

**QUEENSLAND FLOODS**  
**COMMISSION OF INQUIRY**

**STATEMENT OF ANDREW STUART BRIER**

**WITH RESPECT TO THE HAIL CREEK 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 13 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 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 Hail Creek Mine on 16 November 2010 (**ASB-HC01-01** to **ASB-HC01-06**). At this time the mine advised that it was well prepared for the 2010-2011 wet season and did not expect to have any non-compliant discharges of mine affected water to the environment.
9. The mine also advised that water management remained an ongoing issue for the Hail Creek Mine given the size of the site and the configuration of the current water management infrastructure, which captures all water that falls within the mine area.
10. DERM was informed that excess water would be pumped to an unused pit during the 2010/2011 wet season if required, and that this pit was not expected to reach capacity at any stage across the wet season.

**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**
11. The Hail Creek mine was included in a list of mines to be inspected prior to the 2010/2011 wet season. 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. The Hail Creek Mine was defined as a low-medium risk site.
12. DERM did not have any specific concerns that the Hail Creek Mine would be unable to comply with the water management conditions of its Environmental Authority (EA) (ASB-HC02-01). However, in discussions following the site inspection on 16 November 2010 Hail Creek Mine it was invited to submit a Transitional Environmental Program (TEP) to reduce the risk of non-compliant discharges and to develop a detailed release strategy that would provide the best outcome for the environment and community downstream of the mine.
13. Hail Creek Mine did not take the opportunity to submit a TEP at this time, but advised DERM it had adequate contingencies in place should it receive significant rainfall during the wet season (ASB-HC02-02).
- b) **Any terms that the mine operator has indicated it is unable to comply with, or breached.**
14. Hail Creek Mine advised DERM on 5 January 2011 that it would not be able to comply with the conditions of its EA due to significant rainfall on-site during December 2010. According to the mine, rainfall had resulted in the inundation of active mining pits and had exceeded the capacity of the on-site water management system to manage mine affected water through discharges to the environment and meant water was being pumped to pits for storage.
- 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 Hail Creek Environmental Authority (EA) contains the full suite of model water conditions that were developed after the 2008 flooding in Central Queensland. These conditions were applied to the EA in late 2009.
16. There have not been any amendments to the Hail Creek Mine EA water conditions since this time.

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

17. To the best of my knowledge the Hail Creek Mine EA does not 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**

18. There were a number of dealings related to mine releases authorised by a Transitional Environmental Program (TEP) at Hail Creek 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 the department 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.

19. Hail Creek Mine submitted a Draft TEP on 18 January 2011 (ASB-HC03-07). This TEP was assessed by DERM and approved on 29 January 2011. The approved TEP, certificate of approval and notice of decision (ASB-HC03-08 and ASB-HC03-09) were forwarded to the mine electronically and in hard copy on the same date.

20. The TEP approved the release of mine affected water with elevated electrical conductivity (EC) at no flow in receiving waters and the release of mine affected

water through two additional discharge points. The TEP required additional monitoring of water quality downstream of the mine site in Bee Creek.

21. Hail Creek Mine submitted a Draft TEP on 18 April 2011 (**ASB-HC03-10**). This TEP was assessed by DERM and was refused based on the potential impacts to the downstream environment due to increased levels of salinity in releases proposed from the mine. The amendment sought to again increase EC of the discharge water above that authorised by the approved TEP and raise EC at additional release points at no flow in receiving waters.
22. Hail Creek Mine submitted an amended TEP on 2 June 2011 (**ASB-HC03-11**). This amendment was assessed (**ASB-HC03-12**) by DERM and was forwarded to the delegate for approval on 10 June 2011. The approved TEP, certificate of approval and notice of decision (**ASB-HC03-13** and **ASB-HC03-14**) were forwarded to the mine electronically and in hard copy on the same date. This amendment provided for continued releases by allowing downstream dilution as a percentage of flow (10%) in Funnel Creek or by assigning a maximum rate of discharge of 150lps.
23. Hail Creek Mine submitted an amended TEP on 28 June 2011 (**ASB-HC03-15**). This amendment was assessed by DERM and was forwarded to the delegate for approval on 11 July 2011. The approved TEP, certificate of approval and notice of decision (**ASB-HC03-16** and **ASB-HC03-17**) were forwarded to the mine electronically and in hard copy on the same date. This amendment provided for continued releases of mine affected water by achieving downstream dilution by limiting discharges to a percentage of flow (10%) in Funnel Creek, Dennison Creek and Connors River (combined) or the option to use a percentage of the flow (7.25%) in the Isaac River to achieve appropriate water quality downstream at Yatton on the Isaac River..

**b) Any relevant dam safety issues**

24. To my knowledge, there was no relevant dam safety issues associated with the Hail Creek Mine between the dates specified.

**c) Relevant correspondence with the mine operator and other stakeholders**

25. 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, the department 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 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**

26. DERM consulted with a number of landholders downstream from the Hail Creek Mine in relation to the releases of mine affected water under authority of the approved TEP. This consultation consisted of phone conversations to discuss TEP conditions and mine affected water releases.
27. DERM also consulted with the Fitzroy Water Quality Advisory Group (FWQAG) on three occasions during the dates specified. This consultation was in broad terms in context of all mine discharges that were occurring during the wet season and formed part of the agenda at meetings of the FWQAG held in Rockhampton on 16 December 2010, 4 February 2011 and 7 April 2011.
28. 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.
29. DERM also consulted with Qld Health regarding mine water discharges. However the Hail Creek Mine releases would not have been individually referred to as the discussions were based around whole of catchment water quality issues. The Hail Creek Mine discharges would only have been discussed if there were specific water quality issues downstream of the mine.
30. 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 (ASB-HC03-20) in an effort to keep Qld Health informed of the current situation across the Fitzroy Basin.
31. On 28 June 2011, Ed Donohue, Regional Manager, Environmental Services-Mining, Central West Region, DERM presented to Isaac Regional Council an update on water quality issues associated with mine discharges.

**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-HC03-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-HC03-e00a**) 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-HC03-e01**) and Part 2-Considering and making a decision about a draft TEP (**ASB-HC03-e02**) is attached. Supplementing the guidelines are two correlating assessment report templates Part 1 Assessment Report (**ASB-HC03-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-HC03-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. Many TEP applications were received by DERM following the 2010/2011 wet season.
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. Once a draft TEP is submitted to DERM there is often a discussion between the environmental 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.

41. DERM has produced guidance material to assist environmental officers in assessing draft TEPs (**ASB-HC03-18** and **ASB-HC03-19**).
42. In the case of the Hail Creek 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 2000uS/cm into dry ephemeral streams;
  - The background water quality parameters in the streams surrounding the mine;
  - Downstream water quality in Bee Creek, the Connors River and the Isaac 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;
  - 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-HC03-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-HC03-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-HC03-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 Hail Creek 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. While this is was a consideration in granting a TEP, the actual conditioning of the TEP primarily related to managing risks to the environment.

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

47. When assessing and deciding on 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 Hail Creek Mine TEP DERM took into consideration the downstream impacts of the proposed releases to Bee Creek and other watercourses further downstream 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 waterholes and refugia in the Connors River and lower Isaacs River.

49. DERM also took into account releases from other mines into the system 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 Hail Creek mine TEP was endorsed with a condition that required them to cease releases if directed to do so by DERM. This was required to ensure that DERM could direct mines to cease discharging if monitoring demonstrated potential issues with the cumulative effects of multiple mine releases

**h) The terms of the TEP issued or ED given**

51. Refer to (a) in item 3 above for terms of TEPs issued.

52. No Emergency Direction was issued to the Hail Creek Mine.

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. DERM contacted downstream landholders and consulted with them regarding the conditions of the TEP and in relation to releases that were being undertaken by the Hail Creek Mine. Due to the limited rate of release, less than 1800 litres per second, DERM did not consider it was necessary to brief local and regional disaster management groups about the release.

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

54. The reasons for the decisions are contained within the assessment report (ASB-HC03-12).

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

55. The Hail Creek Mine has not breached the conditions of its TEP. It was asked to cease releases on two separate occasions due to rising EC downstream in the Connors River and Lower Isaac River and complied with these requests.

**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 *Environmental Protection (Water) Policy 2009 (EPP Water) (ASB-HC04-01)*. 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-HC04-02**) 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-HC04-03**) and associated procedural information (**ASB-HC04-04** and **ASB-HC04-05**). 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-HC04-06) 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. The EP Act and the subordinate 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.
62. 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.
63. 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.
64. 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)), however, water in the Bee Creek catchment upstream of the Hail Creek mine in low flows of around 100 litres per second has been recently measured at EC levels above 3000uS/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.

65. DERM does not believe that discharges from mine sites as a result of the 2010/2011 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 of both EAs and TEPs to ensure water quality downstream of mines remains within acceptable limits. Also, discharges from multiple mines are managed on a sub-catchment wide basis to ensure discharges are only allowed a relative proportion of the assimilative capacity of the regional watercourse therefore managing cumulative impacts.
66. This 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.
67. 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.
68. 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.
69. 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
70. 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 2010/2011 wet season have had any adverse impact on the environment. DERM has investigated a number of breaches of conditions of both EAs and TEPs and has concluded that no environmental harm has resulted from any non compliant release.
71. 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.

72. 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. Also, the only town water supply potentially impacted by the water discharges from Hail Creek mine is the city of Rockhampton some 600 kms downstream.

**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**

73. The new Fitzroy Model conditions may provide more opportunities for the Hail Creek Mine to release mine affected water to the environment under the conditions of their Environmental Authority. 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.

74. It is the opinion of DERM that the Hail Creek mine may 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.

**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.**

75. With regard to the Hail Creek 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.

76. Additional discharge of mine affected water may prove advantageous where the Hail Creek 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.

77. 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. The benefits of individual mines from adoption of the new model conditions needs to be determined by the mine through relevant analysis.

78. Mines are required to undertake their own assessment to determine the potential benefit or otherwise of adopting the new Fitzroy Model Conditions

**Item 7: any briefing (written or oral) given to any Minister or Director-General regarding a TEP or ED related to water management or non-compliance with an environmental authority at the mine and the reason for that briefing**

79. To the best of my knowledge, there were no specific written briefings provided to any Minister or Director General in relation to this mine. A number of general briefings were provided in relation to mines and the 10/11 wet season and these are attached as items **ASB-HC07-01** to **ASB-HC07-06**. A weekly report on TEPs was provided via email to key departmental and ministerial staff during the time period requested and a copy of the latest report provided prior to 20 July 2011 is attached as item **ASB-HC07-07(A and B)**. It is possible that there were other written briefing material provided during this period but this is the best information DERM staff were able to gather within the timeframe permitted for submission of this statement.
80. There were a significant number of oral briefings provided to the Minister for Climate Change and Sustainability and the Director General of DERM in relation to TEPs during the wet season period of which there are no written records. In general, these were primarily in relation to the mining/CSG industry as a whole and the number of TEPs issued or currently being assessed. Individual mines were discussed at several of these briefings but I am unable to provide an accurate transcript or meeting notes from these briefings.

**Item 8: DERM's opinion as to whether the mine operator should be managing water at the Mine other than by storing it in dams or ponds, including by using desalination plants, purification procedures or any other means**

81. To the best of my knowledge, I believe that the storage of mine affected water at the Hail Creek Mine in dams and ponds is an appropriate management strategy and is consistent with the strategies used across the coal mining industry in Central Queensland.
82. It is possible that using other methods of water management such as desalination or purification may provide the Hail Creek Mine with additional opportunities to discharge water from the site that is better quality and does not have a significant impact on the receiving environment. However, I am not in a position to comment on the potential effectiveness of alternative water management technologies and options in relation to Hail Creek mine.

**Item 9: an explanation of that which is involved in managing water at the Mine other than by storing it in dams or ponds, including by using desalination plants, purification procedures or any other means**

83. On site water management practices should be integrated with mining activities and should provide for the collection, storage and disposal of water on a mine site.
84. A site water management strategy is based generally on the following principles:
- Limiting the extent of site disturbance and limit catchment areas that report to site water management infrastructure;
  - Recycling water in the process circuit or for other uses, such as dust suppression, as much as possible;

- Optimising the volume of water discharged from the site (having regard to the mass and concentration of contaminants expected to reach the receiving waters);
- Segregating water by quality or source and reducing contaminant concentrations in water where possible;
- Reducing contamination concentration by suitable treatment methods;
- Avoiding the accumulation of large volumes of contaminated water on-site;
- Applying appropriate risk assessment methods in the sizing and design of works;
- Undertake a risk assessment that meets with DERMs requirements when sizing and designing storage dams;
- Protecting groundwater resources from contamination;
- Designing a system able to accommodate staged development of the mine;
- Protecting the mine workings and infrastructure from floodwater inundation;

85. The Hail Creek Mine is required to develop a Water Management Plan that details how the site will achieve best practice water management as detailed above. This plan is required as a condition of its EA to be reviewed twice each year prior to and following the wet season. The water management plan is also required to be made available to DERM when requested.

86. As part of an upcoming compliance inspection of the Hail Creek Mine, the department will request a copy of the Water Management Plan be provided prior to officers inspecting the site.

87. The management of mine affected water at the Hail Creek Mine using methods such as desalination or purification, and not dams or ponds may require the EA holder to amend conditions of the current EA.

88. Any amendment to implement measures such as desalination or purification may also require the EA holder to make amendments to the associated Environmental Management Plan (EM Plan) and Water Management Plan (WM Plan) to detail how the environmental impacts of these methods will be managed by the mine.

89. Any amendment where the associated EM Plan is required to be amended is subject to public notification of a DRAFT EA.

90. The use of a desalination or purification plant does have potential additional environmental impacts such as brine generation, which must be effectively managed to minimise the risk of brine being released to the environment either through uncontrolled releases or through seepage from containment structures. This is one specific issue that must be considered should the Hail Creek Mine decide to implement such measures to manage mine affected water.

91. Also, when making the decision to amend an EA under the EP Act, DERM must consider the "Standard Criteria" (ASB-HC-09-01) as specified in Schedule 4 of the EP Act. Furthermore, part 2 and 3 of the EP Reg (ASB-HC09-02) stipulate requirements for all environmental management decisions and additional regulatory considerations with respect to potential emissions from proposed activities


92. DERM defines brine as saline water with a total dissolved solid concentration greater than 40,000 milligrams per litre. For comparison, good quality drinking water has total dissolved solids values of up to 500 milligrams per litre. The total dissolved solids value of sea water is between 36,000 and 38,000 milligrams per litre.

93. If desalination or purification was to be implemented at the Hail Creek Mine, new storages to contain brine would be required to be designed and constructed in accordance with the 'site water management' section of the document titled 'Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland' Department of Minerals and Energy, 1995 (ASB-HC09-03).

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/Barrister/Justice of the  
Peace/Commissioner for Declarations