

STATEMENT OF GARY CAMPBELL

CALLIDE POWER STATION- CS ENERGY

TO TENDER

QFCI

Date:

8/11/11

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Exhibit Number:

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**In the matter of the
Commissions Of Inquiry Act 1950**

Commission of Inquiry Order (No. 1) 2011

QUEENSLAND FLOODS COMMISSION OF INQUIRY

Witness Statement of Gary Campbell

Executive General Manager Production

CS Energy Limited

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Table of Exhibits

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GC-1	Aerial photograph of the Callide Power Stations	November 2009
GC-2	Integrated Authority No. CG0039	30 July 2004
GC-3	Letter from CS Energy to DERM regarding Callide Ash Dam B	20 December 2010
GC-4	Letter from CS Energy to DERM regarding Callide Power Station Ash Dam B	22 December 2010
GC-5	Email from CS Energy to DERM regarding Dam Safety Monitoring	30 December 2010
GC-6	Letter from CS Energy to DERM regarding Callide Ash Dam B	7 January 2011
GC-7	Emails between CS Energy and DEEDI regarding storm season preparedness	1 November 2010
GC-8	Voluntary Transitional Environmental Program documentation	11 January 2011 - 5 May 2011
GC-9	Letter from CS Energy to neighbouring landowners	undated
GC-10	Callide Release TEP Reports	8 March 2011, 21 April 2011 and 23 May 2011
GC-11	Letter from CS Energy to DERM regarding Callide Ash Dam contingency plan update	7 September 2011

Witness statement of Gary Campbell

This written statement is provided in response to a Requirement dated 9 September 2011 to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry pursuant to section 5(1)(d) of the Commissions of Inquiry Act 1950 (Qld).

I, Gary Campbell, Executive General Manager Production of the CS Energy Limited ("CS Energy"), c/ Level 2, HQ North Tower, 540 Wickham Street, Fortitude Valley in the State of Queensland, state on oath as follows:

Position and Qualifications

1. I am the Executive General Manager Production of CS Energy Limited (**CS Energy**). I joined CS Energy in 2004 as Site Manager at Callide Power Station and was appointed to the General Manager Operations role in April 2008. Pursuant to the restructure of the Queensland Government owned generating companies (Generator Restructure) with effect from 1 July 2011, I was appointed to my current position. I am responsible for the overall performance of CS Energy's generation assets at Callide, Kogan Creek and Wivenhoe Power Stations.
2. I hold the qualification of Bachelor of Engineering (Electrical) from Canterbury University, New Zealand.

Background

3. CS Energy owns and operates Callide Power Stations "A" ("**Callide A**") and "B" ("**Callide B**"). Callide Power Plant ("**Callide C**") is owned by Callide Power Management Pty Ltd and is operated by CS Energy. These power stations are collectively, the "**Callide Power Stations**". The Callide Power Stations are situated 18 kilometres east of Biloela in central Queensland and use coal-fired power generation to supply baseload electricity to Australia's national grid. An aerial photo showing the Callide Power Stations at November 2009 is exhibit **GC-1**.
4. Callide B Power Station (700 MW) was commissioned in 1988. The 900-megawatt (MW) Callide C was commissioned in 2001. Callide A, originally constructed in 1965, was refurbished and recommissioned in April 1998, and is now the site of the Callide Oxyfuel Project – a world leading low emissions coal demonstration project. Unit 4 (nominally 30 MW) of Callide A is being refitted for the Oxyfuel Project. The

Project undertook air-fired recommissioning of Unit 4 between March and July 2011. The plant is now offline until oxygen-fired commissioning begins in October/November 2011.

Flood-related concerns at the Callide Power Station

5. The Commission has requested a brief description of the main flood-related concerns at the Callide Power Station (for example — hazardous waste and contaminants at the Power Station, effect of flood on the downstream environment, discharge requirements).
6. Callide B is not authorised to discharge any process wastewater to the receiving environment. Callide A has two authorised release points, R1 and R2 associated with small decommissioned Ash Dams 1 and 2, through which stormwater, seepage and process water are authorised to discharge. The Callide A and Callide B power stations hold a Development Approval (Integrated Authority No. CG0039) ("**the DA**") which permits the disposal of ash, process wastewater and other listed effluents to the Waste Containment Facility. The DA is attached as **GC-2**. The facility includes Ash Dam 4, the minor on-site ash dams, and the major Ash Dam B ("**Ash Dam**") and associated evaporation ponds. Callide C power station holds Development Approval (CG0117) which also requires the disposal of ash and other listed wastes to the Waste Containment Facility including the Ash Dam.
7. Whilst no release through the spillway of the Ash Dam is authorised, stormwater overflows can be released from the Eastern and Western Seepage Collection ponds associated with the seepage collection system around the main ash dam wall. The Ash Dam is also constructed with a stormwater diversion channel which collects uncontaminated runoff and diverts runoff from rainfall outside the ash dam facility to Callide Creek.
8. The Ash Dam is located on the southern side of the power station site adjacent to Callide Creek. The Ash Dam was designed in 1984/85 and construction was completed in 1987. In 2003, the Ash Dam crest was raised by 1 m, and the spillway crest raised by 1.4 m, with a spillway design to safely pass the new design flood (Probable Maximum Flood). The dam has performed as expected, with no dam safety incidents and no abnormal conditions apparent.
9. The dam receives incident rainfall and the ash and wastewaters from Callide B and C (Callide A ash and wastewater are also discharged to the Ash Dam when the Callide A Oxyfuel demonstration unit is operating).

10. The main flood-related concern at the Callide Power Stations is the risk of release of stored waste water in the Ash Dam.
11. The quality of the stored waste water varies over time in response to evaporation, dilution rainfall and local runoff, and the quality of process water releases from the power stations.
12. A spill risk assessment is completed on the dam each year in preparation for the "Wet Season" and this sets the applicable Design Storage Allowance and Mandatory Reporting Level which are the water level management triggers defined in the DA. The Design Storage Allowance is the volume that must be provided in a dam as at 1 November each year in order to prevent a release from that dam to a probability of 0.01 Annual Exceedance Probability ("AEP") specified in the DA. The volume is converted to a water level using the depth-storage volume relationship for the facility.
13. The Mandatory Reporting Level ("MRL") is the warning and reporting level determined in accordance with the AEP specified in the DA. The MRL is the highest level required in the dam to allow either of the following to be retained: the runoff from a 72 hour duration storm at the AEP specified, or a wave allowance at that AEP as estimated using a recognised engineering method.
14. If the Mandatory Reporting Level is exceeded, the DA requires notification to the Department of Environment and Resource Management ("DERM") and submission of a Contingency Plan detailing the remedial measures proposed to manage the risk of release.
15. There is no flood risk to the Callide Power Stations proper. All hazardous materials stored at the Power Stations are located such that they are isolated from uncontaminated stormwater generated by external catchments.

Flood preparedness in advance of the 2010/2011 wet season

The Commission has requested information on flood preparedness activities undertaken by CS Energy in advance of the 2010/2011 wet season at the Callide Power Stations, including whether any particular activities were undertaken as a response to the forecast of an above-average rainfall wet season, or any government communications regarding that forecast.

Ash Dam Management Plan

16. The Ash Dam is managed through the Ash Dam Management Plan which includes a number of sub-plans relevant to flood preparedness including a Spill Management Plan dated 27 February 2009, Corrective Action Plan dated 27 February 2009 and

Emergency Action Plan dated 27 February 2009. The Emergency Action Plan sets trigger levels for emergency actions in response to high water events and the associated risk to dam safety. This documentation was submitted to DERM in February 2009. This documentation was utilised in the management of the Ash Dam in the lead up to and during the 2010/2011 wet season.

17. In April 2010, CS Energy established a waste management improvement program to evaluate options to improve the long-term management of ash and wastewater disposal at the site.
18. Rainfall had been unseasonably high in the four weeks from 11 August 2010, 220 mm of rain had fallen, which is about ten times the long term average for that period. The high inflows resulted in a rise in water level of over 550 mm in the five weeks to 8 September 2010.
19. A range of options for enhanced water management and water level reduction were therefore evaluated by the latter half of 2010 including improving performance of the blowdown water treatment plant, additional evaporative sprays and creation of additional storage volume in Ash Dam 4.
20. The annual spill risk assessment and the annual dam safety inspection were carried out in the lead up to the 2010/2011 wet season and reported to DERM in accordance with DA requirements. On 1 November 2010, at the start of the wet season, the water level in the ash dam was 213.17 m (Reduced Level Australian Height Datum [RL]), below the Design Storage Allowance level of RL 213.37 m and the Mandatory Reporting Level of RL 213.33 m, and as such met the requirements of the Callide Ash Dam Management Plan under the DA.
21. However, significant rainfall events occurred in the area in December 2010 (441 mm total), the highest recorded rainfall in the area for the December period since 1973 resulted in the water level in the Ash Dam rising by a total of 1.27 m in December, with levels rising by 1.06 m between 22 December and 31 December 2010.
22. A further 123 mm of rain was recorded at the Callide Power Stations from 1 January 2011 to 6 January 2011, increasing the water level of the ash dam by 0.35 m to RL 214.77 m.
23. On 11-12 January 2011, the water level peaked at RL 214.92 m, 3 cm below the spillway level of RL 214.95 m.
24. By letter dated 20 December 2010 CS Energy notified the Department of Environment and Resource Management ("**DERM**") that the Mandatory Reporting Level ("**MRL**") for

the Ash Dam had been reached on 20 December 2010 and that a contingency plan had been implemented. A copy of the 20 December 2010 letter is exhibit **GC-3**. A further notice was provided on 22 December 2010 indicating that the level had risen above the MRL. A copy of the 22 December 2010 letter is exhibit **GC-4**. Further advice on Ash Dam water levels was given to DERM on 30 December, by email. This email is exhibit **GC-5**.

Dam Safety Inspections

25. On 30 August 2010 the annual dam safety inspection mentioned in paragraph 20 of this statement was undertaken by Engineer [REDACTED] of SunWater at the same time as a corresponding dam safety review inspection by Aurecon. The dam safety inspection report was received on 8 November 2010 and concluded that the Ash Dam B embankment and spillway were "basically in good condition".
26. On 29 December 2010, 5 January 2011 and 13 January 2011 special dam safety inspections were undertaken by engineer [REDACTED] of SunWater at CS Energy's request. Whilst no dam safety concerns had been identified, these inspections were implemented in accordance with the Emergency Action Plan as an additional safety measure given the level of the Ash Dam and the wet weather event. The inspections addressed amongst other matters, seepage and an inspection of the condition of the spillway.
27. Reports regarding the Special Dam Safety Inspection by SunWater ("**Special Dam Safety Inspection Reports**") were received on 7 January 2011 and 6 May 2011. The reports concluded that despite heavy rainfall the embankment was in good condition and the spillway crest wall with high water load showed no material signs of movement causing concern in a dam safety context.
28. All recommended actions of the Special Dam Safety Inspection Reports were completed by CS Energy, apart from reinstatement of an eroded section of a bank of the Western Stormwater Diversion Channel and completion of placement of a layer of road base material on the crest road which are to be included in ongoing dam maintenance works, which works were not an immediate requirement.
29. By letter dated 7 January 2011 CS Energy advised DERM that no dam safety issues had been identified. A copy of this letter is exhibit **GC-6**.
30. Further in accordance with the recommendations of the Special Dam Safety Inspection Reports, daily dam safety inspections were carried out during the very wet period in January 2011. By 2 February 2011, the routine inspections were returned

to the standard twice weekly schedule. Daily inspections of the spillway and crest however were continued until 23 February 2011.

Correspondence regarding flood preparedness and response

31. In addition to the above, government communications on flood preparedness occurred with the following relevant communications:
- (a) By email dated 29 October 2010, the Department of Employment, Economic Development & Innovation ("**DEEDI**") indicated to CS Energy that the Bureau of Meteorology had provided a briefing to DEEDI which indicated that the upcoming 2010 to 2011 storm season was potentially going to be severe. DEEDI requested in this email that CS Energy provide the following information:
 - (i) Actions undertaken by CS Energy to prepare for the storm season;
 - (ii) Potential generation implications of a heavy storm season on CS Energy;
 - (iii) How CS Energy manages its coal stockpiles in the context of a heavy storm season; and
 - (iv) Whether there are potential coal transport issues associated with a heavy storm season and how these issues are being managed.
 - (b) By email dated 1 November 2011 CS Energy provided DEEDI with a brief overview of the crisis management and storm preparedness plans that were in place at the Callide Power Stations. A copy of the email correspondence between DEEDI and CS Energy is exhibit **GC-7**.
 - (c) DERM undertook a site inspection on 5 January 2011.
32. Various communications occurred between SunWater and CS Energy on the operational arrangements for Callide Dam during the wet season including advice from SunWater on Callide Creek flow monitoring to manage water quality in the event of a release.
33. Throughout the 2010 to 2011 wet season CS Energy provided regular updates to the regulators, the State government and the general public, refer to paragraph 50 below.

Consultation with DERM regarding the Environmental Authority

34. The Commission has requested with respect to the Environmental Authority in force at the Power Station for the 2010/2011 wet season:
- (a) whether the Power Station operator had any concerns arising from the drafting and negotiation of it and consultation between CS Energy and Department of Environment and Resource Management (**DERM**);
 - (b) any inability on the part of CS Energy to comply with its terms; and
 - (c) any risks to safety or the environment caused by its terms.
35. CS Energy held no concerns with respect to drafting and negotiating of the DA. The DA was last amended on 30 July 2004. These amendments took effect from 14 August 2004 and related to conditions detailing the management of the Ash Dam. The amendments followed a dam and spillway raise.
36. No unauthorised release of waste water through the spillway of Ash Dam B to Callide Creek occurred. As noted in paragraph 24 above CS Energy under its DA requirement implemented a Contingency Plan (developed from the Corrective Action Plan) to reduce the spill risk from the Ash Dam. However, following the early January rainfall, a Voluntary Transitional Environmental Program ("**VTEP**") (No CA22011) was approved by DERM to authorise co-release from the Ash Dam at the same time as Callide Dam was releasing to Callide Creek. The terms of this VTEP are described later in this Statement at paragraph 39.
37. A Transitional Environmental Program (TEP No. MAN13320) was approved by DERM on 12 August 2011 to address matters relating to long term management of the Ash Dam which are unrelated to flooding. This TEP No. MAN13320 remains in force until 10 August 2014 and relevantly requires a technical review of the Ash Dam against the Technical Guideline for Site Water and Tailings Management published by DME in 1995. In CS Energy's view there were no risks to safety or the environment caused by the terms of the DA.

Transitional Environmental Programs

38. The Commission has requested with respect to any transitional environmental program or emergency direction (**ED**) applied for, granted or refused relating to the Power Station during the period 1 October 2010 to 30 July 2011:

- (a) the reason precipitating the TEP or ED and his opinion as to whether the TEP or ED was effective in resolving that issue;
 - (b) any concerns arising from the terms of the TEP or ED;
 - (c) any non-compliance with the TEP or ED, and, if so, any actions taken by DERM in response to that non-compliance; and
 - (d) to the knowledge of CS Energy, any adverse effects to drinking water quality, any plant or animal species, any industry or agriculture, the environment or public health that occurred as a result of discharge of water under the TEP or ED.
39. Following the extreme rainfall events in the late December early January period, CS Energy applied to DERM for approval of the VTEP to authorise co-releases from the Ash Dam at the same time as releases from Callide Dam were providing an adequate flow in the Creek to dilute the ash dam water ("**Co-release**"). This VTEP was approved on 11 January 2011. Under the VTEP, Ash Dam releases are permitted provided the minimum flow in Callide Creek was above 300 ML per day with a minimum 5% (1 in 20) dilution with Callide Dam water release or Creek flow. The VTEP also imposed water quality requirements which were to be monitored at a number of locations downstream of the release point (Table B of the VTEP) in accordance with the Spill Management Plan. The VTEP provided that if any of the applicable water quality requirements were not met, Co-release from the Ash Dam was required to cease. The VTEP remained in force until 30 April 2011, or when the Ash Dam MRL of RL 213.33 m was achieved, whichever came first.
40. Under the VTEP, approximately 208 ML of ash dam water was discharged from 11 to 20 January 2011; 184 ML from 21 to 30 March 2011; and 78 ML from 19 to 23 April 2011, totalling 470 ML to date.
41. On 29 April 2011 an amended VTEP dated 19 April was submitted to DERM seeking continued Co-release until 1 November 2011, or until the MRL was achieved. In addition to extending the term of the VTEP, the amendments related to the proposed monitoring and water quality indicators.
42. The amendment of the VTEP was approved on 5 May 2011 (MAN11479) and remains in force.
43. The terms of the VTEP and the amended VTEP were imposed in order to protect the environmental values of the receiving environment of Callide Creek. Extensive

monitoring obligations were included as a requirement of the VTEP. The downstream monitoring undertaken in my view should inform future release limits.

44. CS Energy complied in all respects with the VTEP.
45. CS Energy's knowledge of the downstream water uses from the Callide Creek alluvial aquifer (which had the potential to be recharged by water released from Callide Dam and under the VTEP) were for domestic use, stock watering, irrigation and town water supply for Biloela. A borefield 10 kilometres downstream of the Ash Dam supplements the Biloela town water supply. The VTEP required water quality standards generally based on drinking water quality standards to be met in Callide Creek flows immediately downstream of the discharge.
46. Under the monitoring that was required to be undertaken as a condition of the VTEP, no adverse effects were detected. The release limits in the receiving waters under the VTEP were amended in April to impose more restrictive limits on some parameters.
47. Annexed hereto and marked exhibit **GC-8** is a copy of the TEP documents.

Comments on the process for grant of the TEP

48. The Commission has requested a description of any concerns arising from the process of applying for and being granted or refused any TEP or ED, including:
 - (a) CS Energy's knowledge of the process in advance;
 - (b) the transparency of the process;
 - (c) the speed of the process;
 - (d) the considerations taken into account or not taken into account;
 - (e) the reasons given for any decision; and
 - (f) consultation with relevant stakeholders.
49. CS Energy has no concerns in respect of the process of applying for and being granted the relevant VTEP. The approval for the VTEP matched CS Energy's operational readiness for the Co-release authorised under the VTEP. Initial release from the Ash Dam was through a set of new siphon pipes and valves installed over the spillway, with subsequent releases also able to utilise another set of siphon pipes installed over the western side dam wall.

50. In the period leading up to the approval of the VTEP on 11 January 2011, CS Energy consulted with the Banana Shire Council, SunWater and the Callide Valley Irrigators. The meetings provided useful feedback in the development of the VTEP including the minimum flow requirements in Callide Creek to ensure adequate dilution and flowthrough. Downstream residents were advised of the proposed release from the Ash Dam by letter drop of 4 January 2011 marked exhibit **GC-9**. There was ongoing consultation between CS Energy and its environmental consultants and the landholders in the downstream area in order to arrange access to monitoring bores on their property. Additionally a number of media enquiries resulted in local newspaper articles which served to keep the local community informed. The Callide Power Station Environmental Coordinator addressed a meeting of the Callide Mine Community Liaison Forum on 1 February 2011.

Effects on the environment, drinking water quality, public health

51. The Commission has requested to the knowledge of CS Energy, the effects on the environment, drinking water quality and public health downstream of each of the Power Station sites (as far as the Great Barrier Reef Marine Park) as a result of discharges from Ash Dam B between 1 October 2010 and 30 July 2011.
52. The monitoring reports that were required to be collected under the terms of the TEP were lodged with DERM on 8 March, 21 April and 23 May 2011. These reports are attached as Exhibit **GC-10**.
53. These reports indicate that the total release from the Ash Dam was 470 ML, compared with the estimated Co-release from Callide Dam of 15,175 ML. Additionally, there were continuing releases of Callide Dam water undertaken by SunWater which were at rates which did not allow Co-release by CS Energy under the VTEP. The monitoring data discussed in the TEP monitoring reports indicates that there was no deleterious effect on drinking water quality and public health downstream of the Callide Power Stations and Callide Ash Dam.

Concerns regarding Ash Dam B

54. The Commission has requested a description of the concerns surrounding Ash Dam B during the period 1 October 2010 to 30 July 2011, including:
- (a) water level;
 - (b) dam safety;
 - (c) uncontrolled discharge; and

(d) contaminants and hazardous waste in the contents of the dam.

55. In relation to concerns regarding the water level of the Ash Dam from 1 October 2010 to 30 July 2011, the concerns regarding water levels were heightened due to heavy rainfall. This is discussed in paragraphs 21 to 23 above.
56. In relation to concerns regarding the safety of the Ash Dam from 1 October 2010 to 30 July 2011 paragraphs 25 to 30 address the dam safety inspections undertaken under the terms of the Emergency Action Plan.
57. The risk of uncontrolled discharge from the Ash Dam from 1 October 2010 to 30 July 2011 continues to be managed under the terms of the VTEP and Co-release authorised by that VTEP, and the Contingency Plan actions notified to DERM by letter of 7 September 2011 (Exhibit GC-11).
58. In relation to concerns regarding contaminants and hazardous waste in the contents of the Ash Dam from 1 October 2010 to 30 July 2011, CS Energy was and is aware that the Ash Dam contains settled ash from lean and dense phase ash disposal and cenospheres (floating ash). Two booms are in place to restrict movement of the cenospheres from the dam in the event of an overflow through the spillway.

Details of the new Fitzroy Model conditions

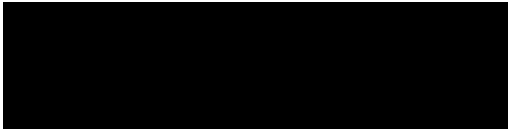
59. The Commission has requested details of how the new Fitzroy Model Conditions negotiated during 2011, or any other discussions with DERM, will resolve any issue raised in Sections 3, 4 or 5 of the Commission's request for a Statement.
60. The Fitzroy Model Conditions relate to waste mine water releases, quality parameters and receiving environment monitoring. Consequently the Fitzroy model conditions are not directly applicable to the Callide Power Stations and Ash Dam authorisations.
61. A Receiving Environment Monitoring Program has been in place since 1996 at Callide, covering groundwater and periodic surface water monitoring. This program is more relevant to the issues in relation to releases from the Ash Dam than the Fitzroy Model Conditions.

Impact of the new Fitzroy Model Conditions

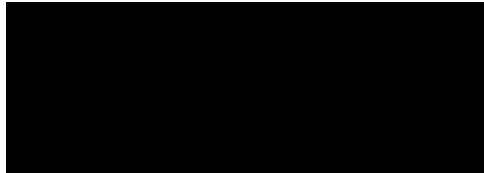
62. The Commission has requested an explanation as to whether the new Fitzroy Model Conditions negotiated during 2011 are advantageous or disadvantageous to CS Energy in the management of water, ash, contaminants and hazardous waste at the Power Station, the downstream environment and safety issues.

63. The Fitzroy model conditions are the 2009 conditions and to my knowledge a 2011 version has not been released. The release conditions under the VTEP address the relevant matters for the specific contemplated release event from the Ash Dam. In any other case a release is not authorised.

Sworn this 23rd day of September 2011 at Brisbane in the State of Queensland in the presence of:



Gary Campbell (Deponent)



Solicitor/~~Justice of the Peace~~