - (2) the continuation of the release of 13 m³/s through the hydro;
 - (3) a total release of 63 m³/s;
- (iv) at all material times throughout 17 December 2010, releases were being made from Somerset Dam at 69 m³/s through the regulators;

(b) otherwise denies the allegations.

144. As to paragraphs 170, 170A and 171 of the Statement of Claim, the State:

- (a) admits that the Chief Executive Officer of SEQ Water Grid Manager sent a letter dated 24 December 2010 to the Chief Executive Officer of Seqwater;
- (b) says that the letter materially stated:
 - (i) that the SEQ Water Grid Manager had *"from a water security perspective ... no in principle objection to minor releases"* from the dams and *"no in principle objection to Wivenhoe and Somerset dams being drawn down to 95 per cent of their combined full supply level"*; and
 - (ii) that *"these releases would have a negligible impact on the extent and duration of flooding during a major flood event"*;
- (c) denies that the letter constituted authority to reduce the water level below the FSL of either Lake Somerset or Lake Wivenhoe;
- (d) says that:
 - (i) the SEQ Water Grid Manager did not have the authority to authorise or direct a reduction of the FSL of either dam;

- (ii) neither Seqwater nor SunWater had authority to make releases from Lake Somerset or Lake Wivenhoe which would reduce the water level below FSL in the manner alleged in the Statement of Claim;
 - (iii) the Flood Engineers had no authority to make releases from Lake Somerset or Lake Wivenhoe which would reduce the water level below FSL in the manner alleged in the Statement of Claim;
 - (iv) says that the expression "Temporary Full Supply Level" referred to in the Statement of Claim and the water level attributed to that expression have no meaning, authorisation or relevance to the operation of Wivenhoe Dam or Somerset Dam;
- (e) says that the water supply for the South East Queensland region was reliant upon surface water captured and stored in Wivenhoe, Somerset and North Pine Dams;
- (f) says that between 2000 and approximately May 2009 South East Queensland was affected by a severe drought known as the "Millennium Drought", which created severe water supply shortages in Ipswich, Brisbane and the Gold Coast areas and had necessitated severe restrictions being imposed upon the use of water for domestic and other uses in the areas of Brisbane CC, Gold Coast CC, Ipswich CC, Lockyer Valley Regional Council (RC), Logan CC, Moreton Bay RC, Scenic Rim RC and Somerset RC;
- (g) says that any decision change to the FSL of Wivenhoe Dam or Somerset Dam was a policy decision that would have required input from a number of stakeholders and to have been preceded by thorough technical and economic investigation;
- (h) says that the FSL of Lake Wivenhoe and Lake Somerset had been determined after broad consultation and reflected Government policy;
- (i) says that such investigations as were in the course of being undertaken at the time of the 2011 flood event in part were directed to increasing FSL to provide additional water security and storage;
- (j) otherwise denies the allegations.

145. As to paragraph 172 of the Statement of Claim, the State:

- (a) admits the allegations that releases at Somerset Dam were discontinued at about 13:00 on 24 December 2010;

- (b) admits the radial gates at Wivenhoe Dam were closed by about 13:00 on 24 December 2010;
- (c) says that at Wivenhoe Dam:
 - (i) the closure of the radial gates:
 - (1) allowed the peak flow from Lockyer Creek to pass;
 - (2) was temporary only;
 - (3) enabled downstream communities to gain access to homes and properties before (and for) Christmas Day;
 - (ii) releases continued:
 - (1) initially through the hydro at the rate of 13 m³/s from 13:00 on 24 December 2010;
 - (2) upon completion of fish recovery, also through a fully open regulator releasing a total of 50 m³/s for the remainder of 24 December and until 09:00 on 26 December 2010;
 - (iii) at 09:00 on the 26 December 2010 the radial gates were re-opened;
- (d) says that after 13:00 on 24 December 2010:
 - (i) the situation (including BoM forecasts) was monitored by the Flood Engineer on duty at the Flood Operations Centre directing operations for North Pine Dam and the on-call Flood Engineer;
 - (ii) at 14:41 on 24 December 2010 Mr Ruffini issued Situation Report 1400;
 - (iii) at 00:13 on 25 December 2010 Mr Tibaldi issued Situation Report 0015;
 - (iiia) at 02:09 on 25 December 2010 Mr Tibaldi issued Situation Report 0200;
 - (iv) at 07:25 on 25 December 2010 Mr Malone issued Situation Report 0700;
 - (v) at 08:00 on 25 December 2010 Mr Malone issued Situation Report 0700 confirmation;
 - (vi) at 08:09 on 25 December 2010 Mr Malone issued Situation Report 0700 confirmation and correction;
 - (vii) at 05:53 on 26 December 2010 Mr Tibaldi issued Situation Report 0600;
- (e) otherwise denies the allegations.

146. As to paragraph 173 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraph 172 of the Statement of Claim above;
- (b) says that at the times pleaded:
 - (i) the Flood Operations Centre remained mobilised for the purposes of dam operations at the North Pine Dam;
 - (ii) a Flood Engineer was on duty at the Flood Operations Centre;
 - (iii) a Flood Engineer:
 - (1) was on call;
 - (2) was monitoring the circumstances pertaining to Lake Wivenhoe and Lake Somerset, including BoM forecasts;
- (c) otherwise denies the allegations.

147. As to paragraph 174 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 170, 170A, 171, 172 and 173 of the Statement of Claim above;
- (b) says that at 13:00 on 24 December 2010:
 - (i) the level of Lake Wivenhoe was approximately EL 67.08;
 - (ii) the level of Lake Somerset was approximately EL 99.20;
 - (iii) base inflows into Lake Wivenhoe and Lake Somerset were continuing;
- (c) in relation to sub-paragraph 174(d) says that the highest totals of rainfall in the period 24 hours before 09:00 on 24 December were recorded in the catchments below Wivenhoe Dam, particularly the Lockyer catchment, in which rainfall of between 10 mm and 45 mm was recorded;
- (d) as to sub-paragraph 174(e):
 - (i) says that the BoM 1 day PME forecast published on 24 December 2010 for 25 December 2010 predicted rainfall of between 1 mm to 10 mm in the Lake Somerset and Lake Wivenhoe catchment areas;
 - (ii) says that the same forecast predicted a higher amount of rainfall in the catchments below Wivenhoe Dam;
- (e) as to sub-paragraph 174(f):

- (i) says that the BoM 4 day PME forecast published on 24 December for 25 December to 28 December 2010 predicted 100 mm to 300 mm of rainfall for the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) says that the same forecast predicted at least similar amounts of rain in the catchments downstream of Wivenhoe Dam;
- (f) as to sub-paragraph 174(g) says that the BoM 8 day PME forecast published on 24 December 2010 for 25 December 2010 to 1 January 2011 predicted:
- (i) between 150 mm and 300 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) similar amounts of rainfall downstream of the catchments;
- (g) says that on a proper interpretation of the PME forecasts, the majority of the rainfall was forecast to fall in the 5 to 8 day period;
- (h) otherwise denies the allegations.
148. ~~[Not used] As to paragraph 174A of the Statement of Claim, the State:~~
- ~~(a) repeats and relies upon its response to paragraphs 163A to 166 and 174 of the Statement of Claim above;~~
 - ~~(b) otherwise denies the allegations.~~
149. ~~[Not used] As to paragraph 176 of the Statement of Claim, the State:~~
- ~~(a) repeats and relies upon its responses to paragraphs 149, 150, 174 and 174A of the Statement of Claim above;~~
 - ~~(b) admits the allegations in sub-paragraphs 176(a) and (d);~~
 - ~~(c) denies the allegation in sub-paragraph 176(b), (c), (e), (f), (g) and (h);~~
 - ~~(d) says that, on 24 December 2010, a reasonably prudent flood engineer would have expected that the Dams would reach FSL over a period of seven days;~~
 - ~~(e) between 24 and 26 December 2010 releases continued, to be made through the regulator and hydro at Wivenhoe Dam at the rate of 50 m³/s;~~
 - ~~(f) says that:~~
 - ~~(i) the Flood Engineers had no authority to reduce the water level below FSL;~~
 - ~~(ii) there was no basis for a reasonably prudent flood engineer to reduce the water levels below FSL;~~

- (g) ~~repeats and relies upon the matters pleaded in response to paragraphs 54 to 59 of Statement of Claim;~~
- (h) ~~otherwise denies the allegations.~~

150. ~~[Not used] As to paragraphs 177 and 178 of the Statement of Claim, the State:~~

- (a) ~~repeats and relies upon its responses to paragraphs 149, 150, 170 to 176 of the Statement of Claim above;~~
- (b) ~~denies that any conduct of Mr Ruffini was causative of harm to the plaintiff or Group Members;~~
- (c) ~~says that, in adhering to the flood mitigation strategy which was in place while Mr Ruffini was on duty in the Flood Operations Centre, the conduct of Mr Ruffini was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;~~

Particulars

~~The State relies on the particulars to paragraph 308 below.~~

- (d) ~~says that the operation of Wivenhoe Dam and Somerset Dam in the period 16 December 2010 to 24 December 2010 was not causative of flooding which occurred in January 2011;~~
- (e) ~~otherwise denies the allegations.~~

151. As to paragraph 179 of the Statement of Claim, the State:

- (a) denies releases from the dams ceased on 24 December 2010 because releases continued to be made through the regulators;
- (b) says that:
 - (i) Lake Somerset rose from approximately EL 99.18 on 24 December to approximately EL 99.54 at 07:00 on 26 December 2010;
 - (ii) Lake Wivenhoe rose from approximately EL 67.07 on 24 December to approximately EL 67.32 at 06:30 on 26 December 2010;
- (c) otherwise admits the allegations.

Events of 25 December 2010 to 1 January 2011

152. As to paragraph 179A of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 and 163H of the Statement of Claim above;

(b) otherwise denies the allegations.

153. As to paragraph 179B of the Statement of Claim, the State:

(a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;

(b) says that:

(i) the BoM 4 day PME forecast published on 25 December 2010 for 26 December to 29 December 2010 predicted rainfall between 100 mm and 200 mm in the Wivenhoe and Somerset Dam catchments;

(ii) the BoM 8 day PME forecast published on 25 December 2010 for 25 December 2010 to 2 January 2011 predicted rainfall between 150 mm and 300 mm in the Wivenhoe and Somerset Dam catchments;

(iii) the BoM 1 day PME forecast published on 25 December 2010 for 26 December 2010 predicted rainfall between 25 mm and 50 mm in the Wivenhoe and Somerset Dam catchments;

(iv) each of the above forecasts predicted the most intense rainfall outside to the east and below the Wivenhoe and Somerset Dam catchments;

(c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 25 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of respectively:

(i) 10 mm to 20 mm for the 24 hour period to 09:00 on 26 December 2010;

(ii) 40 mm to 60 mm for the 24 hour period to 15:00 on 26 December 2010;

(d) otherwise denies the allegations.

154. As to paragraph 179C of the Statement of Claim, the State:

(a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;

(b) admits that the BoM 4 day PME forecast published on 26 December 2010 for 27 December to 30 December 2010 predicted rainfall between 100 mm and 200 mm in the Wivenhoe and Somerset Dam catchments;

(c) says that:

(i) the BoM 8 day PME forecast published on 26 December 2010 for 27 December 2010 to 3 January 2011 predicted rainfall between 100 mm and 200 mm in the Wivenhoe and Somerset Dam catchments;

- (ii) the BoM 1 day PME forecast published for 27 December 2010 predicted rainfall between 25 mm and 100 mm in the Wivenhoe and Somerset Dam catchments;
- (iii) each of the above forecasts predicted the most intense rainfall in the catchments downstream of Wivenhoe and Somerset Dam;
- (d) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 26 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of 50 mm to 100 mm for the 24 hour period to 09:00 on 27 December 2010 and for the 24 hour period to 15:00 on 27 December 2010 respectively;
- (e) otherwise denies the allegations.

155. As to paragraph 179D of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 27 December 2010 for 28 December to 31 December 2010 predicted rainfall between 15 mm and 50 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published on 27 December 2010 for 28 December to 4 January 2011 predicted rainfall between 25 mm and 100 mm in the Wivenhoe and Somerset Dam catchments
 - (iii) the BoM 1 day PME forecast published on 27 December 2010 for 28 December 2010 predicted rainfall between 5 mm and 50 mm in the Wivenhoe and Somerset Dam catchments;
 - (iv) on the proper interpretation of the 4 and 8 day PME forecasts, the forecast was for most of the rain forecast to fall outside the Wivenhoe Dam and Somerset Dam catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 27 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of respectively:
 - (i) 25 mm to 50 mm for the 24 hour period to 09:00 on 28 December 2010;
 - (ii) 25 mm to 35 mm for the 24 hour period to 15:00 on 28 December 2010;

- (b) otherwise denies the allegations.

156. As to paragraph 179E of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 28 December 2010 for 29 December to 1 January 2011 predicted rainfall between 1 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published on 28 December 2010 for 29 December 2010 to 5 January 2011 predicted rainfall between 10 mm and 50 mm in the Wivenhoe and Somerset Dam catchments;
 - (iii) the BoM 1 day PME forecast published on 28 December 2010 for 29 December 2010 predicted rainfall between 1 mm and 15 mm in the Wivenhoe and Somerset Dam catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 28 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of 3 mm to 5 mm for the 24 hour period to 09:00 on 29 December 2010 and for the 24 hour period to 15:00 on 29 December 2010 respectively;
- (d) otherwise denies the allegations.

157. As to paragraph 179F of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 29 December 2010 for 30 December 2010 to 2 January 2011 predicted rainfall between 1 mm and 10 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published on 29 December 2010 for 30 December 2010 to 6 January 2011 predicted rainfall between 5 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;

- (iii) the BoM 1 day PME forecast published on 29 December for 30 December 2010 predicted rainfall between zero and 1 mm in the Wivenhoe and Somerset Dam catchments;
 - (iv) on the proper interpretation of the 4 and 8 day PME forecasts, the most intense rainfall was forecast to the east of the Wivenhoe and Somerset catchments and off shore;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 29 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of respectively:
- (i) 3 mm to 5 mm for the 24 hour period to 09:00 on 30 December 2010;
 - (ii) less than 2 mm for the 24 hour period to 15:00 on 30 December 2010;
- (d) otherwise denies the allegations.

158. As to paragraph 179G of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 30 December 2010 for 31 December 2010 to 3 January 2011 predicted rainfall between 5 mm and 15 mm in the Wivenhoe and Somerset Dam catchments
 - (ii) the BoM 8 day PME forecast published on 30 December 2010 for 31 December 2010 to 7 January 2011 predicted rainfall between 10 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;
 - (iii) the BoM 1 day PME forecast published on 30 December 2010 for 31 December 2010 predicted between zero and 1 mm rainfall in the Wivenhoe and Somerset Dam catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 30 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of less than 2 mm for the 24 hour period to 09:00 on 31 December 2010 and for the 24 hour period to 15:00 on 31 December 2010 respectively;
- (d) otherwise denies the allegations.

159. As to paragraph 179H of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 31 December 2010 for 1 January 2011 to 4 January 2011 predicted rainfall between 5 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published on 31 December 2010 for 1 January 2011 to 8 January 2011 predicted rainfall between 5 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;
 - (iii) the BoM 1 day PME forecast published on 31 December 2010 for 1 January 2011 predicted rainfall between 1mm and 5 mm in the Wivenhoe and Somerset Dam catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 31 December 2010 forecast for the Wivenhoe and Somerset catchments an average rainfall of less than 5 mm for respectively for the 24 hour period to 09:00 on 1 January 2011 and for the 24 hour period to 15:00 on 1 January 2011 respectively;
- (d) otherwise denies the allegations.

160. As to paragraph 179I of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 1 January 2011 for 2 January to 5 January 2011 predicted rainfall between 1 mm and 10 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published 1 January 2011 for 2 January to 9 January 2011 predicted rainfall between 15 mm and 25 mm in the Wivenhoe and Somerset Dam catchments;
 - (iii) the BoM 1 day PME forecast published 1 January 2011 for 2 January 2011 predicted rainfall between 1 mm and 5 mm in the Wivenhoe and Somerset Dam catchments;
- (c) says that the BoM QPFs issued at approximately 10:00 and 16:00 on 1 December 2010 forecast for the Wivenhoe and Somerset catchments an

average rainfall of less than 5 mm for the 24 hour period to 09:00 on 2 January 2011 and for the 24 hour period to 15:00 on 2 January 2011 respectively;

(d) otherwise denies the allegations.

161. As to paragraph 180 of the Statement of Claim, the State:

(a) admits that there were further rainfalls over:

(i) the Lake Somerset catchment between 25 December and 30 December 2010;

(ii) the Lake Wivenhoe catchment between 25 December and 29 December 2010;

(b) says that in the period from 09:00 on 29 December 2010 to 09:00 on 1 January 2011:

(i) no further rainfall fell in the Upper Brisbane River catchment;

(ii) light rain only (between approximately 2 mm and 11 mm in total catchment average) fell in the Stanley catchment;

(c) otherwise denies the allegations.

162. As to paragraphs 181 and 182 of the Statement of Claim, the State:

(a) admits that:

(i) in the period from 09:00 on 24 December 2010 to 09:00 on 29 December 2010, there was a total cumulative catchment average rainfall of approximately:

(1) 107 mm in the Stanley catchment;

(2) 80 mm in the Upper Brisbane catchment;

(ii) in the period from 09:00 on 29 December 2010 to 09:00 on 2 January 2011:

(1) a further total of approximately 20 mm of rain fell in the Stanley catchment, making a total cumulative average catchment rainfall for the period from 09:00 on 24 December 2010 to 09:00 on 2 January 2011 in that catchment of approximately 126 mm;

(2) no further rain fell in the Upper Brisbane river catchment, leaving the total cumulative average catchment rainfall for the period from 09:00

on 24 December 2010 to 09:00 on 2 January 2011 in that catchment at approximately 80 mm;

- (b) says that, between 09:00 25 December 2010 and 09:00 28 December 2010, the following total cumulative average catchment rainfalls fell downstream of the dam:
 - (i) approximately 105 mm in the Lockyer Creek catchment;
 - (ii) approximately 169 mm in the Bremer River catchment;
 - (iii) approximately 112 mm in the Lower Brisbane River catchment;
- (c) otherwise denies the allegations.

163. As to paragraph 183 of the Statement of Claim, the State:

- (a) says that the level of Lake Somerset:
 - (i) in the period from 29 December 2010 to 08:00 on 31 December 2010 fell from a peak of approximately EL 99.98 to its FSL of EL 99.0;
 - (ii) thereafter remained at FSL until 1 January 2011;
- (b) otherwise admits the allegations.

164. As to paragraph 184 of the Statement of Claim, the State:

- (a) says that the level of Lake Wivenhoe:
 - (i) in the period from 11:00 on 24 December 2010 to 12:00 on 29 December 2010 rose from approximately EL 67.07 to a peak of approximately EL 69.33;
 - (ii) in the period 12:00 on 29 December 2010 to 03:00 on 31 December 2010 fell from a peak of approximately EL 69.33 to approximately EL 68.47 and continued to fall to approximately EL 67.07 at 09:00 on 2 January 2011;
- (b) otherwise denies the allegations.

165. As to paragraphs 184A, 184B and 185 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 172 and 173 of the Statement of Claim above;
- (b) otherwise denies the allegations.

166. The State admits paragraph 186 of the Statement of Claim.

167. As to paragraph 187 of the Statement of Claim, the State:

- (a) says that on 26 December 2010:
- (i) at or around 9:00am:
 - (1) the level of Lake Wivenhoe was approximately EL 67.32;
 - (2) the level of Lake Somerset was approximately EL 99.54;
 - (ii) at 08:30 Mr Ayre issued Wivenhoe Directive No 1 which directed the closure of the regulator and the progressive opening of Gate 3 from 0.5 m at 09:00 to 3.5 m releasing about 350 m³/s at 10:30;
 - (iii) by 10:30 Lake Wivenhoe was releasing water at a total of 363 m³/s (including the hydro release of 13 m³/s);
 - (iv) at 08:45 Mr Ayre issued Somerset Directive No 1 which directed the opening of the two regulators at Lake Somerset by 10:30;
 - (v) by 10:30 Lake Somerset was releasing water at a total of about 139 m³/s;
- (b) admits the water releases were consistent with Strategy W1 at Wivenhoe Dam and Strategy S2 at Somerset Dam;
- (c) otherwise denies the allegations.

168. As to paragraph 188 of the Statement of Claim, the State:

- (a) admits that between about 18:00 on 26 December and 28 December 2010, the rate of releases from Wivenhoe Dam was below the rate of inflow;
- (b) otherwise denies the allegations.

169. The State admits paragraph 189 of the Statement of Claim.

170. As to paragraph 190 of the Statement of Claim, the State:

- (a) says that:
 - (i) before Mr Ruffini commenced his shift at 19:00 on 28 December 2010, the Flood Engineers had transitioned to, and were operating under, Strategy W3;
 - (ii) throughout his shift from 19:00 on 28 December to 07:00 on 29 December 2010 Mr Ruffini directed the operation of the dams in accordance with the general strategy determined by the Senior Flood Operations Engineer;
 - (iii) the conditions for using Strategy W2 were not satisfied;
- (b) otherwise denies the allegations.

171. As to paragraph 191 of the Statement of Claim, the State:

- (a) repeats its responses to paragraphs 183 and 184 of the Statement of Claim above;
- (b) says that the level of:
 - (i) Lake Somerset fell from a maximum of approximately EL 99.99 to approximately EL 98.99 (below FSL) by 12:30 on 31 December 2010;
 - (ii) Lake Wivenhoe fell from a maximum of approximately EL 69.33 to approximately EL 67.07 by 09:00 on 2 January 2011
- (c) otherwise admits the allegations.

172. ~~[Not used] As to paragraph 191A of the Statement of Claim, the State:~~

- ~~(a) repeats and relies upon its responses to paragraphs 149, 150, 179A to 184A of the Statement of Claim above;~~
- ~~(b) says that, in the period from 09:00 on 29 December 2010 to 09:00 on 2 January 2011:~~
 - ~~(i) a total of 20 mm average catchment rain fell in the Stanley catchment;~~
 - ~~(ii) no rain fell in the Upper Brisbane catchment;~~
- ~~(c) admits the allegations in sub-paragraph 191A(a);~~
- ~~(d) says that flood operations and water releases were occurring at all material times from 25 December 2010;~~
- ~~(e) as to sub-paragraph (c):~~
 - ~~(i) says that:~~
 - ~~(1) during the period referred to Mr Ruffini was on duty during the following times:~~
 - ~~(a) 19:00 on 28 December to 07:00 on 29 December 2010;~~
 - ~~(b) 19:00 on 30 December to 07:00 on 31 December 2010;~~
 - ~~(c) 19:00 on 31 December 2010 to 07:00 on 1 January 2011;~~
 - ~~(2) by the time Mr Ruffini came on shift at 19:00 on 28 December 2010, Strategy W3 had been implemented;~~

- (3) ~~Mr Ruffini directed the operations of the dams during each of his shifts in accordance with the general strategy determined by the Senior Flood Operations Engineer;~~
- (ii) ~~denies the conditions for the implementation of Strategy W2 ever existed during the period 25 December 2010 to 1 January 2011;~~
- (f) ~~admits the allegations in sub-paragraph 191A(d);~~
- (g) ~~as to sub-paragraphs 191A(e), (f) and (g):~~
- (i) ~~says that:~~
- (1) ~~between 31 December 2010 to the end of 1 January 2011 the level of Lake Somerset was at or below FSL;~~
- (2) ~~in the period from 13:00 on 29 December 2010 to 09:00 on 2 January 2011 the water level in Lake Wivenhoe was reducing, having fallen from approximately EL 69.33 to approximately EL 67.07;~~
- (3) ~~at the time Mr Ruffini came on duty at 19:00 on 31 December 2010 the overall strategy for management of the operation of Wivenhoe Dam set by the Senior Flood Operations Engineer was to commence shut down procedures by late 31 December 2010 with the expectation that gates would be fully closed by 09:00 on 2 January 2011;~~
- (4) ~~during the course of his shift from 19:00 on 31 December 2010 to 07:00 on 1 January 2011, Mr Ruffini:~~
- (a) ~~directed the operation of the dam in accordance with the general strategy determined by the Senior Flood Operations Engineer including by issuing Wivenhoe Directives 16 and 17 which commenced gate closure operations;~~
- (b) ~~was not authorised by the Flood Operations Manual to depart from the general strategy determined by the Senior Flood Operations Engineer;~~
- (5) ~~at the end of Mr Ruffini's shift at 07:00 on 1 January 2011:~~
- (a) ~~Somerset Dam was at FSL;~~
- (b) ~~the settings of Gates 1 to 5 at Wivenhoe Dam were 1.5 m, 2.0 m, 4.0 m, 2.0 m and 1.5 m respectively releasing about 1,090 m³/s with the hydro releasing a further 13 m³/s;~~

- (c) ~~the level of Lake Wivenhoe was approximately EL 67.43 and falling;~~
- (6) ~~at 09:00 on 2 January 2011 the water level in Lake Wivenhoe was approximately EL 67.07;~~
- (7) ~~at the end of 1 January 2011 releases were continuing to be made from Wivenhoe Dam through Gates 2 and 3 at settings of 0.5 m and 3.5 m respectively;~~
- (8) ~~it was reasonable to expect that Wivenhoe Dam would reach FSL over a period of not more than seven days;~~
- (9) ~~the flood operations pleaded above:~~
 - (a) ~~were in accordance with the Flood Mitigation Manual;~~
 - (b) ~~mitigated flooding in accordance with the objects of the Flood Mitigation Manual;~~
- (ii) ~~denies a reasonably prudent flood engineer would have reduced the level of Lake Somerset or Lake Wivenhoe to below FSL;~~
- (iii) ~~says that:~~
 - (1) ~~the Flood Engineers had no authority to reduce the water level below FSL;~~
 - (2) ~~there was no basis for a reasonably prudent flood engineer to reduce the water levels below FSL;~~
- (h) ~~says that, in adhering to the flood mitigation strategy which was in place while Mr Ruffini was on duty in the Flood Operations Centre, the conduct of Mr Ruffini was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;~~

Particulars

The State relies on the particulars to paragraph 308 of the Defence below.

- (i) ~~says that the operation of Wivenhoe Dam and Somerset Dam in the period 16 December 2010 to 1 January 2011 was not causative of flooding which occurred following 9 January 2011;~~
 - (j) ~~otherwise denies the allegations in paragraph 191A of the Statement of Claim.~~
173. [Not used] The State denies the allegations in paragraphs 191B and 191C of the Statement of Claim.

Events of 2 January 2011

174. As to paragraph 192 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 2 January 2011 for 3 January to 6 January 2011 predicted rainfall between 50 mm and 100 mm in the Wivenhoe and Somerset Dam catchments;
 - (ii) the BoM 8 day PME forecast published on 2 January 2011 for 3 January to 10 January 2011 predicted rainfall between 50 mm and 150 mm in the Wivenhoe and Somerset Dam catchments;
- (c) the BoM 1 day PME forecast published for 3 January 2011 predicted rainfall between zero mm and 5 mm in the Wivenhoe and Somerset Dam catchments;
- (d) otherwise denies the allegations.

175. As to paragraph 193 of the Statement of Claim, the State:

- (a) admits that, at or around 10:03 on 2 January 2011, BoM issued a QPF stating the forecast of catchment average rainfall for the Somerset and Wivenhoe Dam catchments "for the 24 hour period to 9am Monday 5-10 mm";
- (b) otherwise does not admit the allegation.

176. The State admits paragraph 194 of the Statement of Claim.

177. As to paragraph 195 of the Statement of Claim, the State:

- (a) as to Wivenhoe Dam, says that on 2 January 2011:
 - (i) the water level:
 - (1) was at 09:00, approximately EL 67.07;
 - (2) had reduced to that level from a peak of approximately EL 69.33 at 13:00 on 29 December 2010;
 - (ii) a reasonably prudent flood engineer would have expected the water level to continue to reduce to FSL;
- (b) as to Somerset Dam, says that:
 - (i) between 08:00 on 31 December 2010 until at or about 09:00 on 1 January 2011 was at or below FSL;

- (ii) on 1 January 2011 the level was, at 09:30, approximately EL 99.00;
 - (c) otherwise denies the allegations.
- 178. As to paragraph 196 of the Statement of Claim, the State:
 - (a) admits that, because of the rainfall that had occurred in December 2010, there was a likelihood that there would be an increase in runoff from catchments above and below Wivenhoe Dam and Somerset Dam;
 - (b) otherwise denies the allegations.
- 179. As to paragraph 197 of the Statement of Claim, the State:
 - (a) denies that, in the 24 hours to 09:00 on 2 January 2011, there was "widespread" rainfall throughout the catchment areas for Lake Wivenhoe and Lake Somerset;
 - (b) says that such rain as did fall:
 - (i) was not widespread;
 - (ii) did not fall in the Middle Brisbane catchment area, except for an isolated fall of 6 mm in the north western region;
 - (iii) was light only in the upper Brisbane catchment;
 - (c) admits that, in the 24 hours to 09:00 on 2 January 2011, rainfall of approximately 8 mm to approximately 29 mm was recorded in the Somerset catchment with higher totals of up to approximately 50 mm in the headwaters of the Stanley and Pine Rivers;
 - (d) otherwise denies the allegations.
- 180. The State admits paragraph 198 of the Statement of Claim.
- 181. As to paragraph 199 of the Statement of Claim, the State denies the rainfall on 2 January 2011 and the associated runoff into Lake Somerset or Lake Wivenhoe increased the alleged (or any) risk that there would be insufficient storage capacity in those Lakes.
- 182. The State does not admit the allegations in paragraph 200 of the Statement of Claim.
- 183. The State denies the allegations in paragraphs 201 and 202 of the Statement of Claim.
- 184. As to paragraphs 203 and 204 of the Statement of Claim, the State:
 - (a) as to sub-paragraph 203(a), admits that at or around 06:30 on 2 January 2011, the level of Lake Somerset was approximately EL 99.10 and thereafter rose slowly to reach a level of approximately EL 99.34 at 06:30 on 6 January 2011;

- (b) as to sub-paragraph 203(b):
 - (i) says that, at or around 09.00 on 2 January 2011, the level of Lake Wivenhoe was approximately EL 67.07 and thereafter rose slowly to a level of approximately EL 67.28 on at 07:00 on 6 January 2011;
 - (ii) says that:
 - (1) at 09:00 on 2 January 2011 the gates at Wivenhoe Dam were closed for fish recovery but the hydro remained open;
 - (2) upon completion of fish recovery, a regulator was opened fully to manage continuing low inflows into Wivenhoe Dam;
- (c) otherwise denies the allegations.

185. The State admits paragraph 205 of the Statement of Claim.

186. As to paragraphs 206, 207 and 208 of the Statement of Claim, the State:

- (a) says that Mr Ruffini was not on duty in the Flood Operations Centre between 07:00 on 1 January 2011 and 19:00 on 7 January 2011;
- (b) admits that as at 09:45 on 2 January 2011:
 - (i) the gates on the Dams were closed;
 - (ii) the Dams were above FSL;
- (c) says that, as at 09:45 on 2 January 2011:
 - (i) inflows into the Dams largely comprised base flows;
 - (ii) the inflows were, and were reasonably able to be managed, by use of the regulators in each dam;
 - (iii) use of the regulators was reasonably capable of bringing each dam to FSL within seven days on the facts as then known to the Flood Engineers;
 - (iv) no relevant flood warnings issued by BoM were current;
 - (v) BoM had not predicted any rain over the coming days of such quantity as to have caused a reasonably prudent flood engineer to have considered there to be other than sufficient flood capacity in the Lake Somerset and Lake Wivenhoe flood compartments;
- (d) repeats and relies upon the response pleaded in response to paragraphs 203 and 204 of the Statement of Claim below;

- (e) says that, at 09:00 on 2 January 2011, a reasonably prudent flood engineer would have expected, on the facts then known to the Flood Engineers, the level of the Dams to draw down through the regulators to FSL within seven days in accordance with the Flood Mitigation Manual;
- (f) otherwise denies the allegations.

187. As to paragraph 209 of the Statement of Claim, the State:

- (a) denies the allegations;
- (b) repeats and relies upon its responses to paragraphs 192 to 204 of the Statement of Claim above.

188. As to paragraphs 211, ~~211A~~, 211B and 212 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 54, 136A, 136B, 149, 150, 192 to 209 of the Statement of Claim above;
- (b) admits a reasonably prudent flood engineer responsible for flood operations at Somerset Dam and Wivenhoe Dam on 2 January 2011 would have complied with the Flood Mitigation Manual;
- (c) as to sub-paragraphs 211(b), (c), (d), (e), (h) and 211B:
 - (i) says that the Flood Engineers did continue to make releases from Somerset Dam and Wivenhoe Dam after 09:45 on 2 January 2011 through use of the regulators and hydro at the following rates:
 - (1) at Somerset, approximately 34 m³/s;
 - (2) at Wivenhoe, approximately 50 m³/s;
 - (ii) says that on 2 January 2011:
 - (1) there were only light falls of rain up to approximately 30 mm in the Somerset catchment in the 24 hours to 09:00 on 2 January 2011;
 - (2) the QPF for the Somerset and Wivenhoe catchments:
 - (a) issued at 10:00 was for less than 5 mm to 10 mm for the 24 hour period to 09:00 on 3 January 2011;
 - (b) issued at 16:00 was for 5 mm to 10 mm over the 24 hour period to 15:00 on 3 January 2011;
 - (iii) says that the rainfall forecast in the QPFs referred to in the preceding sub-paragraph was unlikely to cause any or any significant runoff;

- (iv) says that BoM forecast for South East Queensland over the forthcoming week was for light showers, with a chance of isolated storms on Wednesday and Thursday;
 - (v) repeats and relies upon the matters pleaded in response to paragraphs 138 to 142 of the Statement of Claim above;
 - (vi) says that the BoM forecasts were not such as to have caused a reasonably prudent flood engineer to adopt any strategy different from the strategy the Flood Engineers adopted;
 - (vii) says that a reasonably prudent flood engineer would not have construed the Flood Mitigation Manual to require the actions pleaded in subparagraphs 211(b) to (h);
 - (viii) says that the levels of Lake Somerset and Lake Wivenhoe remained below the trigger level for any gate operations under the Flood Mitigation Manual;
 - (ix) says that the Flood Engineers had no authority to reduce the level of the dams below FSL;
 - (x) says that:
 - (1) the Flood Engineers has no authority to reduce the water levels below FSL;
 - (2) there was no basis for a reasonably prudent flood engineer to reduce the water levels below FSL;
- (d) says that Mr Ruffini:
- (i) was not involved in selection of loss rates in the RTFM prior to 19.00 on 7 January 2011;
 - (ii) could not have reduced the Somerset Dam and Wivenhoe Dam water levels in the manner pleaded in paragraph 211B because he was not on duty as a Flood Engineer between 07:00 on 1 January 2011 and 19.00 on 7 January 2011;
- (e) ~~[Not used] as to paragraph 211A and sub-paragraph 211B(a) says that the dam operations between 16 December 2010 and 2 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;~~
- (f) otherwise denies the allegations.

189. As to paragraph 213 of the Statement of Claim, the State:

- (a) denies the allegations;
- (b) repeats and relies upon its responses to paragraphs 211 to 212 of the Statement of Claim above;
- (c) says that Mr Ruffini was not on duty as a Flood Engineer at any time on 2 January 2011.

Events of 3 January to 5 January 2011

190. As to paragraph 214 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM PME 4 day PME forecast published on 3 January 2011 for 4 January to 7 January 2011 predicted rainfall of between 50 mm and 150 mm in the Wivenhoe and Somerset catchments;
 - (ii) the BoM PME 8 day PME forecast published on 3 January 2011 for 4 January to 11 January 2011 predicted rainfall of between 50 mm and 150 mm in the Wivenhoe and Somerset catchments;
 - (iii) on a proper interpretation of the 4 and 8 day forecasts, the majority of the rainfall was predicted for next four days;
- (c) says that the BoM 1 day PME forecast published on 3 January 2011 for 4 January 2011 was for rain of between zero and 5 mm in the Wivenhoe and Somerset catchments;
- (d) otherwise denies the allegations.

191. As to paragraph 215 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that:
 - (i) the BoM 4 day PME forecast published on 4 January 2011 for 5 January to 8 January 2011 predicted rainfall between 25 mm and 100 mm in the Wivenhoe and Somerset catchments;
 - (ii) the BoM 8 day PME forecast published on 4 January for 5 January to 12 January 2011 predicted rainfall between 50 mm and 150 mm in the Wivenhoe and Somerset catchments;

(iii) the BoM 1 day PME forecast published 4 January 2011 for 5 January 2011 predicted rainfall of between 5 mm and 15 mm;

(c) otherwise denies the allegations.

192. As to paragraph 216 of the Statement of Claim, the State:

(a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;

(b) says that:

(i) the BoM 4 day PME forecast published on 5 January for 6 January to 9 January 2011 predicted rainfall between 25 mm and 150 mm in the Wivenhoe and Somerset catchments;

(ii) the BoM 8 day PME forecast published on 5 January for 6 January to 13 January 2011 predicted rainfall between 25 mm and 200 mm in the Wivenhoe and Somerset catchments;

(iii) upon a proper interpretation of the BOM PME forecasts the most intense rain was predicted to fall outside the Wivenhoe and Somerset catchments and in the catchment below Wivenhoe Dam;

(c) says that the BoM 1 day PME forecast published on 5 January 2011 for 6 January 2011 predicted rainfall of between 25 mm and 50 mm in the Wivenhoe and Somerset catchments;

(d) otherwise denies the allegations.

193. As to paragraphs 217 and 218 of the Statement of Claim, the State:

(a) says that a more complete table of the approximate actual average rainfall is set out in the table below;

Date/time	24 hour catchment Ave actual rainfall (mm)
03/01/11 09:00	5
03/01/11 15:00	4
04/01/11 09:00	0
04/01/11 15:00	2
05/01/11 09:00	26

05/01/11 15:00

44

(b) otherwise admits the allegations.

194. As to paragraph 219 of the Statement of Claim, the State:

(a) says that any such inflows were low and did not themselves justify a change to the arrangements then in place;

(b) otherwise denies the allegations.

195. As to paragraphs 220 and 221 of the Statement of Claim, the State:

(a) says that:

(i) the water level of Lake Somerset increased from approximately EL 99.10 on 06:30 on 2 January 2011 and to approximately EL 99.34 at 06:30 on 6 January 2011;

(ii) the water level of Lake Wivenhoe increased from approximately EL 67.07 at 09:00 on 2 January to approximately EL 67.28 at 07:00 on 6 January 2011;

(iii) the rise in water level in the Dams occurred slowly;

(iv) there was no significant rainfall in the 24 hours to 09:00 on 5 January 2011;

(v) in the 24 hours to 09:00 on 6 January 2011, catchment average rainfalls were approximately:

(1) Upper Brisbane 27 mm;

(2) Stanley 21 mm;

(3) Lockyer Creek 30 mm;

(4) Bremer 28 mm;

(b) otherwise denies the allegations.

196. As to paragraph 222 of the Statement of Claim, the State:

(a) admits that at 06:30 on 6 January 2011, the level of Lake Wivenhoe was approximately EL 67.28;

(b) says that no level taken on 5 January and before 06:30 on 6 January 2011 showed the level of Lake Wivenhoe to exceed EL 67.20.

197. As to paragraph 223 of the Statement of Claim, the State:

- (a) admits that, upon the level of Lake Wivenhoe reaching EL 67.25, Strategy W1A was triggered under the Flood Mitigation Manual;
- (b) says that:
 - (i) as a result of the rainfall over the night of 5 January 2011 and further falls up to a total of approximately 150 mm expected during the forthcoming two days, the Flood Operations Centre was mobilised at 07:42 on 6 January 2011;
 - (ii) the Flood Mitigation Manual does not impose any minimum release obligation;
- (c) otherwise denies the allegations.

198. As to paragraphs 224, 224A and 225 of the Statement of Claim, the State:

- (a) says that, during the period 2 to 5 January 2011:
 - (i) releases continued through the regulators;
 - (ii) the circumstances were under constant surveillance by the Flood Engineers on duty at the Flood Operations Centre for North Pine Dam and the on call Flood Engineer;
 - (iii) the level of Wivenhoe did not exceed EL 67.25, the trigger level for Strategy W1A;
- (b) otherwise denies the allegations.

199. As to paragraph 226 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 214 to 223 of the Statement of Claim above;
- (b) says that:
 - (i) Lake Wivenhoe, at the start of the period 2 January 2011, had:
 - (1) a level of approximately EL 67.07
 - (2) a remaining temporary flood storage capacity of about 900,000 ML to EL 74;
 - (ii) Lake Wivenhoe, at the end of the period 5 January 2011 had:
 - (1) a water level of approximately EL 67.20
 - (2) a remaining temporary flood storage capacity of about 880,000 ML to EL 74;

- (iii) Lake Somerset at the start of the period 2 January 2011 had:
 - (1) a water level of approximately EL 99.10;
 - (2) a remaining temporary flood storage capacity of about 364,000 ML to EL 105.5;
- (iv) Lake Somerset at the end of the period 5 January 2011 had:
 - (1) a water level of approximately EL 99.28;
 - (2) a remaining temporary flood storage capacity of about 353,000 ML to EL 105.5;
- (v) in the period between 2 January and 5 January 2011, Lake Wivenhoe and Lake Somerset had a combined flood storage capacity of at least 1,200,000 ML;
- (vi) there was no, or no significant, risk of the matters referred to in sub-paragraphs 226(a) and (b) during the period 3 to 5 January 2011;
- (c) in relation to claims alleged against Mr Ruffini, repeats and relies upon the matters pleaded in response to paragraphs 142A and 142B of the Statement of Claim;
- (d) otherwise denies the allegations.

200. As to paragraphs 228, 228A and 228B of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 54, 136A, 136B, 149, 150, 214 to 226 of the Statement of Claim above;
- (b) admits the allegations in sub-paragraph 228(a);
- (c) says that Mr Ruffini was not on duty as a Flood Engineer during the period 3 January 2011 to 5 January 2011;
- (d) as to sub-paragraph 228(b):
 - (i) says that the Flood Engineers did in fact continue flood releases at Somerset Dam and Wivenhoe Dam during such period, other than at the time of fish recovery, through the regulators:
 - (1) from Wivenhoe at the rate of 50 m³/s;
 - (2) from Somerset at the rate of 35 m³/s;
 - (ii) such operations were sufficient to deal with the events between 3 and 5 January 2011;

- (iii) a reasonably prudent flood engineer would have reasonably expected such operations to bring the water levels in Lake Somerset and Lake Wivenhoe down to their respective FSLs within a period of seven days allowed for by the Flood Mitigation Manual;
- (e) as to sub-paragraph 228(c):
 - (i) denies the allegations;
 - (ii) says that:
 - (1) a reasonably prudent flood engineer would not have:
 - (a) expected the level in Lake Wivenhoe to exceed EL 68.50 at any time during such period;
 - (b) considered the conditions for choosing Strategy W3 in the Flood Mitigation Manual to have been triggered;
 - (c) implemented Strategy W3;
 - (2) the conditions for the implementation of Strategy W3 under the Flood Mitigation Manual did not exist during such period;
- (f) as to sub-paragraph 228(d):
 - (i) says that the Flood Engineers did in fact continue flood releases at Somerset Dam;
 - (ii) says that such releases:
 - (1) were sufficient to deal with the events between 3 and 5 January 2011;
 - (2) were consistent with Strategy S2;
- (g) says that the release of water at rates exceeding the rate of inflow was contrary to the Flood Mitigation Manual;
- (h) says that Mr Ruffini:
 - (i) was not involved in selection of loss rates in the RTFM prior to 19.00 on 7 January 2011;
 - (ii) could not have reduced the Somerset Dam and Wivenhoe Dam water levels in the manner pleaded in paragraph 228B because he was not on duty as a Flood Engineer between 07:00 on 1 January 2011 and 19.00 on 7 January 2011;

- (i) as to paragraph 228B:
 - (i) denies the allegations;
 - (ii) says:
 - (1) the Flood Engineers had no authority to reduce the water level below FSL;
 - (2) there was no basis for a reasonably prudent flood engineer to reduce the water levels below FSL;
- (j) says that during the period 3 to 5 January 2011:
 - (i) the actual rainfall and forecast rainfall during such period was not such as to cause a reasonably prudent flood engineer to have acted in the manner alleged in sub-paragraphs 228A and 228B;
 - (ii) no rain of significance fell in the 24 hours to 09:00 on Wednesday 5 January 2011;
 - (iii) at no time immediately before 5 January 2011 did information exist by way of warnings or otherwise from BoM which ought reasonably to have caused the Flood Engineers to form the views or to have made the releases alleged;
- (k) otherwise denies the allegations.

201. As to paragraphs 229 and 230 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 224 to 228B of the Statement of Claim;
- (b) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 5 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (c) denies the allegations.

Events of 6 January 2011

202. As to paragraph 231 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that the BoM 4 day PME forecast published on 6 January 2011 for 7 January to 10 January 2011:

- (i) forecast rainfall between 25 mm and 150 mm in Wivenhoe and Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 100 mm to 150 mm in the Wivenhoe and Somerset catchments, forecast that rain to affect only a small area in the southeast of the catchments;
 - (iii) forecast most intense rain to fall outside the Wivenhoe and Somerset catchments in the catchments below Wivenhoe Dam;
- (c) says that the BoM 8 day PME forecast published on 6 January for 7 January to 14 January 2011:
- (i) forecast rainfall between 25 mm to 200 mm of rainfall in Wivenhoe and Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 100 mm and 200 mm in the Wivenhoe and Somerset catchments, forecast that rain to affect only an area in the south east of the catchments;
 - (iii) forecast the most intense rain was forecast to fall outside of the Wivenhoe and Somerset catchments in the catchments below Wivenhoe Dam;
- (d) says that the BoM 1 day PME forecast published on 6 January 2011 for 7 January 2011 forecast rainfall of between 15 mm to 50 mm in the Wivenhoe and Somerset catchments;
- (e) says that the SILO Access Model 72 forecast for the period 6 to 8 January 2011 was:
- (i) 85 mm for the Somerset catchment;
 - (ii) 51 mm for the Wivenhoe catchment;
- (f) otherwise denies the allegations.

203. The State admits paragraph 232 of the Statement of Claim.

204. The State admits paragraph 233 of the Statement of Claim.

205. The State admits paragraph 234 of the Statement of Claim.

206. As to paragraphs 235 and 236 of the Statement of Claim, the State:

- (a) says that:

- (i) in the 24 hours to 09:00 on 6 January 2011 there had been heavy widespread rainfall in the catchments downstream of the Wivenhoe Dam including in the Lockyer Creek catchment;
- (ii) after 09:00 during 6 January 2011 further significant rainfall occurred in the catchments downstream of Wivenhoe Dam, including further heavy falls in the Lockyer Creek catchment;
- (iii) at 10:48 BoM issued a Flood Warning notifying the Flood Engineers that heavy rainfall during the morning was expected to lead to fast rises in the Lockyer and Warrill Creek catchments and along the Bremer River with further rises likely while rainfall continues;
- (iv) at 14:28 BoM issued a Flood Warning notifying the Flood Engineers that rainfall of up to 60 mm had been received in Lockyer Creek in the six hours to 14:00 resulting in fast rises along Lockyer Creek;
- (v) at 17:26 BoM issued a further Flood Warning notifying that heavy rainfall was continuing to cause fast river rises in the Lockyer and Warrill Creek catchments and along the Bremer River;
- (vi) the heavy falls in the Lockyer Creek catchment were expected to:
 - (1) result in higher than expected inflows from the Lockyer Creek catchment;
 - (2) result in a peak of such inflows up to 600 m³/s late on Friday 7 January 2011;
 - (3) adversely impact upon Twin Bridges, Savages Crossing, Kholo Bridge, Colleges Crossing and Burton's Bridge;

(b) otherwise admits the allegations.

207. As to paragraph 237 of the Statement of Claim, the State:

- (a) denies the allegations in sub-paragraph 237(b)(ii);
- (b) says that, properly construed, the Flood Mitigation Manual did not require flood releases to commence or a minimum flood release to occur in the circumstances stated or at all;
- (c) otherwise admits the allegations.

208. The State admits paragraph 238 of the Statement of Claim.

209. The State admits paragraph 239 of the Statement of Claim.

210. The State admits paragraph 240 of the Statement of Claim.

211. As to paragraph 240A of the Statement of Claim, the State:

- (a) says that Mr Ruffini did not select or input loss rates into the RTFM prior to coming on duty at 19:00 on 7 January 2011;
- (b) says that the selection of initial and continuing loss rates were based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim.
- (c) otherwise does not admit the allegation.

212. As to paragraph 241 of the Statement of Claim, the State:

- (a) says that Sections 8.3 and 8.4 of the Flood Mitigation Manual relevantly provided as set out in response to paragraphs 54 to 59 of the Statement of Claim above;
- (b) says that, properly construed, the Flood Mitigation Manual did not require flood releases to commence or a minimum flood release to occur in the circumstances stated or at all;
- (c) otherwise denies the allegations.

213. As to paragraph 242 of the Statement of Claim, the State:

- (a) says that after 09:45 on 6 January 2011, the Flood Engineers did in fact continue flood releases through the regulators:
 - (i) at Wivenhoe at the rate of approximately 50 m³/s;
 - (ii) at Somerset at the rate of approximately 35 m³/s;
- (b) otherwise denies the allegations.

214. As to paragraph 243 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 142A, 142B and 231 to 238 of the Statement of Claim above;
- (b) says that:
 - (i) Lake Wivenhoe at the end of 6 January 2011, had:
 - (1) a level of approximately EL 67.41
 - (2) a remaining temporary flood storage capacity of about 860,000 ML to EL 74;
 - (ii) Lake Somerset had:

- (1) a water level of approximately EL 99.51;
 - (2) a remaining temporary flood storage capacity of about 346,000 ML to EL 105.5;
- (iii) as at the end of 6 January 2011, Lake Wivenhoe and Lake Somerset had a combined remaining temporary flood storage capacity of at least 1,200,000 ML;
- (c) otherwise denies the allegations.

215. As to paragraph 245 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 54, 136A, 136B, 149, 150, 231 to 243 of the Statement of Claim above;
- (b) admits the allegations in sub-paragraph 245(a);
- (c) says that Mr Ruffini was not on duty as a Flood Engineer on 6 January 2011;
- (d) as to sub-paragraph 245(b):
 - (i) says the Flood Engineers did in fact continue flood releases at Somerset Dam and Wivenhoe Dam during such period through the regulators:
 - (1) from Wivenhoe at the rate of 50 m³/s;
 - (2) from Somerset at the rate of 35 m³/s;
 - (ii) says that:
 - (1) during the morning of 6 January 2011 the intention of the Flood Engineer was to commence radial gate opening at Wivenhoe Dam at 18:00 with one gate progressively opened to 2.5 m by 22:00;
 - (2) following receipt of the BoM Flood Warning at 10:48 and later at 14:28 notifying that rainfall of up to 60 mm had been received in Lockyer Creek in the six hours to 14:00 resulting in fast rises along Lockyer Creek, it was decided not to commence radial gate opening until after the peak of inflows from Lockyer Creek had passed;
 - (3) such decision not to commence radial gate openings was affirmed after receipt of the BoM Flood Warning at 17:26;
 - (4) such decision and operations as occurred were reasonable and sufficient to deal with the events on 6 January 2011 having regard:

- (a) to the higher than expected inflows from Lockyer Creek with an estimated peak of up to 600 m³/s late on 7 January 2011;
 - (b) the intention to commence releases from the radial gates at Wivenhoe Dam after the peak of inflows from the Lockyer Creek had passed either late on 7 January or early in the morning of 8 January 2011;
- (5) a reasonably prudent flood engineer would have reasonably expected such operations to bring the water levels in both Lake Somerset and Lake Wivenhoe down to FSL within a period of seven days as provided for by the Flood Mitigation Manual;
- (e) as to sub-paragraph 245(c):
- (i) denies the allegations;
 - (ii) says that over the period from 07:00 on 6 January to 00:00 on 7 January 2011 the level in Lake Wivenhoe rose from approximately EL 67.28 to approximately EL 67.43;
- (f) says that:
- (i) at 12:00 on 6 January 2011 the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101061200**) which:
 - (1) identified the general dam operations in place during 6 January 2011;
 - (2) predicted that Wivenhoe Dam would peak at EL 68.35 at 16:00 on 11 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (3) predicted that Somerset Dam would peak at EL 99.75 at 20:00 on 7 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (ii) at 15:00 on 6 January 2011 the Flood Engineer then on duty had produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101061500**) which:
 - (1) identified the general dam operations in place during 6 January 2011;

- (2) predicted that Wivenhoe Dam would peak at EL 68.497 at 10:00 on 11 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (3) predicted that Somerset Dam would peak at EL 99.91 at 00:00 on 8 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (4) predicted a Lockyer Creek peak of approximately 500 m³/s;
- (iii) at 16:00 on 6 January 2011 the Flood Engineer then on duty had produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101061600**) which;
- (1) identified the general dam operations in place during 6 January 2011 and a gate opening strategy to be implemented after the peak of inflows expected from the Lockyer Creek catchment passed on 7 January 2011;
 - (2) predicted that Wivenhoe Dam would peak at EL 68.42 at 15:00 on 8 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (3) predicted that Somerset Dam would peak at EL 99.69 at 19:00 on 7 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (4) predicted a Lockyer Creek peak of approximately 480 m³/s;
 - (5) predicted the drain down to FSL of Lake Wivenhoe within approximately seven days and Lake Somerset within approximately four days;
- (iv) at 21:00 on 6 January 2011 the Flood Engineer then on duty had produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101062100**) which;
- (1) identified the general dam operations in place during 6 January 2011 and a gate opening strategy to be implemented after the peak of inflows expected from the Lockyer Creek catchment passed on 7 January 2011;

- (2) predicted that Wivenhoe Dam would peak at EL 68.24 at 11:00 on 8 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (3) predicted that Somerset Dam would peak at EL 99.7 at 00:00 on 8 January 2011 and then drain down to FSL on the dam operations in place at the time;
 - (4) predicted a Lockyer Creek peak of approximately 470 m³/s;
 - (5) predicted the drain down to FSL of Lake Wivenhoe within approximately four days and of Lake Somerset within approximately three days;
- (v) on 6 January 2011 a reasonably prudent flood engineer::
- (1) would not have expected the level in Lake Wivenhoe to exceed EL 68.50 at any time on 6 January 2011 or at any time in the future;
 - (2) would not have considered the conditions for choosing Strategy W3 in the Flood Mitigation Manual to have been triggered;
 - (3) would not have implemented Strategy W3;
- (g) says that there was no BoM forecast or other information available to the Flood Engineers which would have caused a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam to adopt an operating strategy materially different from the general strategy in place;
- (h) as to sub-paragraph 245(d):
- (i) says that the Flood Engineers did in fact continue flood releases at Somerset Dam;
 - (ii) says that such releases:
 - (1) were sufficient to deal with the events on 6 January 2011;
 - (2) were consistent with Strategy S2;
- (i) denies the allegations in sub-paragraph 245(e);
- (j) says that the operations alleged would have been contrary to the Flood Mitigation Manual;
- (k) says that:

- (i) Mr Ruffini was not on duty as a Flood Engineer between 07:00 on 1 January 2011 and 19:00 on 7 January 2011;
- (ii) Mr Ruffini did not select or input loss rates into the RTFM prior to coming on duty at 19:00 on 7 January 2011;

(l) otherwise denies the allegations.

216. As to paragraphs 245A and 245B of the Statement of Claim:

- (a) repeats and relies upon its responses to paragraphs 231 to 245 of the Statement of Claim above;
- (b) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 7 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (c) says that as at 6 January 2011 the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January 2011 and 11 January 2011:
 - (1) was not predicted by forecasts available to the Flood Engineers;
 - (2) was not reasonably foreseeable;
- (d) for the Flood Engineers to have acted in the manner alleged would have been contrary to:
 - (i) the Flood Mitigation Manual
 - (ii) widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

(e) otherwise denies the allegations.

217. As to paragraph 246 and 247 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 239 to 245B of the Statement of Claim above;
- (b) denies the allegations.

Events of 7 January 2011

218. As to paragraph 248 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that the BoM 4 day PME forecast published on 7 January 2011 for 8 January to 11 January 2011:
 - (i) forecast rainfall between 50 mm and 300 mm in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 200 mm to 300 mm in the Lake Wivenhoe and Lake Somerset catchments forecast that rain to affect only a small area in the south east of the catchment;
 - (iii) forecast the most intense rainfall between 300 mm and 400 mm in catchments below Wivenhoe Dam;
- (c) says that the BoM 8 day PME forecast published on 7 January for 8 January to 15 January 2011:
 - (i) forecast rainfall between 50 mm to 300 mm of rainfall in Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 200 mm to 300 mm in Lake Wivenhoe and Lake Somerset catchments forecast that rainfall to affect only a small area in the south east of the catchments;
 - (iii) forecast the most intense rainfall between 300 mm and 400mm in catchments below Wivenhoe Dam;
- (d) says that on the proper interpretation of the 4 and 8 day PME forecasts, the forecast was for a decreasing rain trend, with most of the rain forecast to fall in the first four days;
- (e) says that the BoM 1 day PME forecast published for 8 January 2011 forecast rainfall between 1 mm to 25 mm in Lake Wivenhoe and Lake Somerset catchments;
- (f) otherwise denies the allegations.

219. The State admits paragraph 249 of the Statement of Claim.

220. The State admits paragraph 250 of the Statement of Claim.

221. As to paragraph 251 of the Statement of Claim, the State:

- (a) says that:
 - (i) rain generally eased in the 24 hours to 09:00 on 7 January 2011;

- (ii) rainfall was widespread with totals generally between approximately 10 mm and approximately 30 mm through the catchment areas for Lake Somerset and Lake Wivenhoe and also in the Brisbane River catchments downstream of Wivenhoe Dam;

- (b) otherwise admits the allegations.

222. As to paragraph 252 of the Statement of Claim, the State:

- (a) says that, at 18:00 on 7 January 2011, the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101071800**);
- (b) says that when Mr Ruffini came on duty at 19:00 on 7 January 2011, SDWD-201101071800, being the then current model run:
- (i) calculated the following inflows into the Wivenhoe and Somerset Dams during 7 January 2011 to that time:

Date/time	Wivenhoe	Somerset
07/01/2011 12:00	1688	642
07/01/2011 13:00	1511	695
07/01/2011 14:00	1377	649
07/01/2011 15:00	1307	600
07/01/2011 16:00	1245	568
07/01/2011 17:00	1190	545
07/01/2011 18:00	1143	526
07/01/2011 19:00	1104	508

- (ii) predicted the following inflows into the Wivenhoe and Somerset Dams during the remainder of the 7 January 2011:

Date/time	Wivenhoe	Somerset
07/01/2011 20:00	1074	489
07/01/2011 21:00	1051	470
07/01/2011 22:00	1034	449

07/01/2011 23:00	1021	428
08/01/2011 00:00	1011	407
07/01/2011 04:00	1123	199
07/01/2011 05:00	1183	214
07/01/2011 06:00	1225	214
07/01/2011 07:00	1246	234
07/01/2011 08:00	1297	335
07/01/2011 09:00	1276	325
07/01/2011 10:00	1252	336
07/01/2011 11:00	1657	504
07/01/2011 12:00	1688	642

- (c) during the period of Mr Ruffini's shift from 19:00 on 7 January 2011 to 07:00 on 8 January 2011, the level of Lake Wivenhoe rose from approximately EL 68.15 to approximately EL 68.47 being a net inflow into Lake Wivenhoe of approximately 37,120 ML;
- (d) otherwise denies the allegations.

223. The State admits paragraph 253 of the Statement of Claim.

224. As to paragraph 254 of the Statement of Claim, the State:

- (a) admits that at all times during the morning of 7 January 2011 the level of Lake Wivenhoe was above the level at which the Flood Mitigation Manual authorised releases from Wivenhoe Dam to commence;
- (b) says that the Flood Mitigation Manual did not require releases of water from Wivenhoe Dam during the morning of 7 January 2011;
- (c) otherwise denies the allegations.

225. As to paragraph 255 of the Statement of claim, the State:

- (a) says that at midnight on 7 January 2011, the water level in the Dams was:
- (i) Lake Somerset approximately EL 100.31;
- (ii) Lake Wivenhoe approximately EL 68.30;
- (b) otherwise admits the allegations.

226. The State admits paragraph 256 of the Statement of Claim.

227. As to paragraph 256A of the Statement of Claim, the State:

- (a) denies the allegations;
- (b) says that in using the FLOOD-Ops RTFM on 7 January 2011, the flood engineers selected and input the following loss rates for the cases referred to below:

Case SDWD- 201101070100		
	Initial	Continuing
CRE	10	2.5
COO	10	2.5
LIN	15	2.5
EMU	30	2.5
GRE	10	2.5
SDI	0	1.0
WDI	0	2.5

Case SDWD- 201101071800		
	Initial	Continuing
CRE	10	2.5
COO	10	2.5
LIN	15	2.5
EMU	30	2.5
GRE	10	2.5
SDI	0	1.0
WDI	0	2.5

Case SDWD- 201101072200		
	Initial	Continuing
CRE	10	2.5

COO	30	0.5
LIN	30	0.5
EMU	30	0.5
GRE	40	0.5
SDI	15	0.5
WDI	0	2.5

Case SDWD- 201101072200 72hr		
	Initial	Continuing
CRE	10	2.5
COO	30	0.5
LIN	30	0.5
EMU	30	0.5
GRE	40	0.5
SDI	15	0.5
WDI	0	2.5

- (c) says that the selection of initial and continuing loss rates referred to in the preceding sub-paragraph were based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim.

228. As to paragraph 257 of the Statement of Claim, the State:

- (a) says that:
- (i) the Flood Engineers issued Wivenhoe Directive 1 at noon on 7 January 2011;
 - (ii) implementation of Wivenhoe Directive 1 commenced at 15:00 on 7 January 2011;
 - (iii) water was being released through the regulators at the rate of 50 m³/s prior to 15:00 on 7 January 2011;
- (b) otherwise denies the allegations.

229. As to paragraphs 258 and 259 of the Statement of Claim, the State:

- (a) says that, at the time Mr Ruffini came on duty at 19:00 on 7 January 2011, Wivenhoe Dam Gate 3 was open 2.5 m discharging 255 m³/s and the hydro was discharging 13 m³/s;
- (b) says that, in the period from 19:00 on 7 January 2011 to 24:00 on 7 January 2011, the Wivenhoe Dam Gate 3 was progressively opened to 3.5 m, Gate 2 was progressively opened to 1.0 m, Gate 4 was opened to 0.5 m and the hydro remained discharging throughout that period at 13 m³/s;
- (c) says that the gate openings were in accordance with the general strategy which had been determined prior to when Mr Ruffini commenced duty at 19:00 on 7 January 2011;
- (d) otherwise does not admit the allegations.

230. As to paragraph 260 of the Statement of Claim, the State:

- (a) admits that the rates of inflow into Lake Wivenhoe exceeded rates of outflow during the period 00:00 on 7 January 2011 to 24:00 on 7 January 2011;
- (b) says that the rate of inflow into Lake Wivenhoe and the rate of outflow from Lake Wivenhoe caused by the radial gate operations implemented on that day were:
 - (i) within the range of normal dam operating procedures;
 - (ii) consistent with accepted flood mitigation procedures for attenuating inflows;
- (c) does not admit that the extent by which inflows exceeded outflows was "substantial";
- (d) otherwise denies the allegations.

231. As to paragraph 261 of the Statement of Claim, the State:

- (a) says that prior to 17:00 on 7 January 2011 water was being released at Somerset Dam through a regulator opened at 50% at about 35 m³/s;
- (b) says that:
 - (i) at about 16:13 on 7 January 2011, the Flood Engineers issued Somerset Directive 1 directing the opening of the regulator to 100% releasing at about 70 m³/s;
 - (ii) Somerset Directive 1 was implemented at about 17:00 on 7 January 2011;

- (iii) at about 18:00 on 7 January 2011, the Flood Engineers issued Somerset Directive 2 directing the closing of the regulator and the opening of a sluice gate releasing about 206 m³/s;
- (iv) Somerset Directive 2 was implemented at about 19:00 on 7 January 2011;
- (c) otherwise denies the allegations.

232. As to paragraphs 262 and 263 of the Statement of Claim, the State:

- (a) says that, at the time Mr Ruffini commenced duty at 19:00 on 7 January 2011, at Somerset Dam, all crest gates were open and Sluice gate L was fully opened discharging a total of about 206 m³/s;
- (b) says that the gate openings were in accordance with the general strategy which had been determined prior to Mr Ruffini commencing duty at 19:00 on 7 January 2011;
- (c) otherwise does not admit the allegations.

233. As to paragraph 264 of the Statement of Claim, the State:

- (a) admits that the rates of inflow into Lake Somerset exceeded rates of outflow during the period 00:00 on 7 January 2011 to 24:00 on 7 January 2011;
- (b) says that the rate of inflow into Lake Somerset and the rate of outflow from Lake Somerset caused by the gate operations implemented on that day were:
 - (i) within the range of normal dam operating procedures;
 - (ii) consistent with accepted flood mitigation procedures for attenuating inflows;
- (c) otherwise denies the allegations.

234. As to paragraph 265 of the Statement of Claim, the State:

- (a) says that SDWD-201101071800:
 - (i) identified the general dam operations strategy in place at the time Mr Ruffini commenced duty;
 - (ii) predicted that Wivenhoe Dam would peak at EL 68.51 at 14:00 on 8 January 2011 and on the dam operations strategy in place at that time, drain down to FSL by approximately 12:00 on 11 January 2011;
- (b) says that during the period Mr Ruffini was on duty between 19:00 on 7 January 2011 and 07:00 on 8 January 2011, he:

- (i) continued to monitor the real time gauge data collected by FLOOD-Col and inflow hydrographs generated by the FLOOD-Ops RTFM;
 - (ii) at 22:00 on 7 January 2011 produced hydrographs modelling inflows using the FLOOD-Ops RTFM (**SDWD-201101072200**);
 - (iii) at 22:00 on 7 January 2011 produced hydrographs modelling inflows using the FLOOD-Ops RTFM taking into account 72 hour BoM SILO forecasts (**SDWD-201101072200_72hr**);
- (c) says that SDWD-201101072200 produced hydrographs consistent with SDWD-201101071800;
- (d) says SDWD-201101072200_72hr:
- (i) predicted that Wivenhoe Dam would reach an initial peak of EL 68.92 at approximately 22:00 on 8 January 2011;
 - (ii) assuming no change to the gate operations in SDWD-201101071800 (which the strategy then in place predicted would be progressively closed over the period from 03:00 on 11 January 2011 to 05:00 on 12 January 2011) predicted that the level of Lake Wivenhoe would gradually increase from approximately EL 68.60 on the morning of 10 January 2011 to a second peak of approximately EL 69.80 on about 23 January 2011;
- (e) says that the 72 hour BoM SILO forecasts upon which SDWD-201101072200_72hr was based did not forecast the Extreme Rainfall Event described in paragraph 261 below, which occurred between 9 January and 11 January 2011;
- (f) says that the BoM forecasts pleaded in paragraphs 248 to 250 of the Statement of Claim did not predict the Extreme Rainfall Event described in paragraph 261 below, which occurred between 9 January and 11 January 2011;
- (g) says that, at 09:00 on 8 January 2011, the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101080900**);
- (h) says that SDWD-201101080900:
- (i) identified the general dam operations strategy in place at the time Mr Ruffini ceased duty in the Flood Operations Centre on the morning of 8 January 2011;

- (ii) predicted that Wivenhoe Dam would peak at EL 68.64 at 20:00 on 8 January 2011 and drain down to FSL at approximately 21:00 on 11 January 2011 on the dam operations strategy in place at that time with gate closing slightly extended;
- (i) says that at 09:00 on 8 January 2011, after Mr Ruffini ceased duty, the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM taking into account 72 hour forecasts (**SDWD-201101080900_72**);
- (j) says that SDWD-201101080900_72 did not predict the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January and 11 January 2011;
- (k) says that there was no BoM forecast or other information available to the Flood Engineers in the period Mr Ruffini was on duty which would have caused a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam to adopt an operating strategy materially different from the general strategy in place and followed while Mr Ruffini was on duty;
- (l) otherwise denies the allegations.

235. As to paragraph 267 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 54, 248 to 265 of the Statement of Claim above;
- (b) admits that a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 7 January 2011 would have complied with the Flood Mitigation Manual;
- (c) says that the Flood Engineers complied with the Flood Mitigation Manual;
- (d) denies that a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 7 January 2011 would have acted in the manner alleged in sub-paragraphs 267(b), (c) and (f);
- (e) further or alternatively says, in any event, that the releases made from Wivenhoe Dam were at a rate consistent with the objectives of Strategy W3;
- (f) says that model results using forecast rain (including 72 hour forecast rain) showed that the forecast rain could be dealt with by continuing with the current gate operations strategy;
- (g) releases in accordance with the then current gate operations strategy were:

- (i) at a level which prevented urban inundation downstream of Wivenhoe Dam;
 - (ii) predicted Wivenhoe Dam to draw down to FSL in a time significantly shorter than the seven day draw down period provided for by the Flood Mitigation Manual;
- (h) as to the allegations in sub-paragraph 267(d):
- (i) says immediately upon event mobilisation at 07:42 on 6 January 2011, Strategy S2 was implemented;
 - (ii) admits that a reasonably prudent flood engineer responsible for flood operations at Somerset Dam on 7 January 2011 would have continued operations under Strategy S2;
 - (iii) denies a reasonably prudent flood engineer responsible for flood operations at Somerset Dam on 7 January 2011 would have adopted Strategy S3 as alleged in paragraph 267(d) of the Statement of Claim;
- (i) as to sub-paragraph 267(e), says that the release of water from Lake Somerset at the rates alleged would have been contrary to Section 9.3 of the Flood Mitigation Manual;
- (j) as to sub-paragraph 267(f), says that the release of water at rates alleged would have been contrary to the Flood Mitigation Manual;
- (k) as to sub-paragraph 267(i):
- (i) repeats and relies upon the matters pleaded in response to paragraph 136B of the Statement of Claim above;
 - (ii) denies that the Flood Engineers ought to have selected the rates stated therein;
 - (iii) says that Mr Ruffini did not select or input loss rates into the RTFM prior to coming on duty at 19:00 on 7 January 2011;
 - (iv) says that the initial and continuing loss rates for model runs SDWD-201101072200 and SDWD-201101072200_72hr referred to in paragraph 227 above were selected by Mr Ruffini based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim;
- (l) otherwise denies the allegations.

236. As to paragraphs 267A and 267B of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 54, 136A, 136B 149, 150 and 248 to 267 of the Statement of Claim above;
- (a) says that as at 7 January 2011 the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January 2011 and 11 January 2011:
 - (i) was not predicted by forecasts available to the Flood Engineers;
 - (ii) was not reasonably foreseeable;
- (b) for the Flood Engineers to have acted in the manner alleged would have been contrary to widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

- (c) says that the Flood Engineers had no authority to reduce the levels of the Dams below FSL;
- (d) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 7 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (e) says that between the time Mr Ruffini commenced his shift at 19:00 on 7 January 2011 and midnight on that day:
 - (i) Mr Ruffini could not have reduced the water levels in Somerset Dam or Wivenhoe Dam to the levels alleged in sub-paragraphs 267B(a), (b), (c), (d), (e), (f) or (g) of the Statement of Claim;
 - (ii) attempting to reduce the water levels in Somerset Dam and Wivenhoe Dam to any of the levels alleged in paragraph 267B of the Statement of Claim:
 - (1) may have caused downstream flooding at night without any or adequate warning, with the risk of injury, loss of life or damage to property;
 - (2) would have been contrary to the general strategy that had been set by the Senior Flood Operations Engineer;
 - (3) would have been contrary to the Flood Mitigation Manual;

(f) otherwise denies the allegations.

237. As to paragraph 268 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 256 to 267B of the Statement of Claim above;
- (b) otherwise denies the allegations.

238. As to paragraph 269 of the Statement of Claim, the State denies the allegations.

- (a) repeats and relies upon its responses to paragraphs 256 to 268 of the Statement of Claim above;
- (b) says that in the period Mr Ruffini was on duty in the Flood Operations Centre:
 - (i) the Extreme Rainfall Event described below in paragraph 261 which occurred between 9 January and 11 January 2011 was not foreseeable;
 - (ii) as at 11:00 on 9 January 2011 the full magnitude of the rainfall that subsequently occurred on 10 January and 11 January 2011 was not reasonably foreseeable;
 - (iii) it was not probable that harm would occur to the plaintiff or the Group Members by Mr Ruffini not departing from the general strategy for management of the Flood Event which was in place while he was on duty between 19:00 on 7 January 2011 and 07:00 on 8 January 2011;
- (c) denies that any conduct of Mr Ruffini was causative of harm to the plaintiff or Group Members;
- (d) says that, in adhering to the flood mitigation strategy which was in place while Mr Ruffini was on duty in the Flood Operations Centre, the conduct of Mr Ruffini was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

(e) otherwise denies the allegations.

Events of 8 January 2011

239. As to paragraph 270 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;

- (b) says that the BoM 4 day PME forecast published on 8 January 2011 for 9 January to 12 January 2011:
- (i) forecast between 50 mm and 300 mm of rainfall in Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 200 mm and 300 mm in the Lake Wivenhoe and lake Somerset catchments, forecast that rain to affect only a small area in the south east of the catchments;
 - (iii) forecast the most intense rainfall of between 300 mm and 400 mm to fall in the catchments below Wivenhoe Dam;
- (c) says that the BoM 8 day PME forecast published on 8 January for 9 January to 16 January 2011:
- (i) forecast between 50 mm to 300 mm of rainfall in Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it forecast rainfall of between 200 mm and 300 mm in the Lake Wivenhoe and Lake Somerset catchments, forecast that rain to affect only a small area in the south east of the catchments;
 - (iii) forecast the most intense rainfall between 300 mm and 400 mm to fall in the catchments below Wivenhoe Dam;
- (d) says that on the proper interpretation of the 4 and 8 day PME forecasts, the forecast was for most of the rain to fall in the first four days;
- (e) says the BoM 1 day PME forecast then issued for 9 January 2011 was for rain of between 25 mm to 150 mm in the Wivenhoe and Somerset catchments;
- (f) otherwise denies the allegations.

240. As to paragraph 271 of the Statement of Claim, the State:

- (a) says that at 17:57 on 7 January the Duty Engineer (Mr Malone) prepared Situation Report 6 which recorded:

Advice from BOM indicates that SEQLD can expect further high rainfall total over the next 4 days.

Saturday: rain light at times 15-50mm with higher falls along the coast

Sunday: widespread rain totals between 50-100mm

Monday: widespread rain again with totals between 50-100mm

Tuesday: rain easing with totals between 25-50mm;

- (b) otherwise denies the allegations.

241. The State admits paragraph 272 of the Statement of Claim.
242. The State admits paragraph 273 of the Statement of Claim.
243. As to paragraph 274 of the Statement of Claim, the State:
- (a) says that the Lake Somerset and Lake Wivenhoe catchment average rainfall for 24 hours to 10:03 on 8 January 2011 was approximately 28 mm;
 - (b) says that more than half of the measuring stations in the Lake Somerset and Lake Wivenhoe catchment recorded 20 mm or less;
 - (c) otherwise denies the allegations.
244. As to paragraph 275 of the Statement of Claim, the State:
- (a) admits that catchment inflows into Lake Wivenhoe and Lake Somerset continued throughout the course of 8 January 2011;
 - (b) otherwise denies the allegations.
245. The State admits paragraph 276 of the Statement of Claim.
246. The State admits paragraph 277 of the Statement of Claim.
247. As to paragraph 278 of the Statement of Claim, the State:
- (a) admits the allegations in sub-paragraph 278(a);
 - (b) in relation to sub-paragraph 278(b):
 - (i) says that the water level of lake Wivenhoe increased from approximately EL 68.30 at 00:00 to approximately EL 68.64 at 17:00 on 8 January 2011;
 - (ii) says that the water level remained stable at approximately EL 68.64 between 17:00 to 23:00 before dropping to approximately EL 68.63 at midnight;
 - (c) otherwise denies the allegations.
248. The State admits paragraph 279 of the Statement of Claim.
249. As to paragraph 279A of the Statement of Claim, the State:
- (a) says that in using the FLOOD-Ops RTFM on 8 January 2011, the flood engineers selected and input the following loss rates for each of the identified cases:

Cases SDWD- 201101080900 201101080900_72hr
--

	201101081500 201101081500_72hr	
	Initial	Continuing
CRE	10	2.5
COO	30	0.5
LIN	30	0.5
EMU	30	0.5
GRE	40	0.5
SDI	15	0.5
WDI	0	2.5

- (b) says that the selection of initial and continuing loss rates referred to in the preceding sub-paragraph were based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim;
- (c) otherwise denies the allegations.

250. As to paragraph 280 of the Statement of Claim, the State:

- (a) repeats and relies on the matters pleaded in response to paragraphs 258 to 269 inclusive of the Statement of Claim above;
- (b) says that Somerset Dam was being operated conformably with Strategy S2 during the period Mr Ruffini was on duty between 19:00 on 7 January 2011 and 07:00 on 8 January 2011;
- (c) otherwise denies the allegations.

251. The State denies the allegations in paragraphs 281, 282 and 283 of the Statement of Claim.

252. As to paragraphs 285 and 286 of the Statement of Claim, the State:

- (a) repeats and relies on the matters pleaded in response to paragraphs 258 to 269 of the Statement of Claim above as to the period when Mr Ruffini was on duty between 19:00 on 7 January 2011 and 07:00 on 8 January 2011;
- (b) says that, at 09:00 on 8 January 2011 the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101080900**);

- (c) says that SDWD-201101080900 identified the general dam operations strategy in place at the time;
- (d) says that SDWD-201101080900 predicted that Wivenhoe Dam would:
 - (i) peak at EL 68.64 at 20:00 on 8 January 2011; and
 - (ii) fall to FSL at approximately 04:00 on 12 January 2011 on the operational strategy in place at the time with gate closing slightly extended;
- (e) says that at 09:00 on 8 January 2011 the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM taking into account 72 hour BoM forecasts (**SDWD-201101080900_72**);
- (f) says that SDWD-201101080900_72 did not predict the Extreme Rainfall Event described in paragraph 261 which occurred between 9 January 2011 and 11 January 2011;
- (g) says that, at 15:00 on 8 January 2011 the Flood Engineer then on duty produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101081500**);
- (h) says that SDWD-201101081500:
 - (i) identified the general dam operations strategy in place at the time;
 - (ii) predicted that Wivenhoe Dam would:
 - (1) peak at EL 68.66 at 23:00 on 8 January 2011; and
 - (2) fall to FSL at approximately 02:00 on 12 January 2011 on the operational strategy in place at the time;
- (i) says that, at 15:00 on 8 January 2011 the Flood Engineer then on duty also produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets taking into account 72 hour BoM forecasts (**SDWD-201101081500_72hr**);
- (j) says that SDWD-201101081500_72hr:
 - (i) identified the general dam operations strategy in place at the time;
 - (ii) predicted that Lake Wivenhoe would, by the application of the same gate opening strategy in place, but with some extension or adjustment of it on and from 11 January 2011:
 - (1) reach an initial peak of EL 68.66 at approximately 20:00 on 8 January 2011;

- (2) reach a second peak caused by the forecast rain of EL 68.82 at approximately 15:00 on 12 January 2011;
 - (k) says that the 72 hour BoM forecasts upon which 201101081500_72hr was based did not forecast the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January 2011 and 11 January 2011;
 - (l) says that the BoM forecasts pleaded in paragraphs 270 to 273 of the Statement of Claim did not predict the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January 2011 and 11 January 2011;
 - (m) says that there was no BoM forecast or other information available to the Flood Engineers on 8 January 2011 which would have caused a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam to adopt an operating strategy materially different from the general strategy in place on 8 January 2011;
 - (n) otherwise denies the allegations.
253. As to paragraph 288 of the Statement of Claim, the State:
- (a) repeats and relies upon the matters pleaded in response to paragraphs 54, 270 to 286 inclusive of the Statement of Claim above;
 - (b) admits that a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 8 January 2011 would have complied with the Flood Mitigation Manual;
 - (c) says that the Flood Engineers complied with the Flood Mitigation Manual;
 - (d) as to the period after 08:00 on 8 January 2011, admits sub-paragraph 288(b);
 - (e) says that the acts as alleged in sub-paragraphs 288(c), (d) and (e) would have been inconsistent with the Flood Mitigation Manual;
 - (f) as to sub-paragraph 288(h):
 - (i) repeats and relies upon the matters pleaded in response to paragraph 136B of the Statement of Claim above;
 - (ii) denies that the Flood Engineers ought to have selected the rates stated therein;
 - (iii) says that Mr Ruffini did not select or input loss rates into the RTFM after leaving duty at 07:00 on 8 January 2011;

(iv) says that the initial and continuing loss rates for model runs SDWD-201101072200 and SDWD-201101072200_72hr used by Mr Ruffini whilst on shift until 07:00 on 8 January 2011 were selected by Mr Ruffini based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim.

(g) otherwise denies the allegations.

254. As to paragraph 288A and 288B of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 54, 136A, 136B, 149, 150, 270 to 288 of the Statement of Claim above;
- (b) says that as at 8 January 2011 the Extreme Rainfall Event described in paragraph 261 below which occurred between 9 January 2011 and 11 January 2011:
 - (i) was not predicted by forecasts available to the Flood Engineers;
 - (ii) was not reasonably foreseeable;
- (c) for the Flood Engineers to have acted in the manner alleged would have been contrary to widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

- (d) says the Flood Engineers had no authority to reduce the levels of the Dams below FSL;
- (e) says that there was no basis for a reasonably prudent flood engineer to reduce the dam levels below FSL;
- (f) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 8 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (g) says that between midnight on 8 January 2011 and the time Mr Ruffini ceased shift at 07:00 on that day:
 - (i) Mr Ruffini could not have reduced the water levels in Somerset Dam and Wivenhoe Dam to the levels alleged in sub-paragraphs 288B(a), (b), (c), (d), (e), (g) (f) or (h) of the Statement of Claim;

- (ii) attempting to reduce the water levels in Somerset Dam and Wivenhoe Dam to any of the levels alleged in paragraph 288B of the Statement of Claim:
 - (1) may have caused downstream flooding at night without any or adequate warning, with the risk of injury, loss of life or damage to property;
 - (2) would have been contrary to the general strategy that had been set by the Senior Flood Operations Engineer;
 - (3) would have been contrary to the terms of the Flood Mitigation Manual;
- (h) the conduct of Mr Ruffini was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;
- (i) otherwise denies the allegations.

255. As to paragraphs 289 and 290 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 279 to 288B of the Statement of Claim above;
- (b) denies that any conduct of Mr Ruffini was causative of harm to the plaintiff or Group Members;
- (c) otherwise denies the allegations.

Events of 9 January 2011

256. As to paragraph 291 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;
- (b) says that the BoM 4 day PME forecast published on 9 January 2011 for 10 January to 13 January 2011:
 - (i) predicted between 50 mm and 300 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it predicted rainfall of between 200 mm to 300 mm forecast that rain to affect only a small area in the south east of the catchments;
 - (iii) predicted the most intense rainfall in catchments below Wivenhoe Dam;

- (c) says that the BoM 8 day PME forecast published on 9 January 2011 for 10 January to 17 January 2011:
 - (i) predicted 50 mm to 200 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) to the extent that it predicted rainfall of between 150 mm to 200 mm in the Lake Wivenhoe and Lake Somerset catchments forecast that rain to affect only a small area in the south east of the catchment;
 - (iii) predicted the most intense rainfall between 200mm and 300 mm to fall in catchments below Wivenhoe Dam;
- (d) says that on the proper interpretation of the 4 and 8 day PME forecasts, the forecast was for rainfall of a decreasing trend with most of the rain forecast to fall in the first three days;
- (e) says that the BoM 1 day PME forecast published on 9 January 2011 for 10 January 2011:
 - (i) was for 15 mm to 150 mm;
 - (ii) to the extent it predicted rainfall of between 100 mm and 150 mm in the Lake Wivenhoe and Somerset catchments forecast that rain to only affect a very small area in the south east of the catchments;
 - (iii) predicted the most intense rainfall between 100 mm and 200 mm to be in catchments below Wivenhoe Dam;
- (f) otherwise denies the allegations.

257. The State admits paragraph 292 of the Statement of Claim.

258. The State admits paragraph 293 of the Statement of Claim.

259. As to paragraph 294 of the Statement of Claim, the State:

- (a) says that in the 24 hours to 09:00 Sunday 9 January 2011, rainfall totals were generally below approximately 30 mm but with isolated higher totals just over approximately 40 mm in the upper reaches of the Stanley River catchments around Ferris Knob and the centre of the Upper Brisbane River catchment around Devon Hills;
- (b) otherwise denies the allegations.

260. The QPF issued by BoM at approximately 10:00 forecast between 40 mm to 60 mm in the catchments of Lake Somerset and Lake Wivenhoe over the following 24 hours.

261. From approximately 10:00 on 9 January 2011 the catchments above and below Lake Wivenhoe and Lake Somerset were affected by the following extreme rainfall

(Extreme Rainfall Event):

- (a) in the 24 hour period ending 09:00 on 10 January 2011:
 - (i) the average catchment rainfall for Lake Somerset was approximately 225 mm;
 - (ii) the average catchment rainfall for the Lake Wivenhoe catchment (excluding the Lake Somerset catchment) was approximately 131 mm;
 - (iii) the rainfall was especially high in the Stanley River catchment, with the highest daily total being approximately 310 mm at Bellthorpe West and falls in other parts ranging from approximately 180 mm to approximately 250 mm;
 - (iv) in the upper and middle Brisbane River catchments, the rainfall ranged from approximately 73 mm at St Aubins to approximately 284 mm at Mt Glorious just east of Wivenhoe Dam;
- (b) the most intense rainfall occurred in the period between 10:00 on 9 January 2011 and midnight on 9 January 2011;
- (c) in the 24 hours from 09:00 on 10 January 2011 to 09:00 on 11 January 2011:
 - (i) there was further widespread and heavy rainfall;
 - (ii) the highest totals of rainfall were in the area around the lower Middle Brisbane River and lower reaches of the Lower Brisbane River catchment with totals of up to approximately 262 mm at Mt Glorious;
 - (iii) peak levels reached at stations in the Upper Brisbane River above Wivenhoe Dam and in the Lockyer Creek area were the highest on record;
- (d) in the period 06:00 to 14:00 on 11 January 2011, there was further intense rainfall, which included:
 - (i) over Wivenhoe Dam:
 - (1) at Wivenhoe HWB, approximately 322 mm;
 - (2) at Wivenhoe TW-B, approximately 337 mm;
 - (3) at Wivenhoe TW-P, approximately 344 mm;
 - (ii) below Wivenhoe Dam:

- (1) at Lowood, approximately 366 mm;
 - (2) at Savages Crossing, approximately 365 mm;
 - (3) at O'Reillys Weir, approximately 323 mm;
 - (4) at Lyons Bridge B, approximately 333 mm;
- (iii) at Mt Glorious, approximately 379 mm.

262. Rainfalls of the intensity and magnitude referred to in the preceding paragraph:

- (a) had not been forecast at all by BoM prior to approximately 11:00 on 9 January 2011;
- (b) caused inflows into Lake Wivenhoe (excluding inflows from Somerset Dam) which:
 - (i) in the period between 09:00 on 9 January and 08:00 on 10 January 2011, increased from the outflows having exceeded inflows to inflows which peaked at approximately 9,174 m³/s (**First Wivenhoe Peak**);
 - (ii) after reaching the First Wivenhoe Peak, fell to approximately 2,769 m³/s at 02:00 on 11 January 2011;
 - (iii) rose to a second peak of approximately 10,950 m³/s at about 13:00 on 11 January 2011 (**Second Wivenhoe Peak**);
- (c) caused inflows into Lake Somerset which:
 - (i) increased from approximately 600 m³/s at 08:00 on 9 January 2011 to a peak of approximately 5,352 m³/s at 15:00 on 9 January 2011 (**First Somerset Peak**);
 - (ii) after reaching the First Somerset Peak, fell to approximately 830 m³/s at 01:00 on 11 January 2011;
 - (iii) rose to a second peak of approximately 4,167 m³/s at 14:00 on 11 January 2011 (**Second Somerset Peak**);
- (d) caused extreme flash flooding in the Lockyer Valley resulting in a flood peak at Helidon of approximately 13.88 m (more than 6 m higher than the historical record of 7.55 m) at 15:10 on 10 January 2011;
- (e) caused a flood peak at Gatton of approximately 15.38 m on 11 January 2011;
- (f) caused inflows into the Brisbane River downstream of Wivenhoe Dam which peaked at approximately 09:00 on 12 January 2011 causing a peak flow at

Moggill of approximately 6,517 m³/s, without contribution from any water releases from Wivenhoe Dam;

- (g) caused rises in the level of Wivenhoe Dam from approximately EL 68.52 at 10:00 on the morning of 9 January 2011 to a peak of approximately EL 75.06 at 19:00 on 11 January 2011, with rapid rises occurring on 11 January 2011 as a result of intense rainfall close to and above Lake Wivenhoe where there were no gauges;
 - (h) caused the failure of a number of gauges which inhibited the ability of the Flood Engineers to identify the intensity and location of rain and the resulting inflows above and below Wivenhoe Dam.
263. At approximately 11:02 on 9 January 2011, Mr Malone forwarded an email to the other Flood Engineers informing them of information obtained from BoM which forecast *'heavy rainfall, particularly for the period 10pm Sunday to 10pm Monday with totals between 200-300mm'* and of the runoff which could be produced by that rainfall.
264. At 14:13 on 9 January 2011 BoM issued a flood warning for the Stanley River which stated:
- (a) rainfall of up to 85 mm had been recorded in the catchments of the Upper Brisbane and Stanley Rivers during the five hours since 09:00;
 - (b) the heavy rainfall was causing very fast rises in the upper Brisbane River at Linville with major flood levels expected during Sunday afternoon;
 - (c) fast rises to major flood levels were expected downstream to Gregor's Creek during the remainder of the day and into 10 January 2011;
 - (d) heavy rainfall was expected to continue during the day.
265. At 00:36 on 10 January 2011 BoM issued a Flood Warning for the Lower Brisbane below Wivenhoe Dam stating further heavy rainfall was forecast for the catchments of the Warrill and Lockyer Creeks and Bremer River during 10 January 2011.
266. The Extreme Rainfall Event caused devastating flooding in Lockyer Creek and surrounding catchments on 10 and 11 January 2011.

Particulars

The State relies on the SKM report entitled "Lockyer Creek Flood Risk Management Study" Vol 1 dated 19 December 2014 (Exhibit 3 in the Grantham Flood Commission of Inquiry)

267. As to paragraph 295 of the Statement of Claim, the State:

- (a) repeats and relies on the matters pleaded in paragraph 261 above;
- (b) admits that there were catchment inflows into Lake Wivenhoe and Lake Somerset in significant volumes after 11:00 on 9 January 2011;
- (c) says that the significant inflows into Lake Wivenhoe and Lake Somerset over the three day period after 11:00 on 9 January 2011 were not predicted and could not reasonably have been predicted by the Flood Engineers;
- (d) says that at 07:00 on 9 January 2011 the Flood Engineer then on duty had produced hydrographs modelling inflows using the FLOOD-Ops RTFM and produced Operations Spreadsheets (**SDWD-201101090700**) which predicted:
 - (i) the maximum inflow into Lake Wivenhoe over the following 24 hours would increase from 528 m³/s at 11:00 on 9 January 2011 to a peak at 914 m³/s at 22:00 on 9 January 2011 and then fall;
 - (ii) the maximum inflow into Lake Somerset would increase from 534 m³/s at 07:00 to a peak of 601 m³/s at 13:00 on 9 January 2011;
- (e) otherwise denies the allegations.

268. As to paragraphs 296, 297 and 298 of the Statement of Claim, the State:

- (a) repeats and relies on the matters pleaded in paragraph 261 above;
- (b) admits the allegations in sub-paragraph 296(a);
- (c) says that the water level of Lake Wivenhoe was at approximately EL 68.57 at 06:00 on 9 January 2011;
- (d) says that during the 24 hours to 08:00 on 9 January 2011, the level of Wivenhoe Dam:
 - (i) had risen extremely slowly to a peak of approximately EL 68.64 between 17:00 and 23:00 on 8 January 2011;
 - (ii) had fallen from approximately EL 68.64 at 23:00 on 8 January 2011 to approximately EL 68.57 at approximately 06:00 on 9 January 2011;
- (e) says that the level at Wivenhoe Dam continued falling until 10:00 on 9 January 2011;
- (f) says the level at Wivenhoe Dam commenced rising after 10:00 on 9 January 2011 and by day's end it was approximately EL 69.82;
- (g) says that the level of Somerset Dam:

- (i) fell to approximately EL 100.28 at 09:00 on 9 January 2011;
- (ii) then from approximately 10:00 commenced rising to reach approximately EL 102.38 by day's end;
- (h) otherwise denies the allegations.

269. As to paragraphs 299 and 299A of the Statement of Claim, the State:

- (a) repeats and relies on paragraph 261 above;
- (b) says that at approximately 12:00 on 9 January 2011, Mr Ayre scheduled a meeting of Flood Engineers;
- (c) at 15:30 on 9 January 2011 all four Flood Engineers met to discuss the developing situation and strategy that should be adopted;
- (d) admits the allegations in paragraph 299 and sub-paragraph 299A(b);
- (e) admits that Mr Ruffini was on duty in the Flood Operations Centre with Mr Ayre between 19:00 on 9 January 2011 and 07:00 on 10 January 2011;
- (f) says that, at the time Mr Ruffini commenced duty in the Flood Operations Centre at 19:00 on 9 January 2011, the strategy for the management of the event set by the Senior Flood Operations Engineer was to maintain releases at 1,400 m³/s in order to allow the peak from the inflow coming from Lockyer Creek and Bremer River to pass and protect or minimise the impact of urban flooding downstream;
- (g) says that Mr Ruffini during his period on duty directed operation of the dams in accordance with the general strategy determined by the Senior Flood Operations Engineer;
- (h) otherwise denies the allegations.

270. The State admits paragraph 299B of the Statement of Claim.

271. As to paragraphs 300 and 301 of the Statement of Claim, the State:

- (a) says that further releases were made from Wivenhoe Dam as follows:
 - (i) at approximately 01:30 on 9 January 2011, by opening Gate 3 from 4.0 to 4.5 m (conformably with Wivenhoe Directive 5 issued at 01:00 on 9 January 2011);
 - (ii) at approximately 05:00 on 9 January 2011, by opening Gate 1 from 1.5 to 2.0 m (conformably with Wivenhoe Directive 6 issued at 04:30 on 9 January 2011);

- (iii) at approximately 11:00 on 9 January 2011, by opening Gate 5 from 1.5 to 2.0 m (conformably with Wivenhoe Directive 7 issued at 10:30 on 9 January 2011);
- (b) says that outflows from Wivenhoe Dam increased from approximately 1,253 m³/s at 00:00 to 1,395 m³/s at midday on 9 January 2011;
- (c) says that until approximately 10:00 on 9 January 2011:
 - (i) the releases from Wivenhoe Dam were greater than the inflows;
 - (ii) the level of Lake Wivenhoe was falling;
- (d) admits that at 08:15 the Flood Engineer then on duty, Mr Malone issued Somerset Directive 4 directing the opening of Sluice K to 100% thereby increasing releases from Somerset Dam by approximately 206m³/s;
- (e) says that dam operations at both Wivenhoe and Somerset Dams were in conformity with the Operating Target Line pleaded above in answer to paragraphs 127 to 129 of the Statement of Claim above correlating water levels in Somerset Dam and Wivenhoe Dam;
- (f) says that at the time referred to in paragraphs 300 and 301, the BoM had issued no forecast predicting the Extreme Rainfall Event referred to in paragraph 261 above;
- (g) otherwise denies the allegations.

272. As to paragraph 301A of the Statement of Claim, the State:

- (a) admits that the three other Flood Engineers were notified of Mr Malone's directive;
- (b) says that the dam operations at both Wivenhoe and Somerset Dams were in conformity with the Flood Mitigation Manual;
- (c) repeats and relies on the matters pleaded in the preceding paragraph;
- (d) otherwise denies the allegations.

273. As to paragraphs 302 and 303 of the Statement of Claim, the State:

- (a) says that at the time Mr Ruffini commenced duty in the Flood Operations Centre at 19:00 on 9 January 2011, dam operations were being conducted in accordance Strategy W3;
- (b) otherwise denies the allegations.

274. As to paragraphs 304 and 305 of the Statement of Claim, the State:

- (a) repeats and relies on paragraphs 261 to 273 above;
- (b) otherwise denies the allegations;

275. As to paragraph 307 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 54 and 291 to 305 of the Statement of Claim above;
- (b) admits that a reasonably prudent flood engineer responsible for Flood Operations at Somerset Dam and Wivenhoe Dam on 9 January 2011 would have complied with the Flood Mitigation Manual;
- (c) says that the Flood Engineers complied with the Flood Mitigation Manual;
- (d) as to sub-paragraph 307(b):
 - (i) denies that a reasonably prudent flood engineer would have implemented and maintained Strategy W4 at Wivenhoe Dam;
 - (ii) admits says that a reasonably prudent flood engineer would have maintained Strategy W3 at Wivenhoe Dam;
- (e) says that the acts as alleged in sub-paragraphs 307(c), (d), and (e) would have been inconsistent with the Flood Mitigation Manual;
- (f) as to sub-paragraph 307(h):
 - (i) repeats and relies upon the matters pleaded in response to paragraph 136B of the Statement of Claim above;
 - (ii) denies that the Flood Engineers ought to have selected the rates stated therein;
 - (iii) says that Mr Ruffini did not select or input loss rates into the RTFM between 07:00 on 7 January 2011 and 19:00 on 9 January 2011;
 - (iv) says that the initial and continuing loss rates for model runs used by Mr Ruffini whilst on shift after 19:00 on 9 January 2011 were selected by Mr Ruffini based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim.
- (g) otherwise denies the allegations.

276. As to paragraph 307A and 307B of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 54, 136A, 136B, 149, 150 and 291 to 307 of the Statement of Claim above;
- (b) says that prior to 11:00 on 9 January 2011 the Extreme Rainfall Event described in paragraph 261 above which occurred between 9 January 2011 and 11 January 2011:
 - (i) was not predicted by forecasts available to the Flood Engineers;
 - (ii) was not reasonably foreseeable;
- (c) further, as at 11:00 on 9 January 2011 the full magnitude of the rainfall that subsequently occurred on 10 and 11 January 2011 was not reasonably foreseeable;
- (d) for the Flood Engineers to have acted in the manner alleged would have been contrary to widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

- (e) says that the Flood Engineers had no authority to reduce the levels of the Dams below FSL;
- (f) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 8 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (g) says that between the time when Mr Ruffini commenced shift at 19:00 on 9 January 2011 until midnight on that day:
 - (i) Mr Ruffini could not have reduced the water levels in Somerset Dam and Wivenhoe Dam to the levels alleged in sub-paragraphs 307B(a), (b), (c), (d), (e), (f), (g) (h) or (i) of the Statement of Claim;
 - (ii) attempting to reduce the water levels in Somerset Dam and Wivenhoe Dam to any of the levels alleged in paragraph 307B of the Statement of Claim:
 - (1) may have caused downstream flooding at night without any or adequate warning, with the risk of injury, loss of life or damage to property;

- (2) would have been contrary to the general strategy that had been set by the Senior Flood Operations Engineer;
 - (3) would have been contrary to the terms of the Flood Mitigation Manual;
- (f) otherwise denies the allegations.

277. The State further says that:

- (a) from at or about 11:00 on 9 January 2011 the Flood Engineers were constrained in making substantially greater releases of water from Wivenhoe Dam than the rates of the releases that were in fact made because:
 - (i) having regard to the matters pleaded in paragraph 261 above, it was likely that there would be substantial inflows downstream of Wivenhoe Dam, as in fact occurred;
 - (ii) of the necessity to give reasonable warning of substantial increases in release of water;
- (b) a reasonably prudent flood engineer would not have released water at rates substantially exceeding the rates of release adopted by the Flood Engineers;
- (c) by the time Mr Ruffini commenced duty at 19:00 on 9 January 2011, the implementation of a different strategy to that being implemented by the Flood Engineers would not have prevented or materially reduced the urban inundation which occurred;
- (d) in adhering to the flood mitigation strategy which was in place while Mr Ruffini was on duty in the Flood Operations Centre on 9 January 2011, the conduct of Mr Ruffini was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

- (e) inflows of the magnitude that caused the First and Second Wivenhoe Peaks and the First and Second Somerset Peaks and the downstream inflows referred to in paragraph 261 above were not reasonably foreseeable on 9 January 2011;
- (f) as at 11:00 on 9 January 2011 the full magnitude of the rainfall that subsequently occurred on 10 January and 11 January 2011 was not reasonably foreseeable;

- (g) the urban inundation that occurred was a result of the Extreme Rainfall Event and was not reasonably foreseeable prior to approximately 11:00 on 9 January 2011.

278. As to paragraphs 308 and 309 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 299 to 307B inclusive of the Statement of Claim;
- (b) denies that any conduct of Mr Ruffini was causative of harm to the plaintiff or Group Members;
- (c) otherwise denies the allegations.

Events of 10 to 11 January 2011

279. As to paragraph 310 of the Statement of Claim, the State:

- (a) repeats and relies upon its response to paragraphs 137 to 142 of the Statement of Claim above;
- (b) says that the BoM 4 day PME forecast published on 10 January for 11 January to 14 January 2011:
 - (i) forecast between 15 mm and 100 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) forecast the most intense rainfall between 100 mm and 150 mm in catchments below Wivenhoe Dam;
- (c) says that the BoM 8 day PME forecast published on 10 January 2011 for 11 January to 18 January 2011:
 - (i) forecast between 25 mm to 100 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;
 - (ii) forecast the most intense rain between 100 mm and 150 mm to fall in catchments below Wivenhoe Dam;
- (d) says that, on the proper interpretation of the 4 and 8 day PME forecasts, the forecast was for most of the rain forecast to fall in the first four days;
- (e) says that the BoM 1 day PME forecast published on 10 January for 11 January 2011:
 - (i) was for 10 mm to 100 mm;
 - (ii) forecast the most intense rain to be in catchments below Wivenhoe Dam;

(f) otherwise denies the allegations.

280. As to paragraph 311 of the Statement of Claim, the State:

(a) repeats and relies upon its response to paragraphs 138 to 142 of the Statement of Claim above;

(b) says that the BoM 4 day PME forecast published on 11 January 2011 for 12 January to 15 January 2011:

(i) forecast between 5 mm and 50 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;

(ii) forecast the most intense rainfall in catchments below Wivenhoe Dam;

(c) says that the BoM 8 day PME forecast published on 11 January 2011 for 12 January to 19 January 2011 forecast 25 mm to 50 mm of rainfall in the Lake Wivenhoe and Lake Somerset catchments;

(d) says that the BoM 1 day PME forecast published on 11 January 2011 for 12 January 2011:

(i) forecast 5mm to 25 mm;

(ii) forecast the most intense rain between 25 mm and 50 mm to be in catchments below Wivenhoe Dam;

(e) otherwise denies the allegations.

281. The State admits paragraph 312 of the Statement of Claim.

282. The State admits paragraph 313 of the Statement of Claim.

283. The State admits paragraph 314 of the Statement of Claim.

284. As to paragraph 315 of the Statement of Claim, the State:

(a) says that, at or around 16:13 on 11 January 2011, the BoM issued a QPF predicting rainfall of 50 mm to 100 mm that evening and overnight easing to less than 30 mm during 12 January 2011 in the Lake Somerset and Lake Wivenhoe catchments;

(b) otherwise denies the allegations.

285. As to paragraph 316 of the Statement of Claim, the State:

(a) repeats and relies on paragraphs 261, 263, 264 and 265 above;

(b) otherwise admits the allegations.

286. The State admits paragraph 317 of the Statement of Claim.

287. As to paragraph 318 of the Statement of Claim, the State:

- (a) repeats and relies on paragraphs 261, 263, 264 and 265 above;
- (b) says that the rainfalls exceeded 131 mm;
- (c) otherwise admits the allegations.

288. The State admits paragraph 319 of the Statement of Claim.

289. As to paragraph 320 and 321 of the Statement of Claim, the State:

- (a) admits inflows occurred from Splityard Creek Dam into Wivenhoe Dam on 10 January and 11 January 2011;
 - (b) admits that the release of water from Splityard Creek Dam increased the volume of water in Wivenhoe Dam;
 - (c) denies that the inflows were "significant";
 - (d) says that the volume of such releases was about 5,887 ML in total;
 - (e) says that the first notification of releases made from Splityard Creek Dam into Wivenhoe Dam on 10 January 2011 was at 12:42 that day;
 - (f) says that the releases made from Splityard Creek Dam into Wivenhoe Dam on 10 January 2011 occurred:
 - (i) after Mr Ruffini ceased his shift at 07:00 on 10 January 2011; and
 - (ii) prior to Mr Ruffini returning on duty when he commenced his shift at 19:00 on 10 January 2011;
 - (g) says that the releases made from Splityard Creek Dam into Wivenhoe Dam on 11 January 2011 were not notified by Tarong Energy on 11 January 2011;
 - (h) says that the volumes released from Splityard Creek Dam did not contribute materially to the inundation of areas downstream of Wivenhoe Dam;
 - (i) otherwise denies the allegations.
290. As to paragraph 322 of the Statement of Claim, the State:
- (a) says that at 01:00 on 10 January 2011 the Lake levels were:
 - (i) Lake Wivenhoe, approximately EL 69.99;
 - (ii) Lake Somerset, approximately EL 102.54;
 - (b) otherwise admits the allegations.

291. As to paragraph 323 of the Statement of Claim, the State:

- (a) says that at about 06:00 on 10 January 2011:
 - (i) the level in Lake Somerset was approximately EL 102.93;
 - (ii) the level in Lake Wivenhoe was approximately EL 70.99
 - (iii) the levels were rising;
- (b) otherwise denies the allegations.

292. As to paragraph 324 of the Statement of Claim, the State:

- (a) says that at 12:00 on 10 January 2011:
 - (i) the level of Lake Somerset was approximately EL 103.28;
 - (ii) the level of Lake Wivenhoe was approximately EL 72.12;
 - (iii) the levels were rising;
- (b) otherwise denies the allegations.

293. As to paragraph 325 of the Statement of Claim, the State:

- (a) says that at 18:00 on 10 January 2011:
 - (i) the level of Lake Somerset was approximately EL 103.45;
 - (ii) the level in Lake Wivenhoe was approximately EL 73.00 and rising;
- (b) otherwise denies the allegation.

294. As to paragraph 326 of the Statement of Claim, the State:

- (a) says that at 00:00 on 11 January 2011:
 - (i) the level of Lake Somerset was approximately EL 103.37 and falling;
 - (ii) the level of Lake Wivenhoe was approximately EL 73.34 and rising;
- (b) otherwise denies the allegations.

295. As to paragraph 327 of the Statement of Claim, the State:

- (a) says that at 06:00 on 11 January 2011:
 - (i) the level of Somerset was approximately EL 103.34 and falling;
 - (ii) the level of Lake Wivenhoe was approximately EL 73.59 and rising;
- (b) otherwise denies the allegation.

296. As to paragraph 328 of the Statement of Claim, the State:

- (a) says that:
 - (i) releases of water from Somerset Dam into Lake Wivenhoe were:
 - (1) in accordance with Strategy S2 of the Flood Mitigation Manual;
 - (2) were in conformity with the Operating Target Line pleaded above in answer to paragraphs 127 to 129 of the Statement of Claim correlating water levels in Somerset Dam and Wivenhoe Dam;
 - (3) involved reasonable mitigation of flood peaks in both dams having regard to their respective risks of failure;
 - (ii) throughout 9 January to 11 January 2011:
 - (1) the crest gates at Somerset Dam were raised in accordance with the Flood Mitigation Manual;
 - (2) from about 14:00 on 9 January 2011 the level in Lake Somerset was above:
 - (a) approximately EL 100.45;
 - (b) the Spillway Fixed Crest level of Somerset Dam;
 - (iii) inflows into Lake Wivenhoe were characterised by two peaks approximately 30 hours apart as pleaded in paragraph 261 above;
 - (iv) each peak was caused by the Extreme Rainfall Event pleaded in paragraph 261 above;
- (b) otherwise denies the allegations.

297. The State admits paragraph 329 of the Statement of Claim.

298. As to paragraph 329A of the Statement of Claim, the State:

- (a) says that the Senior Operations Flood Engineer determined the overall strategy for the operation of the Dams;
- (b) admits that the four Flood Engineers met to discuss the appropriate flood mitigation strategy;
- (c) admits sub-paragraphs 329A(b) and (c);
- (d) otherwise denies the allegations.

299. The State admits paragraph 329B of the Statement of Claim.

300. As to paragraphs 330 and 331 of the Statement of Claim, the State:

- (a) admits that:
 - (i) throughout 10 January and 11 January 2011 the flood Engineers released water from Wivenhoe Dam;
 - (ii) the water released from Wivenhoe Dam on 10 January and 11 January 2011, in combination with the inflows which were occurring downstream in the Lockyer Valley, Warrill Creek, the Bremer River and other downstream tributaries was at such volumes and at such rates that urban flooding was likely to occur;
- (b) relies on the matters pleaded in response to paragraphs 342 to 348 of the Statement of Claim below as to the volume of flows at Moggill by reason of downstream tributaries;
- (c) says that on 10 January 2011 and on 11 January 2011:
 - (i) outflows from Wivenhoe Dam and Somerset Dam were significantly less than the inflows into the dams;
 - (ii) the levels in each Dam rose;
 - (iii) the flood mitigation storage in each dam was used to mitigate the flood conformably with:
 - (1) the Flood Mitigation Manual;
 - (2) widely accepted competent professional practice in the field of flood mitigation and dam operation;
- (d) says that the operations of the Flood Engineers on 10 January and 11 January 2011 mitigated flood levels downstream and resulted in flooding being significantly less than it would have been if such flood mitigation operations had not been undertaken;
- (e) says that urban flooding downstream of Wivenhoe Dam was as a result of the materialisation of an inherent risk within the meaning of that expression in s 16 of the *Civil Liability Act 2003 (Qld)*;
- (f) otherwise denies the allegations.

301. As to paragraph 332 of the Statement of Claim, the State:

- (a) says that the Flood Engineers on duty at the relevant times:
 - (i) at 04:30 on 11 January 2011, by Somerset Directive 6, started reducing releases from Lake Somerset into Lake Wivenhoe by the progressive

closure of Sluice gates J, N and K in one hour increments from 05:00 on 11 January 2011;

- (ii) at 08.30 on 11 January 2011, by Somerset Directive 7, continued reducing releases by the progressive closure of the Sluice gates M and L at 09:00 and 10:00 respectively on 11 January 2011;
- (b) says that such gate closing operations accorded with Strategy S2 of the Flood Mitigation Manual;
- (c) says that all sluice gates at Somerset Dam were closed by 10:00 on 11 January 2011;
- (d) otherwise denies the allegations.

302. As to paragraph 333 of the Statement of Claim, the State:

- (a) says that the releases from Somerset Dam were in accordance with:
 - (i) Strategy S2 of the Flood Mitigation Manual;
 - (ii) the objective generally to follow the Operating Target Line pleaded above in answer to paragraphs 127 to 129 of the Statement of Claim;
- (b) says that, from the time of the closure of the sluice gates at 10:00 on 11 January 2011:
 - (i) the storage of water in Lake Somerset increased;
 - (ii) releases continued over the gated spillway;
- (c) otherwise denies the allegations.

303. As to paragraphs 334, 335 and 336 of the Statement of Claim, the State:

- (a) says that releases from Splityard Creek Dam into Wivenhoe did not increase the risk of flooding downstream of Wivenhoe Dam;
- (b) says that:
 - (i) Tarong Energy did not inform the Flood Engineers of its intention to release water from Splityard Creek on 11 January 2011;
 - (ii) Tarong Energy was not a party over which the Flood Engineers exercised control or authority;
 - (iii) at about 18:20 on 11 January 2011, Tarong Energy was requested to make no further releases from Splityard Creek Dam;
- (c) does not admit paragraph 335;

(d) otherwise denies the allegations.

304. The State denies the allegations in paragraph 337 of the Statement of Claim.

305. As to paragraph 339 of Statement of Claim, the State:

(a) repeats and relies the matters pleaded in response to paragraphs 54, 310 to 337 of the Statement of Claim above;

(b) admits sub-paragraph 339(a):

(c) as to sub-paragraph 339(b):

(i) says that:

(1) to have reduced releases more significantly than the Flood Engineers in fact did would have been contrary to S2 within the Flood Mitigation Manual;

(2) from the closure of Sluice gate L at 10:00 on 11 January 2011, it was not possible for the Flood Engineers to have further reduced releases from Somerset Dam into Wivenhoe Dam, because all sluice gates were by then closed;

(d) as to sub-paragraphs 339(c) and (d), repeats and relies upon its response to the allegations in paragraphs 333 and 335 of the Statement of Claim above in relation to releases from Splityard Creek Dam;

(e) as to sub-paragraph 339(e), says that:

(i) a reasonably prudent flood engineer would not have acted in the manner alleged;

(ii) the steps alleged would have been contrary to the Flood Mitigation Manual;

(f) as to sub-paragraph 339(j):

(i) repeats and relies upon the matters pleaded in response to paragraph 136B of the Statement of Claim above;

(ii) denies that the Flood Engineers ought to have selected the rates stated therein;

(iii) says that Mr Ruffini did not select or input loss rates into the RTFM during those times on 10 January and 11 January 2011 when he was not on duty;

(iv) says that the initial and continuing loss rates for model runs used by Mr Ruffini whilst on duty on 10 and 11 January 2011 were selected by Mr

Ruffini based upon the exercise of professional engineering judgement taking into account the matters pleaded in response to paragraph 136B of the Statement of Claim;

(g) otherwise denies the allegations.

306. As to paragraphs 339A and 339B of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 54, 136A, 136B, 149, 150 and 310 to 337B of the Statement of Claim above;
- (b) says that for the Flood Engineers to have acted in the manner alleged would have been contrary to widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operation;

Particulars

The State relies on the particulars to paragraph 308 below.

- (c) says that the Flood Engineers had no authority to reduce the levels of the Dams below FSL;
- (d) says that the dam operations between ~~16 December 2010~~ 2 January 2011 and 9 January 2011 had no causative relevance to the flooding which occurred subsequent to 9 January 2011;
- (e) says that during the times Mr Ruffini was on shift on 10 January 2011:
 - (i) Mr Ruffini could not have reduced the water levels in Somerset Dam and Wivenhoe Dam to the levels alleged in sub-paragraphs 339B(a), (b), (c), (d), (e), (f), (g) or (h) of the Statement of Claim;
 - (ii) attempting to reduce the water levels in Somerset Dam and Wivenhoe Dam to any of the levels alleged in paragraph 337B of the Statement of Claim:
 - (1) may have caused downstream flooding at night without any or adequate warning, with the risk of injury, loss of life or damage to property;
 - (2) would have been contrary to the general strategy that had been set by the Senior Flood Operations Engineer;
 - (3) would have been contrary to the terms of the Flood Mitigation Manual;
- (f) says that:

- (i) the Second Wivenhoe Peak was not reasonably foreseeable;
- (ii) at the time Mr Ruffini commenced duty in the Flood Operations Centre at 19:00 on 10 January 2011 and at all material times thereafter, the implementation of a strategy different from that being implemented by the Flood Engineers would not have prevented or materially reduced the urban inundation which occurred;
- (h) otherwise denies the allegations.

307. As to paragraphs 340 and 341 of the Statement of Claim, the State:

- (a) denies the allegations;
- (b) repeats and relies upon its responses to paragraphs 310 to 339B of the Statement of Claim above;
- (c) denies that any conduct of Mr Ruffini was causative of harm to the plaintiff or Group Members.

Alleged breaches of duty

308. In response to each of the breaches of duty alleged in the Statement of Claim, the State:

- (a) says that the conduct of the Flood Engineers and the operation of Wivenhoe Dam and Somerset Dam by them during December 2010 and January 2011 was consistent with widely accepted peer professional opinion as competent professional practice in the field of flood mitigation and dam operations.

Particulars

- (i) Subsequent to the 2011 Flood Event the dam operations conducted by the Flood Engineers in January 2011 were independently reviewed by the U.S. Department of the Interior Bureau of Reclamation and by the U.S Army Corp of Engineers, which review concluded, inter alia:
 - (1) The operational decisions made by the Flood Engineers were reasonable;
 - (2) By the U.S Army Corp of Engineers, that the release decisions selected by the Flood Engineers were those that would best meet the objectives stated in the Flood Manual;

- (3) By the U.S Army Corp of Engineers, that there was no indication that had the Flood Engineers taken a different path, materially different outcomes would have resulted;
 - (4) By the U.S Army Corp of Engineers, release decisions, based on known information, were prudent and showed considerable insight into the precision and accuracy of available hydrometeorological information, the forecasting modelling results, and the risks involved in alternative releases, tradeoffs, and timing;
 - (5) By the U.S Army Corp of Engineers, decisions were in line with stated flood operation objectives in the Flood Manual;
 - (6) By the U.S Army Corp of Engineers, balancing the lake flood storage levels via the target operating line appeared to be an effective procedure to effectively turn two separate lakes into one flood storage project;
 - (7) By the U.S Army Corp of Engineers, given the unprecedented magnitude and the sequence of events, the overall operation and results are considered commendable.
- (ii) the State will further rely upon the reports and opinions of the dam operation experts from whom it is intended to adduce expert evidence at trial;
- (b) further or in the alternative, says that the conduct of the Flood Engineers involved the exercise of professional engineering judgements within the range of judgements that were reasonable in the circumstances of the December 2010 and January 2011 flood event;
 - (c) denies that the Flood Engineers breached any duty of care.

Causation and Loss

309. As to paragraphs 342 to 348 inclusive of the Statement of Claim, the State:

- (a) admits the allegation in paragraph 342;
- (b) says that rain in catchments below Wivenhoe Dam which occurred during the Extreme Rainfall Event pleaded in paragraph 261 above had the consequence that inflows from tributaries below Wivenhoe Dam and at or above Moggill produced flows at Moggill which peaked at approximately 09:00 on 12 January

2011 at approximately 6,517 m³/s without contribution from any water released from Wivenhoe Dam;

- (c) says that between 9 and 14 January 2011 the peak flow at Moggill which occurred between 09:00 and 10:00 on 12 January 2011 was approximately 9544 m³/s including contribution from water released from Wivenhoe Dam;
- (d) says that the contribution of water released from Wivenhoe Dam to the peak flow at Moggill between 09:00 and 10:00 on 12 January 2011 was approximately 3027 m³/s;
- (e) says that the peak of the flood downstream of Moggill which occurred subsequently resulted from the flows referred to in sub-paragraph (c) above, further inflows to the Brisbane River below Moggill and tidal effects;
- (f) denies that the Flood Engineers committed any of the breaches alleged in paragraph 343;
- (g) admits that there was insufficient available capacity in the flood storage compartments of Lake Wivenhoe and Lake Somerset to store all the incoming flows produced as a consequence of the Extreme Rainfall Event and to entirely mitigate the effect of such inflows;
- (h) denies that the insufficient available capacity in the flood storage compartments of Lake Wivenhoe and Lake Somerset to store all the incoming flows and to entirely mitigate the effect of such inflows was caused by any act or omission of the Flood Engineers or any of them;
- (i) denies that any harm suffered by any of the plaintiff or the Group Members was caused by any act or omission of:
 - (i) Mr Ruffini;
 - (ii) the Flood Engineers or any of them;
- (j) further or in the alternative, says that it is not in the circumstances appropriate for the scope of any liability of the Flood Engineers or any them (which is denied) to extend to any harm suffered by any of the plaintiff or the Group Members;
- (k) admits that the Extreme Rainfall Event which occurred between 9 January and 11 January 2011 necessitated release of water from Wivenhoe Dam;
- (l) is not able to plead to the allegations of the loss or damage alleged to have been suffered by the Plaintiff until after receipt of all the Plaintiff's expert hydrological reports;

- (m) denies that any loss or damage suffered by the Plaintiff was caused by the conduct of the Flood Engineers.
- (n) further or in the alternative, says that, but for the flood mitigation operations undertaken by the Flood Engineers, the plaintiff would have suffered greater flooding than any flooding that occurred;
- (o) further or in the alternative, says that any harm suffered by the plaintiff and any Group Members (which is not admitted), was suffered as a result of the materialisation of an inherent risk within the meaning of that expression in s 16 of the *Civil Liability Act 2003* (Qld);
- (p) otherwise denies the allegations contained in paragraphs 342 to 348 inclusive of the Statement of Claim.

309A. In further answer to paragraph 347 of the Statement of Claim, the State says:

- (a) Ms Lynette Harrison received funds from the State in the amount of \$1,275 by way of an Essential Household Contents Assistance Grant as part of the Personal Hardship Assistance Scheme on or about 28 March 2011;
- (b) such payment was on account of damage to her personal property as a result of the inundation of a storage facility at which Ms Harrison's property was stored, occasioned by the flood event;
- (c) in applying for that grant, Ms Harrison declared that she owned the personal property that was lost or damaged as a result of the flood event, and certified the truth of the information provided in the Application form about the value of the damaged or destroyed property for which the amount of \$1,275 was paid;
- (d) Mr and Mrs John and Betty Keller received \$15,000 on or about 18 July 2011 from the State (Premier's Disaster Relief Appeal);
- (e) the amount paid was on account of structural damage to Mr and Mrs Keller's principal place of residence as a result of the flood event and declared the cost of rectifying that damage, which was the basis for assessment of the \$15,000;
- (f) Mr and Mrs Keller also received funds in the amount of \$10,000 from the State (Department of Communities) on a date unknown for hardship sustained in the months following the flood event;

- (g) in applying for the payment of \$15,000, Mr and Mrs Keller declared that their home had suffered structural damage as a result of the flood event;
- (h) Mr and Mrs John and Lynette Lynch received \$90,000 from the State (Premier's Disaster Relief Appeal) on account of structural damage to their principal place of residence;
- (i) in seeking those funds, Mrs Lynch declared to the effect that the home owned by her and Mr Lynch had suffered structural damage as a result of the flood event and declared the cost of rectifying or repairing that damage, which was the basis for the assessment of the amount of \$90,000;
- (j) Ms Sharon Visser received payments totalling \$90,000 from the State (Premier's Disaster Relief Appeal);
- (k) Ms Visser obtained a further payment of \$10,000 from the State (Department of Communities) on a date unknown for hardship sustained in the months following the flood event;
- (l) in seeking those funds, Ms Visser declared to the effect that the home owned by her had suffered structural damage as a result of the flood event and declared the cost of rectifying or repairing that damage, which was the basis for the assessment of the amount of \$90,000;
- (m) the Plaintiff received \$25,000 from the State (QRAA) as special disaster flood assistance;
- (n) that assistance was payable on account of floods associated with flood damage only;
- (o) the payments referred to in subparagraphs (d), (h), (j) and (m) above:
 - (i) were not to be enjoyed in addition to any amounts recovered later in litigation;
 - (ii) operated to reduce the final assessment of damages;
 - (iii) were not relief for personal hardship, but rather recompense for loss.

Direct Liability of Seqwater and SunWater in Negligence

310. As to paragraphs 349 to 353 inclusive of the Statement of Claim, the State:

- (a) denies that the Flood Engineers committed any of the breaches alleged in the Statement of Claim;
- (b) denies that any act or omission was causative of loss or damage to the plaintiff;
- (c) repeats and relies upon the matters pleaded in response to paragraphs 342 to 348 of the Statement of Claim;
- (d) otherwise does not admit paragraphs 349 to 353 inclusive of the Statement of Claim because those paragraphs make no allegations against the State.

Private Nuisance and Trespass

311. As to paragraphs 354 and 355 of the Statement of Claim, the State:

- (a) repeats and relies upon its responses to paragraphs 143, 147 and 149 of the Statement of Claim above;
- (b) otherwise does not admit the allegations.

312. As to paragraph 356 of the Statement of Claim, the State:

- (a) repeats and relied upon its response to paragraph 142A of the Statement of Claim above;
- (b) otherwise denies the allegations.

313. As to paragraphs 357 to 362 inclusive of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in response to paragraphs 342 to 353 of the Statement of Claim above;
- (b) does not admit paragraph 357 because it has requested, but been refused, particulars of:
 - (i) the identity of the Subgroup Members;
 - (ii) the identity of the land, and interests in the land, located downstream referred to;
- (c) repeats and relies upon the matters pleaded in response to paragraphs 143, 147 and 149 of the Statement of Claim above;
- (d) denies that the releases of water from Wivenhoe Dam constituted a private nuisance;
- (e) denies that the releases of water from Wivenhoe Dam constituted a trespass to land committed by the Flood Engineers;
- (f) in the premises, denies paragraphs 357 to 362 of the Statement of Claim.

Vicarious Liability

314. As to paragraphs 363 to 372 inclusive of the Statement of Claim, the State:

- (a) denies that the Flood Engineers committed any of the breaches alleged in paragraphs 363, 364 and 369 of the Statement of Claim;
- (b) denies that the Flood Engineers caused any alleged nuisance or trespass;
- (c) in the premises pleaded in sub-paragraphs (a) and (b), denies the allegations;
- (d) otherwise does not plead to paragraphs 363 to 372 inclusive of the Statement of Claim because those paragraphs contain no allegation against the State.

315. As to paragraphs 373 to 376 inclusive of the Statement of Claim, the State:

- (a) denies that Mr Ruffini committed any of the breaches alleged in paragraph 373 of the Statement of Claim;
- (b) denies that Mr Ruffini caused any alleged nuisance or trespass;
- (c) repeats and relies on the matters pleaded in response to paragraphs 91, 92 and 93 of the Statement of Claim;
- (d) says that in performing the services of Flood Engineer, Mr Ruffini acted under the direction of SunWater and became the employee *pro hac vice* of SunWater;
- (e) further, or in the alternative, says that the State could not direct the manner in which Mr Ruffini was to perform his duties and functions as a Flood Engineer;
- (f) says that the State was not vicariously liable for the acts or omissions of Mr Ruffini while he was acting as Flood Engineer;
- (g) in the premises, denies each of the allegations in paragraphs 373 to 376 inclusive of the Statement of Claim.

315A. If (which is denied) the State is vicariously liable for the acts or omissions of Mr Ruffini, any act or omission in the operation of the Dams during the December 2010 and January 2011 flood event was not, in the circumstances, so unreasonable that a public authority, having the functions of operating the dams, could properly consider the acts or omissions not to be a reasonable exercise of those functions.

315B. Further or in the alternative, the simulated Dam operations produced by Dr Christensen and relied upon by the Plaintiff:

- (a) are not consistent with widely accepted professional dam operating opinion or practices;

- (b) are based upon flawed assumptions as to forecast rainfall, loss rates and inflows into the Dams and the Brisbane River below the Dams;
- (c) are not consistent with the Flood Mitigation Manual;
- (d) would expose Somerset Dam to a risk of structural failure;
- (e) would expose areas downstream of Wivenhoe Dam to unnecessary flooding in the event forecast rainfall either did not occur or fell in catchments below Wivenhoe Dam;
- (f) put at risk water supply.

315C. Further or in the alternative, the modelling of Dr Altinakar relied upon by the Plaintiff to allege that operation of the Dams caused greater flooding;

- (a) is based upon the flawed assumptions as to forecast rainfall, loss rates, inflows and Dam releases in the simulated operations propounded by Dr Christensen;
- (b) is insufficiently accurate for the Court to make any accurate assessment as to flood levels resulting from the simulated operations propounded by Dr Christensen.

316. As to paragraph 377 of the Statement of Claim, the State:

- (a) repeats and relies upon the matters pleaded in sub-paragraphs (a) and (b) of the preceding paragraph;
- (b) in the premises, denies that SunWater has any liability as alleged;
- (c) repeats and relies upon the matters pleaded in response to paragraphs 91, 92 and 93 of the Statement of Claim above;
- (d) otherwise does not admit the allegations.

317. Further, if (which is denied) the State has any liability for the alleged breaches, the State says that the plaintiff's claims and those of Group Members are apportionable claims within the meaning of s 31 of the *Civil Liability Act 2003*.

Section 374 of the Water Supply Act

318. As to paragraphs 378 and 379 of the Statement of Claim, the State:

- (a) admits the allegations in paragraph 378;
- (b) denies that the effect of s 374 of the *Water Supply Act* is as pleaded in paragraph 379;

- (c) denies that any liability attaches to the State by the operation of s 374(3) or otherwise.

Relief

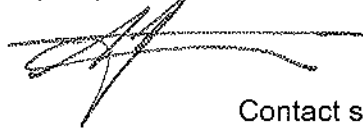
319. As to paragraph 380 of the Statement of Claim, the State:

- (a) denies that the plaintiff is entitled to the relief claimed or any relief;
- (b) denies that Group Members are entitled to the relief claim or any relief.

SIGNATURE OF LEGAL REPRESENTATIVE

I certify under clause 4 of Schedule 2 to the Legal Profession Uniform Law Application Act 2014 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 this statement of cross-claim has reasonable prospects of success.

Signature



Capacity

Contact solicitor

Date of signature

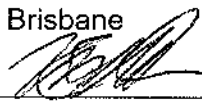
~~27~~ ²⁷ September 2015 November 2017

AFFIDAVIT VERIFYING

Name Caroline Louise Helman Michael Vickers
 Address C/- 100 George Street 1 William Street, Brisbane, QLD
 4000
 Occupation Solicitor
 Date 6 September 2015 November 2017

I say on oath:

- 1 I am the ~~A/Special Legal Adviser, State Coordination of Legal Representation~~
Director, Legal Services Unit, Appointments and Constitutional Services for the
 Department of the Premier and Cabinet of the State of Queensland, the Third
 Defendant in these proceedings.
- 2 I believe that the allegations of fact contained in the Amended defence are true.
- 3 I believe that the allegations of fact that are denied in the Amended defence are
 untrue.
- 4 After reasonable inquiry, I do not know whether or not the allegations of fact that are
 not admitted in the Amended defence are true.

SWORN at Brisbane
 Signature of deponent 
 Name of witness Christopher Hardy Gasteen
 Address of witness C/- Level 11, 50 Ann Street, 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 known the deponent for at least 12 months.

Signature of witness 

Note: The deponent and witness must sign each page of the affidavit. See UCPR 35.7B.

[* The only "special justification" for not removing a face covering is a legitimate medical reason (at April 2012).]

[† "Identification documents" include current driver licence, proof of age card, Medicare card, credit card, Centrelink pension card, Veterans Affairs entitlement card, student identity card, citizenship certificate, birth certificate, passport or see Oaths Regulation 2011.]