Queensland Floods Commission of Inquiry

Statement of Andrew Stuart Brier
(Ensham Coal Mine)

September 2011 Vol 1

QFCI

Date: 6/10/11 JM

Exhibit Number: 748

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 Nogoa 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 additional 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 Nogoa 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 there 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 with in 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 exceedence 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 exceedence. 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 Nogoa 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 Nogoa River adjacent to the mine. Given the flow of water in the Nogoa 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 Dr Julia Playford (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 . [redacted] .....
Andrew Stuart Brier

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

[redacted]
.....
Solicitor/~~Barrister/Justice of the Peace/Commissioner for Declarations~~

File/Ref :EMD6/MIM800086202

28 October 2010

Shane Flint
A/Manager Environment
Ensham Resources Pty Ltd
PO Box 1565
Emerald Qld 4720

Cc: Nicole Buchanski
Manager - Corporate Sustainability
Ensham Resources
GPO Box 814
Brisbane Qld 4001

Dear Mr Flint

Compliance inspection to be conducted for water management systems at Ensham Coal Mine

Officers of the Department of Environment and Resource Management (the department) are conducting compliance inspections as part of the department's compliance inspection program. The compliance inspection program is a pro-active system for measuring environmental compliance during the operational stage of an environmentally relevant activity.

Officers of the department will be visiting your site on 17 November 2010 to conduct a compliance inspection in regards to your Environmental Authority (EA) issued under the *Environmental Protection Act 1994*. This inspection will specifically address the on-site water management systems for Ensham and conditions relating to Department Interest - Water and Department Interest - Dams in EA MIM800086202.

Please arrange to have the appropriate company personnel on site for this inspection, and have all environmental records and documents available for inspection. Officers of the department will enter the premises at a reasonable time and complete the inspection as promptly as possible. Because of the scale of the activity the environmental inspection will take approximately 5 hours.

Should you have any further enquiries, please do not hesitate to contact Mr Glen Wright, A/Principal Environmental Officer of the department on telephone [redacted]

Yours sincerely,

Clancy Mackaway
Manager (Environmental Services – Mining)
Central West Region

Department of Environment and Resource Management
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Emerald Qld 4720
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Website www.derm.qld.gov.au
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Central West Environmental Services waste water storage risk assessment questionnaire

District Office_____

Facility/Organisation	Description of storage	Details of contaminants & possible outcome	Probability of Release L/M/H	Consequence of Release Minor - Severe	Overall Risk Low - High	DERM Main contact	Details of any existing response plan in place	Comments or observations
EG. Bakers Creek STP Mackay Regional Council	3 ponds (1 with spillway)	Treated effluent	H	Minor	Low	Vicki Coburn	Contingency plan being developed by MRC to be submitted to DERM EPO for monitoring of current discharge	Access prevented when too wet to monitor, observe the dams/discharge point
Blair Athol Coal Mine	Stockpile Dam, (Spillway) Main Release Point	Mine contaminated water	H	Minor	Medium	Gordon Hopkins	Monitoring and reporting program in accordance with Environmental Authority MIN100930009 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	Environmental Dam, (Spillway)	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	Ramp 1 Transfer Dam, (Pump Station) Not a release point, but can be point of exceedence	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	L	High	High			

Clermont Coal Mine	Mine Water Dam, (Outlet Pipe) Main Release Point to Wolfgang Creek	Mine contaminated water	H	Minor	Medium	Gordon Hopkins	Monitoring and reporting program in accordance with Environmental Authority MIN100340805 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	Northern Mine Water Pit	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	Transfer pipeline, (Pump Station) Not a release point, but can be point of exceedence	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	L	High	High			
Kestrel Coal Mine	Environmental Dam-discharge point SW1	Mine contaminated water	H	Minor	Low	Gordon Hopkins	Monitoring and reporting program in accordance with Environmental Authority MIN100924009 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	Holding Dam-discharge point SW4	Mine contaminated water	H	Minor	Medium		Same as above for all water holding facilities listed	

	Rejects return Water Dam SW5	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	L	High	High			
Minerva Coal Mine	Dam, (Spillway) Release Point 1 to Sandhurst Creek	Mine contaminated water	H	Minor	Medium	Gordon Hopkins	Monitoring and reporting program in accordance with Environmental Authority MIN100552307 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	Dam, (Spillway) Release Point 2 to Sandhurst Creek	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	Dam, (Spillway) Release Point 3 to Sandhurst Creek	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Oaky Creek Coal Mine	Discharge point RP1 to Oaky Creek G3 – coal handling and preparation area, industrial area and	Mine contaminated water	H	Minor	Low		Monitoring and reporting program in accordance with Environmental Authority MIN100924209 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency?	

	administration area						Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	RP2 to Oaky Creek OC1 – Oaky No 1	Mine contaminated water	H	Minor	Medium		Same as above for all water holding facilities listed	
	RP3 to Oaky Creek G9 open cut mine to the north of Oaky Ck	Mine contaminated water	H	Minor	Medium			
	RP4 to Sandy Creek	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Cook Coal Mine	Siltation Pond 3 (Colliery) to Magpie Creek	Mine contaminated water	H	Minor	Medium		Monitoring and reporting program in accordance with Environmental Authority MIN100783108 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters?	

							Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	V-Notch Weir (Washery) to Taurus Creek	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Peak Downs Coal Mine	12 North Dam (Discharge Point 1) to Cherwell Creek	Mine contaminated water	H	Minor	Medium		Monitoring and reporting program in accordance with Environmental Authority MIN100496107 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	7 North Dam (Discharge Point 2) to Harrow Creek	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	1 South Dam (Discharge Point 3) to Ripstone Creek	Mine contaminated water	H	Minor	Low			

	Boomerang Dam (Discharge Point 4) to Boomerang Creek	Mine contaminated water	H	Minor	Low			
	1 North Dam to 1South Dam Release Gates (Discharge Point 5) to Ripstone Creek	Mine contaminated water	H	Minor	Low			
	7N Harrow Creek (Discharge Point 6) to Harrow Creek	Mine contaminated water	H	Minor	Low			
	8/9 South Dam (Discharge Point7) to Boomerang Creek	Mine contaminated water	H	Minor	Low			
	Ripstone RA Dam (Discharge Point 8) to Ripstone Creek							
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Rolleston Coal Mine	Bootes Creek Discharge Point 1 RP 1 to Bootes Creek	Mine contaminated water	H	Minor	Medium		Monitoring and reporting program in accordance with Environmental Authority MIM800090802 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	

	Meteor Creek Discharge Point 1 RP 2 to Meteor Creek	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	
	Environment Dam RP 3 to Bootes Creek	Mine contaminated water	H	Minor	Low			
	Bootes Creek Discharge Point 2 RP 4 to Bootes Creek	Mine contaminated water	H	Minor	Low			
	Meteor Creek Discharge Point 2 RP 5 to Meteor Creek	Mine contaminated water	H	Minor	Low			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Saraji Coal Mine	Lake Lester RP1 to Phillips Creek	Mine contaminated water	H	Minor	Medium		Monitoring and reporting program in accordance with Environmental Authority MIN100845908 Planned releases for 2010/2011 wet season? Contingency Plans? Monitoring methodology? Monitoring frequency? Sampling methodology for water reuse? Sampling parameters? Sampling frequency? Other release points – intentional or unintentional? Exceedence of EA parameters? Telemetry used? Telemetry maintenance schedule? Contingency plan on failure of telemetry?	
	Dudley's Dam RP2 to Hughes Creek	Mine contaminated water	H	Minor	Low		Same as above for all water holding facilities listed	

	Evaporation Ponds RP3 to Hughes Creek	Highly Contaminated Water	H	High	High			
	Farmhouse-Ramp 15 High Wall Dams RP4 to Phillips Creek	Mine contaminated water	H	Minor	Low			
	Campbell's Dam RP5 to One Mile Creek	Mine contaminated water	H	Minor	Low			
	HCD Back Access Road RP6 to Hughes Creek	Mine contaminated water	H	Minor	Low			
	OMCD Back Access Road RP7 to One Mile Creek	Mine contaminated water	H	Minor	Low			
	Ramp Zero Evaporation Dam RP8 to Acacia Pit	Highly Contaminated Water	H	High	High			
	Ramp 2 Fill Dam RP9 to Hughes Creek	Mine contaminated water	H	Minor	Medium			
	Hazardous Waste Storage Not an authorised release point (RP), but could become RP in 1:100 ARI	Highly Contaminated Water	H	High	High			
Carborough Downs Coal Mine: - Mine Waste Water Evaporation Dam (Reg Dam) & (RP1)	Only authorised release point under EA MIN100329305. Spillway is release point.	Contaminant monitoring: Electrical Conductivity, pH Suspended Solids, Sulphate (SO_4^{2-}), Aluminium, Arsenic Cadmium, Chromium, Copper Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), Boron. OUTCOMES If authorised release limits are exceeded or the	Medium	Minor	Low	Glen Wright	Regulated under EA; including Water Management Plan.	Water from RP1 is being transferred to Broadlea (see below) as a short term management strategy to minimise risk of release.

		receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Broadlea Coal Mine: (RP1) Quarry Dam - Sediment Dam 2	Only authorised release point under EA MIN100726908.	Contaminant monitoring: Electrical Conductivity, pH Suspended Solids, Sulphate (SO_4^{2-}), Aluminium, Arsenic Cadmium, Chromium, Copper Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), Boron. OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	Medium	Minor	Low	Glen Wright	Regulated under EA; including Water Management Plan.	Mine under care & maintenance, no active mining currently being undertaken.
Ensham Coal Mine: RP 1 (Nogoa River) RP2 (Boggy Creek)	(RP1) Ramp 24 Fill Point Dam & Ramp 4 Dam. (RP2) Ramp 8 Pit (Yongala)	Contaminant monitoring: Electrical Conductivity, pH, Turbidity, Suspended Solids, Sulphate (SO_4^{2-}), Aluminium, Arsenic, Cadmium, Chromium,	Medium Medium	Minor Minor	Low Low	Glen Wright	Regulated under EA; including Water Management Plan.	Ensham still has large volumes of mine affected water stored on-site, however this water has been consolidated & stored in-pit to negate the potential for release.

		Copper, Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate, Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), Boron. OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Isaac Plains Coal Mine: (RP1) Release Dam 1 (RP2) Release Dam 2	RP1 - release to Smokey Creek RP2 - Release to Billy's Gully	Contaminant monitoring: Electrical Conductivity, pH Suspended Solids, Sulphate (SO_4^{2-}), Aluminium, Arsenic Cadmium, Chromium, Copper Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), Boron. OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to	Medium	Minor	Low	Glen Wright	Regulated under EA; including Water Management Plan.	TSF only authorised reg. dam is not yet constructed.

		occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Lake Vermont Coal Project (RP1) Sediment Dam 1 (RP2) Sediment Dam 2 (RP3) Sediment Dam 3	All RP's report to Garfax Gully before reaching Isaac River.	Contaminant monitoring: Electrical Conductivity, pH Suspended Solids, Sulphate (SO_4^{2-}), Aluminium, Arsenic Cadmium, Chromium, Copper Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), Boron. OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	Medium	Minor	Low	Glen Wright	Regulated under EA; including Water Management Plan.	Lake Vermont has a Co-disposal Dam & Environmental Dam as Reg structures - these are not release points.
North	Eastern Sediment	Storm water runoff and	H	Minor (assuming	Low	Louise Pinn	Water management plan in place	NGCM conducted a release under EA

Goonyella Coal Mine (NGCM)	Dam (authorised release point, releases to Goonyella Ck)	mine process water		water quality is within authorised limits)			Trigger Action Response Plan being developed (as at August 2010) EA conditions	MIN100590107 from the Eastern Sediment Dam in March 2010. The mine was unable to demonstrate compliance with minimum flow requirements of conditions W8 and W9 of the EA. Water quality was within authorised limits.
North Goonyella Coal Mine (NGCM)	Co-disposal dam (regulated dam)	Tailings (coarse and fine rejects), mine affected water	L	Severe	High	Louise Pinn	Water management plan in place Trigger Action Response Plan being developed (as at August 2010) Operational plan for the dam EA conditions	An expansion of NGCM's co-disposal facilities is currently under construction.
South Walker Creek Coal Mine (SWCM)	Ramp F dam (authorised release point, releases to Walker Ck)	Pit water	H	Minor (assuming water quality is within authorised limits)	High	Louise Pinn	EA conditions	
South Walker Creek Coal Mine (SWCM)	Ramp C dam (authorised release point, releases to Walker Ck)	Pit water	H	Minor (assuming water quality is within authorised limits)	High	Louise Pinn	EA conditions	
South Walker Creek Coal Mine (SWCM)	Eastern Sediment Dam (authorised release point, releases to Sandy Ck)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	High	Louise Pinn	EA conditions	
South Walker Creek Coal Mine (SWCM)	Clean Side Bidgerly's Tailings Dam (authorised release point, releases to Sandy Ck, regulated dam)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	High	Louise Pinn	EA conditions	
South Walker Creek Coal Mine (SWCM)	Down Dip Dam (authorised release point, releases to Sandy Ck)	Raw water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	Sandy Creek rarely flows, and since inclusion of the model water conditions, has not reached minimum flow to allow a compliant release from this release

								point.
South Walker Creek Coal Mine (SWCM)	Bidgerly's Tailings Dam (regulated dam)	Tailings	L	Severe	Medium	Louise Pinn	EA conditions	Annual Audit conducted in 2009 advised that the dam is in good condition. Raise of Bidgerly's Tailings Dam Cell 1 is currently being actioned, as storage space remaining in Cell 1 will run out in early 2011. Should a flood event cause a release, it may impact on the Hail Creek Railway.
South Walker Creek Coal Mine (SWCM)	Old Tailings Dam (regulated dam)	Tailings - no longer receiving fresh tailings, capped with coarse rejects	L	Severe	Low	Louise Pinn	EA conditions	The Old Tailings Dam was decommissioned in 2002. Tailings are continuously consolidating and the tailings crust is hard and dry. The tailings have been capped with coarse rejects.
South Walker Creek Coal Mine (SWCM)	Return Water Dam (regulated dam)	Supernatant water from Clean Side Bidgerly's Tailings Dam and runoff from Old Tailings Dam	L	Severe	Low	Louise Pinn	EA conditions	The SWCM rail loop and main road into the site are downstream of the dam, however they would not be impacted by an uncontrolled discharge from the dam.
Millennium Coal Mine	Sediment Pond 2 (release point)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Millennium Coal Mine	Western Dam (release point and regulated dam)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Millennium Coal Mine	Windmill Dam (release point)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Red Mountain Infrastructure Joint Venture	Process Dam (release point and regulated dam)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Red Mountain Infrastructure Joint Venture	Environment Dam (release point and regulated dam)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Red Mountain Infrastructure Joint Venture	Tailings Cells (regulated dam)	Tailings	L	Severe	High	Louise Pinn	EA conditions	

Red Mountain Infrastructure Joint Venture	Emergency Tailings Storage Facility (regulated dam)	Ex-tailings	L	Minor	Low	Louise Pinn	EA conditions	The emergency tailings storage facility is currently being rehabilitated in line with EA conditions. A recent inspection confirmed that the cells no longer contain tailings, and are being filled in with benign material and levelled.
Poitrel Coal Mine	Sediment Dam 3 (release point)	Mine affected water	H	Minor (assuming water quality is within authorised limits)	Low	Louise Pinn	EA conditions	
Gregory Crinum	11 Storages (14 release points) Balmoral Dam	Storm waters (With coal dust)	M	Minor	L		Regulated under EA; including Water Management Plan.	Monitored quarterly
	Dam C	Mine affected water	M	Severe	L			
	Dam D	Mine affected water	M	Severe	L			
	F Block spillway	Mine affected water	M	Severe	L			
	Ramp 4	Mine affected water	L	Severe	L			
	Crinum East Trench	Mine affected water	M	Severe	L			
	I Block Spillway	Mine affected water	M	Severe	L			
	TSF Western Cell Spillway	Mine affected water	M	Severe	L			
	J Block South	Mine affected water	M	Severe	L			
	Dam B Spillway	Mine affected water	L	Severe	I			
	Gregory Stormwater Dam Spillway	environmental water	H	Minor	L			
Curragh	Retention Dam RD1	Mine affected water	M	Severe	Low		Regulated under EA; including Water Management Plan.	Monitored quarterly
	Retention Dam CN3	Mine affected water	M	Severe	Low			
	Retention Dam CN5	Mine affected water	M	Severe	Low			
Norwich Park	Horseshoe Dam	Environmental water	M	Minor	Low		Regulated under EA; including Water Management Plan.	Monitored quarterly
	Browns Dam	Mine affected water	M	Minor	Low			
	Leichhardt Pit HW (R20) Dam	Mine affected water	M	Severe	Low			
	Price Pit (R50) Dam	Mine affected water	L	Severe	Low			

	Ramp 6 HW Dam	Mine affected water	M	Severe	Low			
	Ramp 6 Fill Pt Dam	Mine affected water	H	Severe	Low			
	Ramp 8 Dam	Mine affected water	M	Severe	Low			
	Suttles Bend Dam (Old)	Mine affected water	H	Minor	Low			
	Suttles Bend Dam (New)	Mine affected water	Low	Minor	Low			
WA-DS01T Industrial Dam South, Dawson South Mine	Mine affected water storage with release point (**RP-DS01T**)	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Characterisation studies of potential contaminants at Dawson South Mine with tendency to bioaccumulate have identified selenium and mercury. - Water quality data supplied by Dawson South Mine on 9/11/10 identified **exceedences of contaminant limits for metals and EC** in Tables 2, 3 & 6. EC currently **3790µs/cm.** - Further rainfall may provide the dilution required to meet discharge water quality limits. - In the event of discharge, Industrial Dam South may exceed water quality limits and affect downstream water quality in the Dawson River.	Low	Medium	Medium	Felicity Chapman	**Short term** Actions by Dawson South Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Discontinuation of pit water inflows into Industrial Dam South to maximise residual storage capacity. - Planned construction of contour banks to divert normal catchment flow from adjacent grazing land away from Industrial Dam South. - Monitoring of residual storage capacity via telemetry system. **Long term** Anglo Coal (Dawson Management) Pty Ltd has commenced long term water management planning including:- - Water Management Strategy (10 year water management and associated infrastructure plan) including all Dawson mine sites (Dawson South, Central and North Mines) by Worley Parsons. Draft plan due at end of December 2010. To be finalised March 2011. - Anglo American water management planning for all Anglo mines.	Sections of public roads subject to flash flooding. During these events access to monitoring sites is restricted.
WA-DC02T 14 Dam, Dawson Central and North Mine	Mine affected water storage with release point (**RP-DC02T**)	- Potential contaminants in water storage as per Tables 2 and 3 of the water	High	Medium	Medium	Felicity Chapman	**Short term** Actions by Dawson Central and North Mine to minimise the risk of discharge for 2010-2011 wet season include:-	Water levels depicted on graph at site office appeared inconsistent with water level observed in 14 Dam by approximately 2 metres. Dawson

		conditions. - Characterisation studies of potential contaminants at Dawson Central and North Mine with tendency to bioaccumulate have identified selenium and mercury. - Water quality data supplied by Dawson Central and North Mine on 9/11/10 identified **exceedences of contaminant limits for metals and EC** in Tables 2, 3 & 6. EC currently **3536µs/cm.** - Further rainfall may provide the dilution required to meet discharge water quality limits. - In the event of discharge, 14 Dam may exceed water quality limits and affect downstream water quality in the Dawson R.					- 14 Dam is currently at capacity level. Drains normally directing catchment flow into 14 Dam have been recently blocked to reduce inflows. - Monitoring of residual storage capacity via telemetry system. **Long term** Anglo Coal (Dawson Management) Pty Ltd has commenced long term water management planning including:- - Water Management Strategy (10 year water management and associated infrastructure plan) including all Dawson mine sites (Dawson South, Central and North Mines) by Worley Parsons. Draft plan due at end of December 2010. To be finalised March 2011. - Anglo American water management planning for all Anglo mines.	Central and North Mine to investigate.
WA-DC01T Hillview Dam, Dawson Central and North Mine	Mine affected water storage with release point (**RP-DC01T**)	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Characterisation studies of potential contaminants at Dawson Central and North Mine with tendency to bioaccumulate have identified selenium and mercury. - Water quality data supplied by Dawson Central and North Mine on 9/11/10 identified **exceedences of contaminant limits for**	High	Medium	Medium	Felicity Chapman	**Short term** Actions by Dawson Central and North Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Two pumps currently transferring water from Hillview Dam to Pit 2C North to increase residual storage capacity. - New pipeline recently installed (not yet operational) dedicated to dewatering of Hillview Dam into Pit 2C North. - Monitoring of residual storage capacity via telemetry system. **Long term** Anglo Coal (Dawson Management) Pty Ltd has commenced long term water management planning including:- - Water Management Strategy (10 year water management and associated infrastructure plan) including all Dawson mine sites (Dawson South, Central and	The shallow nature of Hillview Dam was evident by the current pumping activities. Extensive dam area was exposed compared with relatively small reduction in water level (700mm).

		metals and EC in Tables 3 & 6. EC currently **1396µs/cm.** - Further rainfall may provide the dilution required to meet discharge water quality limits. - In the event of discharge, Hillview Dam may exceed water quality limits and affect downstream water quality in the Dawson River.					North Mines) by Worley Parsons. Draft plan due at end of December 2010. To be finalised March 2011. - Anglo American water management planning for all Anglo mines.	
WA-DN01T Industrial Dam 1 North, Dawson Central and North Mine	Mine affected water storage with release point (**RP-DN01T**)	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Characterisation studies of potential contaminants at Dawson Central and North Mine with tendency to bioaccumulate have identified selenium and mercury. - Water quality data supplied by Dawson Central and North Mine on 9/11/10 identified **exceedences of contaminant limits for metals and EC** in Tables 2, 3 & 6. EC currently **1990µs/cm.** - Further rainfall may provide the dilution required to meet discharge water quality limits.. - In the event of discharge, Industrial Dam North may exceed water quality limits and affect downstream water quality in the Dawson River.	Low	Medium	Medium	Felicity Chapman	**Short term** Actions by Dawson Central and North Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Monitor residual storage capacity via telemetry system. **Long term** Anglo Coal (Dawson Management) Pty Ltd has commenced long term water management planning including:- - Water Management Strategy (10 year water management and associated infrastructure plan) including all Dawson mine sites (Dawson South, Central and North Mines) by Worley Parsons. Draft plan due at end of December 2010. To be finalised March 2011. - Anglo American water management planning for all Anglo mines.	Nil.

DN-Cell 1, Dawson Central and North Mine	Tailings from coal washing facility.	- Potential contaminants as per Tables 2 and 3 of the water conditions. - Flocculents (chemical content unknown).	No risk of discharge	NA	NA	Felicity Chapman	Tailings from coal washing is deposited into an in pit storage dam. Design of dam includes a section of dam wall constructed of unstabilised spoil to promote seepage of tailings water to report to main section of void maintaining tailings as a thickened paste.	Nil.
Lake Gasteen, Callide Mine	Mine affected water storage with release point.	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Water quality data supplied by Callide Mine on 10/11/10 identified EC **2400 µs/cm** on 4/08/10 and **1420 µs/cm** on 8/10/10. No additional exceedences were recorded on these dates. - Further rainfall may provide the dilution required to meet discharge water quality limits.. - In the event of discharge Lake Gasteen may exceed water quality limits and affect downstream water quality in the Don River.	Low	Medium	Medium	Felicity Chapman	**Short term** Actions by Callide Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Discontinuation of pit dewatering inflows into Lake Gasteen. - Increased tank capacity at adjacent water fill point to maximise water output to haul road dust suppression operation. - ALS monitoring of residual storage capacity with gauge boards and telemetry system. - 25mm rainfall triggers water discharge site check by ALS. Protocol includes SMS update to Callide Mine. **Long term** - Investigation into alternative in pit water storage. - Anglo American water management planning for all Anglo mines.	Callide Mine is currently actively recruiting additional environmental staff. Callide Mine advised that stream flow gauging station installation completed by 31/10/10.
Goldings Dam, Callide Mine	Mine affected water storage with release point.	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Water quality data supplied by Callide Mine on 10/11/10 identified EC **1310 µs/cm** on 20/07/10 and **1820 µs/cm** on 8/10/10. No additional	High	Medium	Medium	Felicity Chapman	**Short term** Actions by Callide Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Discontinuation of Trap Gully pit dewatering inflows into Goldings Dam. - Current de-silting program to increase storage capacity. - 25mm rainfall triggers water discharge site check by ALS. Protocol includes SMS update to Callide Mine. **Long term**	At the time of the inspection, Goldings Dam was being desilted. Some water seepage was still being discharged off site. Goldings Dam's capacity was severely reduced by silt levels. Goldings Dam has extremely limited storage capacity. It is considered that that Goldings Dam was not originally constructed as a water storage but as a sediment dam for overflows from Ghost Ryders Dam.

		exceedences were recorded on these dates. - Further rainfall may provide the dilution required to meet discharge water quality limits.. - In the event of discharge Goldings Dam may exceed water quality limits and affect downstream water quality in the Don River.					- Investigation into groundwater bores to intercept groundwater flow into Trap Gully mining area. - Investigation into alternative in pit water storage. - Anglo American water management planning for all Anglo mines.	Callide Mine advised that stream flow gauging station installation completed by 31/10/10.
Oaky Creek Diversion Lake, Callide Mine	Mine affected water storage with release point.	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Water quality data was unavailable for Oaky Creek Diversion Lake on 10/11/10 - Further rainfall may provide the dilution required to meet discharge water quality limits.. - In the event of discharge Oaky Creek Diversion Lake may exceed water quality limits and affect downstream water quality in the Don River.	Medium	Medium	Medium	Felicity Chapman	**Short term** Actions by Callide Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Discontinuation of pit dewatering inflows into Oaky Creek Diversion Lake. - ALS monitoring of residual storage capacity with gauge boards and telemetry system. - 25mm rainfall triggers water discharge site check by ALS. Protocol includes SMS update to Callide Mine. **Long term** - Investigation into filling in the Oaky Creek Diversion Lake to prevent current seepage from the water storage into adjacent mining pit. - Investigation into alternative in pit water storage. - Anglo American water management planning for all Anglo mines.	Access to monitoring sites restricted during excessive rainfall. Callide Mine advised that stream flow gauging station installation completed by 31/10/10.
Dunn Creek Dam, Callide Mine	Mine affected water storage with release point.	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - Water quality data supplied by Callide Mine on 10/11/10 identified EC 1720 us/cm on 8/10/10. No further exceedences	High	Medium	Medium	Felicity Chapman	**Short term** Actions by Callide Mine to minimise the risk of discharge for 2010-2011 wet season include:- - Discontinuation of pit dewatering inflows into Dunn Creek Dam. - Current pumping of Dunn Creek Dam into D West Pit via Magazine Dam to maximise residual storage capacity. - Reduce flows into Dunn Creek Dam from Magazine Dam by pumping from Magazine	Callide Mine advised that stream flow gauging station installation completed by 31/10/10.

		were recorded on this date. - Further rainfall may provide the dilution required to meet discharge water quality limits.. - In the event of discharge Dunn Creek Dam may exceed water quality limits and affect downstream water quality in the Don River.					Dam into D West Pit. - Desilt Magazine Dam to increase storage capacity. - Recently installed pump back system to collect and return from Dunn Creek Dam. - ALS monitoring of residual storage capacity with gauge boards and telemetry system. - 25mm rainfall triggers water discharge site check by ALS. Protocol includes SMS update to Callide Mine. **Long term** - Investigation into alternative in pit water storage. - Anglo American water management planning for all Anglo mines.	
Historical waste dump collection dam ML3228 Cracow Gold Mine	Mine affected water storage with release point SW11	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	High	Low	Felicity Chapman	**Short term** Water recycled through ore treatment plant. **Long term** Planned construction of enhanced water storage infrastructure.	Newcrest Operations Limited advised the department in 2010 that nil discharges have occurred from Cracow Gold Mine since operations commenced in 2004 (following exploration period in 1990 - 2004).
Ore treatment plant collection dam Cracow Gold Mine	Mine affected water storage with release point SW12	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	Medium	Low	Felicity Chapman	**Short term** Water recycled through ore treatment plant. **Long term** Planned construction of enhanced water storage infrastructure.	As above.
Tailings storage facility Cracow Gold Mine	Cyanide tailings with release point SW13	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	High	Low	Felicity Chapman	**Long term** All water from thickened tailings collected and recycled through ore treatment plant.	As above
Decline/workshop/ admin area collection dam Cracow Gold Mine	Mine affected water storage with release point SW14	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	Medium	Low	Felicity Chapman	**Short term** Water recycled through ore treatment plant. **Long term** Planned construction of enhanced water storage infrastructure.	As above
TSF seepage collection dam Cracow Gold	Tailings affected water storage with release point SW16	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	Medium	Low	Felicity Chapman	**Longterm** Water pumped back to tailings storage facility for recycling through ore treatment plant.	As above

Mine								
Tailings Dam 2 sediment dam Cracow Gold Mine	Tailings affected sediment dam with release point SW20	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	Medium	Low	Felicity Chapman	**Long term** Water pumped back to tailings storage facility for recycling through ore treatment plant.	As above
Tailings Dam 4 seepage collection dam Cracow Gold Mine	Tailings affected water storage with release point SW16	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	High	Low	Felicity Chapman	**Long term** Water recycled through ore treatment plant.	As above
Tailings Dam 4 Cracow Gold Mine	Cyanide tailings with release point SW33	Cyanide, sulphates, molybdenum, cadmium, aluminium, EC.	Low	High	Low	Felicity Chapman	**Long term** Water recycled through ore treatment plant.	As above
Farm Dam, Baralaba Coal Mine	Mine affected water storage with release point (RP1)	- Potential contaminants in water storage as per Tables 2 and 3 of the water conditions. - In the event of discharge, Farm Dam is not anticipated to exceed water quality limits or affect downstream water quality in the Dawson River.	Low	Minor	Low	Terry Farley	Response plan in place to remove water from mine to Farm Dam via pump. Prior to pump, laboratory analysis of water to prevent exceedence of water quality limits.	Mine has not discharged in over 5 years. Mine is a net user of water, recent above average rainfall has not required discharge. Recent maintenance of dam (August 2010) to improve storage.
Boxcut, QER	Boxcut water release location	- Potential contaminants include pH and suspended solids. - Discharge into estuarine environment. - Above average rainfall may require discharge. - Water analysis conducted prior to discharge.	Low	Minor	Low	Terry Farley	**Short term** Actions by QER to minimise the risk of discharge for 2010-2011 wet season include:- - minimise stormwater from entering boxcut via stormwater separation - review of release requirements by water services. **Long term** QER to implement release requirements within amended EA - QER to identify water values within Em Plan.	Water release being review as amendment to EA process, QER to implement new water conditions within EA
Clean Water	Mine affected water	- Potential	Medium	Minor	Low	Terry Farley	**Short term**	Water storage limited and water storage

Holding Pond, (WP-1) QER	storage with release point (**WP-1**)	contaminants in water storage as per Table 1. - Water analysis conducted prior to discharge. - Excessive rainfall may require uncontrolled discharge.					Actions by QER to minimise the risk of discharge for 2010-2011 wet season include:- - Pump back system and laboratory analysis to ensure discharge meets limits identified on Table 1. **Long term** Department to review conditions with EA amendments to ensure up to date water condition meet current standards	in pit requires treatment prior to discharge.
Mine Water Management System, (WP-2) QER	Mine affected water storage with release point (**WP-2**)	- Potential contaminants in water storage as per Table 1. - Water analysis conducted prior to discharge. - Excessive rainfall may require uncontrolled discharge.	Low	Minor	Low	Terry Farley	**Short term** Actions by QER to minimise the risk of discharge for 2010-2011 wet season include:- - Pump back system to Clean Water Holding Pond and laboratory analysis to ensure discharge meets limits identified on Table 1. **Long term** Department to review conditions with EA amendments to ensure up to date water condition meet current standards	Water storage limited and water storage in pit requires treatment prior to discharge.
Emergency Overflow, (WP-3) QER	Mine affected water storage with release point (**WP-3**)	- Potential contaminants in water storage as per Table 1. - Water analysis conducted prior to discharge. - Excessive rainfall may require uncontrolled discharge.	Low	Minor	Low	Terry Farley	**Short term** Actions by QER to minimise the risk of discharge for 2010-2011 wet season include:- - Pump back system to Clean Water Holding Pond and laboratory analysis to ensure discharge meets limits identified on Table 1. **Long term** Department to review conditions with EA amendments to ensure up to date water condition meet current standards	Water storage limited and water storage in pit requires treatment prior to discharge.
End of Pipe, (MP) QER - McFarlane	Boxcut with release point (**MP**)	- Potential contaminants in water storage as per Table 2. - Water analysis conducted prior to discharge. - On-going dewatering for proposed backfill.	Low	Minor	Medium	Terry Farley	**Short term** Actions by QER to minimise the risk of discharge for 2010-2011 wet season include:- - Dewater as part of backfill activity - Increase available capacity - Laboratory analysis to ensure discharge meets limits identified on Table 2. **Long term** Backfill activity to prevent discharge	Water storage decreasing by backfill activity anticipated completion December 201.

Unused Pit, Omya	Mine affected and stormwater storage with uncontrolled release to drainage.	- Potential contaminants include pH, EC, and suspended solids. - Water quality data recorded during discharge. No exceedences recorded during 2009-2010.	Medium (limited capacity)	Minor	Low	Terry Farley	**Short term** Omya current EA allows unrestricted discharge to maintain mining operations. - Omya to improve monitoring to minimise potential receiving water quality impacts.	Recent change to on site environmental personnel (new south wales based) On site water management not to current standards. Amended EA water conditions will be a challenge for Omya to comply with. Water quality does not appear to be an issue, more regarding volume of discharge, receiving waters, and monitoring.
Mine Pit, Omya	Mine affected and stormwater storage with pump release to drainage.	- Potential contaminants include pH, EC, and suspended solids. - Water quality data recorded during discharge. No exceedences recorded during 2009-2010.	Medium (limited capacity within mining pit)	Minor	Low	Terry Farley	**Short term** Omya current EA allows unrestricted discharge to maintain mining operations. - Omya to improve monitoring to minimise potential receiving water quality impacts.	Recent change to on site environmental personnel (new south wales based) On site water management not to current standards. Amended EA water conditions will be a challenge for Omya to comply with. Water quality does not appear to be an issue, more regarding volume of discharge, receiving waters, and monitoring.
Unused Pits, QMAG	Mine affected water storage with controlled release to overland flow.	- Potential contaminants include pH, high EC, and suspended solids. - Water quality data recorded during discharge. No exceedences recorded during 2009-2010.	Medium (excess rainfall fills limited capacity)	Minor	Medium	Terry Farley	**Short term** QMAG current EA allows unrestricted overland discharge to maintain mining operations. - QMAG current discharge limits includes high EC (6000 us/cm).	On site water management not to current department standards. Water conditions to the current standard will be a challenge for QMAG to comply with. Water services should review current conditions for advice regarding potential approach.
End of Pipe (A), Cement Australia (East End Mine)	Mine affected from pit to sediment ponds discharge to Shultz's lagoon.	- Potential contaminants include pH, EC. - Water quality data recorded during discharge. One exceedence in 2009-2010 wet season investigated and received warning notice.	Medium (poor water management allows excess rainfall into pit)	Minor	Medium	Terry Farley	**Short term** Cement Australia current EA allows discharge to maintain mining operations as long as complies with water quality guidelines. - Cement Australia current EA includes discharge volume based on limits includes high EC (4700 us/cm).	On site water management not to current department standards. Water conditions to the current standard will be a challenge for Cement Australia to comply with. EIS for amended EA should be received early 2011. Amended EA to include water conditions to current department standard.

End of Pipe (E), Cement Australia (East End Mine)	Spoil Dump affected water to storage pond to discharge to ephemeral creek, no monitoring of discharge volume.	- Potential contaminants include pH, EC. - Mine reports not meeting monitoring requirements during the last few years.	Medium (poor water management does not monitor as required)	Minor	Medium	Terry Farley	**Short term** Cement Australia to improve monitoring of Point E and provided results to department.	On site water management not to current department standards. Water conditions to the current standard will be a challenge for Cement Australia to comply with. EIS for amended EA should be received early 2011. Amended EA to include water conditions to current department standard.
End of Pipe, Affinis	Former mine pit	- Potential contaminants include low pH and metals. - Mine affected water discharge offsite.	Medium (poor water management)	Medium	Medium	Terry Farley	**Short term** Affinis pump back system to capture discharge prior to leaving mine site.	On site water management not to current department standards. Water conditions to the current standard will be a challenge for Affinis to comply with. Current owner delays compliance.
Dam 1, Moranbah North Coal Mine	Discharge authorised under EA MIN100557107 – RP3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 2, Moranbah North Coal Mine	Discharge authorised under EA MIN100557107 – RP3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		investigation into the potential for environmental harm.						
Dam 3, Moranbah North Coal Mine	Discharge authorised under EA MIN100557107 – RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
Dam 4, Moranbah North Coal Mine	Discharge authorised under EA MIN100557107 – RP1 and 2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-})	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Environmental Dam, Moranbah North Coal Mine	Pond will spill way. Water spills into the Environmental Dam from the Production Dam spillway. Discharge is authorised under TEP MAN10140	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Production Dam, Moranbah North Coal Mine	Water from the Production Dam spills via a spillway to the Environmental Dam. Water is released to the environment, authorised under EA MIN100557107 – RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Oak Park Water Management System, German Creek Mine	Water is released to the environment, authorised under EA MIN100497707 – RP6	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Lake Lindsay Water Management System, German Creek Mine	Water is released to the environment, authorised under EA MIN100497707 – RP6	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Pit W, German Creek Mine	Water is released to the environment, authorised under EA MIN100497707 – RP8	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
Central Storage, German Creek	Water is released to the environment,	CONTAMINANTS Electrical Conductivity	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

Mine	authorised under EA MIN100497707 – RP8	pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Old Tailings Dam, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Bruce's Billabong, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

		Potential for environmental harm.						
Lake Lisa, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	
Stacker Dam, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

		Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
White's Dam, German Creek Mine.	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	H	Moderate	Medium	Rebecca Blades	None – only conditions of EA	
Pit F, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

		Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit B2, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9)	L	High	Medium	Rebecca Blades	None – only conditions of EA	

		Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit P North, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	
Pit P South, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit Q South, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	
Pit U1, German	Identified regulated	CONTAMINANTS	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

Creek Mine	structure under EA MIN100497707. Release from structure not authorised under EA.	Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit U2, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit T, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	
Pit D North, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Pit D South, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total)	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		OUTCOMES Potential for environmental harm.						
Pit C, German Creek Mine	Identified regulated structure under EA MIN100497707. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Moderate	Low	Rebecca Blades	None – only conditions of EA	
North West Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
North East Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		(C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
WC North Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
WC South Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		investigation into the potential for environmental harm.						
Fair South Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
Carlo Creek Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-})	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
One Tree Open Cut Pit, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Cockatoo Creek Sediment Dam 1, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308, Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Cockatoo Creek Sediment Dam 2, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308, Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Cockatoo Creek Sediment Dam 3, Foxleigh Coal Mine	Authorised discharge under EA MIN100734308. Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Tailings Dam 1, Foxleigh Coal Mine	Identified regulated structure under EA MIN100734308. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	
Tailings Dam 2, Foxleigh Coal Mine	Identified regulated structure under EA MIN100734308. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Central Storage, Lake Lindsay Coal Mine	Authorised discharge under EA MIN800279904. Discharge Point RP2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 1A, Middlemount Coal Mine	Authorised discharge under EA MIN100646307, Discharge Point 1A	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		investigation into the potential for environmental harm.						
Dam 1B, Middlemount Coal Mine	Authorised discharge under EA MIN100646307, Discharge Point 1B	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
Dam 1C, Middlemount Coal Mine	Authorised discharge under EA MIN100646307, Discharge Point 1C	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-})	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 2, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 3, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 4, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 5, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 5	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 6, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 6	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
Dam 7, Middlemount	Authorised discharge under EA	CONTAMINANTS Electrical Conductivity	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

Coal Mine	MIN100646307. Discharge Point 7	pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dam 8, Middlemount Coal Mine	Authorised discharge under EA MIN100646307. Discharge Point 8	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Tailings Storage Facility, Middlemount Coal Mine	Identified regulated structure under EA MIN100646307. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Open Pit, Middlemount Coal Mine	Identified regulated structure under EA MIN100646307. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	
G3 – coal handling and preparation area, industrial area and	Authorised discharge under EA MIN100924209. Discharge Point RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-})	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

administration area, Oaky Creek Coal Mine		Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
OC1 – Oaky No 1, Oaky Creek Coal Mine	Authorised discharge under EA MIN100924209, Discharge Point RP2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
G9 open cut, Oaky Creek Mine	Authorised discharge under EA MIN100924209. Discharge Point RP3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
A4 open cut, Oaky Creek Mine	Authorised discharge under EA MIN100924209. Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
12 North Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107. Discharge Point 1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
7 North Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107. Discharge Point 2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
1 South Dam, Peak Downs	Authorised discharge under EA	CONTAMINANTS Electrical Conductivity	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

Mine	MIN100496107. Discharge Point 3 and 5	pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
1 North Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107. Discharge Point 5	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Boomerange Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107. Discharge Point 4 and 7	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
7N Harrow Creek, Peak Downs Mine	Authorised discharge under EA MIN100496107, Discharge Point 6	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36)	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
8/9 Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107. Discharge Point 7	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Ripstone RA Dam, Peak Downs Mine	Authorised discharge under EA MIN100496107, Discharge Point 12	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

R6S Tailings Disposal, Peak Downs Mine	Identified regulated structure under EA MIN100496107. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	
R7S Tailings Disposal, Peak Downs Mine	Identified regulated structure under EA MIN100496107. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

		Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
2N Tailings Dam, Peak Downs Mine	Identified regulated structure under EA MIN100496107. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	
Lake Lester, Saraji Coal Mine	Authorised discharge under EA MIN100845908. Discharge Point RP1	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-})	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Dudley's Dam, Saraji Coal Mine	Authorised discharge under EA MIN100845908. Discharge Point RP2	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Evaporation Ponds, Saraji Coal Mine	Authorised discharge under EA MIN100845908. Discharge Point RP3	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Farmhouse-Ramp 15 High Wall Dams	Authorised discharge under EA MIN100845908, Discharge Point RP4	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Campbell's Dam, Saraji Coal Mine	Authorised discharge under EA MIN100845908, Discharge Point RP5	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
HCD Back Access Road, Saraji Coal Mine	Authorised discharge under EA MIN100845908. Discharge Point RP6	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	
OMCD Back Access Road,	Authorised discharge under EA	CONTAMINANTS Electrical Conductivity	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

Saraji Coal Mine	MIN100845908, Discharge Point RP7	pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Ramp Zero Evaporation Dam	Authorised discharge under EA MIN100845908, Discharge Point RP8	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Ramp 2 Fill Dam	Authorised discharge under EA MIN100845908. Discharge Point RP9	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium	H	Minor (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Evaporation Pond, Saraji Coal Mine	Identified regulated structure under EA MIN100845908. Release from structure not authorised under EA.	CONTAMINANTS Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36)	L	Medium (if compliant)	Low	Rebecca Blades	None – only conditions of EA	

		Fluoride (total) OUTCOMES If authorised release limits are exceeded or the receiving water flow rate/dilution requirement, there is a potential for environmental harm to occur. If the trigger investigation values are exceeded the client is required to undertake an investigation into the potential for environmental harm.						
Ramp 3 TSF, Saraji Coal Mine	Identified regulated structure under EA MIN100845908. Release from structure not authorised under EA.	CONTAMINANTS Tailings Material Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	
Ramp 2 TSF, Saraji Coal Mine	Identified regulated structure under EA	CONTAMINANTS Tailings Material	L	Severe	Medium	Rebecca Blades	None – only conditions of EA	

	MIN100845908. Release from structure not authorised under EA.	Electrical Conductivity pH Suspended Solids Sulphate (SO_4^{2-}) Aluminium Arsenic Cadmium Chromium Copper Iron Lead Mercury Nickel Zinc Boron Cobalt Manganese Molybdenum Selenium Silver Uranium Vanadium Ammonia Nitrate Petroleum hydrocarbons (C6-C9) Petroleum hydrocarbons (C10-C36) Fluoride (total) OUTCOMES Potential for environmental harm.						
Coppabella Coal Mine	Raw water dam	Elevated levels of EC	M	Minor	Low	Tristan Roberts		The mine has implemented procedures to pump water back into an unused pit to maintain capacity in the dam for the upcoming wet season
Coppabella Coal Mine	ABI dam	Slightly elevated levels of EC	M	Minor	Low	Tristan Roberts		The mine has constructed diversions to reduce the size of the catchment reporting to the dam. A piping network has been constructed on site to pump water from ABI dam to Creek Pit as an emergency procedure.
Coppabella Coal Mine	Orica dam	Slightly elevated levels of EC	L	Minor	Low	Tristan Roberts		The mine has dredged the dam to increase the capacity of the dam in preparation to the wet season
Coppabella Coal Mine	Creek Pit	Elevated levels of EC and metals	L	Medium	Low	Tristan Roberts		Creek pit currently has an available storage capacity of 20,000 ML. Creek pit has a small catchment area and therefore the water level is unlikely to increase significantly during a heavy rainfall event. Creek pit does not have a release point.
Moorvale Mine	Sediment dam 1	Slightly elevated levels of EC and turbidity	L-M	Minor	Low	Tristan Roberts		The mine is planning to increase the height of the dam wall to increase capacity of the dam in preparation to the wet season.
Moorvale Mine	Raw water dam	Elevated levels of EC	L - M	Minor	Low	Tristan Roberts		The mine has implemented procedures to pump

								water back into the current pit to maintain capacity in the dam for the upcoming wet season
Hail Creek	Polishing Pond	Water impounded in the Hail Creek mine water storage system. Including water used in processing, dewatering from pits and rainfall entering catchment	L- M	Medium	Low - Medium	Tristan Roberts		Undertaking inspection on 16 Nov
Burton	Plumtree Northern Dam, Wallanbah Eastern Dam, Wallanbah Eastern. Dirty Water Dam, Wallanbah ROM Dam, Broadmeadow North, Western Dam, Western Lease Dam. Dam B2N, Dam B4N,	Mine affected water				Tristan Roberts		Undertaking inspection on 18 Nov
Newlands	West Drain Sediment Basin, Wollombi Farm Evaporation Dam, Banrock C, Dirty Water Dam, Banrock Evaporation Dam, Lenny's Lagoon, Mclaren Evaporation Dam. Ramp 17, East Drain Sediment Dam	Mine affected water	Unknown - Need to check file/ PoO			Tristan Roberts		
Sonoma	Decant water dam 1 (for Co-disposal Stage 1 – dam 1)	Mine impacted water	L	L	Low	Tristan Roberts		No discharge point – very low risk for discharge
Sonoma	Decant water dam 2 (for Co-disposal Stage 2 - dams 2 to 6)	Mine impacted water	L	M	Low	Tristan Roberts		No discharge point – very low risk for discharge
Sonoma	Sediment Dam 3, Sediment Dam 4	Runoff from overburden stockpile	L		L	Tristan Roberts		
Sonoma	Sediment Dam 5,	Runoff from ROM, wash plant and product stockpile				Tristan Roberts		
Collinsville Coal	Kerale Dam • Colinta Dam • Strathmore Seepage • Farm Dam • CHPP Primary Antipollution Pond • CHPP Secondary Antipollution Pond • Workshop Antipollution Pond • Workshop	Mine impacted water – acid mine drainage	L – M Not sure of discharges in previous years – would need to check file	Medium – High – The area has	Medium	Tristan Roberts		Collinsville has a very old EA – Does not have model water conditions Acid mine drainage issues

	Evaporation Pond • Workshop Evaporation Pond #3 • Garrick East Pit • Tailings / reject disposal area • Hookies Highway Dam • Ramp 11 Pit							
Olive Downs, New Lenton			L	L	L	Tristan Roberts		Not operational

NOTES FROM ENSHAM INSPECTION 17-11-2010

LEVEE BANKS

- All levee restored to at least 1 in 100
- Levee on Southern side (west of haul road) is 1 in 1000. Levee on east of haul road yet to be done.
- Levee on Northern Side of Nogoa, currently under construction to be 1 in 1000.
- Levee on northern side that is not yet upgraded has spoil mounds behind which could add some protection until completed. Exact extent of current upgrade unable to be measured due to weather.

REGULATED DAMS

- EA currently does not list any regulated dams apart from the levee banks
- Recent work by SKM has identified 4 existing dams whose hazard may be "significant". A proposed dam would also likely fall into that category. One of the original dams will be overrun by mine progression
- The risk is predominately due to water quality (EC) 7000-8000
- These would be added to the EA

The Mine is a net importer of water, however still has water stored from the 2008 floods. Majority stored in Dam 22, (mine pit)

Storage 22 (Pit A):

- 40m deep. Is holding about 9000ML.
- This is mostly left over from the 2008 floods
- Not likely to overtop. 10-15m estimated between current water level and top.
- Only localised catchment (i.e. pit itself)
- Width of 'wall' at crest about 50m
- If breached or overtopped, it would just run into adjacent (northern) mine pit (Pit B)
- Wall is monitored by radar to detect any movement. Also inspected by geotechnical engineers
- EC about 7000-8000. EC has stabilized and is consistent with depth
- No issues with heavy metals
- pH 'about 8'
- Concerns for this storage are operational
    - risk to workers in adjacent Pit Bt – 60m deeper
    - may wish to re-mine the pit at a later date
    - as water sits – higher EC – if need to later release.
- Company wish to explore options on decreasing water in this pit.
    - Moving some to another pit to the south (Pit A – South). 3000ML at present
    - Are diverting water around mine where able
    - Have briefly looked at RO plants
    - Trialling evaporative mist machines – although not likely to decrease volume by much.
    - Currently doing research on effects of pit water on 'critters'. Eg the raw water, 75% mix, 50/50 mix etc. With the view of having supporting information for a future application for a Temporary Environmental Release.

Storage R4

- Capacity about 120ML

- Bywashes into Boggy Creek
- Bywash not very defined, a dug channel – width 5-10m (this seems to be less than the 50m width noted in the *Ensham Mine Water Management Plan*)
- Current water level estimated to be 2m below crest. About 1m below spillway.
- Wall seems structurally ok (although not inspected fully)
- The mine has a system of pumps where they can move water around the mine site to other storages. Has ability to decrease level in this dam if needed. This dam can be drawn down quickly under normal operations – filling water trucks

Storage R24

- Capacity about 120 ML
- Very small catchment
- Water Quality EC 7000-8000
- Current water level about 0.5m below rock bywash/spillway
- If it was a regulated storage, it would be getting close to its mandatory reporting level of 0.323m and likely had less DSA at 1 Nov than noted in *Ensham Mine Water Management Plan* (0.899m).
- Unable to access bywash/spillway but seemed to be about 20m width (although obscured by reeds). Less than 200m noted in the *Ensham Mine Water Management Plan.*
- Any bywash water would be retained within levee (ie would not end up in watercourses)
- The mine has a system of pumps where they can move water around the mine site to other storages. Has ability to decrease level in this dam if needed so risk of overtopping is low, although presence of reeds indicates that it may have overtopped in the past.
- This dam can be drawn down quickly under normal operations – filling water trucks

Storage R81

- not visited due to weather
- My understanding is that this is an in-pit storage

Water Use estimated to be 6x 80,000L water trucks → 5-6ML/day → 1500 ML/year

SUMMARY

- SKM still finalising details of risk assessments and details for DSA and MRL etc.
- Need to confirm/clarify bywash widths of R24 and R4. They seem to be less than those mentioned in the *Ensham Mine Water Management Plan.* Are the values in the WMP the widths required to meet requirements rather than actual widths?
- Needs to be closer monitoring of levels in storages (R24 & R4) to ensure levels are maintained. Water levels vary widely due to transfer of water.
- Ensham looking at options for future management of Pit A water
- Only R4 would have potential offsite impacts if uncontrolled release.
- Levee Bank upgrade not yet completed.
- Need to confirm risk if a similar flood occurred before the levee upgrade completed

Water Inspections – Program Plan
November 2010

Pre inspection
Review EA, Water Management Plan and Receiving Environment Management Plan to gain basic understanding water management arrangements on site.

Inspection Focus: Water management
ES Mining Staff

- Water storage monitoring locations – water storages associated with release points, as defined in the Environmental Authority, Table W5
- All release points on sites – water levels in associated dams (Regulated dams MRL's), discuss water quality and review available data,
- All water monitoring locations – accessible in wet weather, requirement for stream flow gauges, telemetry systems, automatic samplers
- All receiving waters (upstream and downstream) as defined in the Environmental Authority

Assistance Staff

- identify water storages that may have the potential for uncontrolled discharges through the failure to contain water and embankment failure.
- Identify spillway capacity for water storages and determine appropriateness of capacity.

Post Inspection
ES Mining Staff

- Develop brief inspection report
- Correspondence to Mines identify areas of concern/outcomes of inspection

Assistance Staff

- Provision of technical information to facilitate the drafting of a brief inspection report.

Inspections are scheduled for early for November, please see attached calendar, * indicates requirement for assistance staff.

November 2010

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1 Millennium/RMIJV (LP, GH)	2	3	4 Goonyella Riverside (CM, RB) O/N	5 Norwich Park (CM,RB)	6	7
8 Carborough / Moorvale (GW, TR) O/N	9 Coppabella (GW, TR) O/N Callide (FC, MJ) O/N	10 Dawson Central (TF, MJ)	11 Blair Athol/ Clermont (GH, RB)	12	13	14
15	16 Hail Creek (TR,GB) O/N Blackwater (CM/DL)	17 Ensham (GW/DL) LR O/N EMD	18 Cook/ Kestrel (GH/MJ) South Walker (LP, LR) O/N	19 Burton (TR,GB) Minerva (GH/MJ) North Goonyella (LP, LR) LR O/N EMD	20	21
22	23Peak Downs (RB*) O/N	24Saraji (RB*)	25	26	27	28
29	30					

Department Interest – Water

Contaminant release

W1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

W2 The release of contaminants to waters must only occur from the release points specified in Table 1 (Contaminant release points, sources and receiving waters) and depicted in Appendix 2 (Release points (RP) and monitoring points (MP) for Ensham Coal Mine) of this environmental authority.

Table 1 (Contaminant release points, sources and receiving waters)

Release Point (RP)	Easting	Northing	Contaminant Source and Location	Monitoring Point	Receiving waters description
RP 1 Nogoa River	653,753	7,401,398	Ramp 24 Fill Point Dam and Ramp 4 Dam	End of pipe	Nogoa River
RP 2 Boggy Creek	654,270	7,412,235	Ramp 8 Pit (Yongala)	End of pipe	Boggy Creek

W3 The release of contaminants to waters must not exceed the release limits stated in Table 2 (Contaminant release limits) when measured at the monitoring points specified in Table 1 (Contaminant release points, sources and receiving waters) for each quality characteristic.

Table 2 (Contaminant release limits)

Quality Characteristic	Interim release limits until 31 December 2011	Future release limits from 1 January 2012	Monitoring frequency

Electrical conductivity (µS/cm)	1,500	750	Daily during release (the first sample must be taken within 2 hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)
Turbidity (NTU)	360	360	Daily during release* (first sample within 2 hours of commencement of release)
Suspended Solids (mg/L)	150	150	Daily during release* (first sample within 2 hours of commencement of release)
Sulphate (SO_4^{2-}) (mg/L)	1,000	250	Daily during release* (first sample within 2 hours of commencement of release)

** local trigger values need to be developed*

W4 The release of contaminants to waters from the release points must be monitored at the locations specified in Table 1 (Contaminant release points, sources and receiving waters) for each quality characteristic and at the frequency specified in Table 2 (Contaminant release limits) and Table 3 (Release contaminant trigger investigation levels).

Table 3 (Release contaminant trigger investigation levels)

Quality characteristic	Trigger levels (µg/L)	Monitoring frequency
Aluminium	300	Commencement of release and thereafter weekly during release
Arsenic	13	
Cadmium	0.2	
Chromium	1.12	
Copper	10	
Iron	300	
Lead	10	
Mercury	1	
Nickel	11	
Zinc	10	
Boron	370	
Cobalt	90	
Manganese	1900	
Molybdenum	34	
Selenium	10	
Silver	1	
Uranium	1	
Vanadium	10	
Ammonia	900	
Nitrate	1100	
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	
Fluoride (total)	2000	

NOTE:
1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The list of quality characteristics required to be monitored as per Table 3 will be reviewed once the results of the monitoring data is gathered for the interim period until 31 December 2011 or an earlier date if the data is, or becomes, available and if it is determined that there is no need to monitor for certain individual quality characteristics these can be removed from Table 3.

W5 If quality characteristics of the release exceed any of the trigger levels specified in Table 3 (Release contaminant trigger investigation levels) during a release event, the environmental authority holder must compare the down stream results in the receiving waters to the trigger values specified in Table 3 (Release contaminant trigger investigation levels) and:

1. where the trigger values are not exceeded then no action is to be taken; or
2. where the down stream results exceed the trigger values specified Table 3 for any quality characteristic, compare the results of the down stream site to the data from background monitoring sites and;
   a) if the result is less than the background monitoring site data, then no action is to be taken; or
   b) if the result is greater than the background monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
      (i) details of the investigations carried out; and
      (ii) actions taken to prevent environmental harm.

NOTE: *Where an exceedence of a trigger level has occurred and is being investigated, in accordance with W5(2)b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

W6 If an exceedence in accordance with condition W5(2)b)(ii) is identified, the holder of the environmental authority must notify the administering authority within fourteen (14) days of receiving the result.

Contaminant release events

W7 The holder must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each release point as specified in Table 4 (Contaminant release during flow events) for any receiving water into which a release occurs.

W8 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in Table 4 (Contaminant release during flow events) for the contaminant release point(s) specified in Table 1 (Contaminant release points, sources and receiving waters).

Table 4 (Contaminant release during flow events)

Receiving water description	Release point (RP)	Gauging station description	Northing	Easting	Minimum flow in receiving water required for a release event	Flow recording frequency
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Continuous (upstream)

		(GS 2) (At the same location as the existing Duckponds gauging station)				daily)
Boggy Creek	RP 2	Gauging Station 3 (GS 3) (Adjacent to Ramp 9 at Yongala)	7,414,491	655,399	$2m^3/s$	

W9 Contaminant release flow rate must not exceed twenty percent (20%) of receiving water flow rate.

W10 The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in Table 1 (Contaminant release points, sources and receiving waters).

W11 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

Notification of release event

W12 The environmental authority holder must notify the administering authority as soon as practicable (no later than six (6) hours of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:

a) release commencement date/time;
b) expected release cessation date/time;
c) release point/s;
d) release volume (estimated);
e) receiving water/s including the natural flow rate; and
f) any details (including available data) regarding likely impacts on the receiving water(s).

NOTE: *Notification to the administering authority must be addressed to the Manager and Project Manager of the local administering authority via email or facsimile.*

W13 The environmental authority holder must notify the administering authority as soon as practicable,(nominally within twenty-four (24) hours after of cessation of a release) of the cessation of a release notified under condition W12 and within twenty-eight (28) days provide the following information in writing:

a) release cessation date/time;
b) natural flow volume in receiving water;
c) volume of water released;
d) details regarding the compliance of the release with the conditions of Agency Interest: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume);

e) all in-situ water quality monitoring results; and

f) any other matters pertinent to the water release event.

Notification of release event exceedence

W14 If the release limits defined in Table 2 (Contaminant release limits) are exceeded, the holder of the environmental authority must notify the administering authority within twenty-four (24) hours of receiving the results.

W15 The environmental authority holder must, within twenty-eight (28) days of a release that exceeds the conditions of this environmental authority, provide a report to the administering authority detailing:

a) the reason for the release;

b) the location of the release;

c) all water quality monitoring results;

d) any general observations;

e) all calculations; and

f) any other matters pertinent to the water release event.

Monitoring of water storage quality

W16 Water storages stated in Table 5 (Water storage monitoring) which are associated with the release points must be monitored for the water quality characteristics specified in Table 6 (Onsite water storage contaminant limits) at the monitoring locations and at the monitoring frequency specified in Table 5.

Table 5 (Water storage monitoring)

Water storage description	Northing	Easting	Monitoring location	Frequency of monitoring
Ramp 24 Fill Point Dam (Southern side of Nogoa River)	7,398,309	652,651	Within 100m of pump intake point	Quarterly
Ramp 4 Dam (Northern side of Nogoa River)	7,403,555	653,862	Within 100m of pump intake point	
Ramp 8 Pit (Northern side of Nogoa River adjacent to the Yongala Pit)	7,412,756	654,376	Within 100m of pump intake point	

W17 In the event that waters storages defined in Table 5 (Water storage monitoring) exceed the contaminant limits defined in Table 6 (Onsite water storage contaminant limits), the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.

Table 6 (Onsite water storage contaminant limits)

Quality characteristic	Test value	Contaminant limit
pH (pH unit)	Range	Greater than 4, less than 9[2]
EC (µS/cm)	Maximum	5970[1]
Sulphate (mg/L)	Maximum	1000[1]
Fluoride (mg/L)	Maximum	2[1]
Aluminium (mg/L)	Maximum	5[1]
Arsenic (mg/L)	Maximum	0.5[1]
Cadmium (mg/L)	Maximum	0.01[1]
Cobalt (mg/L)	Maximum	1[1]
Copper (mg/L)	Maximum	1[1]
Lead (mg/L)	Maximum	0.1[1]
Nickel (mg/L)	Maximum	1[1]
Zinc (mg/L)	Maximum	20[1]

Note:
[1] Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.
[2] Page 4.2-15 of ANZECC & ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".
Note: Total measurements (unfiltered) must be taken and analysed.

Receiving environment monitoring and contaminant trigger levels

W18 The quality of the receiving waters must be monitored at the locations specified in Table 8 (Receiving water upstream background sites and down stream monitoring points) and shown in Appendix 2 (Release points (RP) and monitoring points (MP) for Ensham Coal Mine) for each quality characteristic and at the monitoring frequency stated in Table 7 (Receiving waters contaminant trigger levels).

Table 7 (Receiving waters contaminant trigger levels)

Quality characteristic	Trigger level	Monitoring frequency
pH	6.5 – 8.0	Daily during the release
Electrical Conductivity (µS/cm)	500	
Suspended solids (mg/L)	1,000	
Sulphate (SO_4^{2-}) (mg/L)	250	

Table 8 (Receiving water upstream background sites and down stream monitoring points)

Monitoring point (MP)	Receiving waters location description	Easting	Northing
Monitoring points for RP 1 – Nogoa River discharge point			
Upstream background monitoring points			
MP 2	Nogoa River – upstream Ensham land boundary at Duckponds Crossing	650,482	7,402,390
Downstream monitoring point			
MP 3	Nogoa River – downstream Ensham lease boundary	654,688	7,400,679
Monitoring points for RP3 – Boggy Creek discharge point			
Upstream background monitoring points			
MP 4	Boggy Creek – adjacent to Yongala Ramp 9	655,399	7,414,491
MP 5	Boggy Creek – at haul road crossing north of Ramp 7	653 509	7,408,061

NOTE:

a) The upstream monitoring point should be within 10km of the release point.

b) The downstream point should not be greater than 1.6km from the release point.

c) The data from background monitoring points must not be used where they are affected by releases from other mines.

W19 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table 7 (Receiving waters contaminant trigger levels) during a release event the environmental authority holder must compare the down stream results to the upstream results in the receiving waters and:

1. where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or
2. where the down stream results exceed the upstream results complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
    (i) details of the investigations carried out; and
    (ii) actions taken to prevent environmental harm.

NOTE: *Where an exceedence of a trigger level has occurred and is being investigated, in accordance with W19 2(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

Receiving Environment Monitoring Program (REMP)

W20 A REMP must be developed and implemented by **30 March 2010** to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters of the Nogoa River downstream of Ensham Coal Mine to Riley's Crossing near the Comet River junction.

W21 The REMP must address (but not necessarily be limited to) the following:

a) Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);

b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy 1997);*

c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed;

d) Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the REMP.

e) Monitoring for any potential adverse environmental impacts caused by the release;

f) Monitoring of stream flow and hydrology;

g) Monitoring of toxicants should consider the indicators specified in Table 3 (Release contaminant trigger investigation levels) to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ 2000 guidelines for slightly to moderately disturbed ecosystems;

h) Monitoring of physical chemical parameters as a minimum those specified in Table 2 (Contaminant release limits) (in addition to dissolved oxygen saturation and temperature);

i) Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.*1 Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages;

j) The locations of monitoring points (including the locations specified in Table 8 (Receiving water upstream background sites and down stream monitoring points) which are background and downstream impacted sites for each release point);

k) The frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines* 2006. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;

l) Specify sampling and analysis methods and quality assurance and control;

m) Any historical datasets to be relied upon;

n) Description of the statistical basis on which conclusions are drawn; and

o) Any spatial and temporal controls to exclude potential confounding factors.

W22 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions W20 & W21 must be prepared and submitted in writing to the administering authority by **1 October 2011**. This should include an assessment of background water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values.

Water reuse

W23 Water contaminated by mining activity may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority during periods of dry weather for the purpose of supplying stock water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with the quality release limits specified in Table 9 (Stock water release limits).

Table 9 (Stock water release limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	5000

1. By third party agreement for any other parameter

W24 Water contaminated by mining activity may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority during periods of dry weather for the purpose of supplying irrigation water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with quality limits specified in Table 10 (Irrigation water release limits).

Table 10 (Irrigation water release limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	Site specific value to be determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines and provided through an amendment process

1. By third party agreement for any other parameter

W25 Water contaminated by mining activity may be piped or trucked off the mining lease for the purpose of supplying water to a third party for purpose of construction and/or road maintenance in accordance with the conditions of this environmental authority.

W26 Water contaminated by mining activity may be piped or trucked for the purpose of supplying water to an adjoining mine in accordance with the conditions of this environmental authority. The volume, pH and electrical conductivity of water transferred to the adjoining mine must be monitored and recorded.

W27 If the responsibility of water contaminated by mining activities (the water) is given or transferred to another person in accordance with conditions W23, W24, W25 or W26:

a) the responsibility of the water must only be given or transferred in accordance with a written
agreement (the third party agreement); and

b) include in the third party agreement a commitment from the person utilising the water to use
water in such a way as to prevent environmental harm or public health incidences and specifically
make the persons aware of the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994,* environmental sustainability of the water disposal and protection of environmental values of waters.

Water general

W28 All determinations of water quality must be:

a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;

b) made in accordance with methods prescribed in the latest edition of the administering authority's Water Quality Sampling Manual;

c) collected from the monitoring locations identified within this environmental authority, within two (2) hours of each other where possible;

d) carried out on representative samples; and

e) laboratory testing must be undertaken using a laboratory accredited (e.g. NATA) method of analysis.

NOTE: *Condition W28 requires the Water Quality Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.*

W29 The release of contaminants directly or indirectly to waters:

a) must not produce any visible discolouration of receiving waters; and

b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

Annual water monitoring reporting

W30 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return:

a)the date on which the sample was taken;

b)the time at which the sample was taken;

c)the monitoring point at which the sample was taken;

d)the measured or estimated daily quantity of the contaminants released from all release points;

e)the release flow rate at the time of sampling for each release point;

f) the results of all monitoring and details of any exceedences with the conditions of this environmental authority; and

g)water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

Temporary interference with waterways

W31 Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with administering authority's Water *Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities.*

Water management plan

W32 A Water Management Plan must be developed and implemented by **30 March 2010** that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

W33 The Water Management Plan must be developed in accordance with Department of Environment and Resource Management's *Guideline for Preparing a Water Management Plan 2009* or any updates that become available from time to time and must include at least the following components:

a) Contaminant Source Study;

b) Site Water Balance and Model;

c) Water Management System;

d) Saline Drainage Prevention and Management Measures;

e) Acid Rock Drainage Prevention and Management Measures (if applicable);

f) Emergency and Contingency Planning; and

g) Monitoring and Review.

W34 Each year the holder of the environmental authority must undertake a review of the Water Management Plan prior to the wet season (i.e. **by 1 November**) and a further review following the wet season (i.e. **by 1 May** the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

W35 A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

Saline drainage

W36 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.

Acid rock drainage

W37 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.

Stormwater and water sediment controls

W38 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of storm water.

W39 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

W40 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

Fitzroy River basin study

W41 The administering authority and the holder of this environmental authority both acknowledge that the conditions for release of contaminants to the Nogoa River in this environmental authority have been calculated without the benefit of the findings of projects proposed to be undertaken as per recommendations 2 and 3 of the *Study of cumulative impacts on water quality of mining activities in the Fitzroy River Basin* (April 2009). The administering authority may, based on the information provided in the study report when it becomes available, all relevant information available at the time and the regulatory framework applicable at that time, consult with the holder of this environmental authority about the conditions in the environmental authority concerning the treatment and disposal of waste water.

The aim of the consultation shall be the meaningful review of the contaminant release limits imposed in this environmental authority having regard to:

a) the study results;
b) near field monitoring results;
c) QLD Water Quality Guidelines; and
d) best practice environmental management.

If this review leads to a change in the requirements on this environmental authority holder, this shall be advanced by way of an environmental authority amendment or a Transitional Environmental Program and as is necessary or desirable.

Sewage effluent

W42 Sewage effluent used for dust suppression or irrigation must not exceed sewage release limits defined in Table 11 (Sewage effluent quality standards).

Table 11 (Sewage effluent quality standards)

Quality	Release limit	Units	Limit type	Monitoring frequency
5 Day BOD	20	mg/L	max	On release
pH	6 - 8		range	On release
Free Chlorine residuals	1.0	mg/L	max	On release
Faecal coliforms (based on the average of a min of 5 samples)	1,000	Colonies per 100ml	max	On release

Groundwater

W43 Groundwater affected by mining activities must be monitored at the locations and frequencies and for the parameters defined in Table 12 (Groundwater monitoring locations). The groundwater monitoring locations are shown in Appendix 3. If, based on assessment of the monitoring results by a suitably qualified person, the Ensham mine is demonstrated to have adversely affected the use of privately owned bores listed in Table 12 (Groundwater monitoring locations), the holder of the environmental authority will provide an equivalent (in quality and quantity), alternative water supply to the owner of the bore/s for the impact caused by the Ensham mine. Monitoring of bores owned by private landholders is subject to the landholder providing access to the bore and ensuring that the bore is in a suitable condition such that it is able to be monitored.

Table 12 (Groundwater monitoring locations)

Location	Monitoring Point	Easting (GDA94)	Northing (GDA94)	Aquifer	Parameters	Frequency
Nogoa River channel	Bore EC01	650018.8	7403061.2	Alluvium	pH, EC, Na, Mg, Ca, Cl, HCO_3, SO_4, Total Fe	Every 3 months
	Bore EC02	650355.8	7402927.7	Alluvium	pH, EC, water level	
	Bore ECO3	650338.7	7402548.2	Alluvium		
	Bore EC04	650600.9	7402332.7	Alluvium		
	Bore EC05	650505.5	7402065.2	Alluvium		
	Bore EC06	650805.2	7402076.2	Alluvium		
	Bore EC07	650974.2	7401744.2	Alluvium		
	Bore EC08	651378.4	7401755.2	Alluvium		
	Bore EC09	651362.9	7401496.7	Alluvium		
	Bore EC09A	651356.2	7401502.0	Alluvium	pH, EC, Na, Mg, Ca, Cl, HCO_3, SO_4, Total Fe	
	Bore EC10	651618.4	7401418.7	Alluvium	pH, EC, water level	
	Bore EC11	651518.4	7401190.0	Alluvium		
	Bore EC12	651664.0	7400916.2	Alluvium	pH, EC, Na, Mg, Ca, Cl, HCO_3, SO_4, Total Fe	
	Bore EC13	651518.4	7400773.2	Alluvium	pH, EC, water level	
	Bore EC14	651678.0	7400650.2	Alluvium		
	Bore EC15	651950.1	7400541.7	Alluvium		
	Bore EC16	652379.8	7400993.7	Alluvium		
	Bore EC17	652797.6	7400706.2	Alluvium		
	Bore EC18	652832.9	7400919.7	Alluvium		
	Bore EC19	653128.8	7401328.0	Alluvium		
	Bore EC20	652316.1	7400687.7	Alluvium		
	Bore EC21	651661.9	7400589.7	Alluvium	pH, EC, Na,	

Location	Monitoring Point	Easting (GDA94)	Northing (GDA94)	Aquifer	Parameters	Frequency
					Mg, Ca, Cl, HCO_3, SO_4, Total Fe	
	Bore EC22	651694.6	7400490.7	Alluvium	pH, EC, water level	
	Bore EC23	651684.2	7400420.7	Alluvium		
	Bore GW1	653934	7400423	Alluvium		
	Bore GW2	651462	7402401	Alluvium		
Nogoa River floodplain	DERM bore 13020176	651156.7	7403150.7	Alluvium	pH, EC, water level	Every 3 months
	DERM bore 13020177	650665.7	7402645.2	Alluvium		
	DERM bore 13020178	650153.6	7401552.7	Alluvium		
	DERM bore 13020179	650033	7400729	Alluvium		
	DERM bore 13020180	649848	7400006	Alluvium		
	DERM bore 13020181	649733	7399715	Alluvium		
Private Property	Mc Camley Bore	645331	7400178	Understood to be in the alluvium	pH, EC, water level	Every 3 months, if required by property owner
	Weir Bore	643983	7402238	Coal Measures Overburden		
	RN 38845 (House Bore)	643384	7400545	Coal Measures Overburden		
	Jamar stockyard bore	642016	7399091	Coal Measures Overburden		
	100169	645116	7411290	Understood to be in the Coal Measures Overburden		
	100037	645259	7411381	Understood to be in the Coal Measures Overburden		
	132290	640966	7396404	Understood to be in the Coal Measures Overburden		
	37512	638173	7391640	Understood to be in the Coal Measures Overburden		
	103685	646319	7390738	Understood to be in the Coal Measures Overburden		
	Bore RN100036	634003	7411732	To be advised		
	Bore RN103024	636088	7412591	To be advised		

W44 Subject to requirements of condition W46, if the groundwater investigation trigger levels defined in Table 13 (Groundwater investigation trigger levels) are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority with twenty-eight (28) days of receiving the analysis results.

Table 13 (Groundwater investigation trigger levels)

Parameter	Unit	Trigger Levels	Limit Type
pH	pH Units	6.5 - 8.5	Minimum/Maximum
Electrical Conductivity	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Total Dissolved Solids	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Calcium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Magnesium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Sodium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Potassium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Chlorine	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
SO4	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
CO3	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
HCO3	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Iron	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Aluminium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Silver	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Arsenic	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Mercury	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Antimony	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Molybdenum	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Selenium	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.
Total Petroleum Hydrocarbons	To be provided as per condition W46.	To be provided as per condition W46.	To be provided as per condition W46.

W45 Subject to requirements of condition W47, groundwater levels and groundwater drawdown fluctuations, not resulting from the pumping of licensed bores, must be notified within twenty-eight (28) days to the administering authority following completion of monitoring.

Background groundwater monitoring program

W46 A background groundwater monitoring program must be developed to include bore(s) that are located an appropriate distance from potential sources of impact from mining activities to provide the following:

a) representative groundwater samples from the aquifers potentially affected by mining activities;

b) at least twelve (12) sampling events (monthly sampling) to determine background groundwater quality as far as practicable;

c) background groundwater quality in hydraulically isolated background bore(s) that have not been affected by any mining activities; and

d) the final groundwater contaminant parameters and trigger levels required for each bore type must be provided for condition W44 and Table 13 (Groundwater contaminant trigger levels).

W47 The groundwater monitoring data must be reviewed on an annual basis. The review must include the assessment of groundwater levels and quality data, and the suitability of the monitoring network. The assessment must be submitted to the administering authority within twenty-eight (28) days of receiving the report.

W48 Groundwater contaminant trigger levels as per Table 13 (Groundwater contaminant trigger levels) must be finalised based on a background groundwater monitoring program defined in condition W46 and submitted to the administering authority by **30 January 2012**.

W49 The following information must be recorded in relation to all groundwater water sampling:

a) the date on which the sample was taken;

b) the time at which the sample was taken;

c) the monitoring point at which the sample was taken; and

d) the results of all monitoring.

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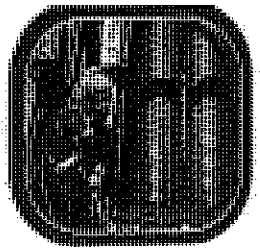
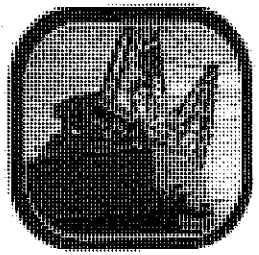
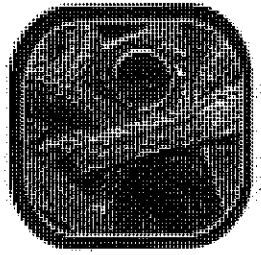
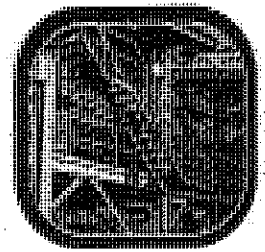
A COAL21 FUND COMPANY


Restoring the Ensham Water Balance

Approval Application Process

9 September 2011

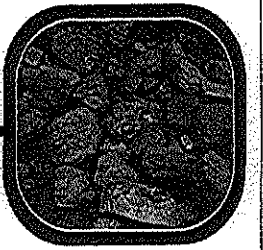
出光 J-POWER

The purpose of this meeting is to:

- Provide an update of:
  - The current operating status of the Ensham Mine
  - Critical Issues facing the operation
  - Planned actions to resolve those Critical Issues
- Resolve the most appropriate approval instruments and process to resolve the critical issues

Options for restoration of the site water balance

- EA Amendment under the Fitzroy Model Conditions
  - Time to remove the 20,000 ML likely to be of no assistance
- Transitional Environmental Program
  - If similar to 2010/11 TEP could provide for more than 10,000 ML per year of release in similar flow conditions to 2010/11
  - Once 20,000 ML removed, water balance maintained via med and high flow with EA amendment and Fitzroy model conditions



What has Ensham done to reduce risk of not achieving and maintaining water balance, once the legacy 20,000 ML is removed?

- Flood Inundation Risk Reduced Significantly
  - Increased flood protection to ARI 1,000 + 1 metre freeboard (+$40m cost)
  - Proven effective in 2010/11 wet season even though not complete
- Rainfall Catchment Risk Reduced
  - Rainfall catchment diversions activities completed around mine
  - Most rainfall runoff outside immediate mining pits runs off without being mine affected

What has Ensham done to improve mine water management and release capability and monitoring?

- Construction of a 9 km, large diameter HDPE Pipeline linking the Northern section of the mine to the Mine water reticulation system ($4m cost for completion late 2011)
- "In-stream" real time water quality monitors installed up and downstream of Ensham ($200k cost)
- Pumping installations in place for release of water from A Pits and Northern pits at up to 300 ML per day. ($6m cost)
- Flow meters installed on all release points for accurate water release quality dilution management ($60k)

What risk analysis or other assessment supports a TEP application?

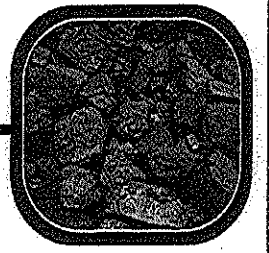
- Per our 2010/11 TEP application:
  - Aquatic toxicology study and assessment
  - Water release "in stream" dilution modelling
  - Extensive stakeholder engagement prior to and during release in 2010/11 (To be repeated)
  - Public and transparent availability of water quality monitoring results
  - Detailed analysis and report of 2010/11 water quality monitoring

What would we propose to submit in support of a TEP application?

- TEP Application document similar to 2010/11 with revised dilution modelling to consider EOP EC of up to 10,000 µS/cm
  - Proposed term and estimated duration to remove the 20,000 ML
- Initiatives to reduce risk of imbalance recurrance
- Toxicology assessment reports
- 2010/11 TEP Water quality monitoring analysis report

To have approval in place prior to suitable Nogoa River flows....

- Ensham will have TEP application ready by 23rd September
- DERM confirm approval process and any other required approval / application input information by 16 September



ENSHAM
RESOURCES
PTY LIMITED

ABN 23 011 048 678

As Operator of the
Ensham Coal Project

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Australia

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Website:
www.ensham.com.au

Environment Protection Agency
PO Box 3130
Rockhampton Shopping Fair
ROCKHAMPTON QLD 4701

Attention: Mr Jon Womersley

Dear Jon

Further to our meeting yesterday, this letter seeks approval for an Emergency Direction to enable the immediate commencement of dewatering of open cut pits filled with flood water at the Ensham Mine. It is understood that the emergency direction would remain active until a Transitional Environmental Program for the dewatering operations in place.

This letter provides a description of the proposed dewatering works that are not strictly in accordance with current mine Environmental Authority discharge conditions. It explains how the potential water quality impacts of the dewatering operations will be managed and monitored to ensure that no adverse impacts occur.

Dewatering South of the Nogoa River (A Pit and B Pit)

Stage 1 – Excavated Drainage Channels for the Top 5 m of pit water

It is proposed to drain the top 5 m of water from the pits by excavating an engineered channel to a lower drainage discharge point that will drain back to the Nogoa River main channel. There are two route options for this drainage channel (Figure 1). The first option involves the excavation of a channel from Ramp 24 through the haul road to Old Winton Creek. This option will require the permission of the neighbouring landowner.

The excavated channel will be designed by an experienced hydraulics engineer so that the flow rate and velocity of discharge water is controlled to ensure that there is no flooding or scouring due to the drainage water. The channel flow rate will be designed to be within the capacity of the channel of Old Winton Creek to ensure that there is no downstream flooding. The flow rate of the drainage channel will be controlled by the geometry of the excavated drainage channel (depth, cross-section and grade). Scour protection in the form of rock armouring will also be provided where necessary to ensure that the channel is protected from scouring and the channel geometry and flow rate control is maintained. Dependent on the capacity of Old Winton Creek, the drainage channel may be constructed progressively in stages to ensure the discharge flow volume and velocity is controlled. This would involve progressively increasing the channel depth to limit the head of water dictating the discharge flow rate, at any time.

Potential for scouring in Old Winton Creek will be assessed by the engineer prior to the commencement of discharge and additional scour protection will be installed if necessary. This may take the form of a series of rock weirs that would act as energy dissipaters to control flow velocity.

The second option will be considered in the event that landowner agreement is not obtained for discharge via Old Winton Creek. It would involve excavating a channel from

Ramp 26 to the haul road and utilising the haul road drains to convey water to the Nogoa River. The approach, as described above, would be utilised to control discharge flow rate, velocity and potential scouring.

The discharge works will be supervised by an experienced hydraulics engineer to ensure that adjustments can be made, as necessary, during the discharge event to manage any unexpected adverse impacts. Excess fill material and large earthmoving equipment (large bulldozers and excavators) will remain on standby adjacent to the discharge channel to enable the channel to be closed, and discharge to cease, in the event that any unforseen adverse impacts arise during discharge.

Pit water quality (pH, EC and TSS) will be monitored prior to the commencement of discharge and twice daily during the discharge event. Water quality will be monitored in the pit adjacent to the discharge point and in the Nogoa River at an accessible location downstream of the point where the discharge enters the river channel. Monitoring will also continue at the upstream and downstream compliance points in the Nogoa River, specified in the Environmental Authority. Pit water will not be discharged if it is in excess of the water quality limits specified in the Environmental Authority or if it is more then 10% above the TSS levels in the river.

Stage 2 and 3 Pumping

Once the stage 1 dewatering is completed, high capacity pumps will be installed to dewater the remainder of the pit. The potential discharge flow routes are via Old Winton Creek and via Winton Creek or an alternative established drainage gully (Figure 1). Scour protection will be installed in the drainage paths from the pit to the river as necessary. An experienced hydraulics engineer will inspect the drainage paths prior to the commencement of pumping and will assess the need for scour protection taking into account the pumping rate. The drainage paths will be continuously monitored during pumping. If any unexpected scouring occurs, pumping will cease and scour protection will be installed.

Discharge water quality monitoring will be as for the stage 1 works, described above.

Once the dewatering operations are completed the drainage paths used to convey discharge water to the river will have temporary scour protection removed and will be rehabilitated.

Dewatering North of the Nogoa River (C Pit and D Pit)

There are two options for Stage 1 dewatering north of the river. These are an excavated channel from the C Pit highwall to a gully draining to the anabranch or a channel from Ramp 4 to the existing drainage system to Boggy Creek (Figure 1). The channel in the highwall would be in fresh rock and is not likely to be susceptible to scouring.

The same approach, described above, would be adopted for the construction and operation of the discharge channels to ensure that there is no adverse water quality impacts, scouring or flooding due to the stage 1 discharge.

Stage 2 pumping will be conducted either using the same drainage paths as the stage 1 excavated channels or the existing network of pit dewatering drains and sediment dams draining to Boggy Creek. The flow capacity and scour protection of the latter would be upgraded as necessary following engineering assessment.

We are confident that the proposed management measures and controls outlined in this letter effectively address all of the issues raised at yesterday's meeting. With these management measures in place we are confident that the pit dewatering operations can be conducted without any adverse impacts.

Please contact Graham Morris should have any queries in relation to this application letter.

Yours faithfully

Graham Morris

Attachment: Figure 1

Queensland Government

Enquiries Glen Schulz
Telephone [redacted]
Your reference Ensham Coal Mine
Our reference EMD6411

1 February 2008

Environmental Protection Agency
incorporating the
Queensland Parks and Wildlife Service

Mr Graham Morris
Manager Project and Environment
PO Box 1565
EMERALD QLD 4720

RE: Emergency direction to discharge from mining pits B,C and D on ML7459 Ensham Coal Mine

The Environmental Protection Agency (EPA) refers to meetings undertaken in Brisbane on 29 and 30 January 2008 between Graham Morris from Ensham Resources Pty Ltd and Jon Womersley, Ian Wilson and Michael Rodgerson from the Environmental Protection Agency (EPA), and a site visit undertaken by Michael Rodgerson and Glen Schulz from the EPA on 31 January 2008, and supporting information provided to the EPA by Graham Morris on 1 February 2008, regarding permission to discharge mine affected water from mining pit B on the southern side of the Nogoa River, and mining pits C and D on the northern side of the Nogoa River located on ML7459.

The EPA hereby issues an Emergency Direction to Ensham Resources Pty Ltd to discharge mine affected water from mining pits B, C and D located on ML7459. The EPA considers the request to issue an emergency direction to discharge the mine affected water is:

- necessary and reasonable because it is an emergency; and
- there are no practicable alternatives to the removal of river water that has inundated the affected mining pits.

Accordingly, the following is authorised under s468 of the *Environmental Protection Act 1994*:

Pit B dewatering south of Nogoa River

- Subject to landholder permission, mine affected water may be released via an engineered channel excavated from pit B, ramp 24, through the eastern haul road to the former tributary of Old Winton Creek; or
- In the absence of landholder permission, mine affected water may be released via an engineered channel excavated from pit B, ramp 26, running parallel to the haul road, and conveyed to the Nogoa River utilising existing haul road drains; and
- Concurrently with dot point one or two above, mine affected water may be released from pit B via high volume pumps to the excavated channel joining the former tributary of Old Winton Creek, Winton Creek and the head of a series of three gullys flowing into the Nogoa River.

Pits C and D dewatering north of Nogoa River

- Mine affected water may be released via an engineered channel excavated from the pit C highwall and conveyed to the anabranch of the Nogoa River via an existing gully; or
- Mine affected water may be released via an engineered channel excavated from pit C, ramp 4 and conveyed to Boggy Creek via the existing drainage system; and
- Concurrently with dot points one or two above, mine affected water may be released from pits C and D via high volume pumps to the Nogoa River anabranch and Boggy Creek.

The discharge of mine affected water must be in accordance with the following conditions:

- All reasonable and practicable measures must be implemented to minimise scour, erosion or flooding from the excavated channels and drainage flow paths;
- If unexpected scour, erosion or flooding from an excavated channel or drainage flow path occurs, releases of contaminated water must immediately cease and appropriate scour protection and flow velocity controls must be installed;
- The mine affected water proposed to be discharged must be monitored at its point of origin in pits B, C and D and downstream of its discharge point into Old Winton Creek, Boggy Creek, Nogoa River anabranch, and the Nogoa River.
- Water quality must also be monitored at the upstream and downstream lease boundary Nogoa River compliance points 1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202;
- Water quality must be monitored twice daily at each point of origin and downstream location during the discharge events, and discharge must immediately cease if the quality of water exceeds the limits for pH, EC and TSS specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202, or is more than 10% above the TSS level at the upstream lease boundary Nogoa River compliance point 2;
- The discharge of contaminated water via engineered channels and high volume pumps from pits B, C and D is authorised until **15 February 2008**;
- No other discharges are authorised under this Emergency Direction; and
- A copy of a Temporary Environmental Program to replace the Emergency Direction and an amended Plan of Operations to accommodate the works proposed must be submitted to the EPA by **15 February 2008.**

If you have any questions regarding this emergency direction, please contact Glen Schulz on [redacted]

Yours sincerely

[redacted]

Michael Rodgerson
District Manager

Enquiries Glen Schulz
Telephone [redacted]
Your reference Ensham Coal Mine
Our reference EMD6-11

Queensland Government

Queensland Parks and Wildlife Service
Administered by
Environmental Protection Agency

15 February 2008

Mr Graham Morris
Manager Project and Environment
PO Box 1565
EMERALD QLD 4720

RE: New Emergency direction to discharge from mining pits B,C and D on ML7459 Ensham Coal Mine

I refer to my letter of 1 February 2008 providing Ensham Resources Pty Ltd with an Emergency Direction until 15 February 2008 to discharge mine affected water from mining pits, B, C and D located on ML7459.

The EPA hereby issues a new Emergency Direction to Ensham Resources Pty Ltd to discharge mine affected water from mining pit B on the southern side of the Nogoa River, and mining pits C and D on the northern side of the Nogoa River located on ML7459. The EPA considers the request to issue an Emergency Direction to discharge the mine affected water is:

- necessary and reasonable because it is an emergency; and
- there are no practicable alternatives to the removal of river water that has inundated the affected mining pits.

Accordingly, the following is authorised under s468 of the *Environmental Protection Act 1994*:

Pit B dewatering south of Nogoa River

- Subject to landholder permission, mine affected water may be released via an engineered channel excavated from pit B, ramp 24, through the eastern haul road to the former tributary of Old Winton Creek; or
- In the absence of landholder permission, mine affected water may be released via an engineered channel excavated from pit B, ramp 26, running parallel to the haul road, and conveyed to the Nogoa River utilising existing haul road drains; and
- Concurrently with dot point one or two above, mine affected water may be released from pit B via high volume pumps to the excavated channel joining the former tributary of Old Winton Creek, Winton Creek and the head of a series of three gullys flowing into the Nogoa River.

Pits C and D dewatering north of Nogoa River

- Mine affected water may be released via an engineered channel excavated from the pit C highwall and conveyed to the anabranch of the Nogoa River via an existing gully; or

- Mine affected water may be released via an engineered channel excavated from pit C, ramp 4 and conveyed to Boggy Creek via the existing drainage system; and
- Concurrently with dot points one or two above, mine affected water may be released from pits C and D via high volume pumps to the Nogoa River anabranch and Boggy Creek.

The discharge of mine affected water must be in accordance with the following conditions:

- All reasonable and practicable measures must be implemented to minimise scour, erosion or flooding from the excavated channels and drainage flow paths;
- If unexpected scour, erosion or flooding from an excavated channel or drainage flow path occurs, releases of contaminated water must immediately cease and appropriate scour protection and flow velocity controls must be installed;
- The mine affected water proposed to be discharged must be monitored at its point of origin in pits B, C and D and downstream of its discharge point into Old Winton Creek, Boggy Creek, Nogoa River anabranch, and the Nogoa River.
- Water quality must also be monitored at the upstream and downstream lease boundary Nogoa River compliance points 1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202;
- Water quality must be monitored twice daily at each point of origin and downstream location during the discharge events, and discharge must immediately cease if the quality of water exceeds the limits for pH, EC and TSS specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202, or is more than 10% above the TSS level at the upstream lease boundary Nogoa River compliance point 2;
- The discharge of contaminated water via engineered channels and high volume pumps from pits B, C and D is permitted to take effect under this Emergency Directive from **16 February 2008** and is authorised to continue until **29 February 2008**;
- No other discharges are authorised under this Emergency Direction; and
- A copy of a Temporary Environmental Program to replace the Emergency Direction and an amended Plan of Operations to accommodate the works proposed must be submitted to the EPA by **29 February 2008**.

If you have any questions regarding this emergency direction, please contact Glen Schulz on [redacted]

Yours sincerely

[redacted]

Michael Rodgerson
District Manager

ENSHAM MINE

FLOOD DEWATERING

TRANSITIONAL ENVIRONMENTAL PROGRAM

29 February 2008

ENSHAM RESOURCES PTY LTD
Level 18, AMP Place
10 Eagle Street
BRISBANE QLD 4000

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ENSHAM MINE FLOOD DEWATERING
TRANSITIONAL ENVIRONMENTAL PROGRAM

for
Ensham Resources Pty Ltd

1 INTRODUCTION

This report documents Ensham Resources' Transitional Environmental Program (TEP) for activities related to the dewatering of open cut pits following flooding from the Nogoa River in January 2008. The TEP is a requirement of the Emergency Direction for Ensham Mine pit dewatering issued by the Environment Protection Agency (EPA) on 1 February 2008. In accordance with the conditions of the Emergency Direction, the TEP supersedes the Emergency Direction.

The TEP is structured as follows:

- TEP objectives;
- TEP timeframe;
- Description of dewatering activities, potential environmental impacts and proposed environmental management measures – designed to achieve TEP objectives;
- Rehabilitation during and following completion of dewatering;
- Pit recovery planning, including the process of implementing ongoing flood protection; and
- Monitoring and reporting, including performance indicators.

2 TRANSITIONAL ENVIRONMENTAL AUTHORITY OBJECTIVES

The Ensham Mine Environmental Authority (EA) No. MIM800086202 allows the controlled discharge of mine water to the Nogoa River. The discharge conditions include downstream water quality limits and specified discharge locations. The proposed flood dewatering activities will be conducted in a manner that is generally consistent with the EA discharge conditions, however, there are some variations required from the EA discharge conditions due to the magnitude of the pit flooding and the dewatering program.

The objective of this TEP is to remove flood waters that entered mining pits A, B, C and D back into the Nogoa River as quickly as possible while minimising environmental harm. The potential adverse impacts of the dewatering operations include:

- Downstream flooding from discharge water;
- Contamination of downstream water quality; and

- Scouring and erosion of drainage paths and waterways by discharge waters.

The mitigation and management measures for these potential impacts are presented in the following sections.

3 TIMEFRAME FOR THE TRANSITIONAL ENVIRONMENTAL AUTHORITY

The TEP will be required to remain in place for the duration of the pit dewatering and recovery activities. Regular reporting of pit dewatering and recovery activities will be provided to the EPA as detailed in Section 7.3. It is currently anticipated that the dewatering and recovery activities will be completed within 18 months and the TEP will be active until 1 July 2009. However, the timeframe could be extended due to the variable nature of many of the factors that will determine the precise dewatering timeframe. These include the actual dewatering rates achievable over time, further rainfall over the wet season, etc.

4 DEWATERING ACTIVITIES AND ENVIRONMENTAL MANAGEMENT MEASURES

4.1 INTRODUCTION

Ensham Resources is committed to achieving the TEP objectives. The following sections describe the current status of dewatering, the proposed dewatering operations and the environmental management measures designed to achieve the TEP objectives. The nature of the dewatering operations are such that they will require a degree of operational flexibility in order to cater for the varying site and operating conditions that will occur during the progress of the dewatering operations. The management measures allow for a suitable level of flexibility without compromising the achievement of TEP objectives.

4.2 A & B PIT DEWATERING SOUTH OF THE RIVER

4.2.1 Current Status of Dewatering

Pumping of water is currently in progress in the following two general locations in B Pit (Figure 4):

- Ramp 26 West area; and
- Ramp 26 East area.

The Ramp 26 West area is currently being dewatered using standard pit dewatering pumps which together are pumping approximately 0.3 m^3/s (28 ML/day). The Ramp 26 East area is currently being dewatered using higher flow capacity pumps which together are pumping approximately 4.2 m^3/s (360 ML/day).

During February 2008 efforts continue to install more pumps at these locations. Planning and preparation is also continuing towards the excavation of channels for using as drainage (now becoming less likely due to lowering of water levels) or as pumped water channels.

4.2.2 Excavated Drainage Channels

Option 1

It is proposed to drain the water retained in the pits above the natural surface level in B Pit by excavating an engineered channel to a lower drainage discharge point that will drain back to the Nogoa River main channel. This is subject to the water level reached after natural outflow has ceased. There are two route options for this drainage channel (Figure 1). The first option involves the excavation of channels from Ramp 24 (B Pit) and Ramp 22 (A Pit North) through the haul road to Old Winton Creek. The channel from Ramp 22 will involve the enlargement of the existing haul road V drain, as necessary, under the guidance of a suitably qualified and experienced hydraulics engineer. This option will require the permission of the neighbouring Currimundi property landowner and the point of discharge is indicated in Figure 4.

The current water level in B Pit is approximately 150 m AHD. The level of the proposed discharge point in Old Winton Creek is approximately 148 m AHD. The excavated channel will be designed by a suitably qualified and experienced hydraulics engineer to ensure that the flow rate and velocity of discharge water are controlled in order to prevent downstream flooding or scouring due to the drainage water. The rate of discharge into this channel will not exceed the channel flow capacity of Old Winton Creek which has been initially estimated at approximately 10 m^3/s (850-900 ML/day). Further detailed engineering assessment and monitoring of the creek after the initial 24 hours of discharge will be conducted to confirm the channel capacity and the discharge rate will be controlled accordingly. Based on the monitoring results, further controls will be implemented as necessary.

The flow rate of the drainage channel will be controlled by the geometry of the excavated drainage channel (depth, cross-section and grade). The drainage channel will be constructed progressively with the width and depth gradually increased in small increments to control the discharge rate and velocity.

Scour protection in the form of rock armouring and/or energy dissipaters will also be provided where necessary to ensure that the channel is protected from scouring and the channel geometry and flow rate control is maintained (Figure 3).

The existing drainage and irrigation infrastructure on the downstream Currimundi property has been inspected and the proposed works necessary to upgrade the two Old Winton Creek crossings have been designed by the engineer (Figure 2). A new culvert will be installed beneath the Old Winton Creek embankment approximately 2 km downstream of the Ensham boundary. The open irrigation channel which crosses Old Winton Creek at this point will be repaired following completion of this culvert construction.

The existing 600 mm diameter pipe culvert a few hundred metres downstream of this crossing will be upgraded with a larger culvert. Following completion of this work the culverts at both locations will have capacity at least equal to that of the creek channel.

Option 2

In the event that landowner agreement is not obtained for discharge of water via Old Winton Creek Option 2 will be considered. This option involves excavation of a channel from Ramp 26 to the haul road and utilising the haul road drains to convey water to the Nogoa River. Alternatively the drainage channel will discharge to existing drainage gullies. The same approach, as described above, would be utilised to control discharge flow rate, velocity and potential scouring.

The discharge works will be supervised by a suitably qualified and experienced hydraulics engineer to ensure that adjustments can be made, as necessary, during the discharge event to manage any unexpected adverse impacts and these adjustments will be reported to the EPA, initially by telephone, and formally in the next monthly report (refer Section 7.3). Excess fill material and large earthmoving equipment (large bulldozers and excavators) will remain on standby adjacent to the discharge channel to enable the channel to be closed, and discharge to cease, in the event that any unforeseen adverse impacts arise during discharge. An indicative typical section for the excavated channels (subject to site specific engineering assessment of geometry) is shown in Figure 3.

Once the dewatering via the excavated channels is completed the channels will be backfilled and rehabilitated.

4.2.3 Pumping

Concurrent with dewatering from the excavated channels, high capacity pumps will be installed to dewater the remainder of the pits. Ensham is obtaining a fleet of pumps with a total dewatering capacity of up to 25 m^3/s (2,000 ML/day) to ensure the pits can be dewatered as quickly as possible. This is necessary to minimise the potential for pit water quality to adversely deteriorate. A list of the currently available pumps and their capacities is included in Appendix A.

The bank full capacity of the Nogoa River just downstream of the Ensham haul road crossing is approximately 3,000 m^3/s (Cox Andrews ***Surface Drainage Assessment*** 2004). Therefore the proposed maximum discharge volume is less than 1% of this capacity.

The potential discharge flow routes are via Old Winton Creek, via Winton Creek or via alternative established drainage gullies over the floodplain to the Nogoa River (Figure 4). The estimated capacity of the Winton Creek channel is 10 m^3/s. The total combined pump discharge to these channels to Old Winton Creek will be limited to a maximum of 10 m^3/s (850-900 ML/day) or an appropriate volume identified from the initial trial and subsequent monitoring to prevent flooding beyond the high bank, keep flow velocities below 2 m/s and minimise adverse downstream effects.

A schematic diagram of the river and creek flow system and flow capacities is shown in Figure 6. Total channel and pump discharges will be managed to ensure that flows do not exceed the existing waterway capacities.

Scour protection will be installed in the drainage paths from the pit to the river as necessary. The Ensham Environmental Officer, under the guidance of an experienced hydraulics engineer, will inspect the drainage paths prior to the commencement of pumping and will assess the need for scour protection taking into account the pumping rate. The drainage paths will be monitored continuously during pumping. If any unexpected scouring occurs, pumping will cease and scour protection will be installed.

Indicative arrangements for scour protection for the pump discharge points and scour protection of drainage paths (subject to site specific engineering assessment) are shown in Figure 3.

Pumping installations will be serviced by temporary fuel storage tanks. The fuel tanks will be installed with earth bunds to contain any potential spills. Photographs of a typical pump installation and bunded pump fuel storage tank are shown in Figure 5.

In the event that monitored pit water quality parameters approach the discharge water quality limits (eg due to stratification) a review of pit water quality control measures will be conducted. This will include the use of chemical or physical means. An appropriate control method will be implemented following consultation with the EPA.

Once the dewatering operations are completed the drainage paths used to convey discharge water to the river will have any temporary scour protection removed and will be rehabilitated (Section 5).

If agreed by the landowner, pumping to Old Winton Creek will be monitored. Monitoring will include a pre-inspection and a further inspection 24 hours after pumping at the proposed discharge rate. The 24 hour inspection will involve cessation of pumping, inspection and photographic records to demonstrate the capability of the creek to maintain the flow with acceptable scouring, erosion, and no flooding. These records will be submitted to the EPA. Once the flow is demonstrated not to cause detrimental effects, further monthly inspections will be conducted. These will also involve cessation of pumping, visual inspection, inspection of vegetation and infrastructure and photographic records to be submitted to the EPA.

4.2.4 Temporary Flood Protection Earthworks

In order to prevent further flooding of the pits during the dewatering operations it may be necessary to construct temporary repairs to the existing flood protection levees, or construct other flood protection works in drainage lines which may direct further flood waters to the pits. The location and extent of any necessary temporary flood protection works can only be determined once the flood waters have receded and the potential for further flooding of the pits can be assessed. A suitably qualified and experienced hydraulics engineer will assess the need for such works and prepare designs for any such earthworks and submit these

designs to the EPA in the next monthly report (Refer Section 7.3). The EPA and other relevant agencies will be consulted in relation to any such works before they commence. The pit recovery planning process is detailed further in Section 6.

4.3 C & D PIT DEWATERING NORTH OF THE RIVER

4.3.1 Current Status of Dewatering

There is currently no dewatering in progress in C and D Pit due to the continued inflow of water from the Nogoa River anabranch. Consideration of options and planning is in progress during February 2008. Design and implementation proposals will be submitted to the EPA in the next monthly report (refer Section 7.3).

4.3.2 Excavated Drainage Channels

Options for dewatering of C and D Pit via natural drainage channels on the north side of the river will also depend on the water level after natural drainage has ceased. These options are:

- excavation of a channel from the C and/or D Pit high walls to gullies draining to the anabranch; or
- Excavation of a channel from Ramp 4 and/or Ramp 6 to the existing drainage system to Boggy Creek (Figure 1).

The current water level in D Pit is approximately 145 m AHD. At the currently proposed discharge point in Boggy Creek the bed level is approximately 143 m AHD and the banks of the channel are typically 3 m high. Further design work is in progress to ensure that scouring of the flow path does not occur during discharge.

The same approach, described in Section 4.2.1, would be adopted for the construction and operation of the discharge channels to ensure that there are no adverse water quality impacts, scouring or flooding due to the discharge water.

4.3.3 Pumping

Pumping will be conducted using either the same drainage paths as the excavated channels or the existing network of pit dewatering drains and sediment dams draining to Boggy Creek and the Nogoa anabranch (Figure 4). The capacity of Boggy Creek has been estimated as 10 m^3/s by the engineer. The capacity of the Nogoa River anabranch has been previously estimated as 1,250 m^3/s in the vicinity of C and D Pit (Cox Andrews ***Surface Drainage Assessment*** 2004). The total pump capacity of dewatering operations on either the eastern or western side of C and D Pit will not exceed 10 m^3/s respectively.

5 REHABILITATION

The Ensham Manager Project and Environment will oversee all dewatering operations and undertake regular inspection of all pumping operations, discharge channels and discharge points. In the event that regular inspection detects the initiation or presence of any erosion or scouring the dewatering activities will cease until the area has been stabilized and the erosion rectified. This may involve the placement of additional rock armouring.
Following completion of all dewatering operations excavated channels will be backfilled with inert spoil material, topsoiled, ripped and grass seeded. Discharge water drainage paths will have any rock armouring removed and will be shaped, topsoiled and grass seeded. Sediment and erosion control measures will be implemented and maintained as necessary until satisfactory vegetation cover has been re-established.

6 PIT RECOVERY PLANNING

The process of planning the recovery of the flooded Ensham Mine pits is ongoing as information is obtained. The main elements and sub-elements of this process include the following;

- Dewatering
    - Drainage of the upper level of flood water to the Nogoa River via excavated channels
        - via the Old Winton Creek channel (Currimundi Property)
        - via a drainage channel to Boggy Creek or the anabranch
        - via the haul road drain in the vicinity of Ramp 26
    - Pumping to the Nogoa River using "High Flow" and "High Head" pumps
        - directly
        - via the Old Winton Creek channel (Currimundi Property)
        - via a drainage channel to Boggy Creek
- Immediate Flood Protection for Mining Pits
    - Review of current flood exposure
    - Evaluation of Immediate Flood Protection Options
    - Design of preferred option
    - Consultation with EPA and other relevant agencies
    - Construction/Implementation
- Long Term Flood Protection
    - Evaluation of Flood Protection / Levee Options
    - Design of preferred option
    - Consultation with EPA and other relevant agencies
    - Construction/Implementation
- Silt Removal from Pits
    - Assess volume and type of material in each pit
    - Evaluation of management or disposal options
    - Construction/Implementation

- Monitoring and Reporting
    - Recovery Project Management Structure
    - Monitoring and Reporting Systems
        - Accountabilities of Officers
        - Water quality sampling and analysis (reported to EPA immediately in the event of conditions breach, or monthly results submitted to EPA)
        - Daily, Weekly and Monthly reporting
        - Progress Monitoring and Corrective Action procedures (submitted to EPA in monthly reports)

- Rehabilitation
    - Rehabilitation of Recovery Works (On site and Offsite)
        - Drainage Channels
        - Tributaries Creeks and Waterways
        - Pipe Outfalls, Removal of Rip Rap etc
        - Roadways and accesses
        - Levees (Currimundi property)

7 WATER QUALITY MONITORING AND REPORTING

7.1 CURRENT WATER QUALITY MONITORING

The water quality limits applicable to discharges conducted under the TEP are those specified in the Environmental Authority (Schedule C – Table 2 (Receiving Water Contaminant Limits)).

EA monitoring location Compliance Point 2 is located on the Nogoa River upstream of the mine and water quality measured at this location is unaffected by mine water discharge. In the event that the background TSS level measured in the Nogoa River at this point is more than the maximum TSS limit of 1,150 mg/L specified in the EA then the applicable TSS limit for discharge water will be the background river TSS level (measured at Compliance Point 2) plus 10%.

Monitoring of water quality in both the Nogoa River and B Pit commenced on 28 January 2008 and has been ongoing on a twice daily basis. Initial monitoring of pit water quality in the Ramp 26 area of B Pit, adjacent to pumping installations, indicates that pit water quality is similar to that of the Nogoa River with pH ranging from 7.3 to 8.0 and EC ranging from 120 to 240 µS/cm. TSS results to 4 February 2008 also indicate that pit water quality is similar to that of the Nogoa River. All results are within the EA limits therefore current pit water quality does not pose any limitation to the dewatering operations. However, sediment stratification and changing conditions in the pit water may result in different water quality as the water levels in the pits reduce. Methods to address potential issues will be assessed at that time and may include physical and chemical measures to control water quality. A full summary of monitoring results available to date is provided in Appendix B.

Pit water will not be discharged if sampled parameters are in excess of the water quality limits specified in the EA. Discharge will also cease immediately in the event that monitored discharge water quality exceeds these limits.

7.2 FUTURE WATER QUALITY MONITORING

During all future discharges, water quality parameters (pH, EC and TSS) will be monitored prior to the commencement of discharge and twice daily during the discharge event. Water quality will be monitored at the following locations:

- in the pit adjacent to the pump installation or at the inlet to the excavated channel;
- downstream of its discharge point into Old Winton Creek, Winton Creek, Boggy Creek, the Nogoa River or the Nogoa River anabranch; and
- Nogoa River at Compliance Points 1 and 2 as specified in the Environmental Authority.

Monthly monitoring of metals (Aluminium, Arsenic, Cadmium, Chromium, Copper, Lead, Iron, Nickel, Zinc, Selenium) will also be conducted from pits being dewatered and in the Nogoa River at Compliance Points 1 and 2 (ie upstream and downstream of the mine).

During the course of water release from the inundated pits, Ensham will be monitoring with hand held electronic meters the levels of pH, EC and TSS. Meters to provide this capability have been purchased and will be used as part of the regular monitoring programme. The TSS meter has recently been received and is in the process of calibration for local conditions after which it will be fully operational.

At the same time that electronic sampling is carried out, sample bottles will also be taken that will be analysed with Ensham's usual provider of NATA standard water analysis. These will ensure that a check is maintained for any drift in the meter readings.

7.3 REPORTING

Ensham will prepare comprehensive daily reports on the dewatering operations detailing the location of channels, pumps and discharge flows, discharge flow rates and monitoring results. The reports will be available for inspection by the EPA on request. EPA officers and advisors will also be able to inspect the dewatering operations at any time subject to the necessary site safety induction requirements.

Monthly reports will also be provided to the EPA. These will report on dewatering activities for the previous month including pumping locations, pumping rates, dewatering volumes, water quality results etc.

Successive monthly reports will report on, but not be limited to, the following:

- Issues;

- Stoppages;
- Scouring;
- Flooding;
- Complaints/resolution;
- Water quality exceedances;
- Explanation of exceedances;
- Channel integrity and performance of erosion protection measures;
- Photographs;
- Mechanisms of failure;
- New works;
- Plans and drawings of new works; and
- Pump movements and current locations.

The first report will cover data from the start of the project through to the end of February 2008 and the plan for the period of March 2008. Successive monthly reports will be prepared and issued at the end of each month and delivered to the EPA by the fifth business day of the month.

* * *

FIGURES

Excavation Of Drainage Channels to Nogoa River

Pumping from Pits directly to Nogoa River or via Tributary Creek

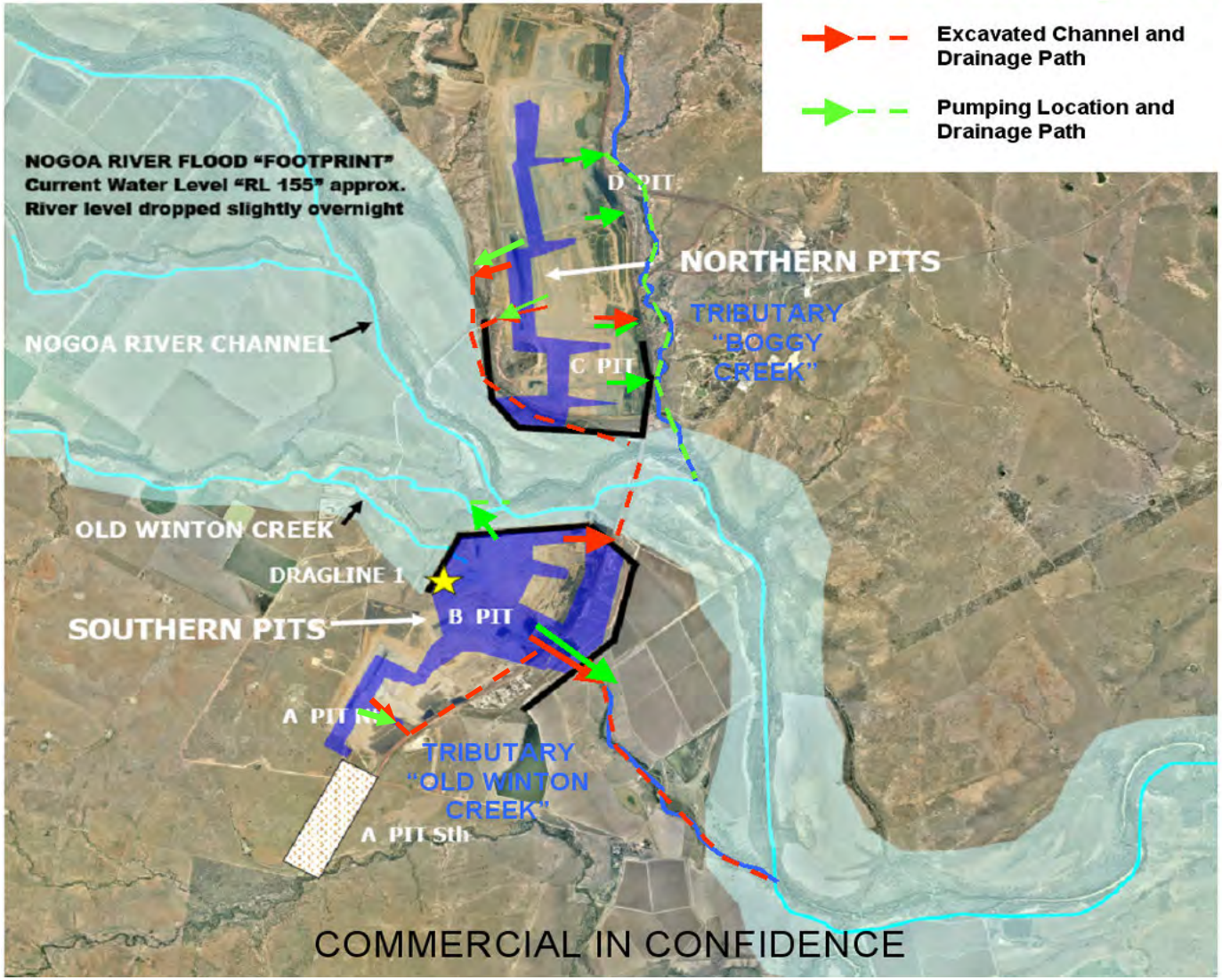
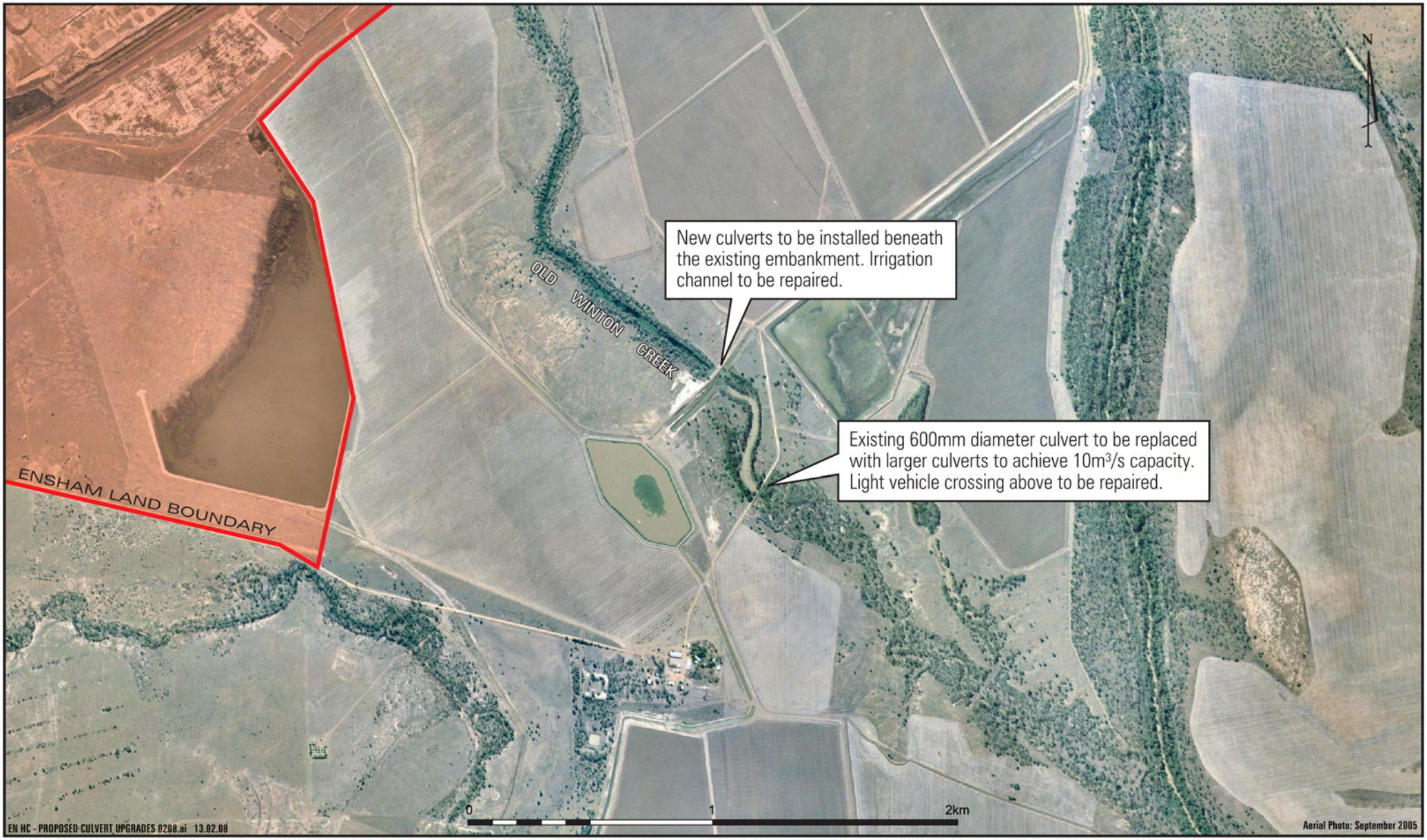


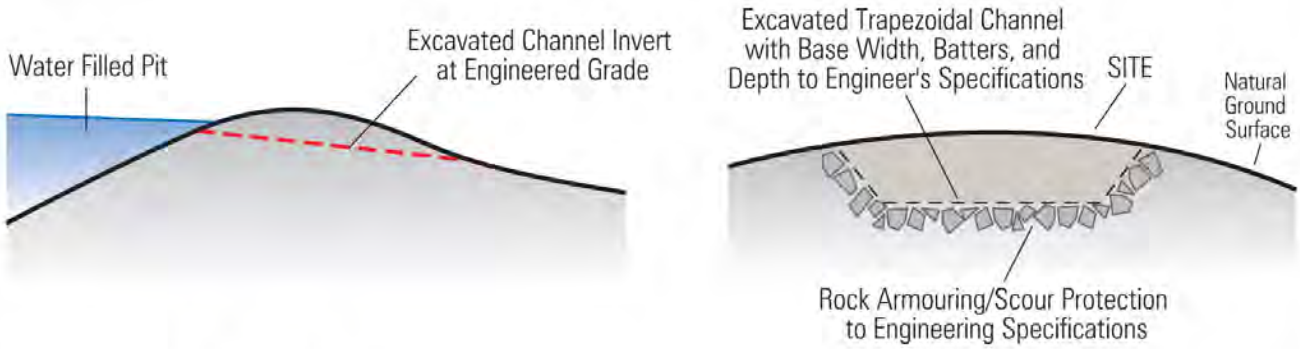
Figure 1



Proposed Culvert Upgrades along Old Winton Creek on Currimundi Property

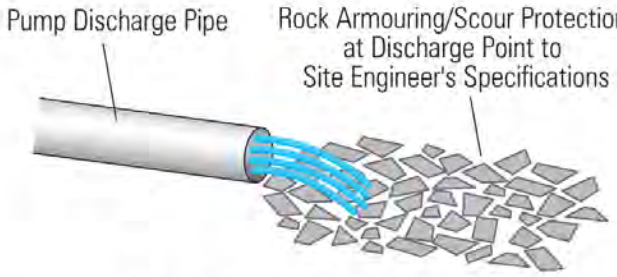
Ensham RESOURCES

FIGURE 2

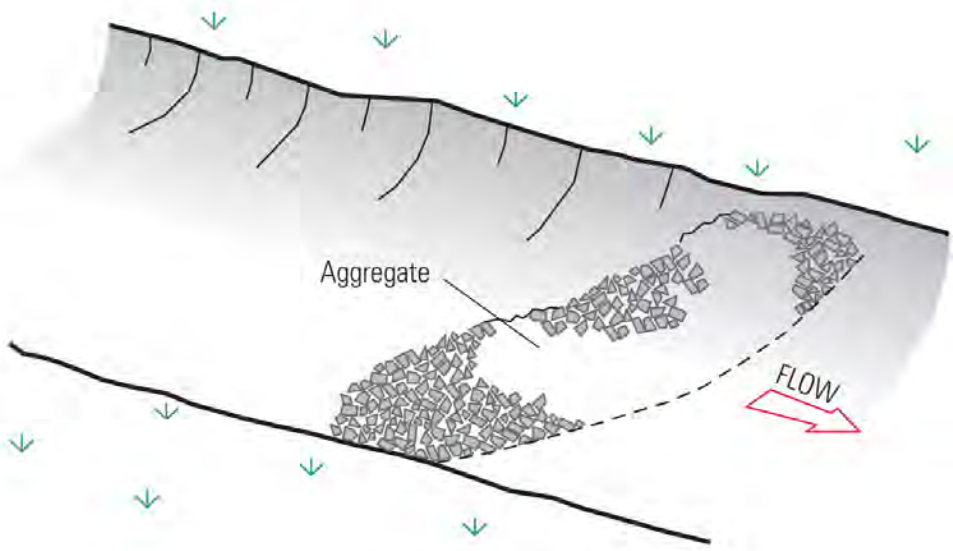


LONG-SECTION
(Not to scale)

CROSS-SECTION
(Not to scale)



PUMP DISCHARGE POINT
SCOUR PROTECTION INDICATIVE ARRANGEMENT
(Not to scale)



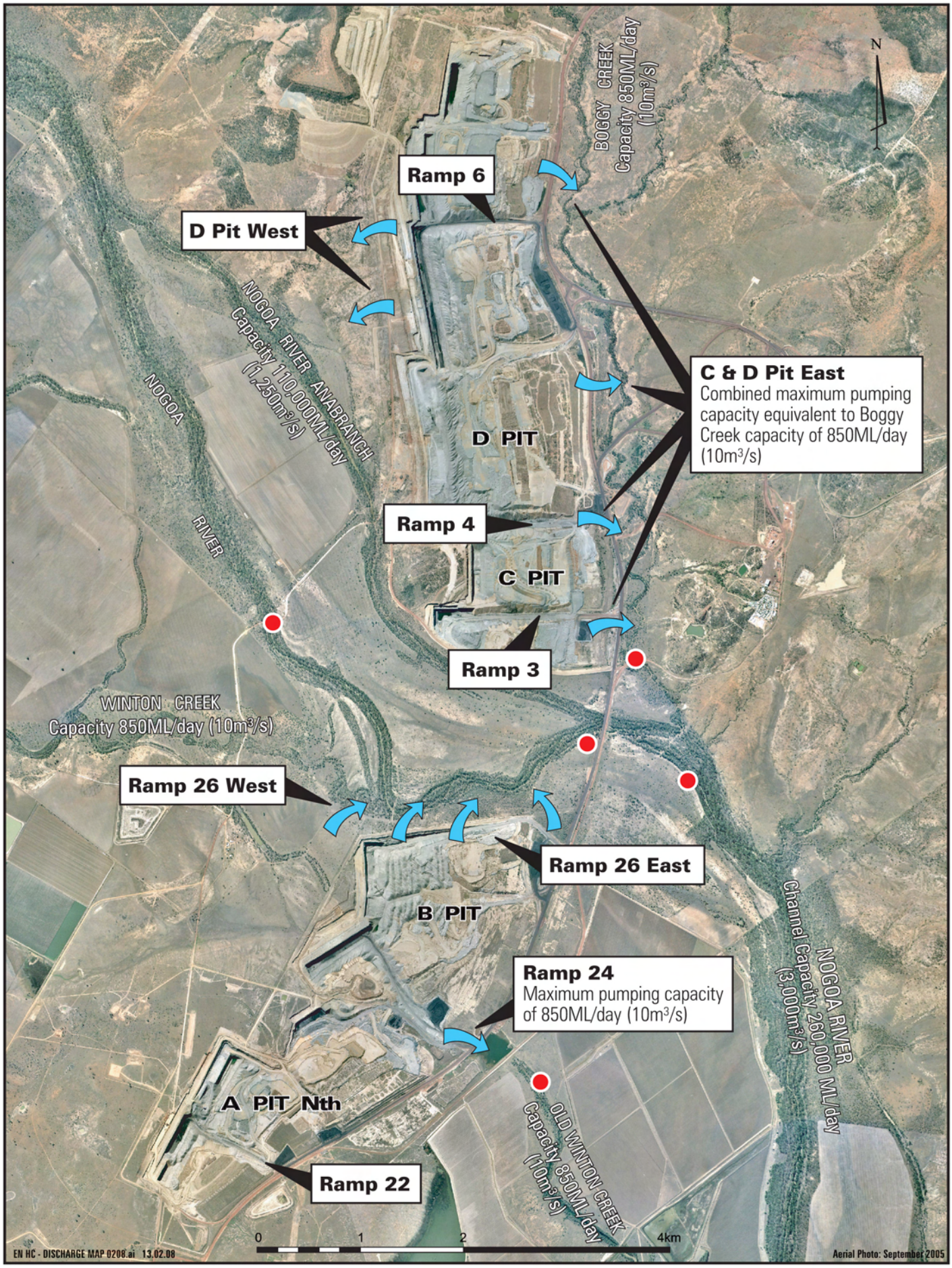
DRAINAGE FLOW PATH
VELOCITY/SCOUR CONTROL
(Not to scale)

EN HC - Pit Overflow 0108.ai 31.01.08

Scour Protection Typical Sections

Ensham Resources

FIGURE 3



Water Quality Monitoring Location

Potential Pumping Discharge Location

Indicative Preliminary Pumping Arrangements

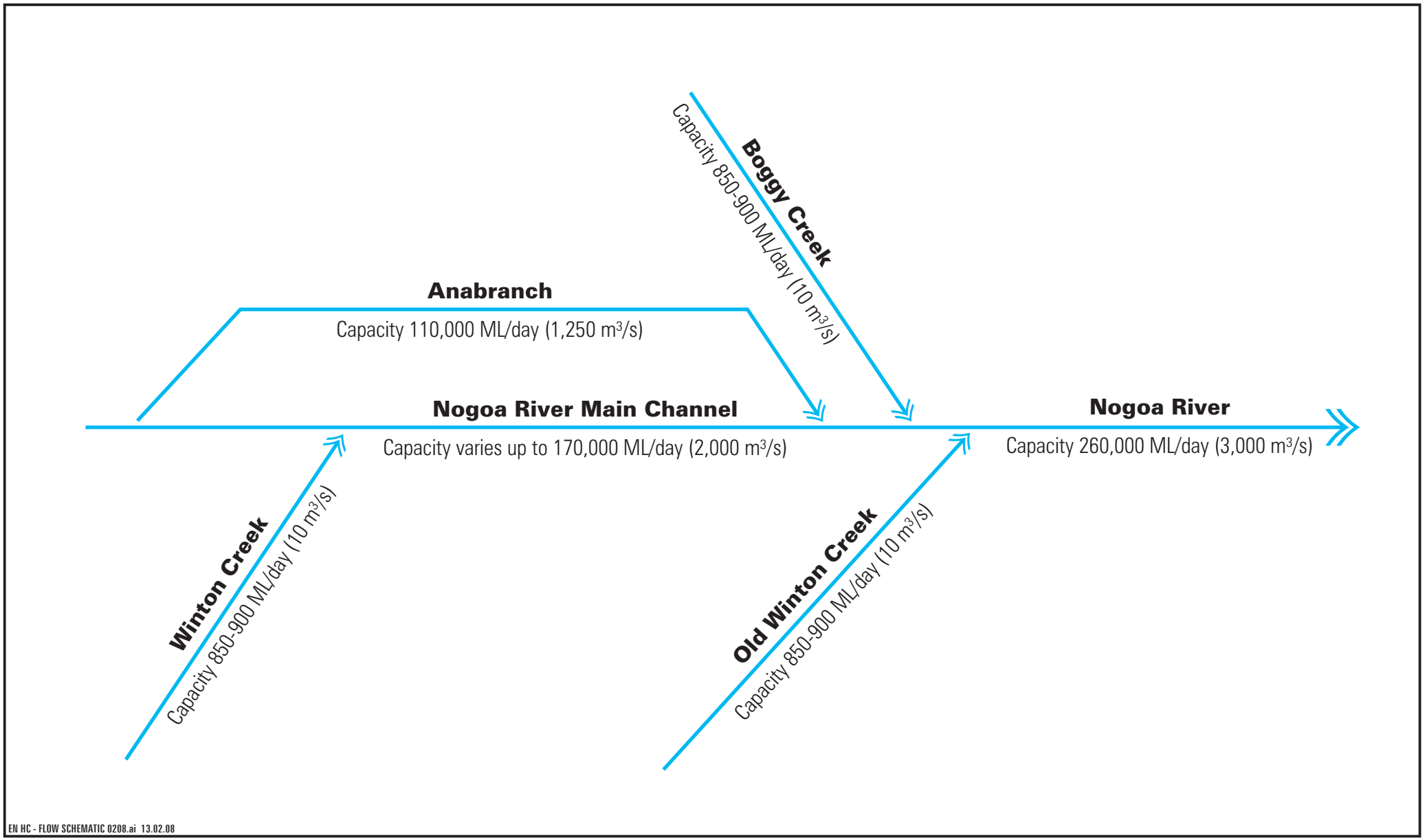
Ensham RESOURCES

FIGURE 4

Typical Dewatering Pump Installations
(currently Ramp 26 West)

Typical Bunded Pump Fuel Tank Installation
(currently Ramp 26 East)

Typical Dewatering Pump Installations **Figure 5**



River and Creek Flow Schematic

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FIGURE 6

APPENDIX A

ENSHAM AVAILABLE PUMPS AND CAPACITIES

12 February 2008

Pump Type	Number	Capacity (each) (ML/day)	Current Use
26" Flood Lifter	3	123	R26 East
26" Flood Lifter	3	123	awaiting delivery/installation
Various Medium Lift/flow pumps	8	37.5	not installed yet
KSB Electric Pumps	2	322	Being modified
Pit Pumps	13	7	3 at R26 West
Legra Highwall Pumps	2	8.6	1 at R26 West

APPENDIX B

Ensham Mine Water Quality Monitoring Results

		pH (field)	pH (lab)	EC (field) (µS/cm)	EC (lab) (µS/cm)	Turbidity (field) (NTU)	TSS (lab) (mg/L)	Comments
MON 26th JAN								
3.15pm	Ramp 22	7.46	7.29	147	138	-	342	= given to ACIRL Mon 3rd Feb (am)
3.30pm	Ramp 24	7.51	7.02	166	157	-	700	
10.40am	Ramp 4	7.33	7.14	165	166	-	276	
11:05am	Ramp 7	7.10	7.32	449	678	-	196	
10:30am	River downstream	7.51	7.30	161	138	-	278	
FRI 1st FEB								
8.45am	Ramp 24	7.31	-	158	-	-	-	
8:10am	Ramp 26	7.39	7.10	128	127	-	668	
9:30am	River downstream	7.44	-	138	-	-	-	
SAT 2nd FEB								
12.00pm	River upstream	7.44	6.94	122	116	-	270	
12.20pm	Ramp 26	7.40	6.97	139	131	-	3720*	* Sample not representative - HSE digging nearby.
12.40pm	River downstream	7.36	6.93	128	122	-	263	
SUN 3rd FEB								
9.50am	River upstream	-	6.94	-	116	-	264	
10:30am	Ramp 26	-	7.06	-	130	-	434	
2.45pm	River downstream	-	6.96	-	124	-	228	
MON 4th FEB								
7.00am	River upstream	7.47	6.99	128	121	-	252	
7.50am	Ramp 26	7.74	7.08	144	138	-	343	
8.00am	River downstream	7.54	7.01	148	145	-	267	
pm	River upstream	-		-		-		= given to ACIRL Wed 6th Feb (am)
pm	Ramp 26	-		-		-		
pm	River downstream	-		-		-		
TUE 5th FEB								
6:45am	River upstream	7.52		126		-		
7:15am	Ramp 26	7.69		146		-		
7:30am	River downstream	7.52		138		-		
pm	River upstream	-		-		-		
pm	Ramp 26	-		-		-		
pm	River downstream	-		-		-		
2:20pm	Ramp 22	8.02	-	236	-	-	-	Temp 38C
2:40pm	Ramp 24	7.88	-	158	-	-	-	Temp 37.9C
WED 6th FEB								
	River upstream	Winton Creek blocking access						
7.40am	Ramp 26	7.62		152		-		= given to ACIRL Fri 8th Feb (pm)
7.50am	River downstream	7.05		198		-		
	River upstream	Winton Creek blocking access						
3.45pm	Ramp 26	-		-		-		
3.55pm	River downstream	-		-		-		
THURS 7th FEB								
7.05am	River upstream	7.73		150		-		
7.45am	Ramp 26	7.85		160		-		
8:00am	River downstream	7.62		208		-		
5:20pm	River upstream	-		-		-		
4.30pm	Ramp 26	-		-		-		
4.45pm	River downstream	-		-		-		
FRI 8th FEB								
7.10am	River upstream	7.49		142		-		
8.15am	Ramp 26	7.49		146		-		
8.35am	River downstream	7.39		149		-		
3.05pm	River upstream	-		-		-		
2.15pm	Ramp 26	-		-		-		
2.30pm	River downstream	-		-		-		
SAT 9th FEB								
	River upstream	-		-		-		
	Ramp 26	-		-		-		
	River downstream	-		-		-		
SUN 10th FEB								
	River upstream	-		-		-		
	Ramp 26	-		-		-		
	River downstream	-		-		-		
MON 11th FEB								
9.25am	River upstream	7.97		144		-		
10:25am	Ramp 26	7.98		167		-		
10:50am	River downstream	7.44		154		-		
4.35pm	River upstream	-		-		-		
3:40pm	Ramp 26	-		-		-		
3.50pm	River downstream	-		-		-		
TUE 12th FEB								
9.15am	River upstream	8.21		142		-		
10:00am	Ramp 26	8.05		205		-		
10:20am	River downstream	7.92		162		-		
	River upstream	-		-		-		
	Ramp 26	-		-		-		
	River downstream	-		-		-		
WED 13th FEB								
	River upstream					-		
	Ramp 26					-		
	River downstream					-		
	River upstream	-		-		-		
	Ramp 26	-		-		-		
	River downstream	-		-		-		

Environmental Operations

Transitional environmental program certificate of approval number EMD 001-08

This certificate of approval is issued by the administering authority pursuant to section 339 of the Environmental Protection Act 1994. *An transitional environmental program is a specific program that, when approved, achieves compliance with the* Environmental Protection Act 1994 *for the matters dealt with by the program by reducing environmental harm, or detailing the transition to an environmental standard.*

Under the provisions of the *Environmental Protection Act 1994*, this certificate of approval is hereby granted to:

Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

approving the draft transitional environmental program; titled Ensham Mine Flood Dewatering Transitional Environmental Program for management of pit detwatering at ML7459.

The draft transitional environmental program, dated 29 February 2008, was received by this office on 29 February 2008.

The draft transitional environmental program is approved subject to the following conditions:

1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water down Old Winton Creek is permitted subject to landholder approval being obtained in writing.

3. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

4. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the Nogoa River under no flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

5. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs; discharge of mine affected water must immediately cease and appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person.

6. – Mine affected water quality must be monitored twice daily for pH, electrical conductivity (EC), and total suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and monthly for metals, including aluminium, arsenic, cadmium, chromium, copper, lead, iron, nickel, zinc and selenium within 100m of the active pumping locations in pits A, B, C and D and within 500m downstream of the end-of-pipe discharge points into any watercourse. Water quality must also be monitored for the same parameters and at the same frequency as described above at the upstream and downstream lease boundary Nogoa River compliance points

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1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202.

7. – Discharge of mine affected water must immediately cease, and an investigation be undertaken, if:

- the quality of water in any pit or at a downstream monitoring location exceeds the limits for pH and EC specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202; or
- the quality of water in any pit or at a downstream monitoring location is more than 10% above the TSS level at the upstream lease boundary Nogoa River compliance point 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202; or
- the metal concentration of water in any pit or at a downstream monitoring location exceeds the toxicity trigger values listed in Table 3.4.1 and Section 8.3.7 of the ANZECC 2000 Guidelines.

8. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
  (i) results, interpretation and possible reasons for any exceedence/s;
  (ii) outcomes of actions taken at the time to prevent or minimise environmental harm; and
  (iii) proposed actions to prevent a recurrence of the water quality exceedence/s.
- Weekly photographic records and interpretation of all watercourse and flow paths from the point of discharge to the Nogoa River under no flow conditions, highlighting:
  (i) performance of any existing erosion protection measures;
  (ii) identification of any erosion, slumping and scour and impacts to vegetation; and
  (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

SIGNATURE

DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

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Notice

Environmental Operations

Decision to grant an approval for a draft transitional environmental program

This statutory notice is issued by the administering authority pursuant to section 340 of the Environmental Protection Act 1994, *to advise you of a decision or action.*

Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Your reference : Ensham TEP

Our reference : EMD6(12)

Attention: Graham Morris,

Re: Application for an approval for an transitional environmental program for pit dewatering at ML7459.

Thank you for your application for an approval for an transitional environmental program — certificate of approval number EMD 001-08

Your application, which was received by this office on 29 February 2008, has been approved.

A copy of the certificate of approval, which includes the schedule of conditions, is attached.

The reasons for the decision are:

The Transitional Environmental Program outlines a method for dewatering the inundated pits that minimises the likelihood of environmental harm.

Fees apply for the assessment of a draft transitional environmental program and any subsequent annual returns. The fees are outlined in the attached operational policy *Transitional environmental program (TEP) fees*.

A fee of $651.40 is payable.

You may apply to the EPA for a review of this decision within 10 business days of receiving this Notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this Notice. This information is intended as a guide only. You may have other legal rights and obligations

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Queensland Parks and Wildlife Service

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

[redacted]
SIGNATURE

6/3/08
DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road, Emerald
Phone: [redacted]

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Operational policy

Fees

Environmental management program (EMP) fees

Operational policies provide a framework for consistent application and interpretation of legislation by the Environmental Protection Agency, which incorporates the Queensland Parks and Wildlife Service. Operational policies will not be applied inflexibly to all circumstances. Individual circumstances may require an alternative application of policy. This policy concerns Section 52 under the Environmental Protection Regulation 1998

Policy issue

What are the Agency's fees for considering an environmental management program (EMP)?

Background

Section 334 of the *Environmental Protection Act 1994* (EP Act) provides for the administering authority to charge a person or public authority, the fee prescribed by regulation, for submitting a draft EMP for approval.

This section applies, with any necessary amendments, to an application to amend an EMP under section 344 of the EP Act.

Section 52(1) of the *Environmental Protection Regulation 1998* (EP Reg) prescribes that the fees for consideration of draft EMPs is the amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of deciding the application for approval of the program.

Section 52(3) of the EP Reg prescribes that the fees for assessing the holders annual returns and monitoring compliance with the program is an amount that:

- the authority considers to be reasonable; and
- is not more than the reasonable cost of the assessment and monitoring.

Determination

Fees for the assessment of a draft EMP are a minimum of $325.80[1] (includes GST), plus an additional $162.80 per hour (includes GST) or part thereof, charged after the first two hours.

Fees for assessment of an EMP annual return and monitoring of a compliance program of a draft EMP are charged at a rate of $162.80 per hour (includes GST), or part thereof, plus any reasonable costs for analysis and travel.

The reasonable cost of analysis cost will be the actual cost of the analysis to the Agency, plus GST.

The reasonable cost of travel will be the cost of travel[2], plus GST.

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Queensland Parks and Wildlife Service

The fee for assessing an application to amend an EMP is $167 (includes GST). This is the same as the fee for an amendment application in schedule 6 of the EP Reg.

Other issues to consider

The person having a draft EMP considered should be advised at the time of approval of the EMP that the administering authority will require payment of a fee for assessment of the annual return and monitoring compliance of the EMP.

Approved by

Ian Wilson
Director, Systems and Support
Environmental Protection Agency

Date: 21 June 2007

Enquiries

Ecoaccess Customer Service Unit
Ph: [redacted]
Fax: [redacted]

[1] The $325.80 fee covers the administration costs incurred by the Agency when assessing that the EMP satisfies the criteria set by the *Environmental Protection Act 1994* and the first two hours of technical evaluation of the EMP.

[2] The reasonable cost of travel will be calculated as outlined in section 4 (Employees who choose to use their own vehicles) of the schedule in the Queensland Government's *Directive No. 9/06 Motor Vehicle Allowances* September 2006 issued by the Minister for State Development, Employment and Industrial Relations. For an automobile this is set at 33.5 cents per kilometre.

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Information sheet

Environmental Operations

Internal review (EPA), and appeal to Court

This information sheet forms part of an information notice under the Environmental Protection Act 1994 *(EP Act). It gives a summary of the process for review and appeal to the Planning and Environment Court under the EP Act and subordinate legislation. Refer to sections 519–539 and schedule 1 of the EP Act for complete information about the process for internal review and appeal to the Planning and Environment Court.*

Introduction

The *Environmental Protection Act 1994* (EP Act) provides for a right of internal review and appeal against certain decisions made under the EP Act. Decisions that can be reviewed or appealed are listed in schedule 1 of the EP Act and within certain sections of the regulations and subordinate legislation[1] made under the EP Act. The EP Act also provides that a dissatisfied person for a review decision, other than those listed in part 1 of schedule 1 of the EP Act[2], may appeal the decision to the Planning and Environment Court (the Court).

Summary of the process for internal review and appeal to the Court

Chapter 11, Part 3 of the EP Act

Division 1 — Interpretation

Section 519 Original decisions

1) A decision mentioned in schedule 1 is an "original decision".
2) A decision under an environmental protection policy or regulation that the policy or regulation declares to be a decision to which this part applies is also an "original decision".

Section 520 Dissatisfied person

This section nominates the dissatisfied person for an original or review decision.

Division 2 — Internal review of decisions

Section 521 Procedure for review

1) A dissatisfied person may apply for a review of an original decision.
2) The application must—
   a) be made in the approved form to the administering authority within—
      i) 10 business days[3] after the day on which the person receives notice of the original decision or the administering authority is taken to have made the decision (the "review date"); or
      ii) the longer period the authority in special circumstances allows not later than the review date; and
   b) be supported by enough information to enable the authority to decide the application.

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3) On or before making the application, the applicant must send the following documents to the other persons who were given notice of the original decision—
   a) notice of the application (the "review notice");
   b) a copy of the application and supporting documents.
4) The review notice must inform the recipient that submission on the application may be made to the administering authority within 5 business days after the application is made to the authority.
5) If the administering authority is satisfied the applicant has complied with subsection (2) and (3), the authority must, within 10 business days after receiving the application—
   a) review the original decision;
   b) consider any submissions properly made by a recipient of the review notice; and
   c) make a decision (the "review decision") to—
      i) confirm or revoke the original decision; or
      ii) vary the original decision in a way the administering authority considers appropriate.
6) The application does not stay the original decision.
7) The application must not be dealt with by—
   a) the person who made the original decision; or
   b) a person in a less senior office than the person who made the original decision.
8) Within 10 business days after making the decision, the administering authority must give written notice of the decision to the applicant and persons who were given notice of the original decision.
9) The notice must—
   a) include the reasons for the review decision; and
   b) inform the person of their right of appeal against the decision.
10) If the administering authority does not comply with subsections (5) or (8), the authority is taken to have made a decision confirming the original decision.
11) Subsection (7) applies despite section *Acts Interpretation Act 1954*, section 27A.
12) This section does not apply to an original decision made by—
   a) for a matter, the administration and enforcement of which has been devolved to a local government, the local government itself or the chief executive officer of the local government personally; or
   b) for another matter — the chief executive personally.

Section 522 Stay of operation of original decisions

1) If an application is made for review of an original decision, the applicant may immediately apply for a stay of the decision to—
   a) for an original decision mentioned in schedule 1, part 1—the tribunal; or
   b) for an original decision mentioned in schedule 1, part 2—the Court.

2) The tribunal or the Court may stay the decision to secure the effectiveness of the review and any later appeal to the tribunal or the Court.

3) A stay may be given on conditions the tribunal or the Court considers appropriate and has effect for the period stated by the tribunal or the Court.

4) The period of a stay must not extend past the time when the administering authority reviews the decision and any later period the tribunal or the Court allows the applicant to enable the applicant to appeal against the review decision.

Division 4 — Appeals to court

Section 531 Who may appeal

1) A dissatisfied person who is dissatisfied with a review decision, other than a review decision to which subdivision 1[4] applies, may appeal against the decision to the Court.

2) The chief executive may appeal against another administering authority's decision (whether an original or review decision) to the Court.

3) A dissatisfied person who is dissatisfied with an original decision to which section 521 does not apply may appeal against the decision to the Court.

Section 532 How to start appeal

1) An appeal is started by—

   a) filing written notice of appeal with the registrar of the Court; and

   b) complying with rules of court applicable to the appeal.

2) The notice of appeal must be filed—

   a) if the appellant is the chief executive—within 33 business days after the decision is made or taken to have been made; or

   b) if the appellant is not the chief executive—within 22 business days after the day the appellant receives notice of the decision or the decision is taken to have been made.

3) The Court may at any time extend the period for filing the notice of appeal.

4) The notice of appeal must state fully the grounds of the appeal and the facts relied on.

Section 533 Appellant to give notice of appeal to other parties

1) Within 8 business days after filing the notice of appeal, the appellant must serve notice of the appeal on—

   a) if the appellant is the chief executive—all persons who were given notice of the original decision; or

   b) if the appellant is not the chief executive—the other persons who were given notice of the original decision.

2) The notice must inform the persons that, within 10 business days after service of the notice of appeal, they may elect to become a respondent to the appeal by filing in the Court a notice of election under rules of court.

Section 534 Persons may elect to become respondents to appeal

A person who properly files in the Court a notice of election becomes a respondent to the appeal.

Section 535 Stay of operation of decisions

1) The Court may grant a stay of a decision appealed against to secure the effectiveness of the appeal.
2) A stay may be granted on conditions the Court considers appropriate and has effect for the period stated by the Court.
3) The period of a stay must not extend past the time when the Court decides the appeal.
4) An appeal against a decision does not affect the operation or carrying out of the decision unless the decision is stayed.

Section 536 Hearing procedures

1) The procedure for an appeal is to be in accordance with the rules of court applicable to the appeal or, if the rules make no provision or insufficient provision, in accordance with directions of the judge.
2) An appeal is by way of rehearing, unaffected by the administering authority's decision.

Section 537 Assessors

The judge hearing an appeal may appoint one or more assessors to assist where the appeal involves a question of special knowledge and skill.

Section 538 Appeals may be heard with planning appeals

Where an appeal is also made under the *Integrated Planning Act 1997* for a premises, the court may order that both appeals be heard together or consecutively, or one stayed until the other is decided. This may occur even if the parties to the appeals are not the same. This ensures that needless delays are minimised.

Section 539 Powers of Court on appeal

1) In deciding an appeal, the Court may—
   a) confirm the decision appealed against; or
   b) vary the decision appealed against; or
   c) set aside the decision appealed against and make a decision in substitution for the decision set aside.
2) If on appeal the Court acts under subsection (1)(b) or (c), the decision is taken, for this Act (other than this part), to be that of the administering authority.

[1] The original decisions under the subordinate legislation are subject to change. As at 1 January 2006 they are:
- Section 62 of the *Environmental Protection Regulation 1998*;
- Section 20 of the *Environmental Protection (Air) Policy 1997* (the issue of an abatement notice under section 19); and

- Section 68C of the *Environmental Protection (Waste Management) Regulation 2000*.

[2] An appeal may be made to the Land and Resources Tribunal for original decisions in part 1 of schedule 1.
[3] Under the *Environmental Protection Act 1994* "business days does not include a business day between 20 December and 5 January in the following year".
[4] Subdivision 1 is about appeals to the Land and Resources Tribunal and information about this is contained in Sections 519 to 539.

Environmental Operations

Transitional environmental program certificate of approval number EMD 001-08

This certificate of approval is issued by the administering authority pursuant to section 339 of the Environmental Protection Act 1994. *An transitional environmental program is a specific program that, when approved, achieves compliance with the* Environmental Protection Act 1994 *for the matters dealt with by the program by reducing environmental harm, or detailing the transition to an environmental standard.*

Under the provisions of the *Environmental Protection Act 1994*, this certificate of approval is hereby granted to:

Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

approving the draft transitional environmental program; titled Ensham Mine Flood Dewatering Transitional Environmental Program for management of pit detwatering at ML7459.

The draft transitional environmental program, dated 29 February 2008, was received by this office on 29 February 2008.

The draft transitional environmental program is approved subject to the following conditions:

1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water down Old Winton Creek is permitted subject to landholder approval being obtained in writing.

3. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

4. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the Nogoa River under no flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

5. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs; discharge of mine affected water must immediately cease and appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person.

6. – Mine affected water quality must be monitored twice daily for pH, electrical conductivity (EC), and total suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and monthly for metals, including aluminium, arsenic, cadmium, chromium, copper, lead, iron, nickel, zinc and selenium within 100m of the active pumping locations in pits A, B, C and D and within 500m downstream of the end-of-pipe discharge points into any watercourse. Water quality must also be monitored for the same parameters and at the same frequency as described above at the upstream and downstream lease boundary Nogoa River compliance points.

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1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202.

7. – Discharge of mine affected water must immediately cease, and an investigation be undertaken, if:

- the quality of water in any pit or at a downstream monitoring location exceeds the limits for pH and EC specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202; or
- the quality of water in any pit or at a downstream monitoring location is more than 10% above the TSS level at the upstream lease boundary Nogoa River compliance point 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202; or
- the metal concentration of water in any pit or at a downstream monitoring location exceeds the toxicity trigger values listed in Table 3.4.1 and Section 8.3.7 of the ANZECC 2000 Guidelines.

8. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
  - (i) results, interpretation and possible reasons for any exceedence/s;
  - (ii) outcomes of actions taken at the time to prevent or minimise environmental harm; and
  - (iii) proposed actions to prevent a recurrence of the water quality exceedence/s.
- Weekly photographic records and interpretation of all watercourse and discharge flow paths from the point of discharge to the Nogoa River under no flow conditions, highlighting:
  - (i) performance of any existing erosion protection measures;
  - (ii) identification of any erosion, slumping and scour and impacts to vegetation; and
  - (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

Notice

Environmental management program certificate of approval

[redacted]

SIGNATURE

6/3/08

DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

Environmental Operations

Transitional environmental program certificate of approval number EMD 001-08

This certificate of approval is issued by the administering authority pursuant to section 339 of the Environmental Protection Act 1994*. An transitional environmental program is a specific program that, when approved, achieves compliance with the* Environmental Protection Act 1994 *for the matters dealt with by the program by reducing environmental harm, or detailing the transition to an environmental standard.*

Under the provisions of the *Environmental Protection Act 1994*, this certificate of approval is hereby granted to:

Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

approving the draft transitional environmental program; titled Ensham Mine Flood Dewatering Transitional Environmental Program for management of pit detwatering at ML7459.

The draft transitional environmental program, dated 29 February 2008, was received by this office on 29 February 2008.

The draft transitional environmental program is approved subject to the following conditions:

1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water into any watercourse flowing through an adjoining property is permitted subject to landholder approval being obtained in writing.

3. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

4. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the mining lease boundary in any watercourse under no flow, or background flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

5. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs:

(a) discharge of mine affected water must not resume; and

(b) the EPA must be notified; and

(c) appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person before the release of mine effected water continues.

6. – Mine affected water quality must be monitored twice daily for pH, electrical conductivity (EC), and total

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suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and monthly for metals, including aluminium, arsenic, cadmium, chromium, copper, lead, iron, nickel, zinc and selenium:

(a) within 100m of the active pumping locations in pits A, B, C and D; and

(b) within 500m downstream of the end-of-pipe discharge points into any watercourse; and

(c) at the upstream and downstream lease boundary Nogoa River compliance points 1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202.

7. – Discharge of mine affected water must immediately cease, and the EPA be notified, and an investigation be undertaken, if:

- the quality of water at the downstream monitoring location exceeds the limits for pH, EC and TSS specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202; or
- the concentration of metals specified in Condition 6 at the downstream monitoring location exceeds the Irrigation short term trigger values listed in Table 4.2.10 of the ANZECC 2000 Guidelines.

8. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
  - (i) results, interpretation and possible reasons for any exceedence/s;
  - (ii) outcomes of actions taken at the time to prevent or minimise environmental harm; and
  - (iii) proposed actions to prevent a recurrence of the water quality exceedence/s.
- Weekly photographic records and interpretation of all watercourse and flow paths from the point of discharge to the Nogoa River under no flow conditions, highlighting:
  - (i) performance of any existing erosion protection measures;
  - (ii) identification of any erosion, slumping and scour and impacts to vegetation; and
  - (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

Environmental management program certificate of approval

SIGNATURE

DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

Queensland Government

Enquiries Glen Schulz
Telephone [redacted]
Your reference Ensham Pit Dewatering
Our reference EMD6-12

Environmental Protection Agency
Incorporating the
Queensland **Parks and Wildlife Service**

28 April 2008

Mr Collin Moffatt
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Attention: Mr Graham Morris

Dear Mr Moffatt

Transitional Environmental Program - Amended Certificate of Approval

I write in regard to a Certificate of Approval issued to Ensham Resources on 6 March 2008 for the Ensham Mine Flood Dewatering Transitional Environmental Program (TEP) approved by the EPA on 29 February 2008.

As discussed at a meeting on 24 April 2008 between representatives of Ensham Resources, Environmental Protection Agency (EPA) and Department of Natural Resources and Water (NR&W) please find attached an amended Certificate of Approval to clarify the intent of the conditions of approval. The amendments to the Certificate include clarifying:

(a) Condition 4 – weekly inspections requirements;
(b) Condition 5 – actions to be undertaken if weekly inspections identify impacts;
(c) Condition 6 – the water quality monitoring locations for each discharge point; and
(d) Condition 7 – the water quality discharge limits at the downstream monitoring location.

The Certificate has been amended according to Section 24AA of the *Acts Interpretation Act 1954* which states:

24AA Power to make instrument or decision includes power to amend or repeal

"If an Act authorises or requires the making of an instrument or decision—
(a) the power includes power to amend or repeal the instrument or decision; and
(b) the power to amend or repeal the instrument or decision is exercisable in the same way, and subject to the same conditions, as the power to make the instrument or decision."

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ABN 87 221 158 786

I also wish to advise you that the background water quality data provided by Ensham Resources and NR&W has been given to our water quality scientists for interpretation and consideration when reviewing the water quality limits specified in the TEP Certificate of Approval. The EPA will discuss with you the outcomes of the review as soon as the information becomes available.

Should you have any inquires regarding this information Glen Schulz of the EPA on telephone [redacted] would be happy to assist.

Yours sincerely

[redacted]

Michael Rodgerson
District Manager

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Environmental Operations

Transitional environmental program certificate of approval number EMD 001-08

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1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water into any watercourse flowing through an adjoining property is permitted subject to landholder approval being obtained in writing.

3. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

4. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the mining lease boundary in any watercourse under no flow, or background flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

5. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs:

(a) discharge of mine affected water must not resume; and

(b) the EPA must be notified; and

(c) appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person before the release of mine effected water continues.

6. – Mine affected water quality must be monitored twice daily for pH, electrical conductivity (EC), and total

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suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and monthly for metals, including aluminium, arsenic, cadmium, chromium, copper, lead, iron, nickel, zinc and selenium:

(a) within 100m of the active pumping locations in pits A, B, C and D; and

(b) within 500m downstream of the end-of-pipe discharge points into any watercourse; and

(c) at the upstream and downstream lease boundary Nogoa River compliance points 1 and 2 specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202.

7. – Discharge of mine affected water must immediately cease, and the EPA be notified, and an investigation be undertaken, if:

- the quality of water at the downstream monitoring location exceeds the limits for pH, EC and TSS specified in Schedule C – Table 2 (Receiving water contaminant limits) of Environmental Authority MIM800086202; or
- the concentration of metals specified in Condition 6 at the downstream monitoring location exceeds the Irrigation short term trigger values listed in Table 4.2.10 of the ANZECC 2000 Guidelines.

8. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
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  - (ii) identification of any erosion, slumping and scour and impacts to vegetation; and
  - (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

Environmental management program certificate of approval

[redacted]
SIGNATURE

28/4/08
DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

Environmental Operations

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The draft transitional environmental program is approved subject to the following conditions:

1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water into any watercourse flowing through an adjoining property is permitted subject to landholder approval being obtained in writing.

3. – The release of mine affected water into Corkscrew Creek is permitted at a maximum discharge volume of 150ML/day with a maximum electrical conductivity (EC) of 1200µS/cm.

4. – The release of mine affected water at an EC limit of 2000µS/cm into Corkscrew Creek is permitted, subject to approval by the EPA of a Discharge Management Plan for all waterways used to discharge mine affected water. The Discharge Management Plan must include:

(a) a riparian flora assessment, noting species composition of the flora community at a minimum of two locations along the affected reaches of Corkscrew Creek; and

(b) a bank erosion monitoring program that focuses on reaches of Corkscrew Creek, Boggy Creek and the Nogoa/Mackenzie Rivers up to the tailwater of Bedford Weir, that are vulnerable to erosion caused by persistent high flows (e.g. the outside bank of bends in the creek and rivers); and

(c) a post-dewatering Rehabilitation and Remediation Program, incorporating the following requirements –

(i) a post-discharge flush flow release down Corkscrew Creek and the Nogoa/Mackenzie Rivers of sufficient volume to restore the Natural Resources and Water water quality monitoring parameters, to within the 80th percentile of observed background data at Duckponds and Bedford Weir - Headwaters listed in Table 1. The post-dewatering water quality targets specified in Table 1 must be achieved within 12 months of the cessation of dewatering operations, for no less than 6 consecutive months of monthly monitoring results. If this cannot be reasonably and practicably

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achieved, Ensham must provide to the EPA for approval, a case for why alternative remediation arrangements should apply and a specification for those arrangements.

(ii) a rehabilitation program to repair and restabilise areas of the creek and rivers bed and banks exhibiting evidence of significant erosion, and rehabilitate any affected riparian flora communities to a satisfactory (pre-dewatering flow) condition.

5. – Post-dewatering monitoring within 500m upstream of the Sandhurst Creek/Comet River junction and within 500m upstream of the Bedford Weir wall structure must be undertaken for no less than 6 consecutive months and achieve the water quality targets for 6 consecutive months specified in Table 1, unless alternative remediation arrangements are agreed to by the EPA.

Table 1 – Post dewatering water quality targets

Parameter/Toxicant	Post dewatering water quality targets (mg/L and total concentration unless specified)	
	Sandhurst Creek & Comet River Junction (within 500m upstream of junction)	Bedford Weir – Headwater (within 500m upstream of weir structure)
pH	8.2 (pH units)	8.1 (pH units)
TSS	423	168
EC	290µS/cm	241µS/cm
Aluminium	0.5 (soluble)	0.05 (soluble)
Boron	0.1	0.1
Cadmium	0.0009	0.00048
Chromium	0.004	0.001
Copper	0.05 (soluble)	0.02 (soluble)
Iron	0.02 (soluble)	0.084 (soluble)
Lead	0.002	0.002
Manganese	0.02 (soluble)	0.204
Nickel	0.01	0.01
Zinc	0.02 (soluble)	0.018 (soluble)

6. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

7. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the mining lease boundary in any watercourse under no flow, or background flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

8. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs:

(a) discharge of mine affected water must not resume; and

(b) the EPA must be notified; and

(c) appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person before the release of mine effected water continues.

9. – Mine affected water quality must be monitored by a suitably trained person[1] twice daily for pH, electrical conductivity (EC), and total suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and weekly for total and dissolved heavy metals and metalloids, including aluminium, arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium and zinc:

(a) within 100m of the active pumping locations in pits A, B, C and D; and

(b) at the Nogoa River upstream and downstream mining lease (ML7459) boundary (Compliance Points 1 and 2 – Nogoa River, respectively) specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202; and

(c) at the ML boundary on Corkscrew Creek (Compliance Point 3 – Corkscrew Creek).

10. – The combined discharge of mine affected water into the Nogoa/Mackenzie Rivers system (Nogoa River, Boggy Creek and Corkscrew Creek) must be monitored weekly by a suitably trained person[1] for the same parameters and toxicants outlined in Condition 7 at Riley's Crossing on the Mackenzie River downstream of the Comet/Nogoa Rivers confluence (Compliance Point 4 – Riley's Crossing).

11. – Discharge of mine affected water must immediately cease, and the EPA be notified, and an investigation be undertaken, if the rolling median value for the most recent five weeks of water monitoring data at:

(a) Compliance Point 2 (Nogoa River);

(b) Compliance Point 3 (Corkscrew Creek); or

(c) Compliance Point 4 (Riley's Crossing);

exceeds the limits for physicochemical parameters (pH, TSS, EC) or total concentrations of heavy metals and metalloids specified in Table 2.

Table 2 – Downstream water quality limits

Total concentrations for physicochemical parameters, heavy metals and metalloids	
Parameter/Toxicant (mg/L unless specified)	**Limit (Rolling median of most recent five weeks water monitoring data)**
pH	6.5-8.5 (pH units)
TSS	1150
EC	1200µS/cm at Compliance Point 2 (Nogoa River) 1200µS/cm at Compliance Point 3 (Corkscrew Creek), or 2000µS/cm subject to Condition 4 1350µS/cm at Compliance Point 4 (Riley's Crossing)

Aluminium	10
Arsenic	0.5
Boron	5
Cadmium	0.01
Chromium	1
Copper	1
Iron	10
Lead	0.1
Manganese	10
Mercury	0.002
Nickel	1
Selenium	0.02
Zinc	5

[1] Suitably Trained Person – means a person trained in and competent with using the sampling procedures and practices described in the current edition of the QLD EPA Water Quality Sampling Manual.

12. Water quality monitoring must be undertaken on a weekly basis at the locations, and using the methods, and for the parameters specified in Table 3, during discharge of mine affected water to any watercourse.

Table 3 – Additional water quality monitoring requirements

Monitoring point	Sampling methods[1]	Parameter/Toxicant (Laboratory analyses)
Mining pit A	Sampling undertaken from a boat positioned mid-pit within 100m of the active pit pumping locations using the following sampling procedures: 1. EC probe (with suitable length cable) – EC depth profiling throughout the water profile with readings taken every 2m of depth (noting at which depth the pump inlet is located). 2. Samples collected from a depth profile comparative to the pump inlet depth for laboratory analysis using, for example, a Van Dorn or Horizontal Alpha Bottle Sampler.	**METALS & METALLOIDS (total and dissolved concentrations)** (mg/L) Aluminium Arsenic (Total) Arsenic (III) ‡ Arsenic (V) ‡ Barium Boron Cadmium Chromium (Total) Chromium (VI)‡ Copper Fluoride Iron Lead
Mining pit B		
Mining pit C		
Mining pit D		
Bedford Weir – 500m upstream)	Sampling undertaken from a boat positioned mid-stream using the following sampling procedures: 1. EC probe (with suitable length cable) – EC	
Bedford Weir – 5km upstream		

Bedford Weir – 10km upstream	depth profiling throughout the water profile with readings taken every 2m of depth. 2. Samples collected from the surface and 2m above the substrate for laboratory analysis using, for example, a Van Dorn or Horizontal Alpha Bottle Sampler.	Manganese Mercury (inorganic) Molybdenum Nickel Selenium Silver Uranium Zinc **NON-METALLIC INORGANICS** (mg/L) Cyanide Hydrogen sulphide **NUTRIENTS** (mg/L) Ammonia (Total) as N Nitrogen (Total) as N Organic Nitrogen as N Oxidised Nitrogen (Nitrate + Nitrite) as N Phosphorus (Total) as P Phosphorus (Filtratable Reactive) as P **AROMATIC HYDROCARBONS** Polycyclic Aromatic Hydrocarbons **ROUTINE ENVIRONMENTAL AND DRINKING WATER QUALITY INDICATORS** pH Dissolved Oxygen (mg/L and % saturation) Electrical Conductivity (µS/cm @ 25ºC) Salinity* (ppt) Silica (mg/L) Temporary Hardness* (as $CaCO_3$) (mg/L) Total Hardness* (as $CaCO_3$) (mg/L) Total Dissolved Solids (mg/L) Total Suspended Solids (mg/L) True Colour (HU) Turbidity (NTU) **CATIONS** (mg/L) Calcium (Ca^{2+}) Hydrogen* (H^{+}) Magnesium (Mg^{2+}) Potassium (K^{+}) Sodium (Na^{+}) **ANIONS** (mg/L) Bicarbonate* (HCO_3^{-}) Carbonate* (CO_3^{-}) Chloride (Cl^{-}) Fluoride (F^{-}) Hydroxide* (OH^{-}) Iodide (I) (moved from above to here) Sulphate (SO_4^{-}) Nitrate (NO_3^{-})

		Nitrite (NO_2^-) **RADIOLOGICAL QUALITY** Gross α & β irradiation (mSv)† ‡

Notes: **1.** All samples collected must comply with the latest edition of EPA's Water Quality Sampling Manual, and depth samples collected using the depth sampling device (e.g. Von Dorn Sampler), including the material the sampler is made from, and appropriate cleaning between samples to prevent cross-contamination.

2. * Parameter is derived from calculation.

3. † A result exceeding the guideline value will warrant individual α & β group analyses.

4. ‡ Repeated analysis results that are below the guideline value may warrant that monitoring of these parameters ceases (to reduce monitoring costs) at the EPA's discretion.

13. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
  - (i) results, interpretation and possible reasons for any exceedence/s;
  - (ii) outcomes of actions taken at the time to prevent or minimise environmental harm; and
  - (iii) proposed actions to prevent a recurrence of the water quality exceedence/s.
- Weekly photographic records and interpretation of all watercourse and flow paths from the point of discharge to the Nogoa River under no flow conditions, highlighting:
  - (i) performance of any existing erosion protection measures;
  - (ii) identification of any erosion, slumping and scour and impacts to vegetation; and
  - (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

SIGNATURE

DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

Environmental Operations

Transitional environmental program certificate of approval number EMD 001-08

This certificate of approval is issued by the administering authority pursuant to section 339 of the Environmental Protection Act 1994. *An transitional environmental program is a specific program that, when approved, achieves compliance with the* Environmental Protection Act 1994 *for the matters dealt with by the program by reducing environmental harm, or detailing the transition to an environmental standard.*

Under the provisions of the *Environmental Protection Act 1994*, this certificate of approval is hereby granted to:

Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

approving the draft transitional environmental program; titled Ensham Mine Flood Dewatering Transitional Environmental Program for management of pit dewatering at ML7459.

The draft transitional environmental program, dated 29 February 2008, was received by this office on 29 February 2008.

The draft transitional environmental program is approved subject to the following conditions:

1. – The release or removal of mine affected water must not cause flooding beyond the high bank of any watercourse and all reasonable and practical measures must be implemented to minimise erosion, scour, slumping and impacts to vegetation from the discharge point through to the bed and banks of any watercourse.

2. – The release of mine affected water into any watercourse flowing through an adjoining property is permitted subject to landholder approval being obtained in writing.

3. – The release of mine affected water into Corkscrew Creek is permitted at a maximum discharge volume of 150ML/day with a maximum electrical conductivity (EC) of 1200µS/cm.

4. – The release of mine affected water at an EC limit of 2000µS/cm into Corkscrew Creek is permitted, subject to approval by the EPA of a Discharge Management Plan for all waterways used to discharge mine affected water. The Discharge Management Plan must include:

(a) a riparian flora assessment, noting species composition of the flora community at a minimum of two locations along the affected reaches of Corkscrew Creek; and

(b) a bank erosion monitoring program that focuses on reaches of Corkscrew Creek, Boggy Creek and the Nogoa/Mackenzie Rivers up to the tailwater of Bedford Weir, that are vulnerable to erosion caused by persistent high flows (e.g. the outside bank of bends in the creek and rivers); and

(c) a post-dewatering Rehabilitation and Remediation Program, incorporating the following requirements –

(i) a post-discharge flush flow release down Corkscrew Creek and the Nogoa/Mackenzie Rivers of sufficient volume to restore the Natural Resources and Water water quality monitoring parameters, to within the 80th percentile of observed background data at Duckponds and Bedford Weir - Headwaters listed in Table 1. The post dewatering water quality targets specified in Table 1 must be achieved within 12 months of the cessation of dewatering operations, for no less than 6 consecutive months of monthly monitoring results. If this cannot be reasonably and practicably

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achieved, Ensham must provide to the EPA for approval, a case for why alternative remediation arrangements should apply and a specification for those arrangements.

(ii) a rehabilitation program to repair and restabilise areas of the creek and rivers bed and banks exhibiting evidence of significant erosion, and rehabilitate any affected riparian flora communities to a satisfactory (pre-dewatering flow) condition.

5. – Post dewatering monitoring within 500m upstream of the Sandhurst Creek/Comet River junction and within 500m upstream of the Bedford Weir wall structure must be undertaken for no less than 6 consecutive months and achieve the water quality targets for 6 consecutive months specified in Table 1, unless alternative remediation arrangements are agreed to by the EPA.

Table 1 – Post dewatering water quality targets

Parameter/Toxicant	Post dewatering water quality targets (mg/L and total concentration unless specified)	
	Sandhurst Creek & Comet River Junction (within 500m upstream of junction)	Bedford Weir – Headwater (within 500m upstream of weir structure)
pH	8.2 (pH units)	8.1 (pH units)
TSS	423	168
EC	290µS/cm	241µS/cm
Aluminium	0.5 (soluble)	0.05 (soluble)
Boron	0.1	0.1
Cadmium	0.0009	0.00048
Chromium	0.004	0.001
Copper	0.05 (soluble)	0.02 (soluble)
Iron	0.02 (soluble)	0.084 (soluble)
Lead	0.002	0.002
Manganese	0.02 (soluble)	0.204
Nickel	0.01	0.01
Zinc	0.02 (soluble)	0.018 (soluble)

6. – A suitably qualified and experienced person must undertake an inspection of all proposed discharge flow paths prior to the release of mine affected water, and a record (including a photographic record) made of the condition and form of the proposed flow path including any vegetative cover in the bed and on the banks.

7. – The release of mine affected water to any watercourse is permitted to occur on a seven day cycle. At the end of each seven days, the release of mine affected water must cease and a suitably qualified and experienced person must undertake an inspection (including making a photographic record) of the discharge flow path to the mining lease boundary in any watercourse under no flow, or background flow conditions, noting areas of erosion, scour, slumping and impacts to vegetation.

8. – If on inspection, significant erosion, scour, slumping or impacts to vegetation of any watercourse, including discharge flow paths to any watercourse, is detected, or flooding occurs:

(a) discharge of mine affected water must not resume; and

(b) the EPA must be notified; and

(c) appropriate rehabilitation, including earthworks, scour protection and flow velocity controls must be installed and approved by a suitably qualified and experienced person before the release of mine effected water continues.

9. – Mine affected water quality must be monitored by a suitably trained person[1] twice daily for pH, electrical conductivity (EC), and total suspended solids (TSS) (including a comparative analysis of TSS and turbidity), and weekly for total and dissolved heavy metals and metalloids, including aluminium, arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium and zinc:

(a) within 100m of the active pumping locations in pits A, B, C and D; and

(b) at the Nogoa River upstream and downstream mining lease (ML7459) boundary (Compliance Points 1 and 2 – Nogoa River, respectively) specified in Schedule C – Table 1 (Water monitoring locations and frequency) of Environmental Authority MIM800086202; and

(c) at the ML boundary on Corkscrew Creek (Compliance Point 3 – Corkscrew Creek).

10. – The combined discharge of mine affected water into the Nogoa/Mackenzie Rivers system (Nogoa River, Boggy Creek and Corkscrew Creek) must be monitored weekly by a suitably trained person[1] for the same parameters and toxicants outlined in Condition 7 at Riley's Crossing on the Mackenzie River downstream of the Comet/Nogoa Rivers confluence (Compliance Point 4 – Riley's Crossing).

11. – Discharge of mine affected water must immediately cease, and the EPA be notified, and an investigation be undertaken, if the rolling median value for the most recent five weeks of water monitoring data at:

(a) Compliance Point 2 (Nogoa River);

(b) Compliance Point 3 (Corkscrew Creek); or

(c) Compliance Point 4 (Riley's Crossing),

exceeds the limits for physicochemical parameters (pH, TSS, EC) or total concentrations of heavy metals and metalloids specified in Table 2.

Table 2 – Downstream water quality limits

Total concentrations for physicochemical parameters, heavy metals and metalloids	
Parameter/Toxicant (mg/L unless specified)	**Limit (Rolling median of most recent five weeks water monitoring data)**
pH	6.5-8.5 (pH units)
TSS	1150
EC	1200µS/cm at Compliance Point 2 (Nogoa River) 1200µS/cm at Compliance Point 3 (Corkscrew Creek), or 2000µS/cm subject to Condition 4 1350µS/cm at Compliance Point 4 (Riley's Crossing)

Aluminium	10
Arsenic	0.5
Boron	5
Cadmium	0.01
Chromium	1
Copper	1
Iron	10
Lead	0.1
Manganese	10
Mercury	0.002
Nickel	1
Selenium	0.02
Zinc	5

[1] Suitably Trained Person – means a person trained in and competent with using the sampling procedures and practices described in the current edition of the QLD EPA Water Quality Sampling Manual.

12. Water quality monitoring must be undertaken on a weekly basis at the locations, and using the methods, and for the parameters specified in Table 3, during discharge of mine affected water to any watercourse.

Table 3 – Additional water quality monitoring requirements

Monitoring point	Sampling methods[1]	Parameter/Toxicant (Laboratory analyses)
Mining pit A	Sampling undertaken from a boat positioned mid-pit within 100m of the active pit pumping locations using the following sampling procedures: 1. EC probe (with suitable length cable) – EC depth profiling throughout the water profile with readings taken every 2m of depth (noting at which depth the pump inlet is located). 2. Samples collected from a depth profile comparative to the pump inlet depth for laboratory analysis using, for example, a Van Dorn or Horizontal Alpha Bottle Sampler.	**METALS & METALLOIDS (total and dissolved concentrations)** (mg/L) Aluminium Arsenic (Total) Arsenic (III) ‡ Arsenic (V) ‡ Barium Boron Cadmium Chromium (Total) Chromium (VI) ‡ Copper Fluoride Iron Lead
Mining pit B		
Mining pit C		
Mining pit D		
Bedford Weir – 500m upstream)	Sampling undertaken from a boat positioned mid-stream using the following sampling procedures: 1 EC probe (with suitable length cable) – EC	
Bedford Weir – 5km upstream		

Bedford Weir – 10km upstream	depth profiling throughout the water profile with readings taken every 2m of depth. 2. Samples collected from the surface and 2m above the substrate for laboratory analysis using, for example, a Van Dorn or Horizontal Alpha Bottle Sampler.	Manganese Mercury (inorganic) Molybdenum Nickel Selenium Silver Uranium Zinc **NON-METALLIC INORGANICS** (mg/L) Cyanide Hydrogen sulphide **NUTRIENTS** (mg/L) Ammonia (Total) as N Nitrogen (Total) as N Organic Nitrogen as N Oxidised Nitrogen (Nitrate + Nitrite) as N Phosphorus (Total) as P Phosphorus (Filtratable Reactive) as P **AROMATIC HYDROCARBONS** Polycyclic Aromatic Hydrocarbons **ROUTINE ENVIRONMENTAL AND DRINKING WATER QUALITY INDICATORS** pH Dissolved Oxygen (mg/L and % saturation) Electrical Conductivity (µS/cm @ 25°C) Salinity* (ppt) Silica (mg/L) Temporary Hardness* (as $CaCO_3$) (mg/L) Total Hardness* (as $CaCO_3$) (mg/L) Total Dissolved Solids (mg/L) Total Suspended Solids (mg/L) True Colour (HU) Turbidity (NTU) **CATIONS** (mg/L) Calcium (Ca^{2+}) Hydrogen* (H^+) Magnesium (Mg^{2+}) Potassium (K^+) Sodium (Na^+) **ANIONS** (mg/L) Bicarbonate* (HCO_3^-) Carbonate* (CO_3^{2-}) Chloride (Cl^-) Fluoride (F^-) Hydroxide* (OH^-) Iodide (I) (moved from above to here) Sulphate (SO_4^{2-}) Nitrate (NO_3^-)

		Nitrite (NO_2) **RADIOLOGICAL QUALITY** Gross α & β irradiation (mSv)[†‡]

Notes: 1. All samples collected must comply with the latest edition of EPA's Water Quality Sampling Manual, and depth samples collected using the depth sampling device (e.g. Von Dorn Sampler), including the material the sampler is made from, and appropriate cleaning between samples to prevent cross-contamination.

2. * Parameter is derived from calculation.

3. † A result exceeding the guideline value will warrant individual α & β group analyses.

4. ‡ Repeated analysis results that are below the guideline value may warrant that monitoring of these parameters ceases (to reduce monitoring costs) at the EPA's discretion.

13. – A report must be submitted to the EPA by the fifth business day of each month setting out the dewatering activities undertaken during the previous month and the scheduled activities for the next month, including, but not limited to, the following matters:

- Pump locations and pumping volumes;
- Dates, times and reasons for scheduled and (if applicable) unscheduled discharge stoppages;
- Details of any complaints, including how complaints were resolved;
- Water quality monitoring results and interpretation of results;
- Outcomes of any investigation of water quality exceedence/s (if applicable), including
  - (i) results, interpretation and possible reasons for any exceedence/s;
  - (ii) outcomes of actions taken at the time to prevent or minimise environmental harm; and
  - (iii) proposed actions to prevent a recurrence of the water quality exceedence/s
- Weekly photographic records and interpretation of all watercourse and flow paths from the point of discharge to the Nogoa River under no flow conditions, highlighting:
  - (i) performance of any existing erosion protection measures;
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  - (iii) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm and prevent a recurrence (if applicable).
- Summary of proposed new works, including engineering design plans (if applicable).

The transitional environmental program remains in force until 2 March 2009.

In any case where conditions are imposed upon a certificate of approval, you may apply to the administering authority for a review of the decision. You may also appeal against the decision to the Planning and Environment Court.

Information relating to a review of decisions or appeals under the *Environmental Protection Act 1994* is included with this notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Glen Schulz of the EPA on telephone [redacted] would be happy to assist you.

Notice

Environmental management program certificate of approval

[redacted]
SIGNATURE

3/6/08
DATE

Michael Rodgerson
District Manager, Emerald
Environmental Protection Agency

Enquiries:
Emerald District Office
99 Hospital Road Emerald
Phone: [redacted]

Enquiries Glen Schulz
Telephone [redacted]
Your reference Ensham Pit Dewatering Operation
Our reference EMD6-14

2 June 2008

Mr Collin Moffatt
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Attention: Mr Graham Morris

Dear Mr Moffatt

Transitional Environmental Program - Amended Certificate of Approval

I write in regard to a Certificate of Approval amended and issued to Ensham Resources on 6 May 2008 for the Ensham Mine Flood Dewatering Transitional Environmental Program (TEP) approved by the EPA on 29 February 2008.

As discussed at a meeting in Brisbane on 8 May 2008 between representatives of Ensham Resources, Environmental Protection Agency (EPA) and Department of Natural Resources and Water and subsequent discussions between the EPA's Jon Womersley (Director, Central Region) and yourself please find attached an amended TEP Certificate of Approval. The amendments to the Certificate include:

(a) Condition 3 – A new condition permitting the discharge of up to 150ML/day of mine affected water at 1200µS/cm into Corkscrew Creek;
(b) Condition 4 – A new condition allowing the release of mine affected water at 2000µS/cm down Corkscrew Creek, subject to EPA approval of a Discharge Management Plan;
(c) Condition 5 – A new condition requiring post-dewatering downstream monitoring to demonstrate compliance with background water quality targets.
(d) Condition 9 – A definition of "suitably trained person" for taking water samples, three additional metal and metalloid parameters, weekly instead of monthly monitoring frequency for metals and metalloids, and a new compliance point on Corkscrew Creek;
(e) Condition 10 – A new condition requiring weekly water quality monitoring at Riley's Crossing compliance point;
(f) Condition 11 – Revised water quality compliance point limits based on a rolling median of the most recent five weeks of monitoring results;

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ABN 87 221 158 786

(g) Condition 12 – A new condition requiring additional water quality monitoring for a suite of physicochemical parameters and toxicants at three locations within Bedford Weir relevant to protecting water quality for downstream water users.

The Certificate of Approval has been amended according to Section 24AA of the *Acts Interpretation Act 1954* which states:

24AA Power to make instrument or decision includes power to amend or repeal

"If an Act authorises or requires the making of an instrument or decision—
(a) the power includes power to amend or repeal the instrument or decision; and
(b) the power to amend or repeal the instrument or decision is exercisable in the same way, and subject to the same conditions, as the power to make the instrument or decision."

I also wish to advise you that the currently approved conditions in the TEP Certificate of Approval are subject to revision based on the outcomes of consultation between Ensham Resources and downstream water users regarding tolerance for short-term increases in downstream water quality. Furthermore, any request by Ensham to increase compliance point water quality limits, beyond that which is currently approved, must be supported by signed agreements with the key downstream water resource user groups (e.g. Sunwater, Irrigators, Graziers, local government drinking water suppliers). The EPA welcomes the opportunity to discuss with you the outcomes of the consultation process at your earliest convenience.

Should you have any inquires regarding this information Glen Schulz of the EPA on telephone [redacted] would be happy to assist.

Yours sincerely

Michael Rodgerson
District Manager

Queensland Government

Enquiries Glen Schulz
Telephone [redacted]
Your reference Ensham Pit Dewatering Operation
Our reference EMD6-14

Queensland Parks and Wildlife Service
Acting on behalf of the
Environmental Protection Agency

2 June 2008

Mr Collin Moffatt
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Attention: Mr Graham Morris

Dear Mr Moffatt

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As discussed at a meeting in Brisbane on 8 May 2008 between representatives of Ensham Resources, Environmental Protection Agency (EPA) and Department of Natural Resources and Water, and subsequent discussions between the EPA's Jon Womersley (Director, Partnerships Practice and Business) and yourself, please find attached an amended TEP Certificate of Approval. The amendments to the Certificate include:

(a) Condition 3 – A new condition permitting the discharge of up to 150ML/day of mine affected water at 1200µS/cm into Corkscrew Creek;
(b) Condition 4 – A new condition allowing the release of mine affected water at 2000µS/cm down Corkscrew Creek, subject to EPA approval of a Discharge Management Plan;
(c) Condition 5 – A new condition requiring post-dewatering downstream monitoring to demonstrate compliance with background water quality targets.
(d) Condition 9 A definition of "suitably trained person" for taking water samples, three additional metal and metalloid parameters, weekly instead of monthly monitoring frequency for metals and metalloids, and a new compliance point on Corkscrew Creek;
(e) Condition 10 – A new condition requiring weekly water quality monitoring at Riley's Crossing compliance point;
(f) Condition 11 Revised water quality compliance point limits based on a rolling median of the most recent five weeks of monitoring results; and

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ABN 87 221 158 786

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(b) the power to amend or repeal the instrument or decision is exercisable in the same way, and subject to the same conditions, as the power to make the instrument or decision."

I advise that the now approved amended conditions in the TEP Certificate of Approval may be subject to further revision based on the outcomes of consultation between Ensham Resources and downstream water users regarding tolerance for short-term increases in downstream water quality parameters. Any request by Ensham to increase compliance point water quality limits, beyond those that are currently approved, must be supported by documented evidence of agreement with the key downstream water resource user groups (e.g. Sunwater, Irrigators, Graziers, local government potable water suppliers). The EPA would appreciate being given the opportunity to discuss with you the outcomes of the consultation process at your earliest convenience.

Should you have any inquires regarding this information Glen Schulz of the EPA on telephone [redacted] would be happy to assist.

Yours sincerely

[redacted]

Michael Rodgerson
District Manager

Complete exhibits to Mr Brier's statement are too large to put up on the website. Accordingly, only the exhibits referred to in the final report have been published.