Appendix C

SunWater responses

A copy of the 2015 Callide Creek Flood Review Report (draft) was provided to SunWater with a request for their response.

Responsibility for the accuracy, fairness and balance of the following responses from SunWater, rests with the head of SunWater.

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Contact: [redacted]
Direct Line: [redacted]
Our ref: 15-000984/001 - #1723209
Your ref: CON/47995

SunWater Limited
Level 10, 179 Turbot Street
PO Box 15536 City East
Brisbane Queensland 4002
www.sunwater.com.au
ACN 131 034 985

21 May 2015

Office of the Inspector-General Emergency Management
GPO Box 1425, Mail Cluster 15.7
Brisbane QLD 4001

BY EMAIL: [redacted]

Dear Mr MacKenzie

2015 Callide Creek Flood Review
Response to Sections of the Draft Review Report as provided to SunWater 18 May 2015

I refer to your letter of 18 May 2015,that included sections of the revised draft review report as provided to SunWater (Sections 1 to 9). Thank you for the opportunity to review this and provide responses.

The attached table details SunWater's response to the Draft Review Report (Parts 1 to 9) as received from the Inspector General Emergency Management on 18 May 2015. The response is set out in tabular format to allow your consideration SunWater's comments and suggestions in relation to specific paragraphs, sentences or phrases within the draft Report. The table also includes references to detailed commentary in previous SunWater submissions that relate to each of these comments and suggestions.

Please contact SunWater's project manager for the Callide Review, [redacted] on (07) [redacted] via email [redacted] if SunWater can be of any assistance or offer any further explanation in relation to these matters.

Yours sincerely

Tom Vanderbyl
General Manager
Bulk Water and Irrigation Systems

Att(s)

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
EAP Compliance	Part 1 – Overview, pages 7, 1st paragraph	"SunWater's understanding of EAP compliance requirements is divergent to those of the dam safety regulator that supports the notion of flexibility to deal with emergent conditions."	SunWater disagrees with the statement that there are no current requirements for dam owners to explicitly comply with an EAP during an event. SunWater also is concerned that the draft Review Report does not set out the foundation for SunWater's understanding of its legal obligations to comply with the EAP within the relevant sections of Parts 1 and 6. SunWater has no doubt that under s356A of the Water Supply (Safety and Reliability) Act 2008, it must comply with a safety condition applied to a referable dam which, in the case of Callide, includes condition DS13 which requires that in all emergencies the dam be operated in accordance with the EAP for the dam. There is no broad discretion to deviate from the EAP. The Draft Review Report itself affirms this fact in the Disaster Management Response section (Part 7), page 32, stating: "The *Water Supply (Safety and Reliability) Act 2008* states that dam owners 'must not contravene' a dam safety condition. Of relevance, dam safety condition 13 for the Callide Dam outlines 'In all emergencies, the dam owner must respond in accordance with the Emergency Action Plan'". Refer to SunWater's second submission, dated 13 May 2015, Section C3 for more detailed commentary in relation to this issue.	1. SunWater requests that Part 1 (page 7) and Part 6 (page 21) of the draft Review Report include the following statement that provides the reader with contextual information about the foundation of SunWater's understanding about its legal obligation to follow the EAP: ***Under s356A of the Water Supply (Safety and Reliability) Act 2008, a dam owner must comply with a safety condition applied to a referable dam which, in the case of Callide, includes condition DS13 which requires that in all emergencies the dam be operated in accordance with the EAP for the dam.***
	Part 1 – Overview, page 10, Finding No. 7	"SunWater's understanding of Emergency Action Plan compliance requirements is divergent to that of the dam safety regulator, which supports the notion of flexibility to deal with emergent conditions"		
	Part 6 – Disaster Mgt Plan'g & Preparedness, page 21, Finding No. 6 and 7	"Believing there to be no legal option, SunWater rigidly followed the Emergency Action Plan, despite having information regarding emerging risks to downstream residents."		
	Part 7 – Disaster Mgt Response, Page 33 *and* Part 6 – Disaster Mgt Plan'g & Preparedness, page 12	"DEWS told us that: '*…Referable dam owners are free to undertake any actions they consider necessary to preserve the safety of the dam and subsequently the safety of people downstream during an emergency event. There are no current requirements for the dam owner to explicitly comply with an EAP during an event. This is due to a need to maintain some flexibility to be able to adapt to emergent situations that cannot always be predicted during emergency events. The only directly relevant dam owner compliance requirements are to have an approved EAP in place and to produce an emergency event report after each emergency event.*'"		

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
Role of SunWater in Emergency Management	Part 1 – Overview, page 7, Disaster Mgt Arrangements	"Again, SunWater told the Council, but we could not identify where the public were informed."	This wording infers that SunWater was responsible for issuing general warnings about the flood event to the community throughout the valley. It is unreasonable to imply that it is part of SunWater's role to check whether the information that it provided to the Council was forwarded on through the Council's subsequent communications to the broader community. Refer to SunWater's second submission dated 13 May 2015, Section C1; and also further comment below.	2. SunWater requests that the wording in Part 1 page 7 be amended to clarify this point as follows: "**Again, SunWater told the Council, but we could not identify where this information was subsequently passed on to the broader community**."
Role of SunWater in Emergency Management	Page 13, Recommendation 4 and Part 7 – Disaster Mgt Response, page 36 and 37, Message Content	"SunWater provide downstream residents with easily understood information regarding operation of the dam, and the impacts to them that various outflows may have. This information should be complementary to any information from Banana Shire Council." and "The message did not explain what 'Flood Stage 4' meant, and was generally unclear about what was happening, what the risk was, who was at risk, and what the recipient should do. The only action the message recommended was to go to the BoM website or the LDMG for more details."	Caution should be taken as to the extent that it may be considered that any SunWater communication and messaging is able to advise "the recipient what to do". SunWater cannot advise on specific impacts to downstream residents, particularly considering the potential impact of other catchment flows (outside of the dam catchment). The Queensland Floods Commission of Inquiry made clear that it is not the dam operator's responsibility to predict river heights or inundation areas, and downstream residents have a responsibility to apprise themselves of how outflows from a dam will affect their property. Notifications to immediate downstream residents are limited to the timing and outflow from the dam. Refer to SunWater's second submission dated 13 May 2015, Section C1, paragraphs 10 to 18.	3. SunWater requests that the wording in Recommendation 4 on page 13 be amended as follows: **"SunWater provide downstream residents with easily understood information regarding operation of the dam including about the timing and outflows from the dam."**

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
Flood Mitigation	Part 1 – Overview, page 13, Recommendation 1 *and* Part 2 – Introduction, page 9, Recommendation 1	Recommendation relates to studies to be undertaken by SunWater, considering dam operational strategies.	SunWater can, and is willing, to assist and consult with Government in these studies being carried out. SunWater suggests that any final decision should be made by Government having regard to the broad range of interests involved. SunWater also suggests that the lead responsibility for carrying out this work should be Government (e.g. DEWS), as was the case following the 2011 Queensland Floods Commission of Inquiry. Refer to SunWater's second submission, dated 13 May 2015, Section B, paragraph 7; and to SunWater's first submission dated 17 April 2015, Section C3.	4. Replace **"SunWater"** with **"DEWS"** as the "Responsible Entity" for Recommendation 1. **5.** In addition, reword the start of Recommendation 1 to read **"In accordance with recommendation G1 of the BMT WBM report, that DEWS in liaison with SunWater, undertake…** etc.**"** 6. Further, at the end of the last paragraph of Recommendation 1, add: **"This will allow consideration and decision by Government as to the future operation of Callide Dam."**
EAP Development and Requirements	Part 6 – Disaster Mgt Plan'g & Preparedness, page 14 and 15	"The EAP is comprehensive, but it is designed to be used by dam operators. A simplified version could be considered for community education purposes. This may achieve an incidental purpose for SunWater by improving community understanding of the capabilities and limitations of the Callide Dam and confidence in its operation"	The suggestion that the EAP could be simplified for "community education purposes" must be very carefully considered. The content of the EAP is dictated by the *Water Supply (Safety and Reliability) Act 2008*. It is not feasible to have a separate, simplified document which is also the EAP – there must be one version only.	7. Suggested rewording as follows: **"The EAP is comprehensive, but it is designed to be used by dam operators. A separate simplified explanatory document could be considered for community education purposes. This may achieve an incidental purpose for SunWater by improving community understanding of the capabilities and limitations of the Callide Dam and confidence in its operation"**

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
Gate Opening	Part 3 – The Event, Page 10	"The Callide Dam gates opened at approximately 8.30pm. The exact time of gate opening cannot be confirmed as there is no equipment connected to the gates that records this information. The 8.30pm approximation is based on the known storage levels and the rate of rise in the storage level at the time."	Despite the qualification, this incorrectly implies that the gates opened at 8:30pm. This is based on a purely theoretical estimation that does not account for measured flood slope effects (level difference) between the dam headwater gauging station and the location of the headwater gauging station, and the effect of extrapolating this slope to the spillway and gates (approximately 400m away). This would result in a difference in estimated level at the gates of approximately 0.3m (i.e. lower than the headwater gauging station water level) which would indicate a later gate opening time. SunWater also suggests that when hypothesizing about the precise gate opening time, equal if not greater weight should be given to the recorded observation of the onsite operators.	8. SunWater requests that the wording in Part 3 Page 10 be amended to reflect the correct accuracy of estimates and logged observations as follows: **"Based on theoretical estimations of storage levels and the rate of rise in the storage level at the time, the Callide Dam gates opened sometime after 8.30pm although the exact time of gate opening cannot be confirmed as there is no equipment connected to the gates that records this information. SunWater's onsite operators reported at the time that they believed hearing the gates opening between 8:37pm and 8:42pm".**
	Part 3 – The Event, page 4, Timeline	"20 Feb 8:30pm Approximate time of Callide Dam gate opening"	Again, this incorrectly implies that the gates opened at 8:30pm. Between 8:37pm and 8:42pm, SunWater's onsite operators are logged as reporting via a phone call at the time: "*believes there may be a rumble in the spillway now. Assume it is the gates opening*." This is the earliest evidence of when the gates may have commenced opening. The first positive confirmation that the gates had actually opened was when SunWater's onsite operator is logged as hearing the sound of the water flowing down the spillway at 8:51pm.	9. SunWater requests that the Part 3 Event Timeline wording on page 4 be amended to take proper account of the onsite observations that were logged at the time as follows: **"20 Feb 8:37pm to 8:42pm Approximate time of Callide Dam gate opening based on audio observation of onsite operators."**

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
	Overview (Part 1), bottom of p. 7	"The exact time the gates opened is a matter of theory, modelling and conjecture as no one witnessed the event, and there is no telemetry or recording means to capture this information. The hydrologist has calculated an opening time of approximately 8.30pm, though SunWater will state a time closer to 8.45pm."	As per previous 2 comments above. SunWater suggests that this wording be similarly amended to reflect the correct accuracy of estimates and logged observations.	10. Suggested rewording as follows: **"The exact time the gates opened is a matter of theory, modelling and conjecture as witnesses to the event were limited to audio observations by operators during high winds, and there is no telemetry or recording means to capture this information. The hydrologist has calculated an opening time of approximately 8.30pm, though SunWater operators reported at the time that they believed hearing the gates opening between 8:37pm and 8:42pm."**
Correction	Part 7 – Disaster Mgt Response, page 9, 2nd paragraph	"… The gauge was designed to monitor low flows. In 2013, the '96 kilometre gauge' was inundated by flood water and stopped working."	This statement is not true. The 96k gauge continued to operate throughout the 2013 event. The only issue was the maximum height exceeded the rating that was available at that time. The gauge was not inundated and did not stop working.	11. Suggested rewording as follows: **"The gauge was designed to monitor low flows. In 2013, the '96 kilometre gauge' received water levels that exceeded the gauge rating curve, and for which flows were unable to be calculated during this peak flow period."**
Correction	Part 7 – Disaster Mgt Response, page 9, 1st paragraph	"SunWater had been using the Callide Dam headwater gauge (near the gates) to monitor flows released from the dam's outlet valves."	Correct "headwater gauge" to be "tailwater gauge".	12. Suggested rewording as follows: **"SunWater had been using the Callide Dam tailwater gauge (near the gates) to monitor flows released from the dam's outlet valves."**

SunWater's Responses to Sections of the Draft Review Report as provided by the Inspector General Emergence Management on 18 May 2015

Issue	Draft Review Report Reference	Statement / Content in Draft Report	SunWater Comment / Reference to Previous Details	Suggestion
Correction	Part 9 – Community Questions & Concerns, Page 3, Item 11.	"The dam gates work when water flows into a chamber with a float and the gates rise as the dam level rises. That means the speed of the gate opening is directly related to the speed of the flood. This cannot be controlled unless the gates are manually operated…"	This implies that manual gate operation above the FSL could have slowed water releases. This is not correct as manual operation is not possible once the water level exceeds the automatic trigger	13. Suggested rewording as follows: **"The dam gates work when water flows into a chamber with a float and the gates rise as the dam level rises. That means the speed of the gate opening is directly related to the speed of the flood. This cannot be manually controlled once the water level exceeds the full supply level of the dam…"**

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SunWater Limited
Level 10, 179 Turbot Street
PO Box 15536 City East
Brisbane Queensland 4002
www.sunwater.com.au
ACN 131 034 985

Inspector-General Emergency Management

CALLIDE CREEK FLOOD REVIEW

Further Submission by SunWater

13 May 2015

A Context

1 The Callide Creek Flood Review is being carried out by the Inspector General Emergency Management.

2 On 11 May 2015, the IGEM provided SunWater with part of the IGEM's draft review report ("draft report") and requested a response to it. This submission is SunWater's response to the IGEM's draft report.

3 SunWater offers its comments and suggestions in relation to the draft sections of the report noting that:

(a) these comments and suggestions are offered in the context of Sunwater reviewing just the selected sections of the draft report, rather than the complete draft report.

(b) similarly, as the draft sections of the report that have been provided do not include any recommendations, SunWater's comments and suggestions obviously do not consider the feasibility or potential implications of any recommendations.

(c) SunWater anticipates being given an opportunity to review the draft hydrology report being prepared for the IGEM in order that SunWater can be afforded a reasonable opportunity to respond, if necessary, with any further comments and suggestions.

4 This submission is structured as follows:

(a) Section A (this section) sets the context for SunWater's comments and suggestions.

(b) Section B addresses the IGEM's draft comments regarding changing Callide Dam from a water supply dam to a flood mitigation dam.

(c) Section C addresses the draft findings in relation to SunWater's role in emergency management and the requirement to comply with the Emergency Action Plan.

(d) Section D addresses draft criticisms of SunWater's notifications during the event.

(e) Section E identifies a number of other matters including in relation to the role of Callide Dam in the context of the catchment wide flooding impacts arising from Tropical Cyclone Marcia.

5 SunWater welcomes the opportunity to provide further information, or to address any other matters raised during the review or in the public submissions, as and if requested by the IGEM.

B Reducing the Callide Dam level in advance of the 2015 Flood Event

6 The draft report contains[1] a discussion about the potential to change Callide Dam from a water supply dam to a flood mitigation dam. In the course of that discussion the draft report suggests:

(a) that this is not a decision for SunWater alone;[2]

(b) that variable airspace management is used by authorities within South Australia and New South Wales.[3]

7 It appears that there is confusion in the community as to SunWater's role. SunWater suggests that the IGEM consider including the following clarifications within the final report:

(a) Any decision to change the status of Callide Dam should only be made after a comprehensive study is undertaken examining:

[1] See the section headed "Operation of the Callide Dam" – pages 30-35 of the draft report.
[2] Page 32 of the draft report.
[3] Page 35 of the draft report.

(i) the water supply issues associated with the change; and

(ii) flood operations across a large number of actual and design floods.

(b) The decision to change the status of Callide Dam is not one at all for SunWater (contrary to the draft finding referred to above). It is a decision for the relevant Minister. SunWater respectfully refers the IGEM to the Queensland Floods Commission of Inquiry discussion of a similar issue in respect of North Pine Dam (see the Final Report section 17.1.4 – page 569).

(c) SunWater did not reduce the lake level in Callide Dam (similar to the variable airspace management reference in the draft report[4]) prior to the arrival of Tropical Cyclone Marcia as this was outside of the dam's operating licence and it would have been an offence for SunWater to do so.

(d) In any event, there was no reasonable justification for discharging large volumes of water in advance of the flood event. As to this:

(iii) The forecast rainfall (100-150 millimetres) was not substantial in terms of the dam's storage capability. Indeed, depending on the spatial and temporal distribution of the rainfall, the dam may not have even filled with that depth of rainfall (bearing in mind the dam was at 84% at the commencement of the event).

(iv) The forecast could not be relied on to release water. The Bureau's forecasts are, by their nature, inherently unreliable.

(v) Depending on the nature of the flood, the lowering of the level would not necessarily provide any substantial flood mitigation benefits.

(vi) The forecast track range of the cyclone was uncertain and could not be relied upon to not change. A number of other dams in other central Queensland catchments potentially in the path of Marcia (namely Bjelke-Petersen Dam and Boondooma Dam) received minimal inflows as a result of the rainfall event.

(e) For completeness, SunWater notes that it has a record of only one resident calling in advance of the flood event requesting that the lake level be lowered (contrary to the draft report reference to "several" unidentified residents[5]).

C Emergency Action Plan issues

C1 Role of SunWater in the emergency framework

8 The draft report contains a number of observations of SunWater's engagement with the community in advance of flood events.[6] For example, the draft suggests that:

(a) SunWater's approach to public information and engagement on the topic of dams in floods is "minimal";[7]

(b) In the lead up to the February 2015 event, SunWater did not engage the community or local media about what was happening at its dams, including the likelihood that the dams would spill[8];

[4] A recent seminar hosted by Engineers Australia on early release strategies noted that variable airspace management required reliable sources of inflow such as snow melt
[5] Page 25 of the draft report.
[6] Pages 41-43 of the draft report
[7] Page 41 of the draft report
[8] Page 42 of the draft report

(c) Early public engagement and an open dialogue about how the situation was developing would have enabled the community to assess and respond to their personal risk;[9]

(d) SunWater engages defensively on the topic of dams in floods.[10]

9 These observations fail to take into account the limited role that SunWater has in emergency management.

10 SunWater's understanding is that central to effective disaster management is that local governments are primarily responsible for managing disaster events in the local government area. They are the conduit through which the community is informed about the disaster. There is a high risk of conflicting information if multiple agencies are communicating with affected residents. Refer to the Australian Emergency Management best practice guidelines for emergency warnings principles:

http://www.em.gov.au/Emergency-Warnings/Pages/Emergencywarningsguidelinesandprinciples.aspx

11 As a result, SunWater's role is limited to:

(f) monitoring inflows to its dam and providing notifications of outflows to a limited number of stakeholders in accordance with the relevant Emergency Action Plan – see further below;

(g) passing water inflows through the dam's spillway or outlet works in accordance with the operational procedures for the dam.

12 It is not SunWater's role to provide general flood warnings. This is the role of:

(a) the Bureau of Meteorology in respect of riverine or non-flash flooding;

(b) Councils in respect of flash flooding (being flooding arising less than 6 hours after the rain).

13 It is also not SunWater's role to translate flood predictions into the likely impact on local communities in terms of inundation of properties. That is the role of Councils.

14 Except in a specific case (discussed below), it is not SunWater's role to warn the local community. Generally, that also is a role for Councils.

15 Following the Queensland Floods Commission of Inquiry, changes were made to the legislative regime[11] to make dam operators such as SunWater responsible for providing a very limited number of warnings – namely, to those people who live immediately downstream of dams where there is insufficient time for the Local Disaster Management Group to process the information and issue the warning.

16 The content of the warning is limited to the timing and volume of outflow from the dam. As the Queensland Floods Commission of Inquiry made clear:[12]

(a) it is not the dam operator's responsibility to predict river heights or inundation areas; and

(b) downstream residents have a responsibility to apprise themselves of how outflows from a dam will affect their property.

17 Consistently with this limited role, in advance of flood events, SunWater's approach is to (amongst other things):

[9] Page 42 of the draft report
[10] Page 42 of the draft report
[11] The changes were incorporated into Chapter 4, Part 1, Division 2A of the *Water Supply (Safety and Reliability) Act 2008.*
[12] Queensland Floods Commission of Inquiry Interim Report, page 138.

(a) provide general information on its website, by brochures, on social media and by way of media release;

(b) provide immediately downstream residents with an opportunity to register for dam release notifications;

(c) engage with the local disaster management group in relation to the Emergency Action Plan.

18 Given the above, SunWater has not seen it as appropriate to:

(a) take over communications with the general public in relation to the event;

(b) educate the local disaster management group about the limited role that SunWater has (as suggested in the draft report[13]).

19 SunWater suggests that the IGEM consider including the above information within the final report.

C2 The development of the Emergency Action Plan

20 The draft report contains two implicit observations of SunWater in relation to the development of the Callide Dam Emergency Action Plan.

21 First, it is said that the Council provided feedback on the draft Emergency Action Plan but SunWater did not respond.[14] SunWater can advise that it explicitly considered the Council's feedback and made changes where changes were required or considered appropriate. A copy of records detailing SunWater's consideration of the Council's feedback will be provided to the IGEM.

22 Secondly, the draft report notes that there were only 58 downstream residents included within the Emergency Action Plan notwithstanding that there are 189 properties within a 10 kilometre area downstream.

23 SunWater makes the following points:

(a) The 10 kilometre cut-off is taken from the draft guideline that has been published by the Department of Energy & Water Supply for the preparation of emergency action plans.[15]

(b) As the draft report notes (see pages 53 and 54), the manner in which SunWater went about identifying downstream residents was appropriate (and comprehensive).

(c) Accordingly, SunWater believes that the conclusion that there are 189 properties within the 10 kilometre zone is incorrect. SunWater's investigations indicate that there are a total of 66 properties in that zone (a map showing this analysis will provided to IGEM).

24 SunWater requests the IGEM update the final report to reflect the above details.

C3 There is a requirement to comply with the Emergency Action Plan

25 In several places, the draft report suggests that SunWater is not obliged to comply with the Emergency Action Plan.[16] This is incorrect.

[13] Draft report page 58 second paragraph.
[14] Draft report page 38 second paragraph.
[15] Emergency Action Planning for Referable Dams June 2013 at page 23.
[16] Draft report – page 38, third last paragraph; page 52 second half of the page.

26 Under the *Water Supply (Safety & Reliability) Act 2008*:

(a) The Chief Executive can apply dam safety conditions to a referable dam such as Callide Dam.[17]

(b) It is an offence for the owner of a referable dam to which a safety condition applies to contravene the condition.[18]

27 The Dam Safety Conditions for Callide Dam are shown in **Appendix D** to SunWater's submission dated 17 April 2015.

28 Relevantly, the Dam Safety Conditions require that in all emergencies the dam must be operated in accordance with the Emergency Action Plan for the dam (condition DS13).

29 Accordingly, SunWater must comply with the Emergency Action Plan.

30 The final report must be amended to remove any comments or findings to the contrary.

D Warnings and notifications during the event

D1 Earlier communications with downstream residents

31 The draft report states that SunWater did not communicate with downstream residents until 20:39 despite (it is alleged):

(a) SunWater having data from the river gauge upstream from the dam showing an almost vertical rise in inflows for more than 3 hours; and

(b) significant rises in the dam level were seen from 6pm.

32 The correct position is set out below.

33 The 96km gauge had recorded a rainfall burst of 25mm in the hour to 15:00. The rainfall intensity at 16:00 and 17:00 had reduced to 10mm/hr and 12mm/hr respectively.

34 At 16:15 the 96km gauge read 1.9m. This equates to a flow rate of 5.95m^3/s or 514ML/d.

35 At 16:30 this had increased to 3.19m, 3.6m at 16:45 and 3.69m at 17:00. It is apparent from this information that the initial rate of rise had slowed at 17:00 hours.

36 The flow at 17:00 hours was estimated at 240m^3/s or 20,700ML/d.

37 The storage level of Callide dam at 17:00 was 214.39m. This equates to a storage volume of 118,410ML or 17,960ML below full supply level

38 There was a time lag of up to 30 minutes between these data points being recorded by the instruments and availability of the data on the web site.

39 Based on these facts, The Technical Decision Maker issued an email advice at 17:41 that stated “we do not expect Callide to spill at this stage. This could change if the system is slow to move south.”

40 The rate of increase in flow rate at the 96km gauge increased at approximately 17:30 and remained relatively steady from approximately 17:45 to 19:00. At approximately 19:15 the rate of increase escalated approximately fourfold.

41 At 19:03 on the 20th February 2015 SunWater advised the Local Disaster Management Group that "we may reach the reduced FSL trigger tonight". It was still not certain at that time that gate operations would be required. Accordingly, it is incorrect to infer that SunWater had known for several hours that gate operations would be required.

[17] Section 353.
[18] Section 356A.

42 The comments of SunWater's representative at the Local Disaster Management Group meeting on the day before at 1pm on 19 February 2015[19] are to be understood in this light. The SunWater representative's comments conveyed the message that if there was credible information available during daylight hours that a spill would definitely occur later that night, early advice would be given to the LDMG and downstream residents. In the event, as is evident from the above discussion, it was not known during daylight hours on either the 19th or 20th February that the dam would spill on either of those nights. This explains why an early advice was not made.

43 Importantly, the SunWater representative did not say that the EAP would be activated early or deviated from in any way. The representative's reference to the word "activate" as quoted on page 53 of the draft report was used in a general sense with respect to advising people early and not in the sense of the technical meaning of the word as used in the EAP. SunWater therefore submit that the statement in the draft report that "this advice suggested that SunWater would deviate from its EAP and issue warnings early, which was inconsistent with the intention of the dam's decision makers" is both incorrect and misleading and should be deleted (both on page 53 as well as the similar quote on page 25).

44 As per the Emergency Management Framework Local Disaster Management Groups are responsible for community warnings more generally. SunWater provided timely information to the Local Disaster Management Group from 17:00 that the dam might spill over the next 24 hours. The draft report identified that the Local Disaster Management Group attempted to issue a warning to the community of the possibility of releases at 17:41 but did not proceed with this, indicating that it would soon issue a warning message. [20]

45 Further, SunWater's communications to the Local Disaster Management Group at 19:03 and 19:52 specifically referred to the possibility of releases within hours. It was open to the Local Disaster Management Group to issue a warning to the community at that time.

46 SunWater did not issue notifications to the downstream residents under the Emergency Action Plan at this time as the plan had not been activated at that time (and nor was it required to be). The plan was activated at 20:18 (as the draft report finds) and arrangements were made to immediately notify downstream residents.

47 The draft report states that SunWater "inflexibly" followed the Emergency Action Plan.[21] This reference assumes that SunWater was entitled to depart from the Emergency Action Plan during the event. As has already been made clear, SunWater is required (by statute) to comply with the Emergency Action Plan. Accordingly, the suggestion of "inflexibility" is not appropriate and SunWater requests that this finding be amended.

D2 When did the gates open?

48 The draft report suggests that the Callide Dam gates opened at 20:30.[22]

49 There is no sound evidentiary basis to conclude that the gates opened at 20:30 and the draft report should be amended accordingly.

50 In particular:

(a) As the draft report itself concedes, the exact timing of the opening of the gates cannot be confirmed as there is no record of it.[23]

[19] Referred to in the draft report at pages 25 and 53
[20] Draft report at page 26.
[21] Draft report at page 52.
[22] Draft report at page 27.
[23] Draft report at page 27

(b) It appears that the IGEM has relied on the storage levels to calculate the opening time, although the calculation has not been provided. It is not correct to calculate the gate opening time in this way for the following reasons:

(i) The storage level of Callide Dam was not known with any certainty during the event. As to this:

(A) The water surface in the storage during a significant event is not flat. There would have been a significant flood slope on the storage. At the peak of the flood the 96km gauge is at the very top end of the storage. At 19:45 on the 20th February the difference in water level at 96km gauge and the headwater gauge was 11.269m. The average slope between the 96km gauge and the head water gauge was 0.0008. If the average slope continued from the head water gauge to the spillway structure then the water level at the spillway structure would have been 0.30m lower than that recorded at the headwater gauge. There is significant uncertainty in the above calculations, but it is the best information available at this time.

(B) The cyclonic conditions that existed at the time included high velocity winds. High winds would have impacted the accuracy of the recorder.

(C) High winds would have created substantial waves on the storage. Waves would have impacted the accuracy of the recorder.

(ii) Also, the storage level recorder is located in the inlet tower. The inlet tower is approximately 400m away from the spillway gates. The spillway gates respond to the water level at the spillway structure. The water level at the spillway structure would likely have been different to the water level at the inlet tower due to flood slope, wind and waves.

(iii) Whilst the gates are designed to commence opening at a particular water level, it is possible that the actual gate opening varied slightly from the design level.

(c) Accordingly, it is incorrect to speculate (even in hindsight) that the Callide Dam gates opened at 20:30.[24]

(d) The first positive confirmation that the gates had opened was when SunWater's on-site operator heard the sound of water flowing down the spillway at 20:51.

D3 Other matters

51 In view of the comments in Sections D1 and D2 above, a number of observations in the draft report, which rely upon the findings challenged above, should not be made. The relevant passages which SunWater believes should be removed are:

(a) The suggestion that there "were issues" with the timing of SunWater's warnings;[25]

(b) The final paragraph on page 51 and first paragraph on page 52.

52 The draft report also suggests[26] that the information provided by SunWater to the SDCC was not always up to date. An example is given, being the situation report issued at 19:07 on 20 February 2015. It appears the IGEM has referenced a draft version of this situation report.

[24] Draft report at page 27.
[25] Page 51 last sentence of the paragraph under the heading "SunWater".
[26] Page 46 of the draft report, second last paragraph.

Situation report 7 as attached to the original email will be provided to IGEM. It was accurate and the comments in the draft report on this point should be deleted.

E Other comments

53 The sections of the draft report reviewed by SunWater narrowly describes the flood event by focussing solely on Callide Dam. These sections do not provide any description of the extreme nature of the rainfall event or the response of relevant authorities across the broader Callide catchment area. This has the potential to mislead the reader to conclude that the entire event passed through the Callide Dam, and that the operations at the dam, and the SunWater response, represented the entirety of the flood. This is clearly not the case.

54 However, SunWater expects that these issues will be addressed in the final report based on information within the draft hydrology report being prepared for the IGEM.

55 SunWater in unclear of the purpose of the selective in-text highlighting (italic, bold, blue) of statements within the draft report (p24-27). The selective highlighting of statements within the report will potentially result in those highlighted sections taking on a greater significance than is intended or appropriate, whilst other non-highlighted statements which are of equal or greater importance may be missed. This use of selective formatting is unintentionally misleading. SunWater suggests that these highlighted texts and formatting be removed.

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