

Queensland Floods Commission of Inquiry

Statement of Andrew Stuart Brier (Ensham Coal Mine)

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QUEENSLAND FLOODS
COMMISSION OF INQUIRY

STATEMENT OF ANDREW STUART BRIER
ENSHAM COAL MINE

I, **ANDREW STUART BRIER** of c/- 400 George Street Brisbane in the State of Queensland, General Manager Strategic Implementation, Coal & CSG Operations, Regional Service Delivery, Operations and Environmental Regulator, Department of Environment and Resource Management (DERM), solemnly and sincerely affirm and declare:

Requirement from Queensland Floods Commission of Inquiry

1. I have seen a copy of a letter dated 9 September 2011, which is attachment **ASB-01**, from the Commissioner, Queensland Floods Commission of Inquiry to me requiring a written statement under oath or affirmation, and which details the topics my statement should cover.

Role

2. I am currently the General Manager Strategic Implementation, Coal and Coal Seam Gas Operations within the Regional Service Delivery Division in the Department of Environment and Resource Management. I have held this position since 21 February 2011 although I was involved in the management of flood related issues surrounding coal mines from the 10 January 2011 onwards
3. Between 2010 and 2011 my roles were as follows:
 - 25/12/2009 to 05/08/2010 - Regional Manager GABSI & Major Projects
 - 06/08/2010 to 02/01/2011 - Regional Manager CSG Activities
 - 03/01/2011 to 20/02/2011 - Director LNG Enforcement Unit
 - 21/02/2011 onwards - General Manager Coal & CSG Operations

Item 1: Department of Environment and Resource Management's activities in respect of each mine's flood preparedness in advance of the 2010/2011 wet season, including whether any particular activities were undertaken as a response to the forecast of an above-average rainfall wet season.

4. As a regulator DERM's compliance activities are designed to strategically review the performance of individual regulated entities on the basis of perceived risk.
5. DERM undertook pre wet season compliance programs to evaluate water management preparedness ahead of the 2010/2011 wet season. This primarily involved evaluating past wet season performance and preparedness ahead of the next wet season in terms of having available dam storage capacity to meet the minimum design storage allowance required on the 1 November of any year.

6. Environmental authorities include requirements for companies to prepare Water Management Plans that outline the overall mine water management strategy for their site. The environmental authorities require an annual review of these plans to ensure learnings from past wet season performance are incorporated into forward plans and preparations for future wet seasons.
7. Environmental authorities for mine sites also include dam structural design, construction and operation requirements that are commensurate with flood risks given a mines location, including:
 - a. certified hazard assessment required for all dams;
 - b. must be designed to prevent floodwaters from entering the dam, wall failure and overtopping up to and including a specified flood event based on AEP;
 - c. certified design plans, high risk dams reviewed by DERM technical experts;
 - d. having a marked "mandatory reporting level" above which DERM must be notified immediately, and actions put in place to prevent or minimise environmental harm;
 - e. ensuring that dams are inspected by a suitably qualified and experienced person;
 - f. undertaking reviews annually about the effectiveness of the dam during the preceding wet season and modifying the water management system accordingly;
 - g. monitoring of water quality within the dam prior to the wet season;
 - h. maintaining a register of dams and relevant information.
8. Officers of DERM carried out a pre-wet season compliance inspection of the Ensham Mine on 17 November 2010 (ASB-E01-01 to ASB-E01-05). At this time the mine advised that the sites' levees had been re-instated to 1:100 AEP after 2008/2009 flood inundation. Works had commenced, and were mostly completed for the upgrading of the levees to a 1:1000 AEP and would be completed as a priority.
9. Ensham noted that they had undertaken other changes to the water management system, such as diverting clean water from entering site and installing additional pipe infrastructure to move water around site as required. Ensham noted that they were undertaking aquatic toxicology testing to determine potential impacts of releases of water with higher EC levels. Testing of evaporative misting fans and research into feasibility of Reverse Osmosis water treatment units were being investigated.
10. Ensham noted that while the site was a net importer of water, they still had water stored from the 2008 floods. Ensham indicated that the storage of water on-site was a significant operational issue with regard to inhibiting access to coal reserves and managing water quality in pits filled with water.
11. During the site inspection on 17 November 2010 Ensham noted that significant water storage capacity was available in-pit.

Item 2: the water management sections of the environmental authority applicable at the mine during the 2010/2011 wet season, including:

- a) Any concerns held by him or the Department of Environment and Resource Management (DERM) regarding its terms and the ability of the mine operator to comply with it**
- b) Any terms that the mine operator has indicated it is unable to comply with, or breached**
- c) Any terms that had to be amended from the Fitzroy model conditions because the model terms were unsuitable for this mine site**
- d) Any terms that he or DERM consider do not adequately promote environmental protection and dam safety**

- a) Any concerns held by him or the Department of Environment and Resource Management (DERM) regarding its terms and the ability of the mine operator to comply with it**

12. Ensham mine was included in a list of mines to be inspected prior to the 2010-2011 wet season (ASB-E02-01). This list was developed following an assessment of all coal mines in the region and the risk of a non-compliant discharge from each site on the receiving environment. Ensham Mine was defined as a high risk site.

13. DERM did not have any specific concerns that Ensham Mine would be unable to comply with the water management conditions of their Environmental Authority (EA), mainly due to the progress that had been made on the levee construction.

- b) Any terms that the mine operator has indicated it is unable to comply with, or breached**

14. Ensham did not undertake any water releases under the EA in the 2009/2010 or 2010/2011 wet-seasons, subsequently no EA breaches were identified in this regard, however an application for a TEP was applied for (see item 3 below).

- c) Any terms that had to be amended from the Fitzroy model conditions because the model terms were unsuitable for this mine site**

15. The Ensham Mine EA contains the full suite of Fitzroy model water conditions that were developed after the 2008 flooding in Central Queensland. These conditions were applied to the EA in late 2009 (ASB-E02-02). No changes were made beyond the scope and requirements of the Fitzroy model conditions. No amendment applications have been received to change the terms of the Fitzroy model conditions since the initial application of the conditions.

- d) Any terms that he or DERM consider do not adequately promote environmental protection and dam safety**

16. To the best of my knowledge, I do not consider the water management conditions at Ensham Mine contain terms that do not adequately promote environmental protection and dam safety.

Item 3: any transitional environmental program (TEP) issued or refused or any emergency direction (ED) given or considered regarding either mine during the period 1 October 2010 to 30 July 2011 related to water management, and for each, the following:

- a) **Information received from the mine operator**
- b) **Any relevant dam safety issues**
- c) **Relevant correspondence with the mine operator and other stakeholders**
- d) **Whether and, if so, how DERM consulted with stakeholders**
- e) **What considerations DERM took into account in making the decision**
- f) **Whether, and if so, how DERM balanced environmental considerations and economic consequences of mines being non-operational**
- g) **Whether, and if so how, DERM took account of downstream effects, including cumulative effects**
- h) **The terms of the TEP issued or ED given**
- i) **What actions were taken by DERM to advise emergency management personnel, including local and regional disaster management groups and local residents downstream of the dam about the TEP and any discharges or effects**
- j) **Reasons for the decision given to the mine operator**
- k) **Any breaches of the TEP or ED by the mine operator and DERM's response**

a) **Information received from the mine operator**

17. There were a number of dealings related to mine releases authorised by a Transitional Environmental Program (TEP) at Ensham mine between the dates specified. Due to the time constraints placed on submission of this statement and the large amount of correspondence received by DERM in relation to TEPs over the specified period there is a possibility that there are other items of correspondence or information that DERM has received in relation to this mine that have not been attached to this statement. This being said, the information provided is the best available data that could be provided at the time of submission.

18. An application for TEP (MAN11139) was received on 7 December 2010 and was approved on 10 December 2010 (ASB-E03-07 to ASB-E03-9). The TEP was assessed by DERM and an assessment report (ASB-E03-10) was forwarded to the delegate for approval. The certificate of approval and notice of decision are attached (ASB-E03-11). The TEP set specific conditions in relation to flows in the Nogoia River and downstream monitoring.

19. DERM determined that the TEP (MAN11139) was written adequately to address of the environmental management decision matters under section 52 of the *Environmental Protection Regulations 2008* without requiring changes to the

submitted TEP. DERM did however impose additional conditions in the Certificate of Approval to ensure the protection of environmental values, and assist in meeting quality objectives, under relevant environmental protection policies (see **ASB-E03-10 and ASB-E03-11**).

20. An application to amend TEP MAN 11139 was received on 15 December 2010 (**ASB-E03-12 and ASB-E03-13**) with TEP MAN11280 being approved on 15 December 2010. The TEP certificate of approval and notice of decision are attached (**ASB-E03-14**).
21. DERM determined that the application to amend TEP (MAN11139) was written adequately to address of the environmental management decision matters under section 52 of the *Environmental Protection Regulations 2008* without requiring changes to the submitted TEP. The amendment to the TEP was regarding changes to monitoring frequency and considered a relatively minor amendment.
22. An application to further amend TEP MAN11280 (ESM3.9 - 3.14) was received and approved on 5 January 2011. The certificate of approval and notice of decision are attached (**ASB-E03-21**). A Ministerial Brief Note was prepared subsequent to this approval (**ASB-E03-22**) in addition to a Media Release (**ASB-E03-23**) to advise stakeholders of the proposed changes to the TEP.
23. Ensham submitted the TEP amendment (5 January 2011) to discharge additional volumes of water (9000ML) from site (previously limited to 3000ML) due to further heavy rainfall at the end of December 2010. The TEP set specific conditions in relation to flows in the Nogoia River and downstream monitoring. The TEP was conditioned such that DERM could require Ensham to cease discharging if monitoring revealed deteriorating water quality downstream.
24. An application to further amend TEP MAN11280 received on 3 February 2011 (**ASB-E03-24 and ASB-E03-25**) and approved on 11 February 2011 (MAN12039). The TEP remained in place until 30 June 2011. A TEP summary assessment, certificate of approval and notice of decision are attached (**ASB-E03-26 and ASB-E03-27**).
25. Ensham submitted the TEP amendment (3 February 2011) principally to change the monitoring frequency at release and monitoring points, minimum flow rates for release and end of pipe water quality limits.

b) Any relevant dam safety issues

26. There was no relevant dam safety issues associated with the Ensham Mine between the dates specified.

c) Relevant correspondence with the mine operator and other stakeholders

27. The CEO of Ensham, Peter Westerhuis undertook extensive consultation with major stakeholders including all members of the Fitzroy Water Quality Advisory Group and Mayors of the Regional Councils in the Fitzroy Basin, in relation to the proposed releases by Ensham Mine (**ASB-E03-28 to ASB-E03-30**). DERM

also undertook substantial consultation with Ensham prior to the submission of the TEP.

28. There was a significant level of correspondence with many mines in relation to TEPs assessed as a result of the 10/11 wet season within the dates specified. This correspondence is held in a number of regional offices and in the email accounts of a significant number of DERM staff. It is estimated that there are several thousand correspondence items across all mines within this period of time and, as such, DERM was unable to search all the potential sources of correspondence within the timeframe allowed for submission of this statement. I was not comfortable with attaching additional correspondence items to this statement at this time due to the potential for errors, omissions or inaccuracies due to the high number of documents that would need to be searched in a short period of time. If the Commission wishes copies of particular items of correspondence then I am more than willing to provide these if requested. Additionally, if the Commission wishes copies of all correspondence these can be provided if time is allowed.

d) Whether and, if so, how DERM consulted with stakeholders

29. DERM undertook consultation with the Fitzroy Water Quality Advisory Group (FWQAG) (ASB-E03-21) in considering the TEP's. (See also paragraph 17 above).
30. The FWQAG is made up of a number of stakeholders including the mining industry, community groups, conservation groups, local government and DERM. One of the key roles of the group is to provide advice to State Government agencies relating to water quality management in the Fitzroy River Basin.
31. The director Environmental Health from Qld Health was also placed on the distribution list for the weekly Fitzroy Basin water quality report compiled by DERM in an effort to keep QLD Health informed of the current situation across the Fitzroy Basin

e) what considerations DERM took into account in making the decision

32. Transitional environmental programs (TEPs) are specific programs that, when complied with, achieve compliance with the *Environmental Protection Act 1994* (EP Act) for an activity by reducing environmental harm, detailing the transition of the activity to an environmental standard or detailing the transition of the activity to comply with a condition of a development approval, an environmental authority or code of environmental compliance. The requirements for TEPs and the process for assessing and approving them is set out in chapter 7, part 3 of the EP Act (ASB-E03-e00a).
33. Draft TEPs may be submitted voluntarily by a mine operator, or DERM may require an operator to submit a draft TEP if it is satisfied that an activity or proposed activity is or may cause unlawful environmental harm. In either case, the draft TEP is prepared by the operator. DERM's role is to assess the draft TEP against the requirements of the EP Act and either approve the TEP, approve the TEP with conditions, or refuse to approve the TEP.

34. Section 338 of the EP Act (**ASB-E03-e00b**) provides the framework for considerations that the administering authority must make in deciding whether to approve or refuse a draft TEP or the conditions (if any) of the approval. In making its decision it:
- must comply with any relevant regulatory requirement and
 - subject to the above, must also consider the following:
 - the standard criteria
 - additional information given in relation to the draft TEP and
 - the views expressed at a conference held in relation to the draft TEP.
35. DERM has produced guidance material to support regional officers and delegated decision makers in assessing draft TEPs. A two part procedural guide; Part 1- Notice requiring a draft TEP (**ASB-E03-e01**) and Part 2-Considering and making a decision about a draft TEP (**ASB-E03-e02**) is attached. Supplementing the guidelines are two correlating assessment report templates Part 1 Assessment Report (**ASB-E03-e03**) to assist officers to record the information considered by DERM when deciding to issue a notice requiring a TEP and Part 2 – Assessment Report (**ASB-E03-e04**) to assist users to evaluate the content of a draft TEP and make a decision to either approve (with or without conditions) or refuse a draft TEP. Prior to the procedural guides and assessment reports coming into effect, a draft Administrative Practice Note (**ASB-E03-e04a**) and a Request for Statutory Approval template (**ASB-E03-e04b**) was utilised by regional officers to assist with the TEP assessment process.
36. If an approved TEP authorises the holder of the TEP to do or not do something, the holder may do or not do that thing despite anything in a regulation, an environmental protection policy, an environmental authority held by the holder of the TEP, a development approval, a standard condition of a code of environmental compliance for a chapter 4 activity or an accredited environmental risk management plan.
37. Prior to making its decision, DERM may also (and as a matter of practice often does) enter into discussions with the proponent of a draft TEP and suggest amendments to the draft TEP.
38. Mine operators typically voluntarily submit TEPs to DERM when they are seeking authorisation to discharge water from the mine site in circumstances where the discharge is not authorised by the environmental authority.
39. DERM typically require mine operators to submit a draft TEP when DERM becomes aware that there is a non-compliance at the mine site that will require a significant amount of time and/or investment by the operator to rectify.
40. DERM has produced guidance material to assist environmental officers in assessing draft TEPs (refer to attachments **ASB-HC03-18** and **ASB-HC03-19**).
41. Once a draft TEP is submitted to DERM there is generally discussion between the assessing officer involved in the matter and the mine operator about the contents

of the draft TEP. This is an opportunity for DERM to raise any concerns with the draft document and for the operator to take steps to address those concerns before DERM makes a decision about the draft TEP.

42. In the case of the Ensham Mine, DERM considered a number of issues such as:
- The distance of the release points at the mine to the nearest large watercourse;
 - Discharges of water with EC of up to 5000uS/cm into the Nogoa River during periods of significant flow;
 - The background water quality parameters in the streams surrounding the mine, including the Nogoa river and the influences of the Fairbairn Dam;
 - Downstream water quality in the Nogoa River and the Mackenzie River, being mindful of the DRAFT environmental values and water quality objectives for those streams ;
 - Water users located downstream of the mine and their requirement for water including the town water supplies drawn from the Bedford and Bingegang Weirs and other water supplies in the Lower Fitzroy River;
 - The economic impacts of the mine being unable to mine effectively due to inundation; and
 - Impacts of any releases on access to properties

f) whether, and if so how, DERM balanced environmental considerations and economic consequences of mines being non-operational

43. The EP Act and subordinate legislation governs the responsibilities of DERM in the environmental regulation of mining activities in Queensland. The objective of the EP Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. This is referred to as ecologically sustainable development (ESD). Accordingly, DERM is required to balance environmental, economic, social and equity considerations when making decisions.
44. When making any decision under the EP Act, including whether to approve a draft TEP, DERM must consider the "Standard Criteria" (**ASB-E03-f01**) as specified in Schedule 4 of the EP Act. The standard criteria specifically require environmental and economic considerations to be balanced and considered. Part 2- Considering and making a decision about a draft TEP procedural guide (refer to **ASB-E03-e02**) provides further guidance on some of the principles on evaluating ESD. In addition further direction is provided on other considerations of the standard criteria, relevantly the financial implications for an applicant in complying with a TEP (and any conditions that may have been imposed) and the character, resilience and values of the receiving environment.
45. Furthermore, part 2 and 3 of the *Environmental Protection Regulation 2008* (EP Reg) (**ASB-E03-f02**) stipulate requirements for all environmental management decisions and additional regulatory considerations with respect to imposing conditions relating to a wide ambit of environmental and economic

considerations including but not limited to monitoring, and releases to waters or land. Decisions must also consider any relevant Environmental Protection Policies (EPP) such as the *Environmental Protection (Water) Policy 2009* which sets out to achieve the objective of the EP Act with respect to Queensland waters. It does this by identifying environmental values and management goals and providing a framework for making consistent, equitable and informed decisions about Queensland waters.

46. In accordance with the provisions of the EP Act, when making an environmental management decision in relation to a TEP DERM must consider the economic or financial implications of the program and any conditions to be imposed on the holder. This part also requires the financial implications of the holder not being granted a TEP. When assessing the Ensham Mine TEP and when processing amendments to the approved program DERM did take into consideration the economic and financial implications of the mines inability to extract coal if a release could not be authorised. This was primarily related to the decision to grant a TEP, however in conditioning the TEP, managing unacceptable risks to the environment was the major consideration.

g) Whether, and if so how, DERM took account of downstream effects, including cumulative effects

47. When assessing and deciding a draft TEP the assessing officer also seeks advice from other business groups within DERM such as the Aquatic Ecosystem Risk & Decision Support unit who provide specific scientific advice in relation to proposed TEP conditions and guidance as to the downstream impacts of mine affected water releases to the environment.

48. When assessing the Ensham Mine TEP DERM took into consideration the downstream impacts of the proposed releases to the receiving waters by ensuring the conditions of the TEP required adequate dilution to achieve downstream EC targets. These targets included drinking water quality guidelines and aquatic ecosystem guidelines to ensure the protection of environmental values in the receiving waters.

49. DERM also considered releases from other mines in the associated area of the Fitzroy Basin Catchment along with background water quality parameters to ensure cumulative impacts were minimised and downstream water users were adequately protected. DERM also took these other releases into account to ensure other mines were afforded the opportunity to releases water where required under similar programs.

50. The Ensham TEP set specific conditions in relation to releases and was conditioned such that DERM could require Ensham to cease discharging if monitoring revealed deteriorating water quality downstream.

h) The terms of the TEP issued or ED given

51. The terms of the TEP's have been noted in part (a) of Item 3 above.

52. No Emergency Directions were given during the term specified by the enquiry.

i) **What actions were taken by DERM to advise emergency management personnel, including local and regional disaster management groups and local residents downstream of the dam about the TEP and any discharges or effects**

53. Due to the limited rate of release and receiving water quality limits set in the Certificates of Approval, DERM did not consider it was necessary to specifically brief local and regional disaster management groups about the release. DERM did however undertake consultation with the Fitzroy Water Quality Advisory Group in considering the TEP's (see item 3(d) above) and produced a media release for the January 2011 TEP (see paragraph 17 above).

j) **Reasons for the decision given to the mine operator**

54. The reasons for the decision are noted within the TEP approval documents noted above.

k) **Any breaches of the TEP or ED by the mine operator and DERM's response**

55. Ensham Mine notified of a non-compliance under the conditions of their TEP (MAN11139) on 13 December 2010 (**ESM3.27 & ESM3.28**). The notification was in relation to an exceedance of end of pipe (EoP) water quality from TEP Release Point 1 (TEP RP1) on 12 December 2010. Ensham immediately ceased releasing water from TEP RP1 upon recording the exceedance. Although the EoP limit was exceeded the downstream water quality results remained within TEP limits at this time. As a result of the exceedance, DERM requested that Ensham Mine monitor the EoP water quality more frequently (3 hourly) to reduce the risk of a non-compliant discharge to the Nogoia River.

Item 4: the effects on the environment, drinking water quality and public health downstream of each of the mine sites (as far as the Great Barrier Reef Marine Park) as a result of discharges of water under a TEP or ED.

56. The potential effects of releases of water from mine sites are assessed prior to the grant of environmental authorities or transitional environmental programs. In applying to receive approval to discharge to a surface water, applicants must prepare information to support the application which identifies the environmental values, water quality objectives and management intent (that is, the goals to be achieved in terms of meeting water quality objectives and protecting environmental values) of the surface water. This framework is provided in the EPP Water (**ASB-E04-01**). Applications must be able to demonstrate that the management intent for the receiving water will be met despite the discharge occurring.

57. All applications for environmental authorities and TEPs submitted for the approval of discharge to surface waters must be assessed by DERM against the requirements of the EP Act which includes the EPP Water, including an impact

assessment to ensure that environmental values of any surface water will be protected. In conducting these regulatory assessments, DERM has developed a number of decision support tools including the guideline "Protecting Environmental Values from CSG Water Discharged to Surface Waters" (2010, **ASB-E04-02**) Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing (June 2010) and the Operational Policy "Waste water discharge to Queensland Waters" (2007, **ASB-E04-03**) and associated procedural information (**ASB-E04-04** and **ASB-E04-05**). DERM has also prepared an "Interim Decision Support Matrix Release of water produced in association with Coal Seam Gas activities to surface waterways" (2010, **ASB-E04-06**) which informs assessments and resultant authority conditions

58. The approach used by DERM throughout the 2010-2011 wet season aimed to be consistent with state/national water quality guidelines e.g. The Queensland Water Quality Guidelines (2006), ANZECC/ARMCANZ Guidelines for Fresh and Marine Water Quality 2000, the Australian Drinking Water Quality Guidelines and the October 2010 released Draft for Consultation – Establishing Environmental Values, Water Quality Guidelines and Water Quality Objectives for Fitzroy Basin Waters. .
59. Controls and limitations are placed on authorities as conditions such as limits upon the volumes discharged, timing of discharge and required dilution and mixing zones for discharges. Conditions also include comprehensive contaminant monitoring programs for discharge quality which is supplemented by detailed receiving environment monitoring programs.
60. Releases of water from a dam at a mine site can be authorised by the conditions of an environmental authority or via specific permission under a transitional environmental program. Regardless of the statutory instrument, for releases of water from a dam at a mine site to be authorised, the assessment procedure described above would apply.
61. Releases from Ensham Mine have not exceeded the downstream water quality limits as required under a TEP during the 2010/2011 wet-season.
62. No Emergency Directions were issued during the 2010/2011 wet-season.
63. DERM has observed that salinity (measured by Electrical Conductivity) in all water courses in the Fitzroy basin has increased following the 2010/2011 wet season. The high rainfall resulted in extensive recharge to the groundwater in the Fitzroy basin which increased contribution of groundwater to base flows in streams high in the catchment. At times, the salinity of this water is quite high (in excess of the EC 2500 micro Siemens per centimetre (uS/cm)). As a consequence, salinity in base flows in the larger streams of the Fitzroy catchment is higher than has been experienced in recent years when there was little or no groundwater contribution to stream flow.
64. DERM does not believe that discharges from mine sites as a result of the 10/11 wet season have contributed significantly to the currently elevated electrical conductivity of the Fitzroy river system. Discharges from mine sites have been

closely monitored in accordance with conditions set on both EAs and TEPs to ensure water quality downstream of mines remains within acceptable limits. Discharges from mines are managed on a sub-catchment wide basis to ensure individual mine discharges are only assigned a relative proportion of the assimilative capacity of the regional watercourse therefore managing cumulative impacts.

65. Rising salinity is currently causing some minor issues in drinking water supplies in the lower Mackenzie and Fitzroy Rivers. The electrical conductivity (EC) in the Fitzroy Barrage, which supplies drinking water to Rockhampton and the Bedford Weir, which supplies drinking water to Tieri, Middlemount, Blackwater, and Bluff has risen to levels above 600uS/cm. At these levels part of the population are able to detect taste difference to the water normally supplied from these storages.
66. There is no evidence to suggest that any plant or animal species has been adversely impacted by the increased salinity in waterways across the Fitzroy river system.
67. Whilst there have not been major impacts on electricity generation there has been some minor inconvenience and increased costs on electricity generation at the Stanwell power station. An increase in salinity in the raw water supply results in fewer cycles for cooling water. Consequently, to achieve the same levels of electricity generation increased volumes of cooling water sourced from the Fitzroy River are required.
68. DERM has been informed that Stanwell Corporation have been able to handle the increase in salinity in their raw water through a temporary amendment to their Development Approval (DA). The amendment allows Stanwell to use larger volume of below down water at the same time not exceeding their current water quality discharge limits
69. There is no evidence that rising EC in stream flow in the Fitzroy river system or mine water discharges across the state as a result of the 10/11 wet season have had any adverse impact on the environment. DERM has investigated a number of breaches of conditions of both EA's and TEP's and has concluded that no environmental harm has resulted from any non compliant release.
70. Where salinity has risen in drinking water supplies in the lower Mackenzie and Fitzroy Barrage, there is some concern in particular for those people who are on low sodium diets and kidney dialysis in Tieri, Middlemount, Blackwater, Bluff and Rockhampton. Bio medical services of the Central Queensland Health Service District have also reported that adjustments have had to be made to dialysis and other equipment as a result of the associated increase in hardness.
71. DERM believes that the major cause of this increase in salinity and hardness is the increasing contribution of groundwater to stream flows rather than the effects of mine discharges.

72. The EP Act and the subordinate *Environmental Protection (Water) Policy 2009* (EPP Water) provides for drinking water values for Queensland waters. Accordingly, the protection of these values must be demonstrated prior to any authority being granted authorising a contaminant release to surface waters. Conditions of the environmental authority or TEP will provide quality limits and environmental monitoring to ensure that discharge quality is sufficient to protect drinking water values.
73. During the 10/11 wet season, DERM staff liaised with Queensland Health on a regular basis to ensure that any authorised or un-authorised discharges from mine sites were managed to ensure the protection of drinking water quality.
74. TEPs issued during or as a result of the 10/11 wet season also considered the effects of any mine site release on drinking water and were conditioned to ensure that the discharge was managed in such a way as to ensure the protection of drinking water supplies.

Item 5: details of how the new Fitzroy Model Conditions negotiated during 2011, or any other discussions with DERM, will resolve any issue raised above 1, 2, 3, or 4

75. I am informed that the new Fitzroy Model Conditions may provide more opportunities for Ensham Mine to release mine affected water to the environment. This may have the effect of reducing the volume of mine affected water stored on site, increasing the capacity of the mine to deal with rainfall events without pumping water to active mining pits.
76. DERM believes that Ensham Mine will benefit from the new Fitzroy Model Conditions as a result of increased flexibility in mine affected water discharge conditions that can be applied to mines close to the boundary of a catchment. This being said, the benefit to Ensham from adoption of the new model conditions needs to be determined by the mine through relevant analysis.
77. A meeting held with Ensham on 9 September 2011 (attachment **ASB-E05-01**) indicated that while the new Fitzroy Model Conditions may provide more opportunities for Ensham Mine to release mine affected water to the environment, the new conditions will not enable the site to fully dewater mining operations in the short to medium term. Ensham indicated that a further TEP may be required to assist in dewatering the site fully. DERM supports this approach. Ensham has advised however that they would apply to amend to the new Fitzroy Model Conditions by June 2012.

Item 6: an explanation as to whether the new Fitzroy Model Conditions negotiated during 2011 are advantageous or disadvantageous to the mine operator in the management of water at the mine, the downstream environment and safety issues.

78. With regard to the Ensham Mine, the new Fitzroy Model Conditions may provide the mine operator additional opportunity to discharge mine affected water to the environment through possible amendments to water quality limits and stream flow triggers and where the water stored on-site meets the appropriate release limits.
79. Additional discharge of mine affected water may prove advantageous where Ensham Mine is storing amounts of excess water on site either in pits where it is impacting on production or in the current water management system where it is impacting on the ability of the mine to comply with EA conditions.
80. The new Fitzroy Model Conditions have been developed in an attempt to provide mine operators with additional flexibility to manage mine affected water on site through discharges, whilst maintaining minimal impacts on the receiving environment.

Item 7: an account of DERM's activities and decisions to assist Ensham to de-water the mine pits after the 2008 flooding affecting that mine

81. Significant flood events in January 2008 resulted in the flooding of a number of coal mines in Central Queensland. Ensham coal mine was one of the most severely affected mines with its four open cut pits flooded with an estimated 150,000 megalitres of water collected in the mining pits and a dragline submerged. With a view to assisting the mines becoming operational and protecting the security of approximately 3000 jobs, the then Environmental Protection Agency approved a number of Emergency Directions (ASB-E07-01 – ASB-E07-03) and TEP's (ASB-E07-04 to ASB-E07-13) under the *Environmental Protection Act 1994*, allowing the affected mines to discharge flood water to nearby waterways subject to certain conditions, including discharge limits based on ANZECC Water Quality Guidelines.
82. Ensham Resources voluntarily ceased discharging water from the mine on 9 September 2008, after water quality monitoring found that elevated salinity was impacting on the domestic water supplies for some townships downstream. These problems led to considerable community concern and ongoing sensitivity within the community about the impacts of mine wastewater discharges and mining on the floodplain overall. Higher salinity levels in the discharged water contributed to significant reduction of drinking water quality for both livestock and human drinking waters that led to negative sentiment in the public and the media and causing Ensham Coal Mine to cease dewatering even though it was still authorised to continue discharging under the TEP.
83. DERM, as part of the Fitzroy Water Quality Advisory Group (FWQAG), led a water quality monitoring program to address community concerns regarding water quality and that the Ensham Coal Mine consultant's monitoring needed to be corroborated by State Government monitoring data.
84. The program was reported regularly to the FWQAG which comprised of representatives from the ex-Environmental Protection Agency, ex-Department of

Natural Resources and Water, ex-Department of Primary Industries & Fisheries, Queensland Health, three regional councils, Ensham Coal Mine, Fitzroy Basin Association, Capricorn Conservation Council, Queensland Conservation Council, SunWater, Stanwell Power, and Central Queensland University.

85. In response to community concerns about the impacts of Ensham's wastewater discharge, the Queensland Government commissioned the following reports:-
1. *Review of the Fitzroy River Water Quality Issues*, prepared for the Premier by Professor Barry Hart (attached to the statement by Mike Birchley as **ASB-E07-15**).
 2. *A study of the cumulative impacts on water quality of mining activities in the Fitzroy River Basin*, by DERM, which led to amendment of operating requirements for coal mines in Central Qld, including Ensham Mine (**ASB-E07-14**)

Item 8: the rationale for prohibiting the discharge of excess water from the 2008 flood which remained in the mine pit through to 2010

86. Decreasing water quality within inundated pits subsequent to the 2007-2008 wet-season ultimately limited Ensham's ability to release stored pit water. Ensham was issued a TEP in March 2008 for a period of approximately 12 months. DERM considered the environmental values and downstream stakeholders when assessing the TEP and setting the conditions of the program to assist Ensham in dewatering. The TEP specified that Ensham cease water releases if water quality in pit or downstream exceeded specified limits.
87. I am informed that the discharge water from the flooded Ensham Coal Mine pits became more saline the longer the water remained in the pits and drained out of the inundated overburden. The TEP had granted approval for water up to a particular salinity level to be discharged and once the water reached that level of salinity it could no longer be discharged.
88. It is my understanding that Ensham Coal Mine were able under the conditions of the TEP to discharge some 100,000ML of about 150,000ML that was in the pits as a result of the flood waters breaching the levy system on both sides of the Nogoia River adjacent to the mine. Given the flow of water in the Nogoia River (a proportion of which was being purchased by Ensham Coal Mine from the available water in Fairbairn Dam), the continuing discharge of saline water in the pits would have resulted in the elevation of salinity in the river system to the point where it may have had consequences environmentally.

Item 9: the positive and negative effects on the environment of the discharge of water from the 2008 flood out of the Ensham mine site in 2010/2011

89. TEP MAN11139 (& subsequent amendments) permitted Ensham to undertake dewatering activities during the 2010/2011 wet-season to release a portion of the stored water on-site. The TEP specified end of pipe and downstream water quality limits which considered environmental values downstream of Ensham,


including drinking water quality and aquatic ecosystem values in the Lower Mackenzie and Lower Fitzroy River. In this regard Ensham was permitted only release water of a quality that met the water quality limits specified in the TEP irrespective of the pit location the water originated or was released from.

90. Mining activities necessitate that water is moved around on-site at operational convenience, therefore it is likely that water from the 2008 flood is now located in a number of mine pit on site, not necessarily those inundated due to the levee failure.
91. High salinity levels in the discharged water contributed to significant reduction of drinking water quality for both livestock and human drinking waters that led to negative sentiment in the public and the media and causing Ensham Coal Mine to cease dewatering even though it was still authorised to continue discharging under the TEP.
92. DERM, as part of the Fitzroy Water Quality Advisory Group (FWQAG), led a water quality monitoring program to address community concerns regarding water quality and that the Ensham Coal Mine consultant's monitoring needed to be corroborated by State Government monitoring data.
93. The program was reported regularly to the FWQAG which comprised of representatives from the ex-Environmental Protection Agency, ex-Department of Natural Resources and Water, ex-Department of Primary Industries & Fisheries, Queensland Health, three regional councils, Ensham Coal Mine, Fitzroy Basin Association, Capricorn Conservation Council, Queensland Conservation Council, SunWater, Stanwell Power, and Central Queensland University.
94. Water quality results were presented by [REDACTED] (DERM, Director – Water Quality & Aquatic Ecosystem Health) in 2009 during a road show that visited key regional centres affected by the discharge waters (ASB-EIR-01).
95. Results of the report (ASB-EIR-02) are as follows:
 - data that suggests discharges from the Ensham Coal Mine (ECM), as part of the dewatering program approved by DERM, contained higher than background concentrations of uranium. Those concentrations exceeded aquatic ecosystem trigger values but did not exceed human health guideline values;
 - it may not be appropriate to apply some of the default metals and metalloids aquatic ecosystem guideline values provided in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) in certain parts of the Fitzroy River system due to what are suspected of being naturally elevated background concentrations of those metals and metalloids, and
 - due to the bioaccumulating nature of some of the contaminants present in the coal mine-affected floodwaters released by Ensham Coal Mine into the Fitzroy River system there was some potential (albeit unlikely) that delayed effects may have been experienced by some higher order aquatic or water-related biota (e.g. fish, birds, turtles) as those contaminants moved up the food web.

I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867*.

Signed . 
Andrew Stuart Brier

Taken and declared before me, at Brisbane this 27th day of September 2011


Solicitor/~~Barister~~/Justice of the
Peace/~~Commissioner for Declarations~~