

CLAYTON UTZ

Ensham Resources Pty Ltd

Queensland Floods Commission of Inquiry

Second Statement of Pier Westerhuis

Volume 1 of 1

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Our reference 12408/80120037

Legal\303901783.1

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Date: 6/10/11 JM

Exhibit Number: 746

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

Commission of Inquiry Order (No. 1) 2011

QUEENSLAND FLOODS COMMISSION OF INQUIRY

Witness Statement of Pier Westerhuis

Chief Executive Officer

Ensham Resources Pty Ltd (ACN 011 048 678)

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	Description	Date
PW-1	Statement of Pier Westerhuis	12 May 2011
PW-2	Environmental Authority No. MIN102573611	20 April 2011
PW-3	Environmental Authority No. MIM8000086202	27 August 2010
PW-4	Application for a Draft Transitional Environmental Program	7 December 2010
PW-5	Certificate of Approval No. MAN11139	10 December 2010
PW-6	Application to Amend TEP 11139	5 January 2011
PW-7	Certificate of Approval No. 11280	5 January 2011
PW-8	Application to Amend TEP11280	31 January 2011
PW-9	Certificate of Approval No. MAN12039	11 February 2011
PW-10	Letter from Ensham Resources to DERM	13 December 2010
PW-11	Letter from DERM to Ensham Resources	4 July 2011
PW-12	Emergency Directive	1 February 2008
PW-13	Emergency Directive	15 February 2008
PW-14	Application for a Draft Transitional Environment Program	29 February 2008
PW-15	Certificate of Approval No. EMD001-08	6 March 2008
PW-16	Amended Certificate of Approval No. EMD 001-08	28 April 2008
PW-17	Amended Certificate of Approval No. EMD 001-08	2 June 2008

Witness statement of Pier Westerhuis

This written statement is provided in response to a Requirement dated 13 September 2011 to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry ("**Commission**") pursuant to section 5(1)(d) of the Commissions of Inquiry Act 1950 (Qld).

I, **Pier Westerhuis**, Chief Executive Officer of Ensham Resources Pty Ltd (ACN 011 048 678) ("**Ensham Resources**"), c/ Level 18, AMP Place, 10 Eagle Street, Brisbane in the State of Queensland, state on oath as follows:

Position Description

1. I am the Chief Executive Officer for Ensham Resources. I have worked for Ensham Resources since 1 June 2002 and have been in my current position as Chief Executive Officer since 1 December 2008.

Background

2. Ensham Resources is the operator of the Ensham Mine, an open cut coal mine, for and on behalf of its owners. The Ensham Mine is located approximately 40 km east of Emerald in Central Queensland.
3. The Ensham Mine is jointly owned by Idemitsu Australia Resources Pty Limited (ACN 010 236 272); J-Power Australia Pty Ltd (AC N 002 307 682); Bligh Coal Limited (ACN 101 186 393); and LG International (Australia) Pty Ltd (ACN 002 806 831) ("**Ensham Joint Venture Parties**").
4. The Ensham Mine:
 - (a) has been operational since 1993;
 - (b) sells coal to various customers in Japan, Korea, India, China and other countries; and
 - (c) currently has a workforce of approximately 200 Ensham employees and a further 300 contract staff.
5. I previously provided a statement to the Commission dated 12 May 2011 ("**P Westerhuis First Statement**"). The P Westerhuis First Statement was provided in response to the Commission's Requirement dated 6 May 2011. A copy is annexed hereto and marked '**PW-1**'.

Flood-related concerns at the Ensham Mine

6. The Commission has requested a brief description of the main flood-related concerns at the Ensham Mine (for example — hazardous waste and contaminants at the Mine, effect of flood on the downstream environment, discharge requirements).
7. The Ensham Mine holds an Environmental Authority dated 20 April 2011 (Environmental Authority No. MIN102573611) (the "**Current EA**"), a copy of which is annexed hereto and marked '**PW-2**'. The Current EA was issued by the Department of Environment and Resource Management ("**DERM**") as an administrative amendment to incorporate changes to the Environmental Protection Regulation 2008.

8. The Current EA provides for the controlled release of mine affected water to the receiving environment.
9. The main flood-related concerns for the Ensham Mine are:
 - (a) the risk of impact to mining operations in a flood event in the Nogoia River and its catchment. Ensham has flood protection levees to a design specification to withstand a 1,000 year Average Recurrence Interval ("ARI") flood event at the Ensham Mine as referred to in paragraph 13 of the P Westerhuis First Statement;
 - (b) the risk of impact of restriction to access as occurred in the 2010/2011 flood event. As stated in paragraph 6 of the P Westerhuis First Statement, a river crossing which provides access to the Ensham Mine was overtopped during the 2010/11 flood event. Ensham intends to construct a single-lane bridge to provide access across the Nogoia River during flood events, subject to receiving any necessary approvals;
 - (c) the residual flood water from the 2008 flood event which is stored on site, and which was also contributed to by incident rainfall and run off from the 2010/11 wet season. At the commencement of the 2010/11 wet season, approximately 9,000ML of flood water from the 2008 flood event was stored in the A Pits that are located on the southern side of the Nogoia River. The water quality of the remnant 2008 flood waters in the A Pits has been continually monitored, and the water quality monitoring results in December 2011, showed that the level of contaminants in that water did not exceed the EA trigger levels for release except for electrical conductivity. While it is difficult to be precise, I understand that following the 2010/11 wet season, approximately 20,000ML of water remains in the A Pits; and
 - (d) limitations on the ability of the mine to release stored flood and run-off water to the Nogoia River under the EA in circumstances where the flow in the Nogoia River provides sufficient dilution to protect the environment. This is further discussed in paragraphs 40 to 46 below.

Flood preparedness in advance of the 2010/2011 wet season

10. The Commission has requested information on flood preparedness activities undertaken by Ensham Resources in advance of the 2010/11 wet season at the Ensham Mine, including whether any particular activities were undertaken as a response to the forecast of an above-average rainfall wet season, or any government communications regarding that forecast.
11. Following the 2008 flood event, the Ensham Mine Flood Recovery Project has been undertaken and included the removal of most of the water which inundated the mine, stability monitoring, dragline repair, mud disposal, and the repair and construction of flood protection levees and other essential infrastructure.
12. Ensham Resources has undertaken the following works to ensure risk of the accumulation of large volumes of flood water in the mining pits at the Ensham Mine is minimised in the future:
 - (a) Increasing the level of mine flood protection provided by the levees to the 1,000 year Average Recurrence Interval, at a cost in excess of \$40 million. This upgrade in flood protection levees was approved by DERM on 24

December 2009 and by the Nogoia River Flood Plain Board on 19 August 2010. The levee banks prevented flood inundation of the mine site from the Nogoia River during the 2010/11 flood event.

- (b) Reduction in the effective catchment areas of the mine pits by upgrading catchment diversions around the mine site.
13. This infrastructure will substantially reduce the risk of future flooding of the Ensham Mine.
14. Improvements to site water management, release capability and monitoring have also been implemented at the Ensham Mine by:
- (a) constructing an approximate 9km large diameter HDPE Pipeline linking the northern section of the mine to the mine water reticulation system, at a significant cost and due to be completed in late 2011;
 - (b) 'in-stream' real time water quality monitors installed upstream and downstream of the site;
 - (c) pumping installations in place for release of water from A Pits and northern pits (B, C and D Pits) to facilitate release of water from the mine during high rainfall events at up to 300ML per day, at a cost of approximately \$6 million;
 - (d) flow meters to be installed on all release points for accurate water release quality dilution management; and
 - (e) installation of scour protection works at the discharge points, where required in the Nogoia River.
15. Ensham received no formal communications from the government regarding the forecast above-average rainfall wet season in December 2010.
16. Ensham Resources undertook a program of personal communication and consultation with key stakeholders in the region regarding its Transitional Environmental Program ("TEP") discussed in paragraphs 33 to 36 below.

Consultation with DERM regarding the Environmental Authority

17. The Commission has requested with respect to the Environmental Authority in force at the Ensham Mine for the 2010/2011 wet season:
- (a) whether the Ensham Mine operator had any concerns arising from the drafting and negotiation of it and consultation between Ensham Resources and the Department of Environment and Resource Management (**DERM**);
 - (b) any inability on the part of Ensham Resources to comply with its terms;
 - (c) any risks to safety or the environment caused by its terms;
18. The EA that was in force during the 2010/2011 wet season is Environmental Authority No. 8000086202 dated 27 August 2010 ("**Previous EA**"), a copy of which is annexed hereto and marked '**PW-3**'. The EA was issued by DERM in response to an application made by the Ensham Joint Venture Parties to amend the environmental authority to include additional mining leases and additional surface area under the mining leases on 11 October 2006.

19. Ensham Resources held no concerns with respect to its dealings with DERM in the process of drafting and negotiating of the Current EA and the Previous EA by DERM. However the conditions of both the Current EA and the Previous EA impose electrical conductivity ("EC") limits for mine water discharges which effectively prevent release of the large quantities of water collected in mining pits during the 2008 and 2010/11 wet seasons.
20. Ensham complied with the conditions of the Previous EA during the 2010/2011 wet season. Ensham does not consider there are any risks to safety or the environment arising from the terms of the EA.
21. Both the Current EA and the Previous EA impose restrictions on the release of mine affected water. As a consequence, it was necessary to make an application to DERM for a Transitional Environmental Program ("TEP") following the 2010/11 flood event to authorise the controlled release of limited volumes of water (also known as dewatering) from mining pits at the Ensham Mine. Details regarding a series of TEP's that were approved by DERM following the 2010/11 flood event are set out in paragraphs 22 to 28.

Transitional Environmental Program

22. The Commission has requested with respect to any TEP or ED applied for, granted or refused relating to the Ensham Mine during the period 1 October 2010 to 30 July 2011:
 - (a) the reason precipitating the TEP or ED and his opinion as to whether the TEP or ED was effective in resolving that issue;
 - (b) any concerns arising from the terms of the TEP or ED;
 - (c) any non-compliance with the TEP or ED, and, if so, any actions taken by DERM in response to that non-compliance;
 - (d) to the knowledge of Ensham, any adverse effects to drinking water quality, any plant or animal species, any industry or agriculture, the environment or public health that occurred as a result of discharge of water under the TEP or ED.
23. DERM did not issue any Emergency Direction's relevant to the Ensham Mine as a consequence of the 2010/11 flood event.
24. Between the 2nd and 5th of December 2010, the Ensham Mine experienced rainfall in excess of 200 mm resulting in flooding in active mine pits and the cessation of mining in the affected pits. Most of the water storage for the mine is located on the southern side of the Nogoia River in the A Pits. A temporary pipeline traversed the existing haul road crossing to allow the transfer of water from the Northern pits to the storage on the southern side. As the water level in the Nogoia River had risen above the existing haul road, and temporary pipeline, Ensham did not consider that it was safe at this time to transfer water trapped in the northern pits to the southern storages.
25. As outlined in paragraph 19 the Previous EA imposed restrictions on the release of mine affected water. Such restrictions did not allow for the controlled release of the volumes of water that were trapped in mine pits as a consequence of the 2010/11 flood event. It was necessary therefore, for Ensham to make an application to DERM for a Transitional Environmental Program ("TEP") to authorise the controlled release of water.

26. Ensham Resources on behalf of the Ensham Joint Venture Parties made an application for a Draft TEP on 7 December 2010, a copy of which is annexed hereto and marked 'PW-4'. The purpose of the draft TEP was to allow for the controlled discharge of mine water to the Nogoia River and Boggy Creek during high flow events, to enable the mine to recommence operations. The release of waters under high flow conditions was proposed to dilute the releases and allow for natural "flushing flow" to occur through the downstream receiving waters. The discharge conditions included end of pipe limits, specified discharge locations and monitoring requirements.
27. The Draft TEP was approved by DERM on 10 December 2010 (Certificate Approval No. MAN11139) ("**TEP11139**"). A copy of (Certificate Approval No. MAN11139 is annexed hereto and marked 'PW-5'. The approved TEP11139 applied for the period until 27 May 2011.
28. Subsequent applications for amendment of the TEP were made by Ensham Resources on behalf of the Ensham Joint Venture Parties, and approved by DERM, to enable flood waters to be released in a controlled manner during high flow conditions, the TEP as follows:
 - (a) an application to amend TEP 11139 was made on 5 January 2011 primarily to include the release of water with an electrical conductivity ("**EC**") limit of 8500 $\mu\text{S/cm}$, a copy of which is annexed hereto and marked 'PW-6';
 - (b) the application to amend TEP11139 was approved by DERM on 5 January 2011 (Certificate Approval No. MAN11280) ("**TEP11280**"), a copy of Certificate Approval No. MAN11280 is annexed hereto and marked 'PW-7';
 - (c) an application to amend TEP11280 was made on 31 January 2011 primarily to reduce the minimum flow rate required in the Nogoia River for release, a copy of which is annexed hereto and marked 'PW-8'; and
 - (d) the application to amend TEP11280 was approved by DERM on 11 February 2011 (Certificate Approval No. MAN12039) ("**TEP12039**"), a copy of Certificate Approval No. MAN12039 is annexed hereto and marked 'PW-9.
29. Ensham Resources has no concerns arising from the terms of the series of TEP's approved by DERM for the site.
30. As to the effectiveness of the TEPs, they enabled the release of approximately 7000 ML, however remnant water remains in A pits, refer to paragraph 46 below.
31. In December 2010, there were a limited number of results that were recorded above the EC release limit of 4000 $\mu\text{S/cm}$ under the TEP. These results were reviewed against the EC of samples collected from downstream monitoring points on corresponding dates. Results show that the EC levels recorded at downstream monitoring points were below the applicable EC release limit at these locations. On 13 December 2010, Ensham Resources notified DERM in accordance with condition 15 of TEP11139, that EC was recorded at 4700 $\mu\text{S/cm}$. A copy of the letter to DERM dated 13 December 2010 is annexed hereto and marked 'PW-10. In a letter dated 4 July 2011, a copy of which is annexed hereto and marked 'PW-11', DERM confirmed that no further action was required to be taken by Ensham Resources in relation to the notified monitoring results.

32. I do not consider that there have been any adverse effects to drinking water quality, public health or the environment as a result of discharge of water under the TEPs referred to in paragraph 28 above.
33. Prior to making the TEP application on 10 December 2010, Ensham Resources undertook a program of personal communication and consultation with key stakeholders in the region regarding the proposed TEP conditions. Those stakeholders included:
- (a) Capricorn Conservation Council;
 - (b) Fitzroy Basin Association;
 - (c) Central Highlands Regional Council;
 - (d) Isaac Regional Council;
 - (e) Rockhampton Regional Council; and
 - (f) Immediate downstream land holders.
34. On 8 December 2010, I caused a TEP Fact Sheet to be sent by email to the key stakeholders regarding the objectives and actions to be carried out under the proposed TEP.
35. Following the email that was sent on the 8 December, Ensham staff and I followed up each recipient of the email by telephone to discuss the content of the TEP Fact Sheet and any address any concerns the key stakeholders may have had in relation to the proposed TEP. The feedback from the stakeholders was generally supportive of the proposed TEP, and Ensham Resources considered that there was an understanding that the proposed TEP would minimize the risks of environmental harm through significant dilution of mine affected water afforded by the high rainfall flows available in the Nogoa River.
36. Ensham Resources also provided updates on the mine water releases carried out under the approved TEP on its website.

Comments on the process for grant of the TEP

37. The Commission has requested a description of any concerns arising from the process of applying for and being granted or refused any TEP or ED, including:
- (a) Ensham Resources's knowledge of the process in advance;
 - (b) the transparency of the process;
 - (c) the speed of the process;
 - (d) the considerations taken into account or not taken into account;
 - (e) the reasons given for any decision;
 - (f) consultation with relevant stakeholders;
38. Ensham Resources has no concerns in respect of the process of applying for and being granted the relevant TEPs referred to in paragraph 28 above.

Details of the new Fitzroy Model conditions

39. The Commission has requested details of how the new Fitzroy Model Conditions negotiated during 2011, or any other discussions with DERM, will resolve any issue raised above in 3, 4 or 5.
40. The Draft Fitzroy Model Conditions ("Draft Model Conditions") that were released by DERM in August 2009 provided more restrictive water release conditions at mine sites located in the Fitzroy Basin Catchment, particularly as regards end of pipe release limits for EC.
41. The Draft Model Conditions were incorporated into the Previous EA that was issued by DERM on 27 August 2010 and are contained in the Current EA.
42. Since the release of the Draft Model Conditions, I understand that DERM has engaged with the industry (via the Queensland Resource Council ("QRC")) to undertake a review of the Model Conditions. It is my understanding that one of the key objectives of the review was to consider ways to make the model conditions flexible enough to minimise the need for TEP's to be the only option for mine operators to carry out controlled release of mine waters collected during major rainfall events.
43. I understood that DERM was aiming for the revised model conditions ("New Model Conditions") to be released in August 2011. This timing was said to enable companies to apply on a site-by-site basis for relevant amendments to their current environmental authorities to negotiate a workable set of conditions (based on the New Model Conditions) that are supported by background monitoring and data.
44. It is my understanding that the new Model Conditions are yet to be finalised by DERM.
45. Ensham Resources will continue to work with DERM so that the New Model Conditions will assist to maintain a water balance at the site during the wet season.
46. The Model Conditions however do not deal with the legacy issue of large quantities of water collected in mining pits during the 2008 and 2010/11 wet seasons. Therefore, it is necessary for a further application to be made for a TEP to facilitate the controlled release of flood waters remaining in the active mining pits to be released in a controlled manner to the Nogoia River. The objectives of the TEP are to ensure that Ensham Mine can recommence mining operations in A Pit, which has been used for temporary water storage since 2008 and restore water balance to the mine, using the new model conditions.

Impact of the new Fitzroy Model Conditions

47. The Commission has requested an explanation as to whether the new Fitzroy Model Conditions negotiated during 2011 are advantageous or disadvantageous to Ensham Resources in the management of water, contaminants and hazardous waste at the Ensham Mine, the downstream environment and safety issues.
48. As stated in paragraphs 40 to 46 above.

Account of Ensham Resources de-watering efforts after the 2008 flood event

49. The Commission has requested a brief account of Ensham Resources' de-watering efforts after the 2008 flooding.

50. Under the authorities set out in paragraph 52 to 55 the Ensham Mine was authorised to discharge flood waters from the 2008 flood event into the Nogoia River and Boggy Creek. In the period 3 February to 9 September 2008 the mine discharged approximately 138,000 ML of flood water. To minimise potential impact on the environment, Ensham Resources purchased approximately 70,000 ML of water allocation from the Fairbairn Dam, using Temporary Transfer from allocation holders. This water was released from Fairbairn Dam, flowing past the Ensham Mine to provide dilution of released flood water and maintain downstream EC levels consistent with conditions of the TEP.

Approval process for the de-watering of the mine after the 2008 flood event

51. The Commission has requested an account of assistance given to Ensham Resources by DERM to de-water the mine pits after the 2008 flooding, and any negotiations ;with DERM regarding further discharge to water.
52. Following the 2008 flood event, the Environmental Protection Agency ("EPA") issued an Emergency Directive on 1 February 2008 to discharge mine affected water from Pits B, C and D until 15 February 2008 in accordance with conditions, a copy of which is annexed hereto and marked 'PW-12'.
53. The EPA issued a second Emergency Directive on 15 February 2008, to discharge mine affected water from Pits B, C and D until 29 February 2008 in accordance with conditions, a copy of which is annexed hereto and marked 'PW-13'.
54. Ensham Resources made an application for a Draft TEP on 29 February 2008 to remove flood waters that entered mining pits A, B, C and D in the 2008 flood event, a copy of which is annexed hereto and marked 'PW-14'.
55. EPA approved the application for Draft TEP on 6 March 2008 (Certificate Of Approval 001-08). A copy of Certificate Of Approval 001-08 is annexed hereto and marked 'PW-15'. Amendments to this TEP were subsequently approved by DERM on 28 April 2008 and 2 June 2008. A copy of Amended Certificates Of Approval 001-08 dated 28 April 2008 is annexed hereto and marked 'PW-16'. A copy of Amended Certificate of Approval 001-08 dated 2 June 2008 is annexed hereto and marked 'PW-17'.

Effects of discharge of mine waters collected in 2008 during the 2010/11 flood event

56. The Commission has requested details of the positive and negative effects on the environment of the discharge of water from the 2008 flood out of the Mine site in 2010/11.
57. The 20,000ML of water stored at the Ensham Mine in December 2010 comprised approximately 9,000ML of water remaining from the 2008 flood inundation of the mine, plus additional water inflows from rainfall and groundwater since that time.
58. The monitoring conducted by Ensham Resources based on comparison of the monitored results with the long term background river water quality data does not indicate any environmental or other impacts, including on drinking water quality or health and safety impacts arising from the release of the stored water under the TEPs during the period December 2010 to April 2011.

Current practices for managing mine affected water

59. The Commission has requested details of any current procedures or plans for future procedures by Ensham Resources to manage water at the Mine other than by storing

it in dams or ponds, including by using desalination plants, purification procedures or any other means.

60. Ensham have examined and considered other methods of disposing of the surplus 20,000 ML of water currently stored at the mine including Reverse Osmosis desalination and use of Evaporation Ponds. Ensham considers these methods to be economically unviable for such a large volume of water, which also produce large volumes of saline brine requiring disposal.

Practices other than water storage dams for managing mine affected water

61. The Commission has requested an explanation of that which is involved in managing water at the Mine other than by storing it in dams or ponds, including by using desalination plants, purification procedures or any other means.
62. Ensham uses water around the mine for the suppression of dust associated with the conduct of the mining activities. This is achieved by the use of Water Trucks which distribute mine water by spraying it onto mine haul roads and coal stockpile areas, to limit dust generation by traffic movement. Water is also used to control dust generation throughout the coal crushing and preparation plant.
63. The water for dust suppression is taken from the site storage dams after distribution by the mine water reticulation system.
64. Approximately 1,200 ML of water is used by dust suppression at the mine each year.

I make this statement conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1867 (Qld).

Dated 26th September 2011

Signed and declared by Pier Westerhuis at
Brisbane in the State of Queensland
this 26th day of September 2011

Before me:



Signature of person before whom the
declaration is made



Signature of declarant



Full name and qualification of person before
whom the declaration is made

Statement by Pier Westerhuis

I, **Pier Westerhuis** of Ensham Resources Pty Ltd (ACN 011 048 678), Level 18, AMP Place, 10 Eagle Street, Brisbane in the State of Queensland (also known as Peter Westerhuis) state as follows:

1. I am the Chief Executive Officer for Ensham Resources Pty Ltd (ACN 011 048 678) (**Ensham Resources**). I have worked for Ensham Resources since 1 June 2002 and have been in my current position as Chief Executive Officer since 1 December 2008.
2. I have been required to provide this statement by the Queensland Floods Commission of Inquiry (**Commission of Inquiry**) by notice dated 6 May 2011 and as attached to this statement.

Background

3. Ensham Resources is the operator of the Ensham Mine, an open cut coal mine, for and on behalf of its owners. The Ensham Mine is located approximately 40 km east of Emerald in Central Queensland.
4. The Ensham Mine is jointly owned by Idemitsu Australia Resources Pty Limited (ACN 010 236 272); J-Power Australia Pty Ltd (ACN 002 307 682); Bligh Coal Limited (ACN 101 186 393); and LG International (Australia) Pty Ltd (ACN 002 806 831), (**the Ensham Joint Venture Parties**).
5. The Ensham Mine:
 - (a) has been operational since 1993;
 - (b) sells coal to various customers in Japan, Korea, India, China and other countries; and
 - (c) currently has a workforce of approximately 200 Ensham employees and a further 300 contract staff.

Impact of the 2010/2011 flood events on the Ensham Mine site

6. The Ensham Mine did not suffer any flood inundation from the Nogoa River and its tributaries during the 2010/2011 flood event as referred to by the Commission of Inquiry in its letter of 6 May 2011, other than a river crossing access which was overtopped. However, increased levels of surface water were generated on the Ensham Mine site due to heavy rain fall events prior to and during this period.
7. More generally, the extensive regional flooding impacted the Ensham Mine in the following ways:
 - (a) restricted the delivery of goods and services to the Ensham Mine and its accommodation camp for many months following the 2010/2011 flood event;
 - (b) restricted coal raiing from the Ensham Mine to the Gladstone Port for a number of weeks due to rail infrastructure damage; and
 - (c) restricted access to and from the Ensham Mine and the accommodation camp for Ensham employees and contractors due to the river crossing access to the Ensham Mine being cut-off by floodwaters for approximately six weeks.

Impact of the January 2008 flood event on the Ensham Mine site

8. On 19 January 2008, the Emerald area experienced a flood event which inundated parts of the Ensham Mine.
9. The floodwaters overtopped the then existing levee banks at the Ensham Mine during the January 2008 flood event in a number of places. Three mine pits were inundated, which resulted in the Ensham Mine suffering significant loss and damage including the limitation of open cut coal operations. The event resulted in a consequent loss of income as well as damage to equipment including a dragline.
10. The January 2008 flood event flooded a substantial area around the Ensham Mine in the floodplain of the Nogoa River and its tributaries.

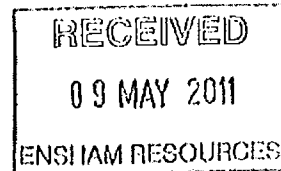
Mitigation measures undertaken after the 2008 flood event

11. On 14 April 2008, the Deputy Premier and Minister for Infrastructure and Planning declared the Ensham Mine Flood Recovery Project to be a Prescribed Project under the *State Development and Public Works Organisation Act 1971*. This declaration was to assist the Ensham Mine in minimising delays in statutory approvals required for the project and allow the reinstatement of the mine as quickly as possible.
12. The Ensham Mine Flood Recovery Project has been undertaken and included the removal of most of the water which inundated the mine, stability monitoring, dragline repair, mud disposal, and the repair and construction of flood protection levees and other essential infrastructure.
13. By the 2010/2011 flood event occurred, further works were undertaken to extend the existing mine flood protection levees and increase the levee design specifications to withstand a 1,000 year Average Recurrence Interval (ARI) flood event. This upgrade in flood protection levees was approved by DERM on 24 December 2009 and by the Nogoa River Flood Plain Board on 19 August 2010.

Studies undertaken by Ensham Resources to assess the impact of flood mitigation measures

14. In support of its various applications for permission to extend and modify the levees, in particular for the purposes of providing up to and including 1 in 1000 ARI flood protection levees for the Ensham Mine, the following technical reports were obtained by Ensham Resources:
 - (a) "Ensham Mine Proposed Levee Banks , January 2008 Flood Event Assessment", prepared by Kellogg Brown & Root Pty Ltd, dated 17 June 2008;
 - (b) "Ensham Central Project - Revised Mining Methodology, Flood and River Morphology Impact Assessment", prepared by Kellogg Brown & Root Pty Ltd, dated 10 August 2009;
 - (c) "Ensham Mine - Raising of original Downstream Levee Banks, Flood Assessment", prepared by Kellogg Brown & Root Pty Ltd, dated 10 August 2009;
 - (d) "Ensham Mine Flood Levees, Design Report for the proposed C Pit levee and Proposed upgrade of Existing B Pit Levee", prepared by Kellogg Brown and Root Pty Ltd Consulting Engineers and Douglas Partners, Consulting Geotechnical Engineers, dated 17 September 2009 (**Technical Report**);

Our ref: 1596846



6 May 2011

Mr Peter Westerhuis
Chief Executive Officer
Ensham Resources Pty Limited
GPO Box 814
BRISBANE QLD 4001

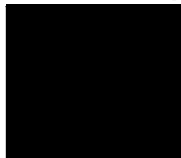
Dear Mr Westerhuis

Requirement to provide written information

Please find enclosed an original notice issued under s.5 of the *Commissions of Inquiry Act 1950* (Qld) concerning the provision of a written statement from Mr Peter Westerhuis, Chief Executive Officer of Ensham Resources Pty Limited.

Please note the return date of the statement is 13 May 2011. Should you have any questions, do not hesitate to contact [REDACTED] of our office on telephone [REDACTED]

Yours sincerely



Jane Moynihan
Executive Director

Encl.

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ABN 65 959 415 158

Our ref: Doc 1596581

6 May 2011

Mr Peter Westerhuis
Chief Executive Officer
Ensham Resources Pty Limited
GPO Box 1738
BRISBANE QLD 4001

Please discuss

REQUIREMENT TO PROVIDE WRITTEN INFORMATION TO COMMISSION OF INQUIRY

I, Justice Catherine E Holmes, Commissioner of Inquiry, require Mr Peter Westerhuis, Chief Executive Officer of the Ensham Resources Pty Ltd, to provide a written statement under section 5 of the *Commissions of Inquiry Act 1950* (Qld), detailing the following information:

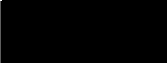
1. Any impact of the 2010/2011 flood events on the Ensham minesite project, northeast of Emerald, Queensland.
2. Any difference in the impact of the 2010/2011 flood events on the Ensham minesite project compared with impact of the 2008 flood event.
3. Any flood mitigation measures undertaken by Ensham Resources Pty Ltd after the 2008 flood event that assisted in lessening flood damage to the Ensham minesite in the 2010/2011 flood events.
4. Any studies undertaken by Ensham Resources Pty Ltd to assess the impact of any flood mitigation measures; especially on the flow of the Nogoia River in flood.
5. Any formal relationship between Ensham Resources Pty Ltd and the Central Highlands Regional Council regarding the preparation or response to floods or other natural disaster events.
6. Any communications with the Central Highlands Local Disaster Management Group before, during or immediately after the 2010/2011 flood events.

Material is to be provided to the Queensland Floods Commission of Inquiry by 4 pm, Friday, 13 May 2011.

Material required can be provided by post, email or by arranging delivery to the Commission by emailing info@floodcommission.qld.gov.au.



Commissioner
Justice C E Holmes

Cc:  Partner, King & Company Solicitors

400 George Street Brisbane
GPO Box 1738 Brisbane
Queensland 4001 Australia
Telephone 1300 309 634
Facsimile +61 7 3405 9750
www.floodcommission.qld.gov.au
ABN 65 959 415 158

eco access

environmental licences and permits

Notice

Environmental Protection Act 1994 Section 290

Notice of correction of an environmental authority (mining activities)

This notice is issued by the administering authority pursuant to section 290 of the Environmental Protection Act 1994 to advise you that it is proposed to amend an environmental authority (mining activities) to correct a clerical or formal error.

██████████
Manager – Corporate Sustainability
Ensham Resources
GPO Box 814
Brisbane Qld 4001

CC: ██████████
Acting Manager - Environment
Ensham Resources
PO Box 1565
Emerald Qld 4720

Your reference : MIM800086202

Our reference : EMD6

Dear ██████████

Environmental authority (mining lease), number MIM800086202, held by Bligh Coal Ltd, Idemitsu Australia Resources Pty Ltd, J-Power Australia Pty Ltd and LG International (Australia) Pty Ltd.

You are hereby advised that the above mentioned environmental authority (mining lease), is to be amended in the following manner:

Conversion of Environmental Authority (EA) from MIM800086202 to MIN102573611. The Department of Environment and Resource Management (the department) is required to convert the EA MIM800086202 to detail the correct activities for reporting purposes and reflect the changes made under *Environmental Protection Regulations 2008* in June 2008. In accordance with section 236 of the *Environmental Protection Act 1994* the department requires the holders of the current EA for Ensham Coal Mine to supply an amended plan of operations reflecting these changes.

Please note that the Environmental Authority conditions will not change with this conversion.

If you consider that the above amendment may adversely affect the interests of the holders, you are advised to contact ██████████ Environmental Support Officer, of the department on ██████████ within 5 business days of receipt of this notice.



Notice of correction of an environmental authority (mining activities)

The amended environmental authority shall be forwarded to you within 10 business days.

[Redacted Signature]

Signature

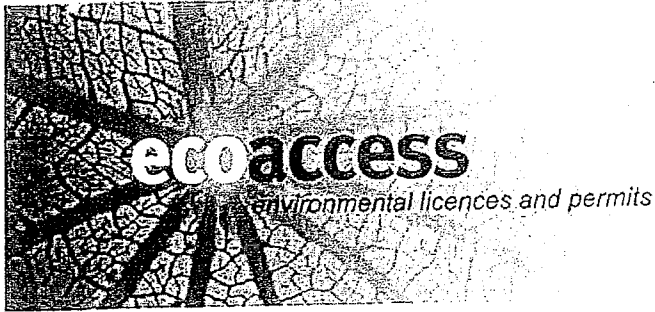
13 April 2011

Date

Christopher Loveday
Manager, Environmental Services - Mining
Delegate of Administering Authority
Environmental Protection Act 1994

Enquiries:
Department of Environment and Resource
Management
Central West Region - Emerald
PO Box 19
Emerald Qld 4720

Ph [Redacted]
Fax [Redacted]



RECEIVED
28 APR 2011
ENSHAM RESOURCES

Notice of Decision – Environmental Authority

This notice is issued by the Department of Environment and Resource Management to advise of a statutory decision made under section 290 of the Environmental Protection Act 1994.

██████████
 Manager – Corporate Sustainability
 Ensham Resources Pty Ltd
 GPO Box 814
 Brisbane Qld 4001

CC ██████████
 Acting Manager - Environment
 Ensham Resources Pty Ltd
 PO Box 1565
 Emerald Qld 4720

CC ██████████
 Mining Registrar
 The Department of Employment
 Economic Development & Innovation
 PO Box 245
 Emerald Qld 4720

Our Reference: 174745

Dear ██████████

Decision regarding correction of Non-Code Compliant Level 1 Environmental Authority (Mining Lease) (EA) MIN102573611 (previously MIM80086202) - Ensham Coal Project

The Department of Environment and Resource Management (the department) has amended the Non-Code Compliant Level 1 Environmental Authority (Mining Lease) MIM80086202 and wishes to advise you of the decision as specified below:

Principal Holder	Mining Tenement	Environmental Authority number	Decision
Bligh Coal Limited	ML7459 (including SA No. 3) ML7460 ML70049 ML70326 MLA70365 MLA70366 MLA70367	MIN102573611	Granted
Joint Holder(s)			
Idemitsu Australia Resources Pty Ltd			
J-Power Australia Pty Ltd			
LG International (Australia) Pty Ltd			

Notice of Decision – Environmental Authority

If you require more information please contact [redacted] Environmental Support Officer, of the department on [redacted]

[redacted]
Christopher Loveday
Delegate of administering authority
Environmental Protection Act 1994
20 April 2010

Enquiries:
Department of Environment and Resource
Management
Central West Region
PO Box 19
Emerald Qld 4720
Telephone: [redacted]
Facsimile: [redacted]

**Environmental Authority (Mining Activities) Non Code Compliant Level 1
Mining Project
Permit¹ Number: MIN102573611 – Ensham Mine**

Section 299 – Environmental Protection Act 1994

Takes effect from: 20 April 2011

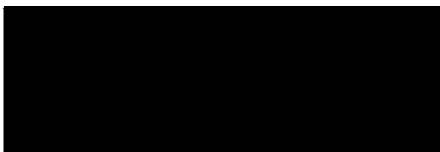
Details:

Permit Holder(s)	Name	Address
Principal Holder	Bligh Coal Limited	C/- Ensham Resources Level 20, AMP Place 10 Eagle Street Brisbane QLD 4000 GPO Box 814 Brisbane QLD 4001
Joint Holder	Idemitsu Australia Resources Pty Ltd	
Joint Holder	J-Power Australia Pty Ltd	
Joint Holder	LG International (Australia) Pty Ltd	

Activity(s)	Location(s)
Level 1 Mining Project - Schedule 6 Item 5 - Mining Black Coal	40km east of Emerald ML7459 (including SA No. 3) ML7460 ML70049 ML70326 MLA70365 MLA70366 MLA70367

The anniversary date of the environmental authority is 30 May.

The environmental authority is subject to the attached conditions of approval.



Christopher Loveday
Delegate of the administering authority
Environmental Protection Act 1994
20 April 2010

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

Department Interest – General

Financial assurance

- A1** Provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority.

NOTE: The calculation of financial assurance for condition A1 must be in accordance with DERM Guideline – Financial Assurance for Mining Activities, and may include a performance discount. The amount is defined as the maximum total rehabilitation cost for complete rehabilitation of all disturbed areas, which may vary on an annual basis due to progressive rehabilitation. The amount required for the financial assurance must be the highest total rehabilitation cost calculated for any year of the Plan of Operations and calculated using the formula: (Financial Assurance = Highest total annual rehabilitation cost x Percentage required).

- A2** The financial assurance is to remain in force until the administering authority is satisfied that no claim on the assurance is likely.

NOTE: Where progressive rehabilitation is completed and acceptable to the administering authority, progressive reductions to the amount of financial assurance will be acceptable where rehabilitation has been completed in accordance with the acceptance criteria defined within this environmental authority.

Prevent and/or minimise likelihood of environmental harm

- A3** In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and/or minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority.

NOTE: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

Maintenance of measures, plant and equipment

- A4** The environmental authority holder must ensure:
- that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed;
 - that such measures, plant and equipment are maintained in a proper condition; and
 - that such measures, plant and equipment are operated in a proper manner.

Monitoring and records

- A5** Record, compile and keep for a minimum of five (5) years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.

- A6 Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.

Notification of emergencies, incidents and exceptions

- A7 All reasonable actions are to be taken to minimise environmental harm, or potential environmental harm, resulting from any emergency, incident or circumstances not in accordance with the conditions of this environmental authority.
- A8 As soon as practicable after becoming aware of any emergency, incident or information about circumstances which results or may result in environmental harm not in accordance with the conditions of this environmental authority, the administering authority must be notified in writing.
- A9 Not more than ten (10) business days following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, written advice must be provided to the administering authority in relation to:
- a) proposed actions to prevent a recurrence of the emergency or incident;
 - b) the outcomes of actions taken at the time to prevent or minimise environmental harm; and
 - c) proposed actions to respond to the information about circumstances which result or may result in environmental harm.
- A10 As soon as practicable, but not more than six (6) weeks following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, environmental monitoring must be performed and written advice must be provided of the results of any such monitoring performed to the administering authority.
- A11 Contaminants must not be released to the receiving environment unless they are in accordance with the contaminant limits authorised by this environmental authority.
- A12 This environmental authority does not authorise environmental harm unless a condition contained within the authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

Definitions

- A13 Words and phrases used throughout this environmental authority are defined in Appendix 1 – Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

Department Interest – Air

Dust nuisance

- B1** The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
- B2** When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within fourteen (14) days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place. Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:
- a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with *Australian Standard AS 3580.10.1 of 2003* (or more recent editions); and
 - b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, cannot be exceeded more than five (5) times per year, when monitored in accordance with:
 - i. Australian Standard AS 3580.9.6 of 2003 (or more recent editions) Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method; or
 - ii. any alternative method of monitoring PM10 which may be permitted by the *Air Quality Sampling Manual* as published from time to time by the administering authority.
- B3** If monitoring indicates exceedence of the relevant limits in condition B2, then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

Odour nuisance

- B4** The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
- B5** When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

- B6** If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

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 ($\mu\text{S}/\text{cm}$)	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
Nogoa River	RP 1	Gauging Station 2 (GS 2) (At the same location as the existing Duckponds gauging station)	7,402,390	650,482	20m ³ /s	Continuous (minimum 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:
- the reason for the release;
 - the location of the release;
 - all water quality monitoring results;
 - any general observations;
 - all calculations; and
 - 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 Nogoia River)	7,398,309	652,651	Within 100m of pump intake point	Quarterly
Ramp 4 Dam (Northern side of Nogoia River)	7,403,555	653,862	Within 100m of pump intake point	
Ramp 8 Pit (Northern side of Nogoia 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 & ARM CANZ (2000) stock water quality guidelines.

² Page 4.2-15 of ANZECC & ARM CANZ (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 ($\mu\text{S}/\text{cm}$)	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 – Nogoia River discharge point			
Upstream background monitoring points			
MP 2	Nogoia River – upstream Ensham land boundary at Duckponds Crossing	650,482	7,402,390
Downstream monitoring point			
MP 3	Nogoia 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:
- the responsibility of the water must only be given or transferred in accordance with a written agreement (the third party agreement); and
 - 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:
- performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;
 - made in accordance with methods prescribed in the latest edition of the administering authority's Water Quality Sampling Manual;
 - collected from the monitoring locations identified within this environmental authority, within two (2) hours of each other where possible;
 - carried out on representative samples; and
 - 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:
- must not produce any visible discolouration of receiving waters; and
 - 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 Nogoia 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			

Location	Monitoring Point	Easting (GDA94)	Northing (GDA94)	Aquifer	Parameters	Frequency
	Bore EC21	651661.9	7400589.7	Alluvium	pH, EC, Na, 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:

- representative groundwater samples from the aquifers potentially affected by mining activities;
- at least twelve (12) sampling events (monthly sampling) to determine background groundwater quality as far as practicable;
- background groundwater quality in hydraulically isolated background bore(s) that have not been affected by any mining activities; and
- 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:

- the date on which the sample was taken;
- the time at which the sample was taken;
- the monitoring point at which the sample was taken; and
- the results of all monitoring.

Department Interest – Dams and levees

All dams

- C1** The holder of this environmental authority must ensure that each dam is designed, constructed, operated and maintained in accordance with accepted engineering standards and is fit for the purpose for which it is intended.
- C2** The hazard category of each dam must be assessed by a suitably qualified and experienced person at least once per year, based on documented evidence sufficient to define or confirm the current nature and extent of environmental consequences for potential failure of that dam. Hazard category is to be determined in accordance with the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland 1995*.
- C3** Dams having a hazard category assessed as significant or high, must be specifically authorised by this environmental authority.
- C4** The condition of dams must be monitored for early signs of loss of structural or hydraulic integrity, based on the advice of a suitably qualified and experienced person. The methods of monitoring and frequency of monitoring shall be as assessed by that suitably qualified and experienced person, based on the hazard category and particular circumstances of each dam.
- C5** In the event of early signs of loss of structural or hydraulic integrity, the holder of this environmental authority must immediately take action to prevent or minimise any actual or potential environmental harm, and report in writing any findings and actions taken to the administering authority within twenty eight (28) days of that event.
- C6** The holder of this environmental authority must not abandon any dam but must decommission each dam such that ongoing environmental harm is prevented.
- C7** As a minimum, decommissioning must be conducted such that each dam is:
- a) either:
 - i. a stable landform, that no longer contains flowable substances, or
 - ii. approved or authorised under relevant legislation for a beneficial use, or
 - iii. is a void authorised by the administering authority to remain after decommissioning; and
 - b) compliant with the rehabilitation requirements of this environmental authority.

Certification and operation

- C8** Documentation required by the conditions in this schedule must be kept available for inspection by the administering authority for a period of five (5) years after the conclusion of the environmentally relevant activity in respect of which this environmental authority has been granted.
- C9** The holder of this environmental authority must not commence construction of a regulated dam unless:
- a) the holder has submitted to the administering authority two (2) copies of a design plan, together with the certification of a suitably qualified and experienced person that the design of the regulated dam will deliver the performance stated in the design plan and that it will be compliant in all respects with this environmental authority, and
 - b) at least twenty (20) business days has passed since the receipt of those documents, or the administering authority notifies the holder that a design plan and certification in accordance with this environmental authority, has been received.
- C10** Each design plan for a regulated dam under this environmental authority, must consider the likely outcomes for releases to the environment using estimates of likely contaminant concentrations using data from contact testing, output from modelling on site and modelling for flows in the nearby watercourses.
- C11** Each design plan for a regulated dam under this environmental authority, must include the outcomes from water balance modelling of the worst case scenarios of wet season storage and discharges. This information must be presented graphically at a suitable time step and be able to compare the incident rainfall, runoff and environmental releases for all regulated dams.
- C12** When construction or modification of any regulated dam is complete, the holder of this environmental authority must submit to the administering authority two (2) copies of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the design plan and that it will be compliant in all respects with this environmental authority.
- C13** The holder of this environmental authority must ensure that there is always a current operational plan for each regulated dam, which may form part of other plans required by legislation.
- C14** The operational plan shall at least cover all matters relevant to the operation and maintenance of the regulated dam so that it is compliant in all respects with this environmental authority.
- C15** The holder of this environmental authority must ensure that, where a current operational plan covers decommissioning and rehabilitation, operations are consistent with the objectives in any design plan for the dam.

- C16** The holder of this environmental authority must notify the administering authority immediately of the level in any regulated dam reaching the mandatory reporting level (MRL), and confirm in writing within seven (7) days.

Annual inspection and report

- C17** The holder of this environmental authority must arrange for each regulated dam to be inspected annually by a suitably qualified and experienced person, in accordance with the following conditions.
- C18** At each annual inspection, the condition of each regulated dam must be assessed, including the structural, geotechnical and hydraulic adequacy of the dam and the adequacy of the works with respect to dam safety, and any recommended actions conveyed immediately to the holder of this environmental authority.
- C19** The holder of this environmental authority must immediately act upon recommendations arising from an annual inspection on condition and adequacy of a dam.
- C20** At each annual inspection, the adequacy of the available storage against the design storage allowance (DSA) specified must be assessed and, if a MRL is required, it must be determined and marked on each regulated dam.
- C21** A final assessment of adequacy of available storage in each regulated dam must be based on a dam level observed within the month of October, accepted as valid by the suitably qualified and experienced person, and resulting in an estimate of the level in that dam as at **1 November**.
- C22** For each annual inspection, two (2) copies of a report certified by the suitably qualified and experienced person, including any recommended actions to be taken to ensure the integrity of each regulated dam, must be provided to the administering authority by **1 December**.

Flood protection levee – Additional conditions

- C23** The design plan in accordance with condition C9 must include:
- drawings describing the location and dimensions of the levee and the mining excavations in the vicinity of the levee, including confirmation the levee meets the specified design requirements in condition C24; and
 - a documented procedure for surveillance of the levee and any adjacent mining excavation slopes to detect and report to the administering authority any ground movement that compromises or may compromise the integrity of the levee.

- C24** Design requirements for the levee and adjacent mining excavation include:
- the design level of the levee crest shall be at least one (1) metre above the estimated 1 in 1,000 ARI flood event for the adjacent watercourses; and
 - mining excavation slopes adjacent to the levee must remain stable and are to be designed with a factor of safety of one point five (1.5) (calculated from the levee toe) or above based on an accepted stability analysis.

- C25** The flood protection levee authorised under this environmental authority must be constructed and maintained such that:
- it does not result in increased erosion of the bank or bed of the Nogoa River;
 - it does not significantly impact upon riparian or existing remnant vegetation; and
 - the levee itself will not erode during any flood events up to the 1 in 1,000 ARI event.

Flood protection levee – Surveillance and remedial works

- C26** The condition of constructed levees including the surface area between the downstream toe of the levee and the end wall crest of the open-cut mining pit should be monitored for surface cracks and must at a minimum be inspected and assessed by a suitably qualified and experienced person at least once per year between the months of May and October inclusive (i.e. during the 'dry' season and before the onset of the 'wet' season), and at any time if alarming, unusual or otherwise unsatisfactory conditions are observed.
- C27** For each flood protection levee annual inspection, two copies of the surveillance report, including any recommendations for remedial works, must be provided to the administering inspection within twenty-eight (28) days of the date of inspection.
- C28** Remedial works identified as being required for the flood protection levee during the inspections and assessments conducted under conditions C26 and C27, must be notified in writing to the administering authority within fifteen (15) business days of the completion of the inspections, and commenced within twenty-eight (28) days unless otherwise agreed in writing by the administering authority.
- C29** The annual return for this environmental authority shall be accompanied by a report, by a suitably qualified and experienced person, that certifies that the documented procedure for surveillance of the levee has been applied in accordance with the procedure, that there has been no erosion, cracking or vertical or horizontal deformation that has impacted on the integrity of the levee, and that the levee has been maintained in accordance with the certified design plan.

Regulated dams – Location and basic specifications

C30 The following are the only regulated dams authorised under this environmental authority, and those dams are to be located within the control points defined in Table 14 (Location of regulated dams).

Table 14 (Location of regulated dams)

Name of regulated dam	Latitude (GDA94)	Longitude (GDA94)
Northern Flood Protection Levee	23.452678S	148.479443E
	23.462094S	148.479971E
	23.469485S	148.484359E
	23.478121S	148.484996E
	23.484577S	148.492496E
	23.484823S	148.503565E
	23.472116S	148.503753E
Southern Flood Protection Levee	23.511969S	148.463875E
	23.49669S	148.471324E
	23.498229S	148.497999E
	23.503798S	148.505249E
	23.514765S	148.501661E
	23.527258S	148.486488E

C31 The following are the only regulated dams authorised under this environmental authority, and those dams are to accord with the basic specifications in Table 15 (Basic specification of regulated dams).

Table 15 (Basic specification of regulated dams)

Name of regulated dam	Maximum surface area of dam (ha)	Maximum volume of dam (ML)	Maximum height of Dam (m)	Purpose of dam
Northern Flood Protection Levee	N/A	N/A	8	Flood protection for mine workings
Southern Flood Protection Levee	N/A	N/A	6.5	Flood protection for mine workings

C32 The following are the only regulated dams authorised under this environmental authority, and those dams are to accord with the hydraulic specifications in Table 16 (Hydraulic performance of regulated dams) below.

Table 16 (Hydraulic performance of regulated dams)

Regulated Dam	Design Storage Allowance	Spillway or Protection Critical Design Event	Mandatory Reporting Level
Northern Flood Protection Levee	N/A	AEP 0.001 (1-in-1,000) plus 1 metre minimum freeboard	N/A
Southern Flood Protection Levee	N/A	AEP 0.001 (1-in-1,000) plus 1 metre minimum freeboard	N/A

Department Interest – Noise and vibration

Noise nuisance

- D1 Noise from activities must not cause an environmental nuisance at any sensitive receptor or commercial place.
- D2 All noise from activities must not exceed the levels for the time periods specified in Table 17 (Noise limits) at any sensitive receptor or commercial place.

Table 17 (Noise limits)

Noise Level dB(A)	7am – 6pm	6pm – 10pm	10pm – 7am
<i>Noise measured at a 'Noise sensitive place'</i>			
L _A 10, adj, 10 mins	B/g + 5	B/g + 5	B/g + 3
L _A 1, adj, 10 mins	N/A	N/A	B/g + 8
<i>Noise measured at a 'Commercial place'</i>			
L _A 10, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5



Noise monitoring

- D3** When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within fourteen (14) days to the administering authority. Monitoring must include:
- a) L_A 10, adj, 10 mins
 - b) L_A 1, adj, 10 mins
 - c) the level and frequency of occurrence of impulsive or tonal noise;
 - d) atmospheric conditions including wind speed and direction;
 - e) effects due to extraneous factors such as traffic noise; and
 - f) location date and time of recording.
- D4** Noise is not considered to be a nuisance under condition D1 if monitoring shows that noise does not exceed the levels in the time periods specified in Table 17 (Noise limits).
- D5** The method of measurement and reporting of noise monitoring must comply with the current edition of the administering authority's *Noise Measurement Manual*.
- D6** If monitoring indicates exceedence of the relevant limits in condition D4, then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.

Vibration nuisance

- D7** Vibration from the licensed activities must not cause an environmental nuisance at any sensitive or commercial place.
- D8** When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

- D9 If the environmental authority holder can provide evidence through monitoring that the limits defined in Table 18 (Vibration limits) are not being exceeded then the environmental authority holder is not in breach of condition D7. Monitoring must include:
- a) location of the blast(s) within the mining area (including which bench level); and
 - b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and
 - c) location, date and time of recording.

Table 18 (Vibration limits)

Location	Vibration measured
Sensitive or commercial place	5 mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time

- D10 If monitoring indicates exceedence of the relevant limits in Table 18 (Vibration limits), then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Airblast overpressure nuisance

- D11 The airblast overpressure level from blasting operations on the premises must not exceed the limits defined in Table 19 (Airblast overpressure level) at any nuisance sensitive or commercial place.

Table 19 (Airblast overpressure level)

Location	Airblast Overpressure Measured
Sensitive or commercial place	Air blast overpressure level of 115 db (Linear peak) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 db (Linear peak) at any time.

- D12 When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

- D13** Airblast overpressure monitoring must include the following descriptors, characteristics and conditions:
- a) location of the blast(s) within the mining area (including which bench level);
 - b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and
 - c) location, date and time of recording.
- D14** If monitoring indicates exceedence of the relevant limits in Table 19 (Airblast overpressure level), then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
- D15** The method of measurement and reporting of airblast overpressure levels must comply with the current edition of the administering authority's *Noise Measurement Manual*.

Department Interest – Waste

E1 Storage of tyres

Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored in stable stacks and at least 10m from any other scrap tyre storage area, or combustible or flammable material, including vegetation.

E2 All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre storage area.

E3 Disposing of scrap tyres resulting from the authorised activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable. A record must be kept of the number and location for tyres disposed.

E4 Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

Waste Management

- E5** A Waste Management Plan, in accordance with the *Environmental Protection (Waste Management) Policy 2000*, must be implemented and must cover:
- a) describe how Ensham mine recognise and apply the waste management hierarchy;
 - b) identify characterisations of wastes generated from the project and general volume trends over the past five (5) years;
 - c) a program for safe recycling or disposal of all wastes - reusing and recycling where possible;
 - d) waste commitments with auditable targets to reduce, reuse and recycle;
 - e) The waste management control strategies must consider:
 - the type of wastes;
 - segregation of the wastes;
 - storage of the wastes;
 - transport of the wastes;
 - monitoring and reporting matters concerning the waste;
 - emergency response planning;
 - disposal, reused and recycling options;
 - f) identify the potential adverse and beneficial impacts of the wastes generated;
 - g) detail the hazardous characteristics of the waste generated (if any);
 - h) cover a disposal procedure for hazardous wastes ;
 - i) outline the process to be implemented to allow for continuous improvement of the waste management systems;
 - j) identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and
 - k) cover a staff awareness and induction program that encourages re-use and recycling.
- E6** Waste must not be burned or allowed to be burned on the licensed site unless by approval of the administering authority.
- E7** A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.



- E8** Records must be kept for five (5) years, and must include the following information:
- a) date of pickup of waste;
 - b) description of waste;
 - c) cross reference to relevant waste transport documentation;
 - d) quantity of waste;
 - e) origin of the waste;
 - f) destination of the waste; and
 - g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal.

NOTE: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.

- E9** Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the *Environmental Protection (Waste Management) Policy 2000*.
- E10** All regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.
- E11** Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the *Environmental Protection Act 1994*.

Department Interest – Land

Preventing contaminant release to land

- F1 Contaminants must not be released to land in manner which constitutes nuisance, material or serious environmental harm.

Bord and pillar – factors of safety

- F2 The holder of the environmental authority will determine relevant pillar and roadway dimensions to ensure that the following factors of safety are achieved:
- 2.11 for bord and pillar workings beneath the Nogoia River anabranch;
 - 2.11 for access roadways beneath the Nogoia River to connect the bord and pillar and longwall mining areas; and
 - 1.6 for all other bord and pillar workings beneath the floodplain of the Nogoia River.
- F3 Operational management protocols must be put in place to ensure that minimum pillar and roadway dimensions calculated to achieve the factors of safety in condition F2 are achieved during the life of the bord and pillar operation.

Topsoil

- F4 Topsoil resources that are suitable for use in rehabilitation must be salvaged ahead of mining disturbance (or spoil placement) for strategic use in rehabilitation of the mine spoil dump area. This topsoil removal relocation must be documented in a topsoil management plan.

Rehabilitation landform criteria

- F5 All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with Table 20 (Landform design criteria) which will be populated and submitted in conjunction with an environmental authority amendment application required by condition F7.
- F6 Progressive rehabilitation must commence within three (3) years when areas become available within the operational land.

- F7** A Rehabilitation Management Plan proposing completion criteria for all mining areas must be developed by **30 January 2013** and submitted to the administering authority for review and comment. The Rehabilitation Management Plan must, at a minimum:
- a) map existing areas of rehabilitation;
 - b) develop design objectives for rehabilitation of disturbed areas and post mining land uses across the mine;
 - c) specify spoil characteristics, soil analysis, soil separation for use on rehabilitation;
 - d) detail rehabilitation methods applied to areas;
 - e) detail landform design criteria including end of mine design;
 - f) detail how landform design will be consistent with surrounding topography;
 - g) identify success criteria for areas and itemize revegetation criteria;
 - h) explain planned native vegetation rehabilitation areas and corridors;
 - i) identify at least a minimum of three (3) reference and three (3) rehabilitation sites to be used to develop rehabilitation success criteria;
 - j) describe rehabilitation indicators and the monitoring program to be used;
 - k) develop a contingency plan for rehabilitation maintenance or redesign;
 - l) describe end of mine landform design planning and post mining land uses across the mine; and
 - m) include a cost benefit analysis/triple bottom line assessment (or a comparative alternative assessment method) of the proposed final landform design criteria and alternatives.

Residual void outcome

- F8** Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority.
- F9** An investigation into residual voids proposing acceptance criteria to meet the outcomes in condition F8 and landform design criteria must be developed by **30 January 2013** and submitted to the administering authority for review and comment. On acceptance of the criteria proposed in the residual void management plan, the criteria must be specified in the environmental authority. The investigation must at a minimum include the following:
- a) a study of options available for minimising final void area and volume;
 - b) design criteria for rehabilitation of final voids;
 - c) a void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long term;
 - d) a pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events;
 - e) a study of void capability to support native flora and fauna; and
 - f) a proposal/s for end of mine void rehabilitation success criteria and final void areas and volumes.

- F10 The rehabilitated landform criteria and residual void outcomes must be reviewed every three (3) years from the **30 January 2013** submission date. Any amendments to rehabilitation criteria and landform designs must be re-submitted to the administering authority.

Rehabilitation Monitoring Program

- F11 Once rehabilitation has commenced, the holder of the environmental authority must conduct a Rehabilitation Monitoring Program on a yearly basis, which must include sufficient spatial and temporal replication to enable statistically valid conclusions as established under the rehabilitation program.
- F12 The Rehabilitation Monitoring Program must be developed and implemented by a person possessing appropriate qualifications and experience in the field of rehabilitation management, nominated by the environmental authority holder.
- F13 The Rehabilitation Monitoring Program must be included in the Plan of Operations and updated with each subsequent Plan of Operations, describing:
- a) how the rehabilitation objectives as per condition F7 will be achieved; and
 - b) verification of rehabilitation success.

Post Closure Management Plan

- F14 A Post Closure Management Plan for the site must be prepared at least 18 months prior to the final coal processing on site and implemented for a nominal period of:
- a) at least thirty (30) years following final coal processing on site; or
 - b) a shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.
- F15 The Post Closure Management Plan must include the following elements:
- a) operation and maintenance of:
 - i. wastewater collection and reticulation systems;
 - ii. wastewater treatment systems;
 - iii. the groundwater monitoring network;
 - iv. final cover systems; and
 - v. vegetative cover.
 - b) monitoring of:
 - i. surface water quality;
 - ii. groundwater quality;
 - iii. seepage rates;
 - iv. erosion rates;
 - v. the integrity and effectiveness of final cover systems; and
 - vi. the health and resilience of native vegetation cover.

Tailings storage facility

F16 The management of tailings disposal must be in accordance with the following:

- a) all tailings material must be progressively characterised during disposal for acid generating capacity and selected metals and salts. Samples shall be tested for the following parameters: pH, Electrical Conductivity (EC), Acid Neutralising Capacity (ANC), Net Acid Generation (NAG) (reporting NAG capacity and NAG pH after oxidation), Total Sulphur (S), Chromium Reducible Sulphur (Scr), Boron (B) Cadmium (Cd), Iron (Fe), Aluminium (Al), Copper (Cu), Magnesium (Mg), Manganese (Mn), Calcium (Ca), Sodium (Na), Zinc (Zn) and Sulphate (SO₄);
- b) the sample parameters in a) above can be reviewed following 6 months of mine coal wash plant operation, and if it can be demonstrated that certain individual sample parameters are not present in sufficient quantities to warrant further monitoring, these can be removed from a) above;
- c) one tailing sample will be collected each and every week while the mine coal wash plant is operational and the sample will be stored. After 4 samples have been collected the samples will be composited and the composite sample characterised as outlines in (a) above. Subject to operation of the coal wash plant, a minimum of 1 composite tailing sample will undergo characterisation per month. Subject to operation of the coal wash plant a minimum of 12 composite tailing samples will undergo characterisation per year;
- d) records must be kept of the tailings disposal to indicate locations and characteristics of tailings stored within the tailings storage facility;
- e) where the acid producing potential of tailings material has not been conclusively determined, geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies; and
- f) tailings identified as potentially acid producing will be covered or placed to minimise surface oxidation. The maximum duration of surface exposure of these materials is one (1) month.

Mine Waste

- F17** A Mining Waste Management Plan together with the certification by an appropriately qualified person must be developed and implemented during the continuation of the environmental authority. The Mining Waste Management Plan must at a minimum include:
- characterisation programs to ensure that all mining waste is progressively characterised during disposal for net acid producing potential, salinity and the following parameters: pH, Electrical Conductivity (EC), Acid Neutralising Capacity (ANC), Net Acid Generation (NAG) (reporting NAG capacity and NAG pH after oxidation), Total Sulphur (S), Chromium Reducible Sulphur (Scr), Boron (B) Cadmium (Cd), Iron (Fe), Aluminium (Al), Copper (Cu), Magnesium (Mg), Manganese (Mn), Calcium (Ca), Sodium (Na), Zinc (Zn) and Sulphate (SO₄);
 - individual parameters in a) above can be removed following sufficient mine waste characterisation to demonstrate that certain individual parameters are not present in sufficient quantities to warrant further characterisation;
 - characterisation programs to ensure that the physical properties of the mining waste is progressively characterised during disposal;
 - the availability or leachability of metals from the mining waste;
 - quantification of PAF from mining waste present;
 - review impacts of the PAF mining waste on the rehabilitation;
 - management actions for mining waste that has been identified as having a high availability or leachability of metals;
 - management actions for mining waste that has been defined as PAF;
 - identification of environmental impacts and potential environmental impacts;
 - control measures for routine operations to minimise likelihood of environmental harm;
 - contingency plans and emergency procedures for non-routine situations; and
 - periodic review of environmental performance and continual improvement.

Storage and handling of flammable and combustible liquids

- F18** All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of *AS 1940 – Storage and Handling of Flammable and Combustible Liquids*.
- F19** Spillage of all flammable and combustible liquids must be controlled in a manner that prevents environmental harm.

Storage and handling of chemicals

- F20** All chemicals must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of the relevant Australian Standard.

F21 Spillage of all chemicals must be controlled in a manner that prevents environmental harm.

Infrastructure

F22 All infrastructure, constructed by or for the environmental authority holder during the licensed activities including water storage structures, must be removed from the site prior to surrender, except where agreed in writing by the post mining land owner / holder.

NOTE: *This is not applicable where the landowner / holder is also the environmental authority holder.*

Exploration

F23 Disturbance due to exploration activities in areas not authorised to be mined must be rehabilitated in accordance with provisions detailed in the *Code of Environmental Compliance for Exploration and Mineral Development Projects*.

Department Interest – Community

Complaint response

G1 All complaints received must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

G2 The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request:

- a) time, date, name and contact details of the complainant;
- b) reasons for the complaint;
- c) conclusions formed; and
- d) any actions taken.

Appendix 1 – Definitions

Words and phrases used throughout this licence are defined below except where identified in the *Environmental Protection Act 1994* or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

“20th percentile flow” means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

“acceptance criteria” means the measures by which actions implemented are deemed to be complete. The acceptance criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the environmentally relevant activities. Acceptance criteria may include information regarding:

- a) stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;
- b) control of geochemical and contaminant transport processes;
- c) quality of runoff waters and potential impact on receiving environment;
- d) vegetation establishment, survival and succession;
- e) vegetation productivity, sustained growth and structure development;
- f) fauna colonisation and habitat development;
- g) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- h) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- i) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- j) resilience of vegetation to disease, insect attack, drought and fire; and vegetation water use and effects on ground water levels and catchment yields.

“accepted engineering standards” in relation to dams, means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments, and relevant Australian and New Zealand Standards.

“acid rock drainage” means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of mining activity.

“administering authority” means the Department of Environment and Resource Management or its successor.

“**airblast overpressure**” means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dB).

“**ambient (or total) noise**” at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

“**Annual Exceedence Probability**” or “**AEP**” means the probability that at least one event in excess of a particular magnitude will occur in any given year.

“**ANZECC**” means the *Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000*.

“**authority**” means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

“**appropriately qualified person**” means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

“**assessed**” or “**assess**” by a suitably qualified and experienced person in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what has been assessed and the precise nature of that assessment;
- b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

“**associated works**” in relation to a dam, means:

- (a) operations of any kind and all things constructed, erected or installed for that dam; and
- (b) any land used for those operations.

“**authority**” means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

“**competent person**” means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

"**bed and banks**" for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

"**beneficial use**" in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

- a) of benefit to that owner in that it adds real value to their business or to the general community,
- b) in accordance with relevant provisions of the *Environmental Protection Act 1994*,
- c) sustainable by virtue of written undertakings given by that owner to maintain that dam, and
- d) the transfer and use have been approved or authorised under any relevant legislation.

"**blasting**" means the use of explosive materials to fracture-

- a) rock, coal and other minerals for later recovery; or
- b) structural components or other items to facilitate removal from a site or for reuse.

'**certification**', "**certifying**" or '**certified**' by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what is being certified and the precise nature of that certification.
- b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
- c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

"chemical" means –

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- b) a dangerous good under the dangerous goods code; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*; or
- d) a drug or poison in the *Standard for the Uniform Scheduling of Drugs and Poisons* prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or
- e) any substance used as, or intended for use as –
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - ii. a surface active agent, including, for example, soap or related detergent; or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - iv. a fertiliser for agricultural, horticultural or garden use; or
- f) a substance used for, or intended for use for –
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - ii. manufacture of plastic or synthetic rubber.

"commercial place" means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

"construction" or **"constructed"** in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for purposes of preparing a design plan.

"contaminated" means the substance has come into contact with a contaminant.

"contaminant" A contaminant can be –

- a) a gas, liquid or solid; or
- b) an odour; or
- c) an organism (whether alive or dead), including a virus; or
- d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
- e) a combination of contaminants.

"dam" means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. A dam does not mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

"**design plan**" is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include all investigation and design reports, plans and specifications sufficient to hand to a contractor for construction, and planned decommissioning and rehabilitation outcomes; so as to address all hazard scenarios that would be identified by a properly conducted hazard assessment for the structure. Documentation must be such that a 'suitable qualified and experience person' could conduct an independent review without seeking further information from the designer.

"**design storage allowance**" or "**DSA**" means an available volume, estimated in accordance with the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland* (DME 1995), that must be provided in a dam as at the first of November each year in order to prevent a discharge from that dam to a probability (AEP) specified in that guideline. The DSA is estimated based on 100% runoff of wet season rainfall at the relevant AEP, taking account of process inputs during that wet season, with no allowance for evaporation.

"**effluent**" treated waste water discharged from sewage treatment plants.

"**environmental authority**" means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.

"**environmental authority holder**" means the holder of this environmental authority.

"**financial assurance**" means a security required under the *Environmental Protection Act 1994* by the administering authority to cover the cost of rehabilitation or remediation of disturbed land or to secure compliance with the environmental authority.

"**flowable substance**" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

"**foreseeable future**" is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.

"**hazard**" in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

“**hazard category**” means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland* (DME 1995).

“**hazardous waste**” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

“**hydraulic performance**” means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland* (DME 1995).

“**infrastructure**” means water storage dams, roads and tracks, buildings and other structures built for the purpose and duration of the conduct of the environmentally relevant activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams, waste dumps, voids, or stockpiles and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.

“**lake**” includes –

- a) lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- b) the bed and banks and any other element confining or containing the water.

“**L_{A 10, adj, 10 mins}**” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

“**L_{A 1, adj, 10 mins}**” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response.

“**L_{A, max adj, T}**” means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

“**land capability**” as defined in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995).

“**land suitability**” as defined in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995).

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"levee", "dyke" or "bund" means a long embankment that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

"mandatory reporting level" or "MRL" means a warning and reporting level determined in accordance with the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland* (DME 1995). An MRL is the lowest level required in a regulated dam to allow either of the following to be retained:

- a) the runoff from a 72 hour duration storm at the AEP specified in Table 15 of this environmental authority;
- or
- b) a wave allowance at that AEP as estimated using a recognised engineering method.

"mg/L" means milligrams per litre.

“**mineral**” means a substance which normally occurs naturally as part of the earth’s crust or is dissolved or suspended in water within or upon the earth’s crust and includes a substance which may be extracted from such a substance, and includes—

- a) clay if mined for use for its ceramic properties, kaolin and bentonite;
- b) foundry sand;
- c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;
- d) limestone if mined for use for its chemical properties;
- e) marble;
- f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
- g) peat;
- h) salt including brine;
- i) shale from which mineral oil may be extracted or produced;
- j) silica, including silica sand, if mined for use for its chemical properties;
- k) rock mined in block or slab form for building or monumental purposes;

but does not include—

- l) living matter;
- m) petroleum within the meaning of the Petroleum Act 1923;
- n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
- o) water.

“**natural flow**” means the flow of water through waters caused by nature.

“**nature**” includes:

- a) ecosystems and their constituent parts; and
- b) all natural and physical resources; and
- c) natural dynamic processes.

“**noxious**” means harmful or injurious to health or physical well being, other than trivial harm.

“**offensive**” means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

“**operational land**” means the land associated with the project for which this environmental authority has been issued.

“**operational plan**” means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

“**peak particle velocity (ppv)**” means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms^{-1}).

“**protected area**” means - a protected area under the *Nature Conservation Act 1992*; or
- a marine park under the *Marine Parks Act 1992*; or
- a World Heritage Area.

“**progressive rehabilitation**” means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

“**receiving environment**” means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

“**receiving waters**” means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

“**reference site**” (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

“**regulated dam**” means any dam in the significant or high hazard category as assessed using the *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland* (DME 1995).

“**rehabilitation**” the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

“**representative**” means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

“**residual void**” means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

“**saline drainage**” The movement of waters, contaminated with salt(s), as a result of the mining activity.

“self sustaining” means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

“sensitive place” means;

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- b) a motel, hotel or hostel; or
- c) an educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- f) a public park or gardens.

“sewage” means the used water of person’s to be treated at a sewage treatment plant.

“significant disturbance” – includes land

- a) if it is contaminated land; or
- b) it has been disturbed and human intervention is needed to rehabilitate it.
 - i. to a state required under the relevant environmental authority; or
 - ii. if the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

- a) areas where soil has been compacted, removed, covered, exposed or stockpiled;
- b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- c) areas where land use suitability or capability has been diminished;
- d) areas within a watercourse, waterway, wetland or lake where mining activities occur;
- e) areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- g) areas where land has been contaminated and a suitability statement has not been issued.

“suitably qualified and experienced person” in relation to dams means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 1988*, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

1. knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
2. a total of five years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
3. a total of five years of suitable experience and demonstrated expertise each, in three of the following categories:
 - a) investigation and design of dams;
 - b) Construction, operation and maintenance of dams;
 - c) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
 - d) hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
 - e) hydrogeology with particular reference to seepage, groundwater;
 - f) solute transport processes and monitoring thereof; and
 - g) dam safety.

“tolerable limits” means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

“trivial harm” means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than \$5,000.

“void” means any man-made, open excavation in the ground.

“waste” as defined in section 13 of the *Environmental Protection Act 1994*.

“water” means –

- a) water in waters or spring;
- b) underground water;
- c) overland flow water; or
- d) water that has been collected in a dam.

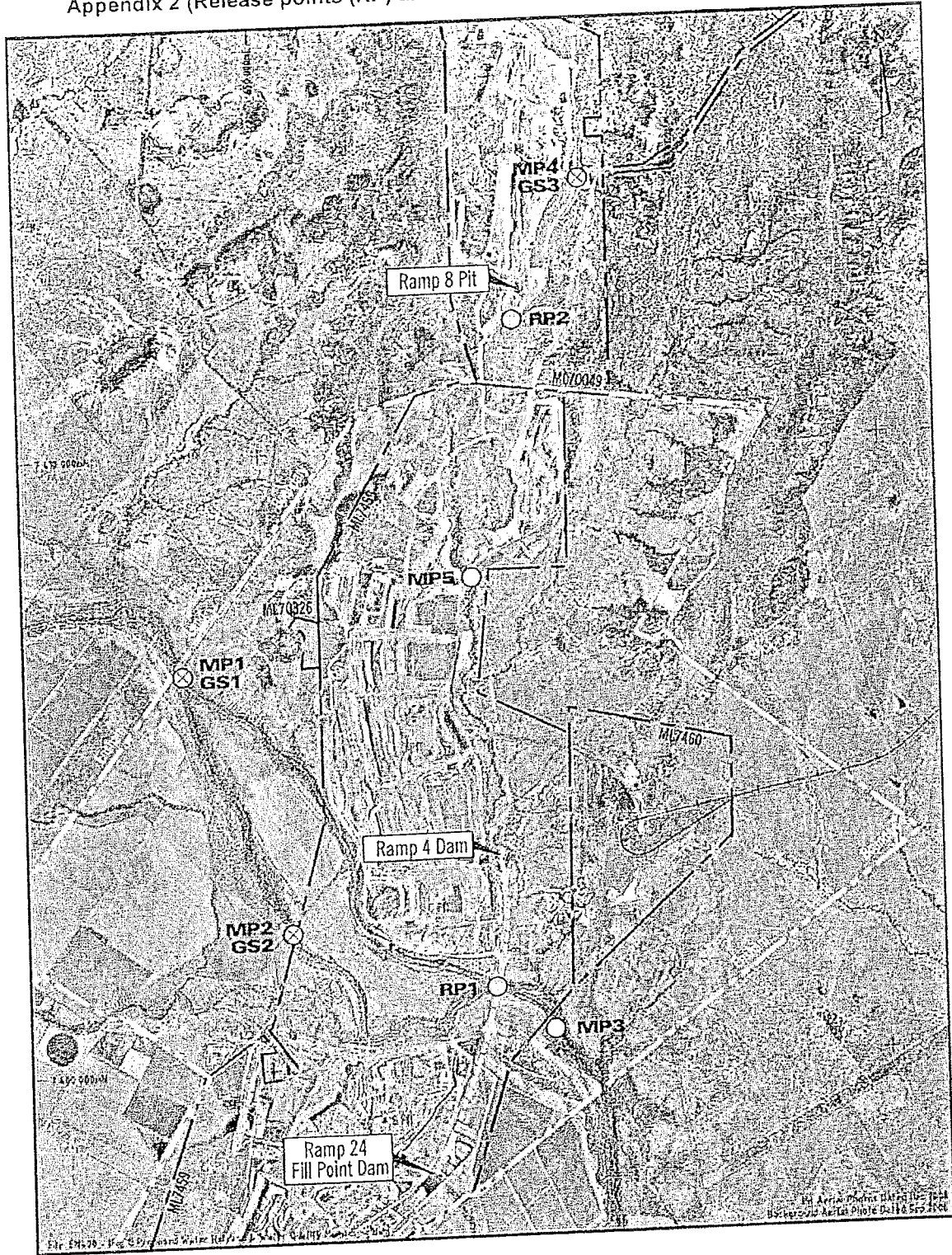
However, the following areas are not included:

- a) areas off lease (e.g. roads or tracks which provide access to the mining lease);
- b) areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- c) by agreement with the administering authority, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the administering authority; and
- e) disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

"**spillway**" means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

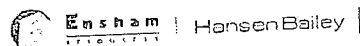
"**stable**" in relation to land, means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

Appendix 2 (Release points (RP) and monitoring points (MP) for Ensham Mine)



- Mining Lease and Mining Lease Application Areas
- Proposed Release Points
- Proposed Water Quality Monitoring Point
- ⊗ Proposed Gauging Station Location
- - - Pipeline to Water Release Point

Proposed Water Release Points and
Water Quality Monitoring Locations



“**waste water**” means used water from the activity, process water or contaminated storm water.

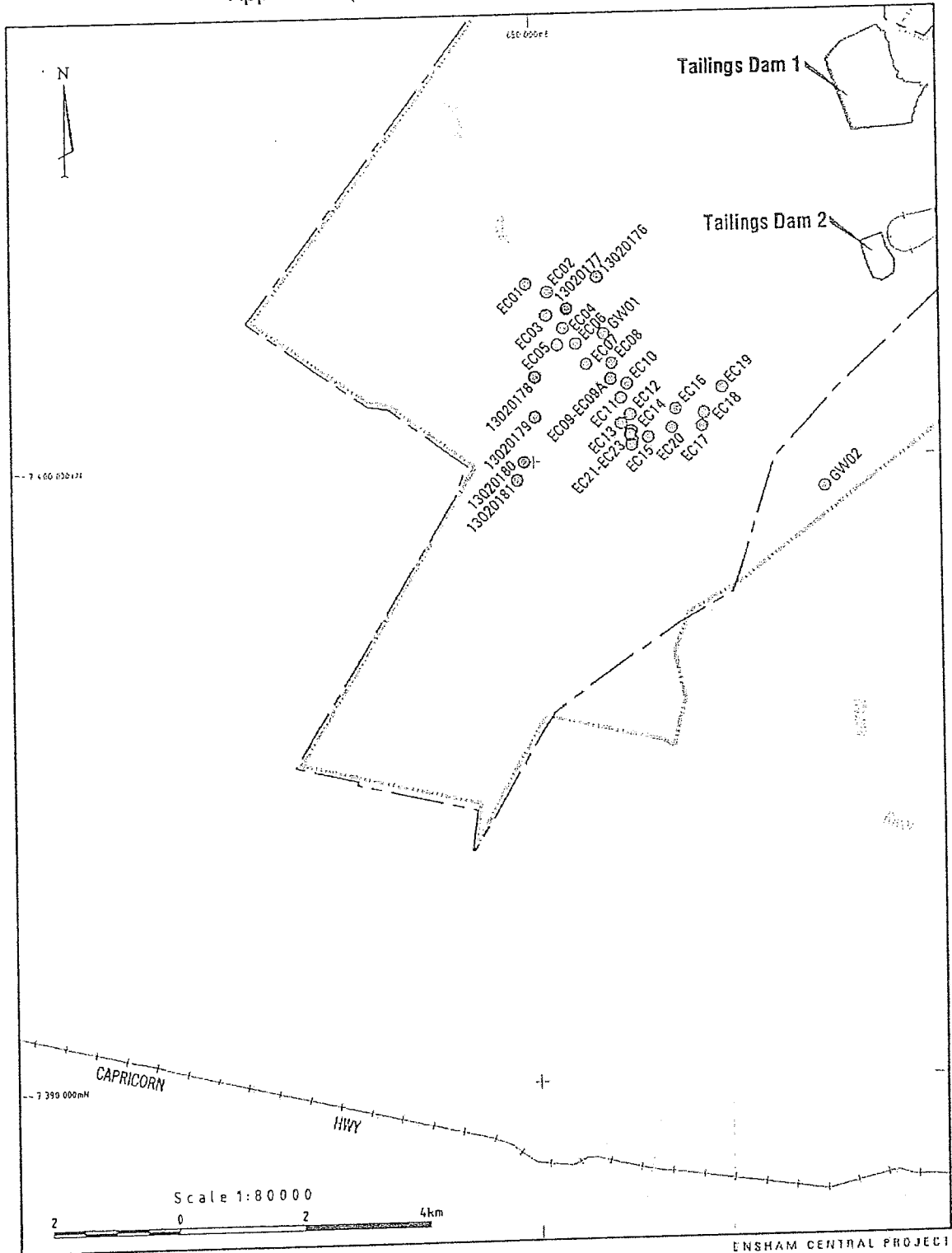
“**watercourse**” means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

- a) continuous bed and banks;
- b) an extended period of flow for some months after rain ceases, and
- c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

“**waters**” includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.

“**µg/L**” means micrograms per litre.

Appendix 3 (Groundwater monitoring locations)



- Ensham Owned Land
- Mining Lease and Mining Lease Application Area
- Alluvial Aquifer

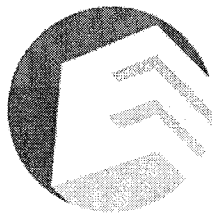
- Bores**
- Ensham Groundwater Monitoring Bore
 - DERM Bore

Groundwater Monitoring Plan within the Mining Lease

END OF ENVIRONMENTAL AUTHORITY

ENSHAM MINE
2010 DEWATERING

**TRANSITIONAL ENVIRONMENTAL
PROGRAM**



Ensham

R E S O U R C E S

07 December 2010

ENSHAM RESOURCES PTY LTD
Level 18, AMP Place
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-

**ENSHAM MINE 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 high intensity rainfall events in Central Queensland between 2 - 5 December 2010. Rainfall in excess of 200mm fell over the mine resulting in flooding in active mining pits. Most of the mine water storage is located on the southern end of the mine. With the Nogoia breaching the haul road it is not feasible to move water trapped in northern mining pits to the southern storages. Ensham Resources has been forced to declare force majeure until mining pits can be recovered. This TEP is sought to authorise pit dewatering activities.

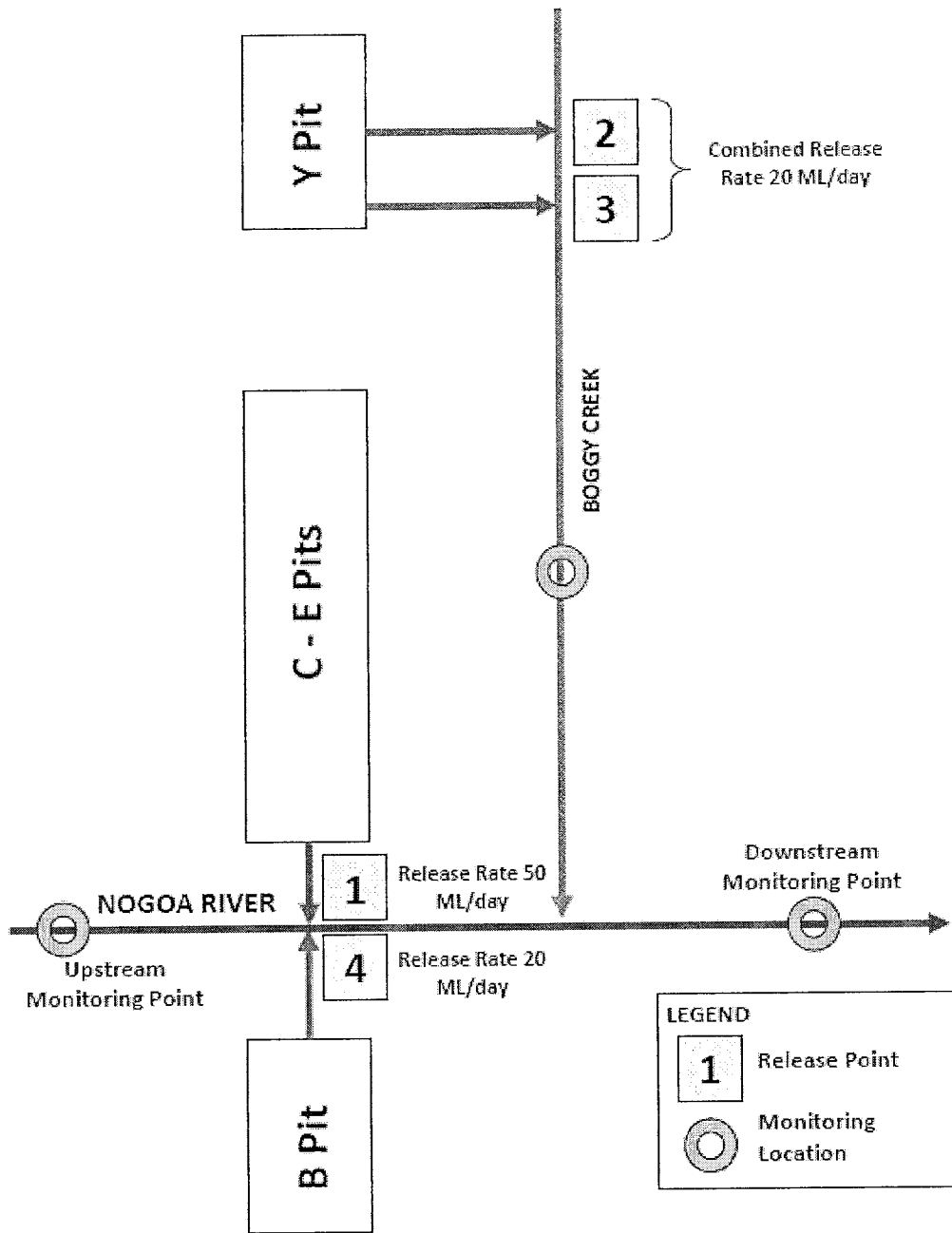
The TEP is structured as follows:

- TEP objectives;
- TEP timeframe;
- Description of dewatering activities, potential environmental impacts and proposed environmental management measures – designed to achieve TEP objectives; 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 Nogoia River and Boggy Creek. The discharge conditions include end of pipe limits, specified discharge locations and monitoring requirements. The proposed flood dewatering activities as outlined in Figure 1 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 quality of the pit water namely:

- elevated EC levels
 - increased TSS
 - levels of flow in the receiving water; and
 - discharge locations.
-



Proposed Ensham TEP Water Release Schematic

Figure 1

The objective of the TEP is to ensure that the mine can recommence operations and that the potential adverse impacts of the dewatering activities are mitigated and managed at an acceptable level. The potential adverse impacts of the dewatering operations include:

- Contamination of downstream water quality; and
- Scouring and erosion of 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. It is currently anticipated that the dewatering and recovery activities will be completed within 4 weeks. 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 proposed dewatering operations in detail and 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 PIT DEWATERING

4.2.1 Northern Pits

It is proposed that temporary discharge location will be established on Boggy Creek (Figure 2). The first discharge location will be located in the most northern section (Yongala) of the mine directly into Boggy Creek. Boggy Creek runs for approximately 14 kms before reaching the Nogoia River. Pumping infrastructure with the capacity to release 10ML/day from this location can be mobilised immediately.

It is also proposed to discharge from the authorised release point in Boggy Creek at a rate of 10ML/day. In total up to 20ML/day would be released into Boggy Creek.

Potential for scouring in Boggy Creek will be assessed by the engineer prior to the commencement of discharge and additional scour protection will be installed if necessary.

Once the dewatering is completed any impact to the bed and banks of Boggy Creek will be rehabilitated.

The second temporary discharge location will be established directly into the Nogoia River from the northern end of the site. Water will be moved from mining pits along existing drainage channels to a release point directly (Figure 2) into the Nogoia River. Pumping infrastructure with a capacity to release water at a rate of 50ML/day can be mobilised immediately. Potential for scouring in the Nogoia River will be assessed by the engineer prior to the commencement of discharge and additional scour protection will be installed if necessary.

Any 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.

Once the dewatering is completed any impact to the bed and banks of the Nogoia River will be rehabilitated

DRAFT

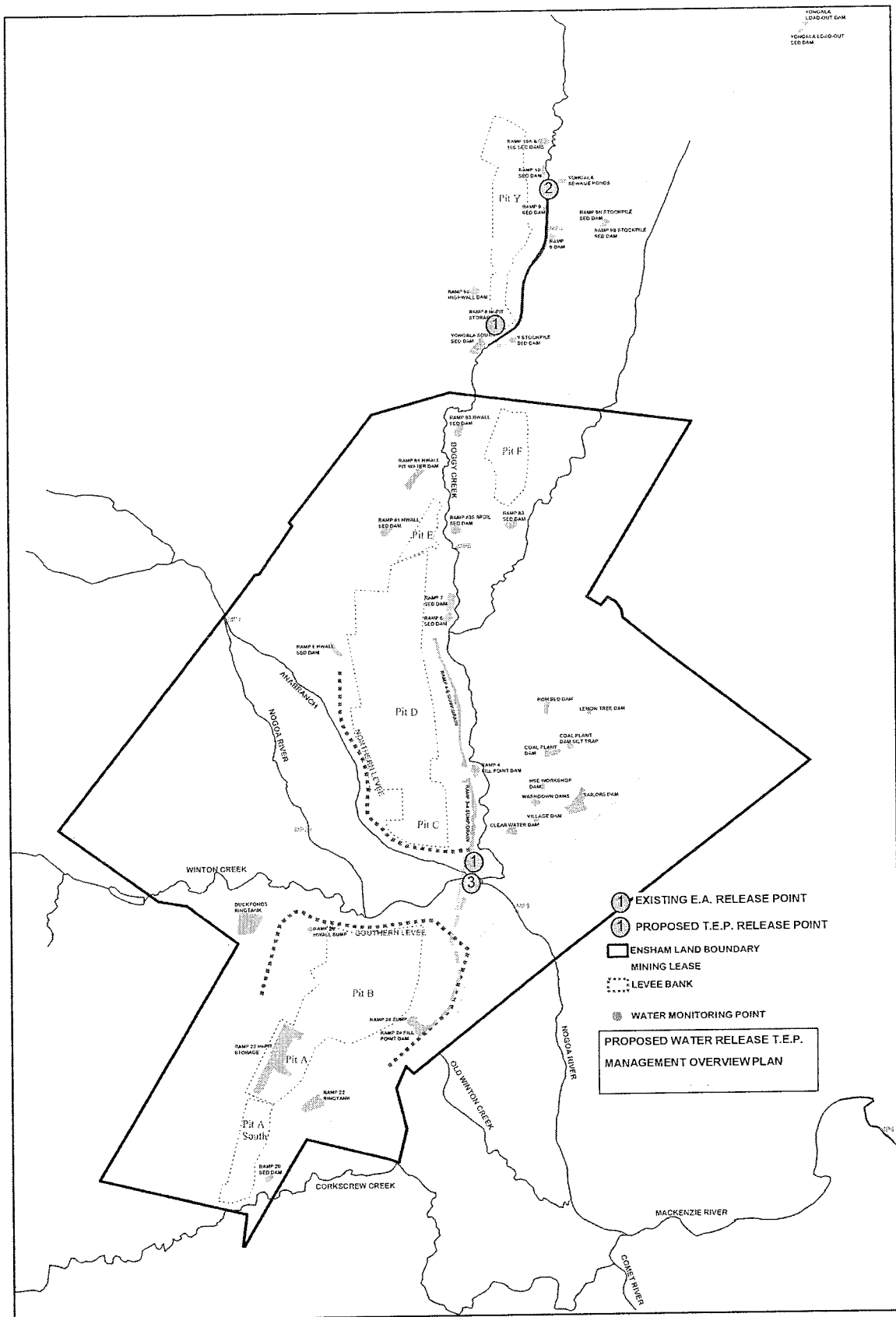


Figure 2

4.2.2 SOUTHERN PITS

The current authorised release point in to the Nogoia River from the Southern end of the site is in an unknown condition due to significant volumes of water travelling through the Nogoia. It is proposed to establish a temporary discharge point in close proximity to the authorised release point to dewater water captured in B Pit. This measure is proposed as an alternative to adding this fresh pit water to the current A Pit storage which has a much higher EC. Pumping infrastructure with a capacity to release water at a rate of 20ML/day can be mobilised immediately

4.3 PUMPING

Ensham will mobilise a fleet of pumps with a total dewatering capacity of up to 90ML/day to ensure the pits can be dewatered as quickly as possible. This is necessary to maximise the significant dilution provided by the high flows in the Nogoia River and minimise the time available for pit water quality to adversely deteriorate.

There are 4 proposed discharge locations across the site. One location is the existing Boggy Creek discharge point authorised under the Ensham EA, there are two additional locations on the Nogoia and one entering Boggy Creek (Figure 2).

The site Environmental Officer, under the guidance of an experienced hydraulics engineer, will conduct inspections prior to the commencement of pumping and will assess the need for scour protection taking into account the pumping rate. Scour protection will be installed as necessary. Boggy Creek and the Nogoia River will be continuously monitored during pumping. If any unexpected scouring occurs, pumping will cease and scour protection will be installed.

Pumping installations will be serviced by temporary fuel storage tanks. The fuel tanks will be installed with earth bunds to contain any potential spills.

5 WATER QUALITY

5.1 INTRODUCTION

Water proposed to be released through this TEP has been accumulated as a result of the recent flood events in Central Queensland. Water has entered the pits via rainfall and uncontrollable overland flows. While site access has made obtaining detailed water quality analysis difficult, recent in situ data has been collected. Historical observations of stored pit water are also useful in understanding potential water quality issues.

5.2 PIT WATER QUALITY

5.2.1 IN SITU PIT WATER RESULTS

In situ results recorded from the mining pits required to be dewatered under this TEP are outlined in the following table.

Pit	EC	pH	NTU
Yongala Ramp 9	881	7.82	25 - 550
Yongala Ramp 8	1520	8.89	50
Yongala Ramp 10	1951	7.85	27
Ramp 81	2280 - 2830	8.23 - 8.46	
B Pit	3360	8.46	

These results are indicative only and samples have been collected for full analysis of the suite of contaminants consistent with those specified in the Ensham EA. It should also be noted that the longer this water is allowed to remain in contact with mining pits it is likely that the EC will increase.

Water quality results recorded in September 2010 at monitoring location specified in Ensham EA points in the proposed receiving environments are summarized in the following table.

Location	EC	pH	TSS
Boggy Creek MP4	640	7.44	96
Boggy Creek MP5	581	7.42	548
Nogoa River MP2	201	7.7	340
Nogoa River MP3	196	7.74	412

5.2.1 HISTORIC PIT WATER QUALITY RESULTS

Approximately 9,000ML of remnant flood water was stored in mining pits on the southern part of the site after the 2008 flood event. The water quality in these pits has been continuously monitored since June 2008. Water quality results over this period have shown no elevated levels beyond release contaminant trigger levels specified in the Ensham EA with the exception of electrical conductivity which has reached and maintained a level of 7,500 EC us/cm. A summary of these pit water results as well as upstream background water quality monitoring results is contained in the report submitted to DERM to support the EA amendment for the model water conditions (Attachment 1).

Given that the geology across the site is relatively uniform and the length of time the water has been in contact with the mining pits there is no reason to expect that the water quality in the pits subject to this TEP would be elevated for any contaminants other than electrical conductivity and suspended solids as recorded from in situ measurements.

In addition to ongoing water quality monitoring, recent surveys have been conducted of aquatic fauna within the main Ramp 22 pit water storage. The fish species collected/observed in this pit water that has an elevated electrical conductivity of 7,500 EC included, Barred Grunter (*Amniataba percoides*), Fork-tailed Catfish (*Arius graeffei*), Spangled Perch (*Leiopotherapon unicolor*), Boney Bream (*Nematalosa erebi*), Hyrtli's Catfish (*Neosilurus Hyrtlii*), Rainbowfish (*Melanotaenia splendida splendida*) and Leathery Grunter (*Scortum Hillii*).

5.3 PROPOSED WATER QUALITY LIMITS

The water quality limits applicable to discharges under this TEP are proposed to be consistent with the parameters contained in the current EA with the exception of electrical conductivity and suspended solids. For these parameters the following limits are required:

Nogoa River release points

Quality Characteristic	Contaminant Release Limit
Electrical conductivity (us/cm)	4000
Suspended Solids	300

Boggy Creek release points

Quality Characteristic	Contaminant Release Limit
Electrical conductivity (us/cm)	2000
Suspended Solids	500

Pit water will not be discharged if it is in excess of EA requirements or the water quality limits specified above. Discharge will also cease immediately in the event that monitored discharge water quality exceeds these limits.

5.3.1 FLOWS

The Nogoa River is currently flowing at a rate of 180,000ML/day at the Duckponds gauging station. It is expected that the River will continue to run with elevated flow rates for an additional 4 – 6 weeks. The current Ensham EA requires a minimum flow rate of 20 m³/sec or 1,720ML/day before any mine water can be released. It is proposed to establish a higher minimum flow requirement of 116 m³/sec to release to the Nogoa River. A higher minimum flow rate has been proposed to provide the necessary dilution to reduce potential impacts.

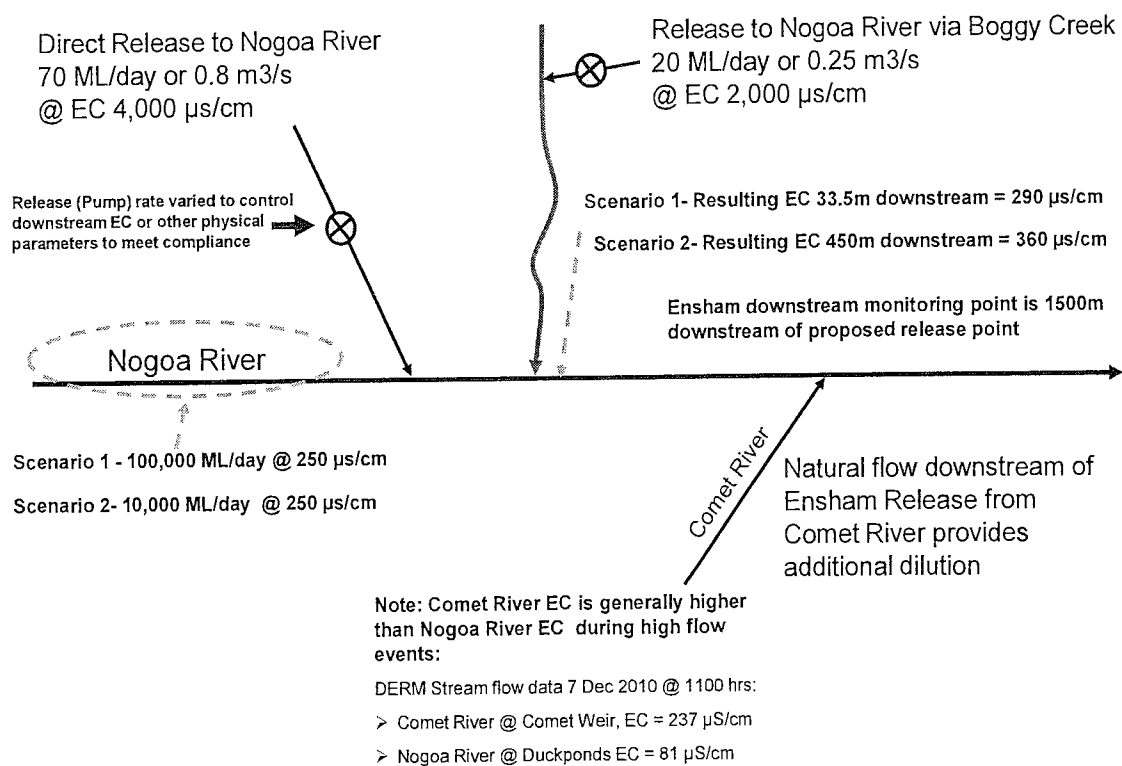
Boggy Creek is currently estimated to be flowing at approximately 20ML/day, this is expected to significantly reduce to no flow over the next few days. The current Ensham EA requires a 2 m³/sec flow for a mine water release. It is proposed that this TEP authorise the release of pit water with a maximum electrical conductivity of 2000 EC into Boggy Creek without any natural flow. Boggy Creek runs for approximately 14 kilometers before entering

the Nogoia River. The discharge flow would not exceed 2 meters per second velocity to reduce potential for erosion and would be expected to reach the Nogoia River within 2 hours of discharge from the release points.

5.3.2 EXPECTED DILUTIONS AND DOWNSTREAM WATER QUALITY RESULTS

The following diagram provides an outline of the expected dilutions and downstream water quality results in the Nogoia River, during release of water from the mine..

DOWNSTREAM WATER QUALITY MANAGEMENT MODEL SCHEMATIC



Estimated water quality dilution effects indicate that there no risks to the receiving environment or people, in the form of downstream domestic water supply integrity. Results under the minimum 10,000 MI/day or 116 m³/sec flow proposed show that water quality in the receiving environment at 450 metres from the release point will not exceed 360µS/cm. This result is well below the Australian Drinking Water Guidelines (2004) at 1000 EC and below the expected downstream results currently authorised in the Ensham EA.

RELEASE TO NOGOA RIVER						NOGOA RIVER FLOW RATE (ML/DAY)	ASSUMED NOGOA RIVER UPSTREAM EC ($\mu\text{S}/\text{cm}$)	PREDICTED NOGOA RIVER DOWNSTREAM EC ($\mu\text{S}/\text{cm}$)
VIA BOGGY CREEK (ML per day) Y Pit	E.O.P. EC ($\mu\text{S}/\text{cm}$)	DIRECT TO NOGOA RIVER(ML/day)			E.O.P. EC ($\mu\text{S}/\text{cm}$)			
		C-F Pit	B Pit	TOTAL				
20	2,000	50	20	70	4,000	200,000	250	251
20	2,000	50	20	70	4,000	180,000	250	251
20	2,000	50	20	70	4,000	160,000	250	252
20	2,000	50	20	70	4,000	140,000	250	252
20	2,000	50	20	70	4,000	120,000	250	252
20	2,000	50	20	70	4,000	100,000	250	253
20	2,000	50	20	70	4,000	95,000	250	253
20	2,000	50	20	70	4,000	90,000	250	253
20	2,000	50	20	70	4,000	85,000	250	253
20	2,000	50	20	70	4,000	80,000	250	253
20	2,000	50	20	70	4,000	75,000	250	253
20	2,000	50	20	70	4,000	70,000	250	254
20	2,000	50	20	70	4,000	65,000	250	254
20	2,000	50	20	70	4,000	60,000	250	254
20	2,000	50	20	70	4,000	55,000	250	255
20	2,000	50	20	70	4,000	50,000	250	255
20	2,000	50	20	70	4,000	45,000	250	256
20	2,000	50	20	70	4,000	40,000	250	257
20	2,000	50	20	70	4,000	35,000	250	257
20	2,000	50	20	70	4,000	30,000	250	259
20	2,000	50	20	70	4,000	25,000	250	260
20	2,000	50	20	70	4,000	20,000	250	263
20	2,000	50	20	70	4,000	15,000	250	267
20	2,000	50	20	70	4,000	10,000	250	276
20	2,000	50	20	70	4,000	5,000	250	302

PREDICTED DOWNSTREAM E.C. TABLE

Specific calculations have been made to predict EC levels at distances downstream of the release point.

Current Considerations	Values and Estimations
Conductivity level of the mine water proposed for discharge	4000 $\mu\text{S}/\text{cm}$.
Current flow at mine site	160,000ML/day Which equals: 1.8519 ML/sec or 1851.9 m ³ /sec
Discharge rate from mine waters	100 ML/day Which equals: 0.0011574 ML/sec or 1.1574 ML m ³ /sec

Assumptions have been made relating to the flow velocity and cross sectional area of the main channel and the floodplain flow at the release point. For a flow of this magnitude:

- Flow velocities will be approximately 1.5m/sec at 160,000 ML/day;
- Total active cross sectional area will be approximately 1200 m² and
- Total main channel cross sectional area will be approximately 200 m².

This means the flow is considerably outside the banks. Therefore, given a nominal dilution factor of 1:1600 and assuming a mixing coefficient of 0.40 (i.e. mixing is 40% efficient), a dilution of at least 1:100 is obtained for a 100ML/day release approximately 33.5m

downstream from the pipe exit. At a distance of 33.5m downstream, conductivity will be approximately 290µS/cm.

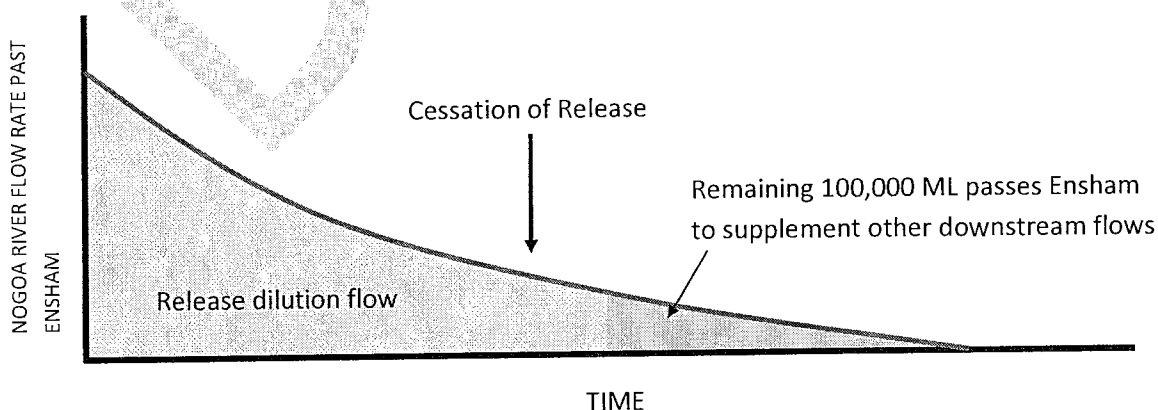
Based on these assumptions, for a flow of 10,000 ML/day, the flow velocity will be approximately 1m/sec. A flow of 10,000 ML/day equates to 0.11574 ML/Sec which equals 115.74 m³/sec. At this flow rate, the total active cross sectional area is approximately 300m² with a total main channel cross sectional area of approximately 150m² (i.e. the flow is only just over-bank). Using a mixing coefficient of 0.4, a dilution of 1:100 for a 100ML/day release is achieved 450m downstream from the pipe exit. At this point the conductivity will be 360µS/cm.

5.4 PROVISION FOR POST DISCHARGE FLOWS

Ensham proposes to provide an additional measure to protect downstream water quality. From Ensham water release location in the Nogoia River, to the outfall of the Fitzroy River Barrage, the full storage volumes of the designated supply weirs, including the Fitzroy River Barrage are provided in the following table:

STORAGE	FULL VOLUME CAPACITY (ML)
Bedford Weir	17,200
Bingegang Weir	8,060
Tartrus Weir	12,000
Eden Bann Weir	35,900
Fitzroy River Barrage	81,300
TOTAL	154,460

It is proposed that all discharge cease upon prediction that the remaining natural upstream flow to pass Ensham is 100,000 ML. This will allow a volume representing 2/3rds of the river system storage to provide a natural 'flushing flow' following cessation of release. The prediction will consider all upstream inflows that occur during the TEP release period.



Should this trigger be reached prior to the 4 week dewatering period proposed in this TEP Ensham would cease to discharge.

6. MONITORING AND REPORTING

6.1 MONITORING

During any discharge, water quality will be monitored in accordance with the existing Environmental Authority. In addition it is proposed that water quality is monitored from the pits prior to release at the additional discharge locations. Water quality monitored at the additional locations will be sampled for the same parameters as specified in the Ensham EA.

6.2 REPORTING

Ensham will prepare comprehensive daily reports on the dewatering operations detailing the location of pumps, 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. A report at the end of the TEP period will also be submitted providing a summary of results and findings.

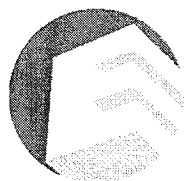
7. COMMUNITY INTEREST

7.1 ADDRESSING COMMUNITY INTERESTS

There was much community interest in previous dewatering activities conducted by Ensham after the January 2008 flood event. This TEP is different from that authorised in 2008 and incorporates some additional measures as learning's from the 2008 event. Specifically, This TEP proposes:

- A minimum flow event in the Nogoia River at all times
- A limited discharge period of 4 weeks
- Provision for discharge to cease to provide for a 'flushing flow';
- Greater transparency of monitoring results with data posted on the Ensham website.

Ensham plans to engage with key stakeholders including Capricorn Conservation Council, Fitzroy Basin Association, Local Council's and downstream neighbours regarding this TEP proposal.



Ensham

R E S O U R C E S

Attachment 1

ENSHAM RESOURCES PTY LTD

ENVIRONMENTAL AUTHORITY WATER QUALITY REPORT

Prepared by:

HANSEN BAILEY
Level 15
215 Adelaide St
Brisbane QLD 4001

7 July 2009

For:

ENSHAM RESOURCES
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(issued 30 June 2009)

ENSHAM MINE ENVIRONMENTAL AUTHORITY WATER QUALITY REPORT

for
Ensham Resources Pty Ltd

1 INTRODUCTION

This report has been prepared on behalf of Ensham Resources in response to the following documents issued by the Department of Environmental and Resource Management (DERM):

- “*Conditions for Coal Mines in the Fitzroy Basin – Approach to Discharge Licensing*” (dated 10 June 2009); and
- “*Draft Model Water Conditions for Coal Mines in the Fitzroy Basin. Part A.* (dated 30 June 2009) hereafter referred to as “*Draft Model Water Conditions*”.

This report is a synthesis of Ensham’s water quality data and has been prepared for use in further discussions between DERM and Ensham Resources, regarding the development of an amended Environmental Authority (EA) for Ensham Mine. It is divided into two sections.

Section 2 provides tables summarising the following :

- the proposed DERM contaminant release limits and contamination trigger investigation levels proposed in the “*Draft Model Water Conditions*” report;
- applicable *Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines (2000)*;
- the applicable *Australian Drinking Water (ADW) Guidelines (2004)*; and
- the range of actual water quality monitoring data for samples collected in the Nogoia River, upstream of Ensham, and in Ensham Mine pit water.

Section 3 contains graphed representations of each contaminant using water quality results from Ensham’s monitoring programs. Each graph also indicates the applicable limit or trigger from the DERM “*Draft Model Water Conditions*”, the nearest aquatic ecosystem protection level as prescribed by the *ANZECC Guidelines* or, where not available (as in the case of Iron) the relevant *ADW Guidelines* value.

The monitoring data used in the following sections was collected at the following three monitoring locations:

- Nogoia River Upstream – Ensham Mine upstream lease boundary on the Nogoia River;
- Nogoia River Downstream – Ensham Mine downstream lease boundary on the Nogoia River; and

- A Pit (North) - Ensham Mine Pit Water

2 PROPOSED ENVIRONMENTAL AUTHORITY CONDITIONS

2.1 INTRODUCTION

The DERM “*Draft Model Water Conditions*” document is likely to form the basis for future EAs issued by DERM. It contains two key terms - limit and trigger – which are defined as follows:

- Limit - refers to a water quality standard which, if exceeded, would be considered a breach of the EA. Limits have been proposed for Electrical Conductivity (EC), pH, suspended solids (TSS) and sulphate at the contaminant release point only.
- Trigger - refers to a water quality parameter level which, if exceeded, is not considered a breach of the EA, but may warrant further investigation. Triggers for EC, pH, TSS and sulphate have been proposed at the receiving water monitoring site downstream of the release point.

A further set of triggers, referred to as Contaminant Trigger Investigation Levels, also apply to a range of other contaminants such as metals and hydrocarbons. These trigger levels primarily apply at the contaminant release location however, if any of these triggers are exceeded at the release location then they shall also be measured at the receiving water monitoring site.

If the contaminant concentration at the receiving water monitoring site exceeds the contaminant trigger investigation level or the receiving water trigger level then the offending contaminant concentration at the receiving water monitoring site is to be compared to the concentration of that contaminant at the upstream reference site, which in this area is the Nogoia River (upstream) monitoring location. If the concentration at the receiving water monitoring site is greater than the reference site then an investigation will be required and a report shall be submitted to the Administering Authority with the next Annual Return.

2.2 CONTAMINANT RELEASE LIMITS AND TRIGGER INVESTIGATION LEVELS

Tables 1 and 2 compare the Contaminant Release Limits and the Contaminant Trigger Investigation Levels proposed by DERM (*Draft Model Water Conditions*) with the *ANZECC Guidelines (2000)*, the *ADW Guidelines (2004)* and existing water quality data results from mine pit water samples taken from A Pit (North) between June 2008 and May 2009. (A Pit (North) water quality data is used to represent the potential contaminant concentrations of Ensham Mine release water.)

Contaminants listed in the tables have been shaded in red (e.g. Aluminium, Cadmium etc.) when the actual water quality results at the reference monitoring site exceeded the

investigation trigger levels proposed in the DERM “*Draft Model Water Conditions*”. Contaminants have been shaded in orange (e.g. Iron) when the actual water quality results at the reference monitoring site exceeded the proposed investigation trigger levels proposed in the DERM “*Draft Model Water Conditions*” but where these are either borderline cases or results are at the limit of detection of the data set. The actual monitoring results which would correspond to an exceedance of the proposed contaminant trigger levels are shaded in red.

All contaminants are measured as dissolved concentrations unless otherwise stated. All contaminant limits stated from the *ANZECC Guidelines* (2000) or the *ADW Guidelines* (2004) are based on ecosystem protection or health limits respectively unless stated otherwise.

2.3 RECEIVING ENVIRONMENT CONTAMINANT TRIGGER LEVELS

Tables 3 and 4 compare the Receiving Environment Contaminant Trigger Levels and the Contaminant Trigger Investigation Levels proposed by DERM (*Draft Model Water Conditions*) with the *ANZECC Guidelines* (2000), the *ADW Guidelines* (2004) and existing water quality data from samples taken at the Nogoia River (Upstream) monitoring site between February 2008 and May 2009.

The Nogoia River (Upstream) monitoring site is the background water quality reference site for Ensham Mine, and the range of water quality data recorded at this site has been tabulated for comparison against the proposed DERM investigation trigger levels and *ANZECC Guidelines*.

The same colour coding system described in Section 2.2 above applies to these tables. All contaminants are measured as dissolved concentrations unless otherwise stated. All contaminant limits stated from the *ANZECC Guidelines* (2000) or the *ADW Guidelines* (2004) are based on ecosystem protection or health limits respectively unless stated otherwise.

Table 1
Proposed DERM Contaminant Release Limits and Ensham A Pit (North) Water Quality Results

Contaminant ⁽¹⁾	DERM Model Water Conditions ⁽²⁾		ANZECC Water Quality Guidelines (2000)	Australian Drinking Water Guidelines (2004)	A Pit (North) Water Monitoring Results		Proposed Ensham EA Trigger
	Interim Release Limits	Release limits to be negotiated Aquatic Ecosystem Protection Drinking Water Protection			Maximum	Minimum	
Contaminant Release Limits							
Electrical Conductivity (µS/cm)	1500	1000 ⁽³⁾	20 - 250	1000	7220	1060	To be completed following
pH	6.5 - 9.0	6.5 - 9.0	6.0 - 8.0	6.5 - 8.5	8.5	7.39	23
Total Suspended Solids (TSS) (mg/L)	Current limit - not specified in current Ensham EA	Limit to be based on reference data	No limit defined	No limit defined	70	5	23
Sulphate (mg/L)	1000	1000/250	No limit defined	500 (250 ⁽⁴⁾)	940	148	23

(1) All contaminants are measured as dissolved unless stated otherwise.

(2) From Table 2 of DERM "Draft Model Water Conditions for Coal Mines in the Fitzroy Basin". (Dated 30 June 2009)

(3) Must have natural flow (i.e. 20th percentile flow trigger) and achieve a 1:4 dilution..

(4) Designates Limits which are aesthetic only.

(5) Based on data collected between June 2008 and May 2009.

(6) DERM proposes sulphate trigger level of 250 mg/L for protection of drinking water environmental value and 1000 mg/L for protection of irrigation environmental value.

**Table 2
Proposed DERM Contaminant Trigger Investigation Levels and Ensham A Pit (North) Water Quality Results**

Contaminant ⁽¹⁾	DERM Model Water Conditions ⁽²⁾ Investigation Triggers	ANZECC Water Quality Guidelines (2000)				Australian Drinking Water Guidelines (2004)		A Pit (North) Water Monitoring Results			Proposed Ensham EA Trigger
		99% Species protection	95% Species protection	90% Species protection	80% Species Protection	Maximum	Minimum	Number of Data Points ⁽⁵⁾			
Contaminant Trigger Investigation Levels											
Aluminium (µg/L)	55	27	55	80	150	100	60	10	23	?	
Ammonia (µg/L)	900	320	900	1430	2300	500	80	0	23	Suggest delete	
Antimony (µg/L)	9	Insufficient data for limit definition				3	No data available			Suggest delete	
Arsenic (Total) ⁽⁶⁾ (µg/L)	13	No guidelines for total arsenic available				7	3	1	23	Suggest delete	
Arsenic (As III, As V) ⁽⁷⁾ (µg/L)	-	1/0.8	24/13	94/42	360/140	-	No specified arsenic data available			n/a	
Beryllium (µg/L)	0.13	Insufficient data for limit definition				Insufficient data	No data available			Suggest delete	
Boron (µg/L)	370	90	370	680	1300	4000	370	60	23	?	
Cadmium (µg/L)	0.2	0.06	0.2	0.4	0.8	2	2.1	0.1 ⁽⁴⁾	23	2	
Chromium (µg/L)	1	0.01	1	6	40	50	3	1 ⁽⁴⁾	23	?	
Cobalt (µg/L)	1.4	Insufficient data for limit definition				No limit defined	No data available			Suggest delete	
Copper (µg/L)	1.4	1	1.4	1.8	2.5	1000	6	1	23	?	
Fluoride (µg/L)	2000	Insufficient data for limit definition				1500	300	100	23	Suggest delete	
Iron (µg/L)	300	Insufficient data for limit definition				300*	120	50 ⁽⁴⁾	23	Suggest delete	
Lead (µg/L)	3.4	1	3.4	5.6	9.4	10	1 ⁽⁴⁾	1 ⁽⁴⁾	23	Suggest delete	
Manganese (µg/L)	1900	1200	1900	2500	3600	500 (100 ⁽³⁾)	230	1 ⁽⁴⁾	23	Suggest delete	
Mercury (µg/L)	0.1	0.06	0.6	1.9	5.4	1	0.1 ⁽⁴⁾	0.1 ⁽⁴⁾	23	?	
Molybdenum (µg/L)	34	Insufficient data for limit definition				50	11	7	23	Suggest delete	
Nickel (µg/L)	11	8	11	13	17	20	4	1	23	?	
Petroleum Hydrocarbons (C6 - C9) (µg/L)	20	Insufficient data for limit definition				No limit defined	No data available			Suggest delete	
Petroleum Hydrocarbons (C10 - C36) (µg/L)	100	Insufficient data for limit definition				No limit defined	No data available			Suggest delete	
Selenium (µg/L)	5	5	11	18	34	10	10 ⁽⁴⁾	10 ⁽⁴⁾	23	?	
Uranium (µg/L)	0.5	Insufficient data for limit definition				20	5	1	23	?	
Vanadium (µg/L)	6	Insufficient data for limit definition				No limit defined	No data available			Suggest delete	
Zinc (µg/L)	8	2.4	8	15	31	3000 ⁽³⁾	15	5 ⁽⁴⁾	23	?	

- (1) All contaminants are measured as dissolved unless stated otherwise.
- (2) From Table 3 of DERM "Draft Model Water Conditions for Coal Mines in the Fitzroy Basin". (Dated 30 June 2009).
- (3) Designates trigger levels which are aesthetic only.
- (4) Designates limit of detection for that data set.
- (5) Based on data collected between June 2008 and May 2009.
- (6) DERM conditions refer to arsenic in the total unspicated context only.
- (7) ANZECC Guidelines only refer to speciated arsenic - Arsenic (As III) / Arsenic (As V).

Table 3
Proposed DERM Receiving Environment Contaminant Trigger Levels and Nogoa River (Upstream) Water Quality Results

Contaminant ⁽¹⁾	DERM Model Water Conditions		ANZECC Water Quality Guidelines (2000)		Australian Drinking Water Guidelines (2004)	Nogoa River Upstream Reference Monitoring Results			Proposed Ensham EA Trigger
	Trigger Levels ⁽²⁾		Tropical Lowland River Limits			Maximum	Minimum	Number of Data Points ⁽⁵⁾	
Receiving Environment Contaminant Trigger Levels									
Electrical Conductivity (µS/cm)	1000		20 – 250		1000	389	122	678	
Total Suspended Solids (TSS) (mg/L)	6.5 - 8.0		6.0 - 8.0		6.5 - 8.5	8.68	6.2	599	complete
	TBA		No limit defined		No limit defined	1200	18	674	
Sulphate (mg/L)	250/1000 ⁽³⁾		No limit defined		500 (250 ⁽⁴⁾)	No data available			

- (1) All contaminants are measured as dissolved unless stated otherwise.
- (2) From Table 7 of DERM "Draft Model Water Conditions for Coal Mines in the Fitzroy Basin". (Dated 30 June 2009).
- (3) DERM proposes Sulphate trigger level of 250 mg/L for protection of drinking water environmental value and 1000 mg/L for protection of irrigation environmental value.
- (4) Designates trigger levels which are aesthetic only.
- (5) Based on data collected between February 2008 and May 2009.

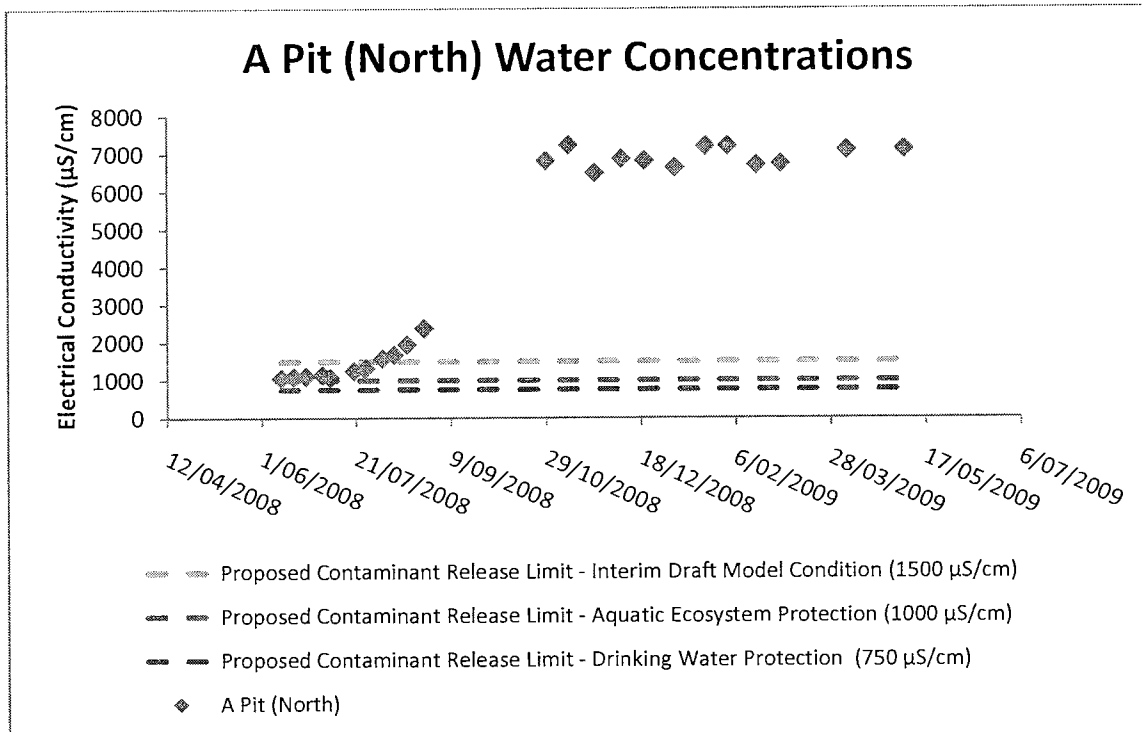
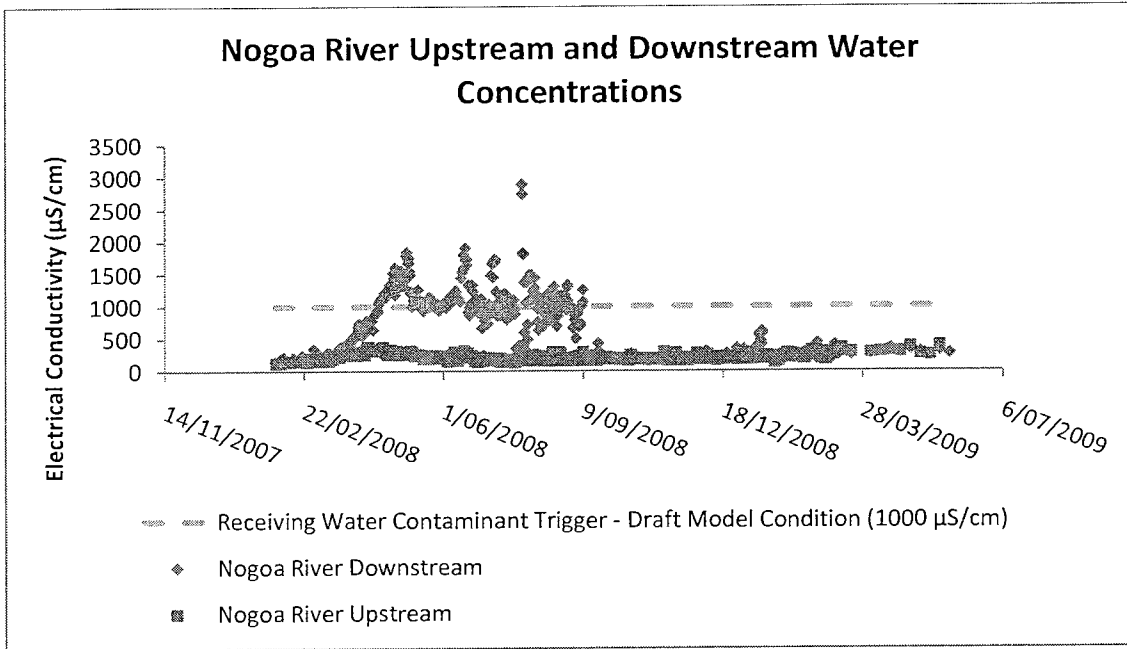
Table 4
Proposed DERM Contaminant Trigger Investigation Levels and Nogoa River (Upstream) Water Quality Results

Contaminant ⁽¹⁾	DERM Model Water Conditions Investigation Triggers ⁽²⁾	ANZECC Water Quality Guidelines (2000)				Australian Drinking Water Guidelines (2004)	Nogoa River (Upstream) Reference Monitoring Results			Proposed Ensham EA Trigger
		99% Species protection	95% Species protection	90% Species protection	80% Species Protection		Maximum	Minimum	Number of Data Points ⁽⁵⁾	
Contaminant Trigger Investigation Levels										
Aluminium (µg/L)	55	27	55	80	150	100	400	20	28	?
Ammonia (µg/L)	900	320	900	1430	2300	500	No data available	No data available		Suggest delete
Antimony (µg/L)	9	Insufficient data for limit definition				3	No data available	No data available		Suggest delete
Arsenic (Total) ⁽⁶⁾ (µg/L)	13	No guidelines for total arsenic available				7	5.4	1	53	Suggest delete
Arsenic (AS III, AS V) ⁽⁷⁾ (µg/L)	-	1/0.8 ⁽⁶⁾	24/13 ⁽⁶⁾	94/42 ⁽⁶⁾	360/140 ⁽⁶⁾	-				n/a
Beryllium (µg/L)	0.13	Insufficient data for limit definition				Insufficient data	No data available	No data available		Suggest delete
Boron (µg/L)	370	90	370	680	1300	4000	80	25	28	Suggest delete
Cadmium (µg/L)	0.2	0.06	0.2	0.4	0.8	2	0.6	0.1 ⁽⁴⁾	28	2
Chromium (µg/L)	1	0.01	1	6	40	50	20	1 ⁽⁴⁾	28	?
Cobalt (µg/L)	1.4	Insufficient data for limit definition				No limit defined	No data available	No data available		Suggest delete
Copper (µg/L)	1.4	1	1.4	1.8	2.5	1000	10 ⁽⁴⁾	10 ⁽⁴⁾	28	?
Fluoride (µg/L)	2000	Insufficient data for limit definition				1500	No data available	No data available		Suggest delete
Iron (µg/L)	300	Insufficient data for limit definition				300 ⁽³⁾	300	20	28	Suggest delete
Lead (µg/L)	3.4	1	3.4	5.6	9.4	10	1.2	1 ⁽⁴⁾	28	Suggest delete
Manganese (µg/L)	1900	1200	1900	2500	3600	500 (100 ⁽³⁾)	10 ⁽⁴⁾	10 ⁽⁴⁾	28	Suggest delete
Mercury (µg/L)	0.1	0.06	0.6	1.9	5.4	1	1 ⁽⁴⁾	1 ⁽⁴⁾	28	?
Molybdenum (µg/L)	34	Insufficient data for limit definition				50	No data available	No data available		Suggest delete
Nickel (µg/L)	11	8	11	13	17	20	10 ⁽⁴⁾	10 ⁽⁴⁾	28	?
Petroleum Hydrocarbons (C6 - C9) (µg/L)	20	Insufficient data for limit definition				No limit defined	No data available	No data available		Suggest delete
Petroleum Hydrocarbons (C10 - C36) (µg/L)	100	Insufficient data for limit definition				No limit defined	No data available	No data available		Suggest delete
Selenium (µg/L)	5	5	11	18	34	10	1 ⁽⁴⁾	1 ⁽⁴⁾	53	?
Uranium (µg/L)	0.5	Insufficient data for limit definition				No limit defined	No data available	No data available		?
Vanadium (µg/L)	6	Insufficient data for limit definition				No limit defined	No data available	No data available		Suggest delete
Zinc (µg/L)	8	2.4	8	15	31	3000 ⁽³⁾	10 ⁽⁴⁾	10 ⁽⁴⁾	28	?

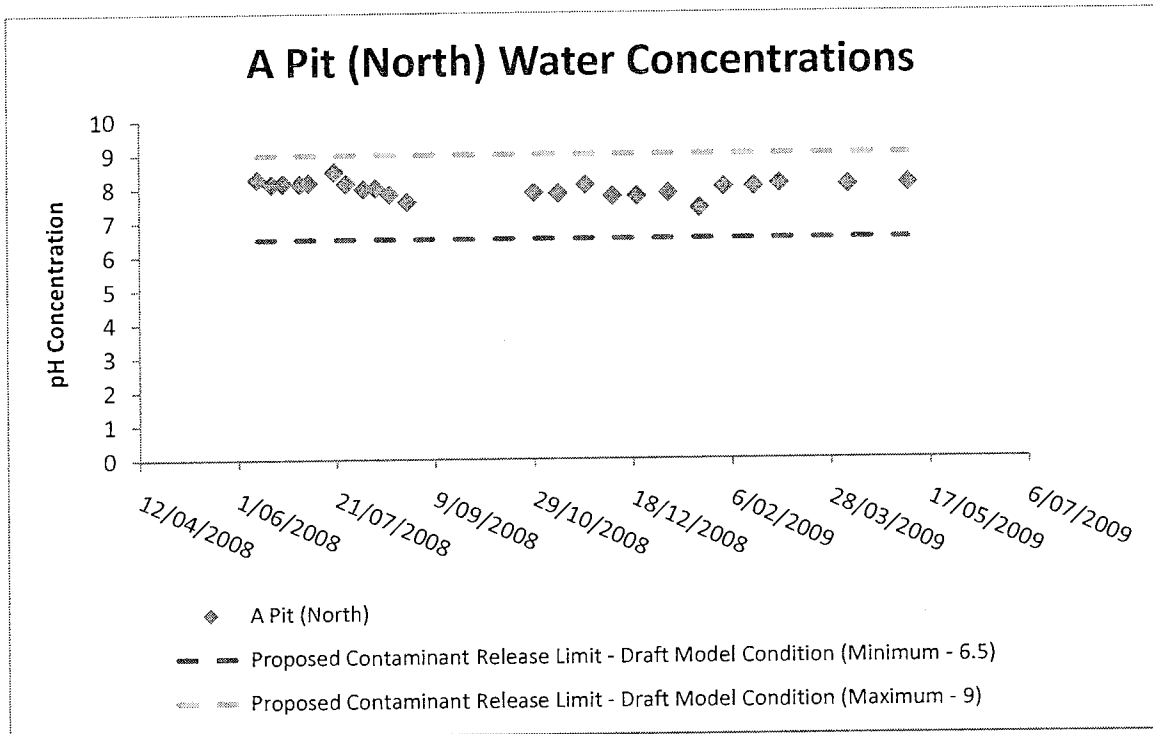
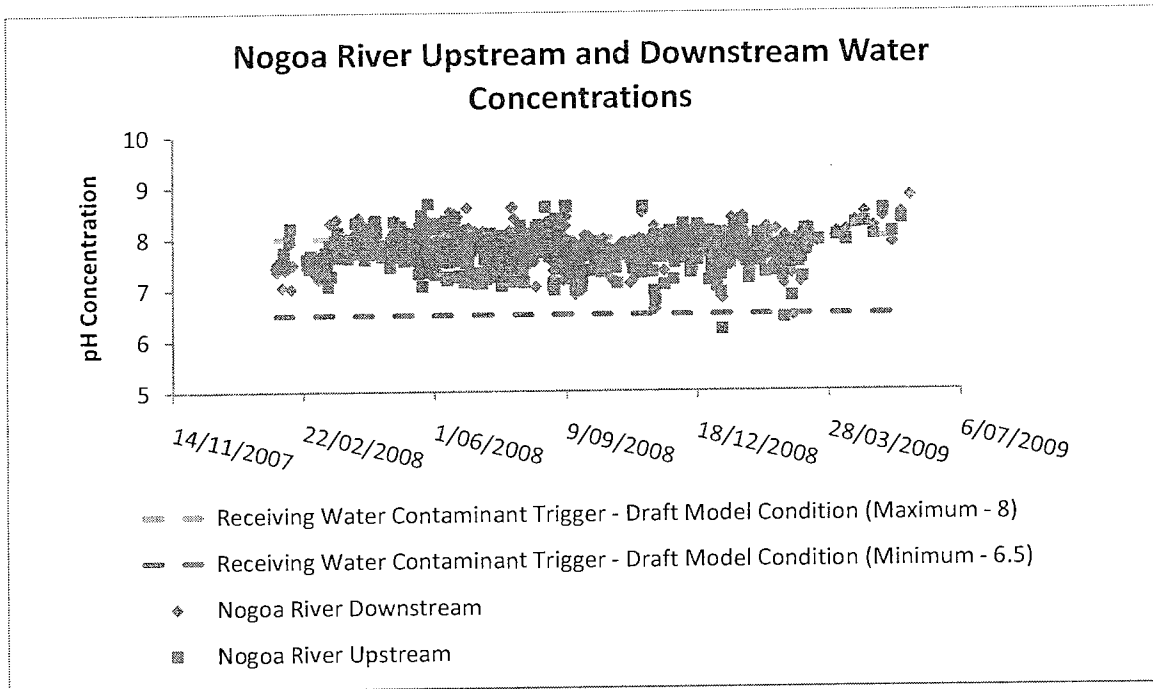
- (1) All contaminants are measured as dissolved unless stated otherwise.
- (2) From Table 3 of DERM "Draft Model Water Conditions for Coal Mines in the Fitzroy Basin". (Dated 30 June 2009). (3) Designates trigger levels which are aesthetic only
- (4) Designates limit of detection.
- (5) Based on dissolved metals data collected between October 2008 and May 2009 and total metals data collected between May 2008 and May 2009.
- (6) DERM conditions refer to arsenic in the total unspicated context only .
- (7) ANZECC Guidelines only refer to speciated arsenic - Arsenic (As III) / Arsenic (As V).

3 CONTAMINANT DATA

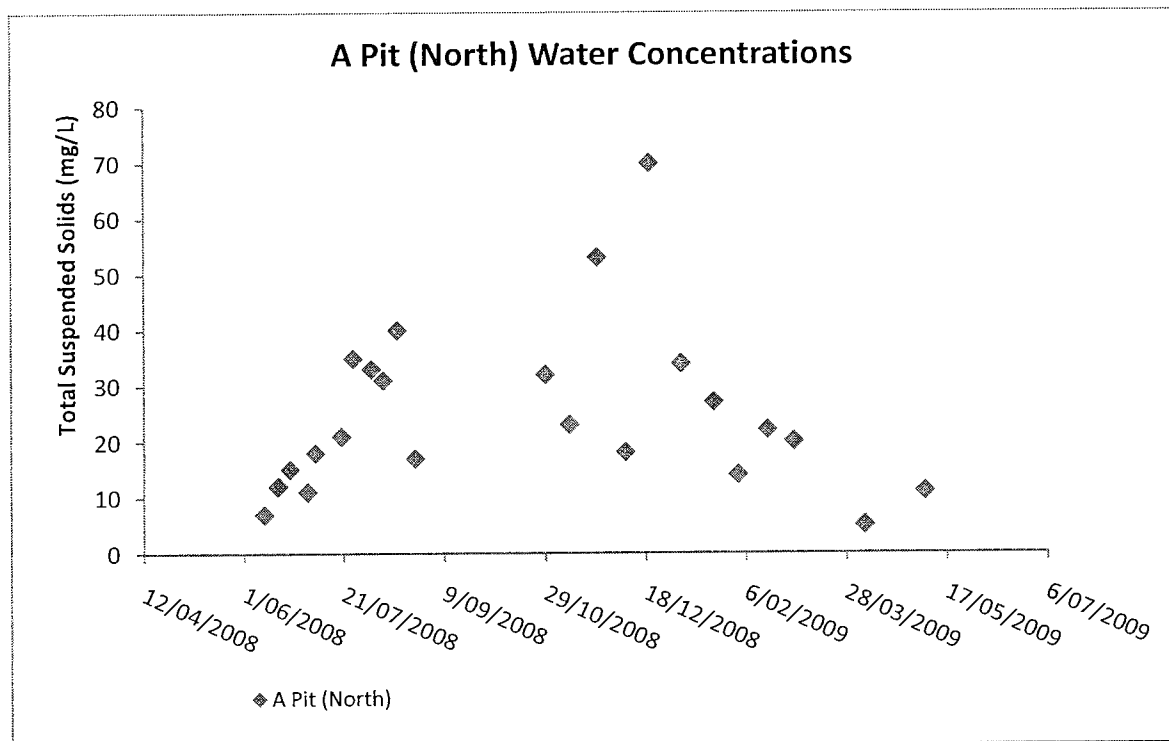
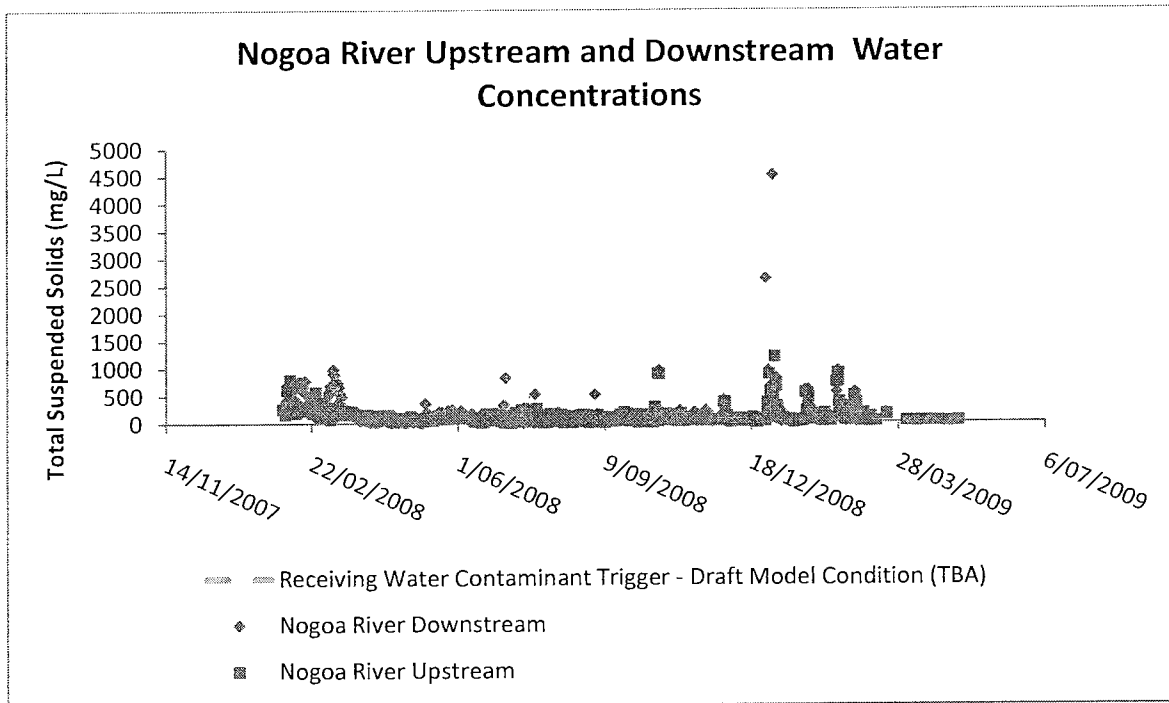
3.1 ELECTRICAL CONDUCTIVITY



3.2 PH

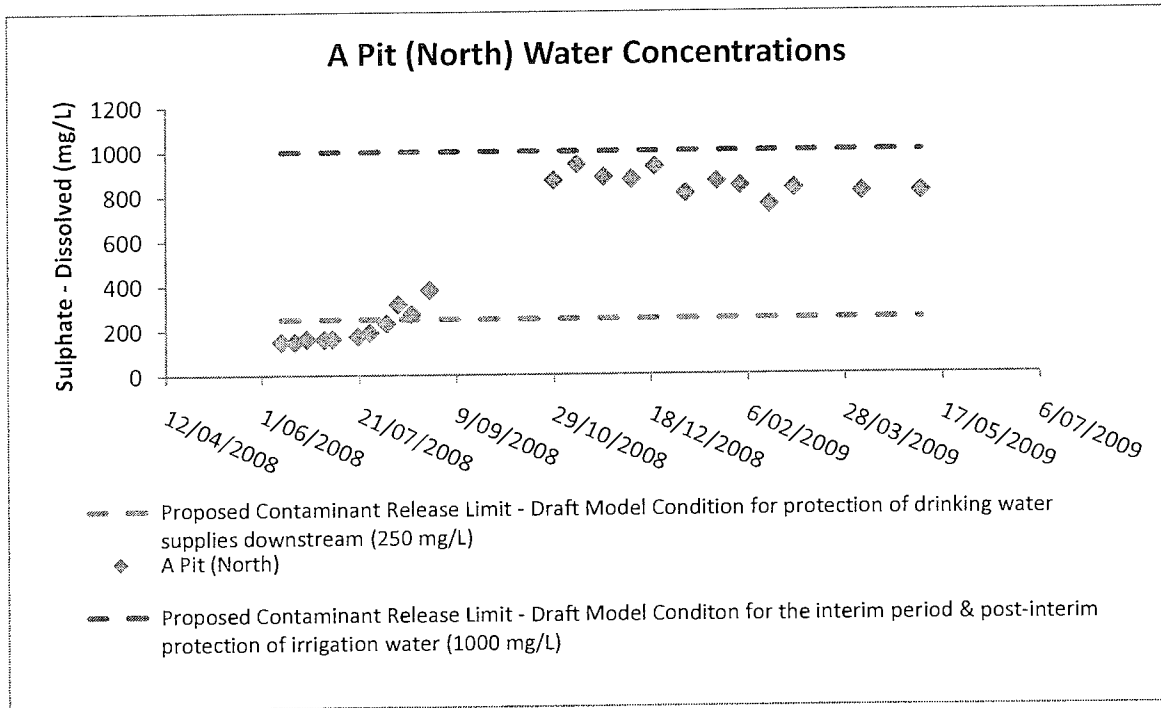


3.3 TOTAL SUSPENDED SOLIDS

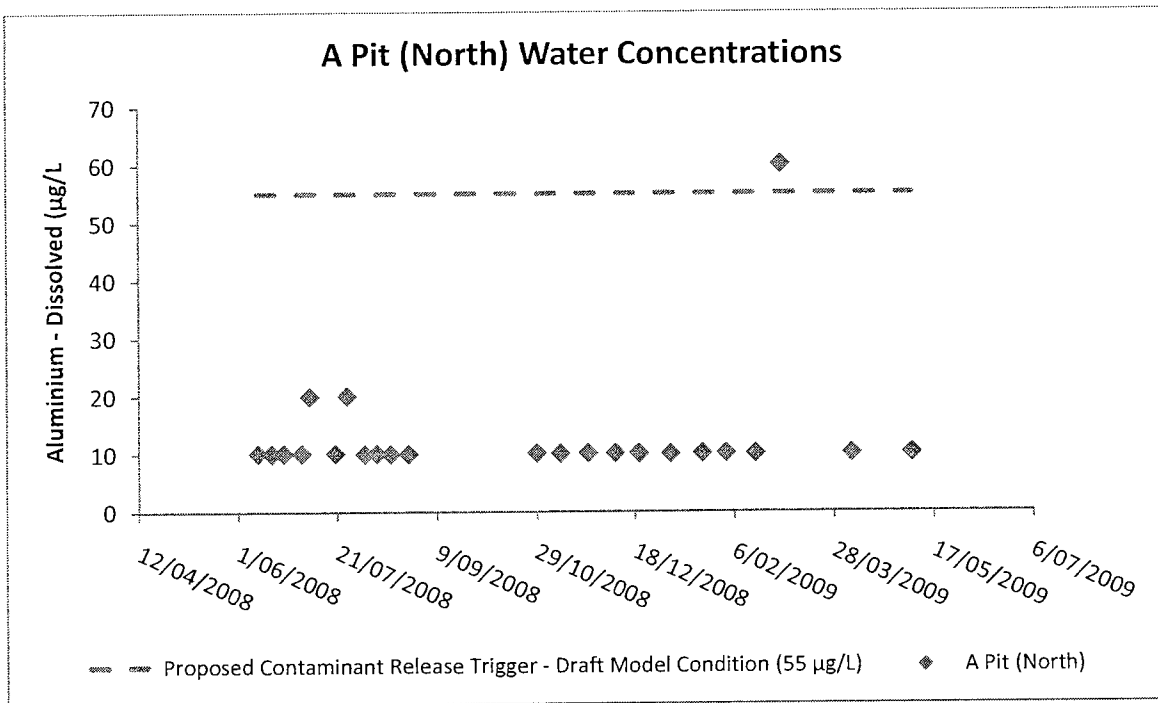
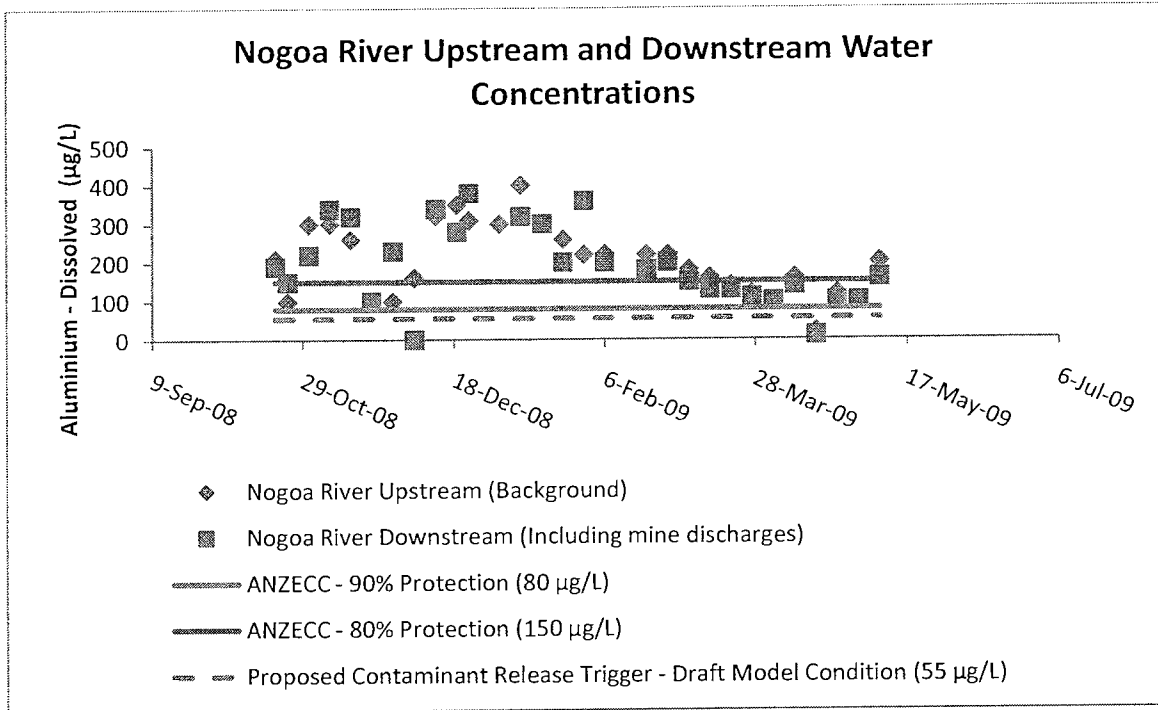


3.4 SULPHATE

There are no Nogoia River (upstream and downstream) water quality monitoring results available for Sulphate.

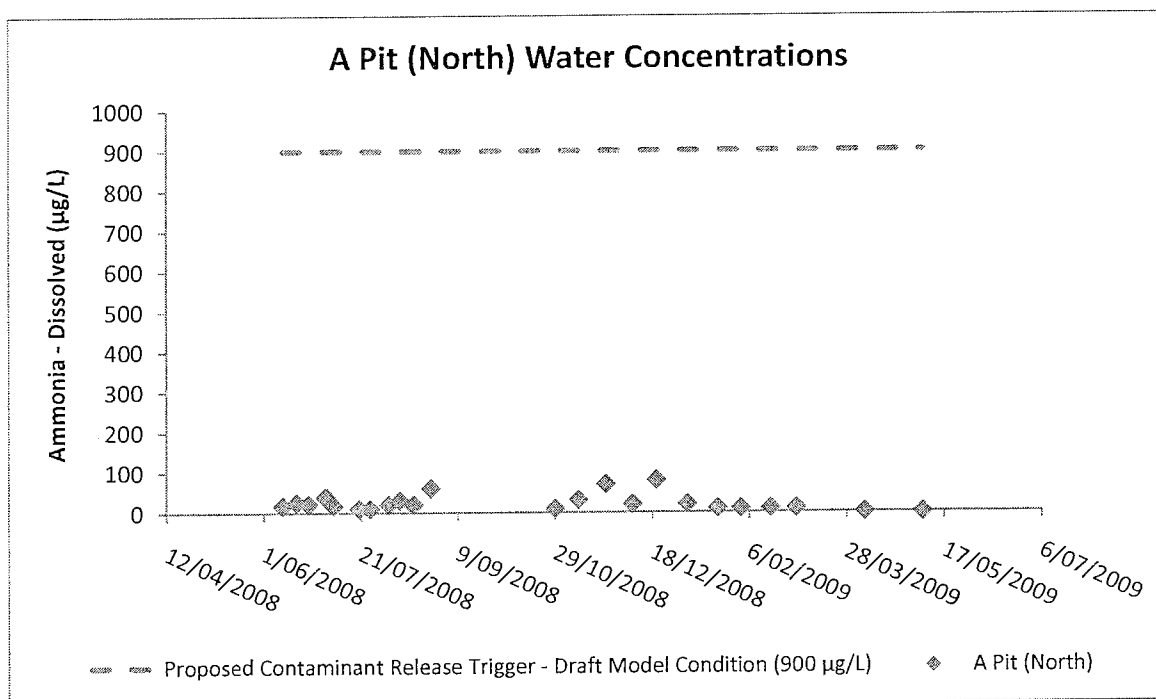


3.5 ALUMINIUM

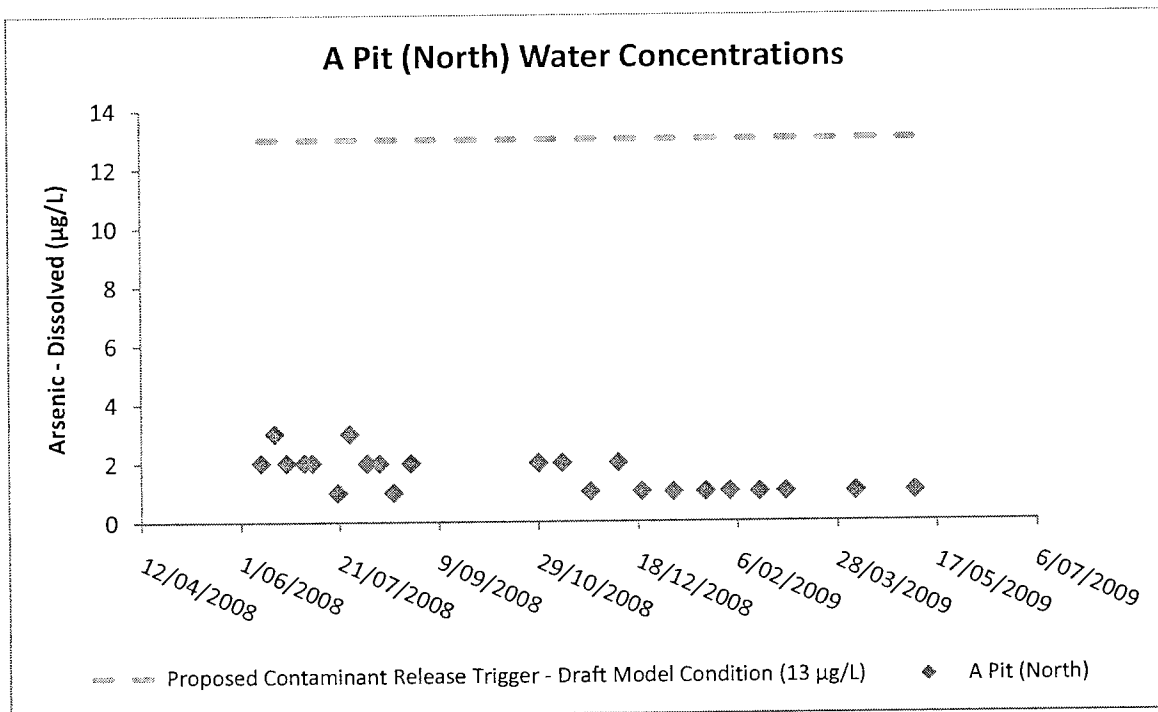
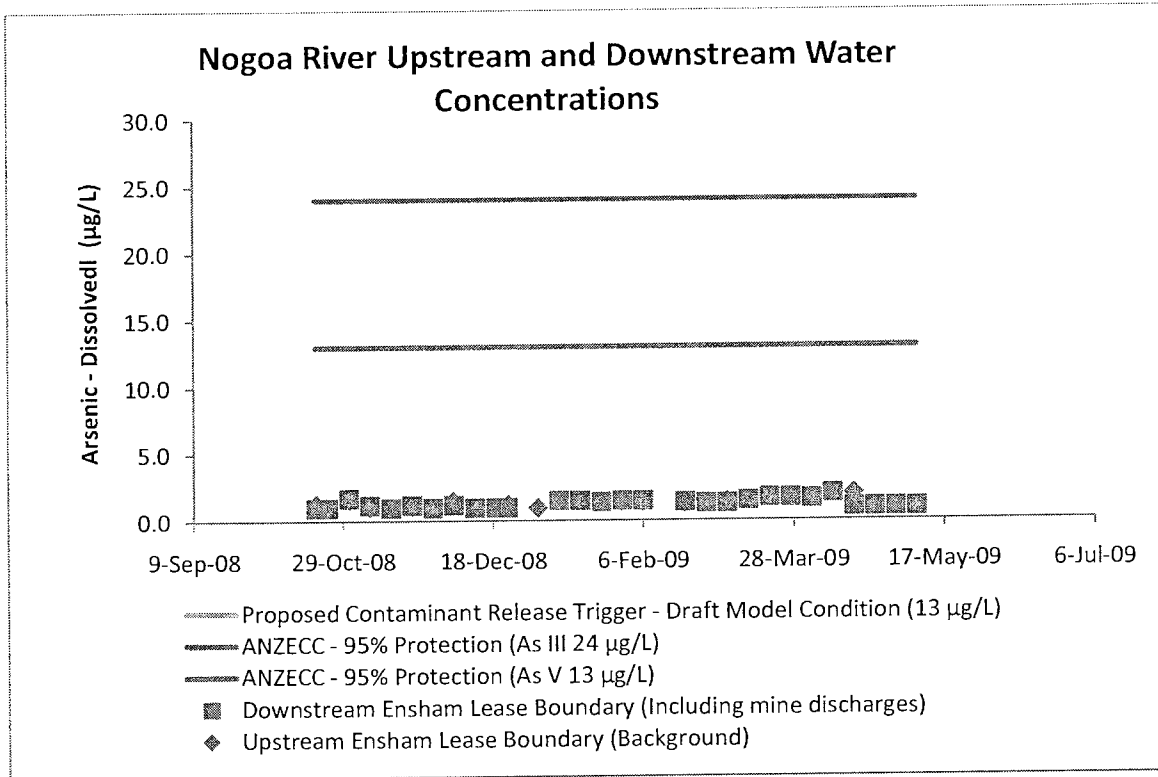


3.6 AMMONIA

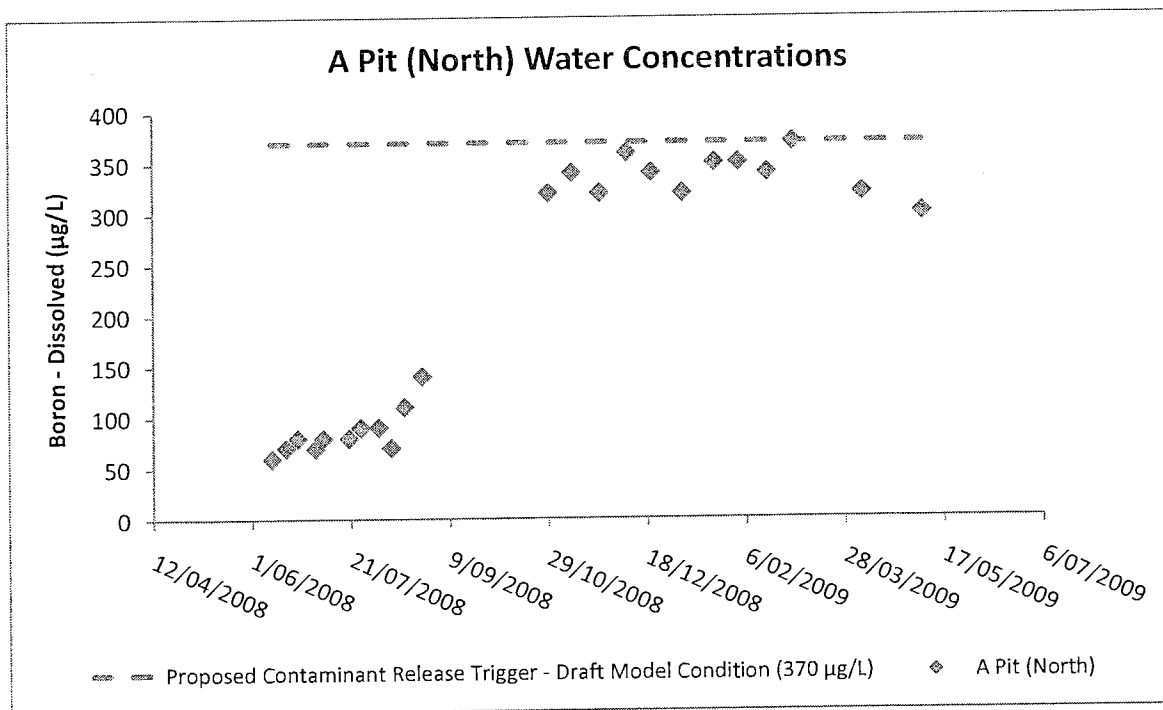
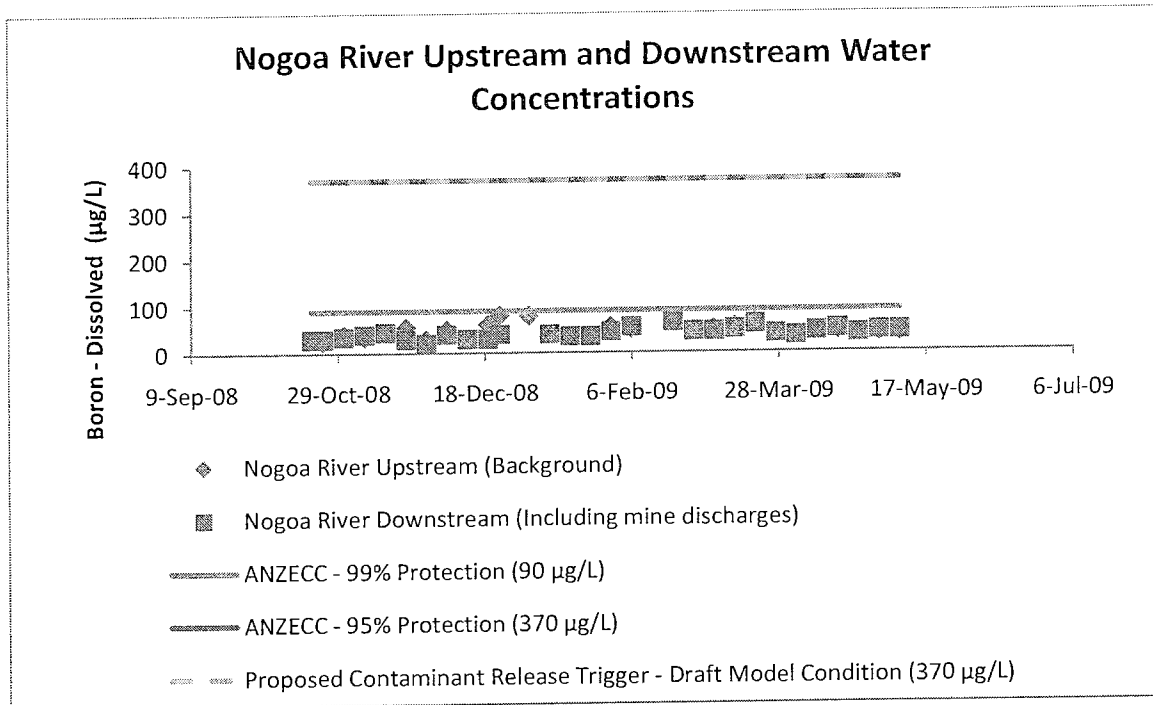
There are no Nogoa River (upstream and downstream) water quality monitoring results available for Ammonia.



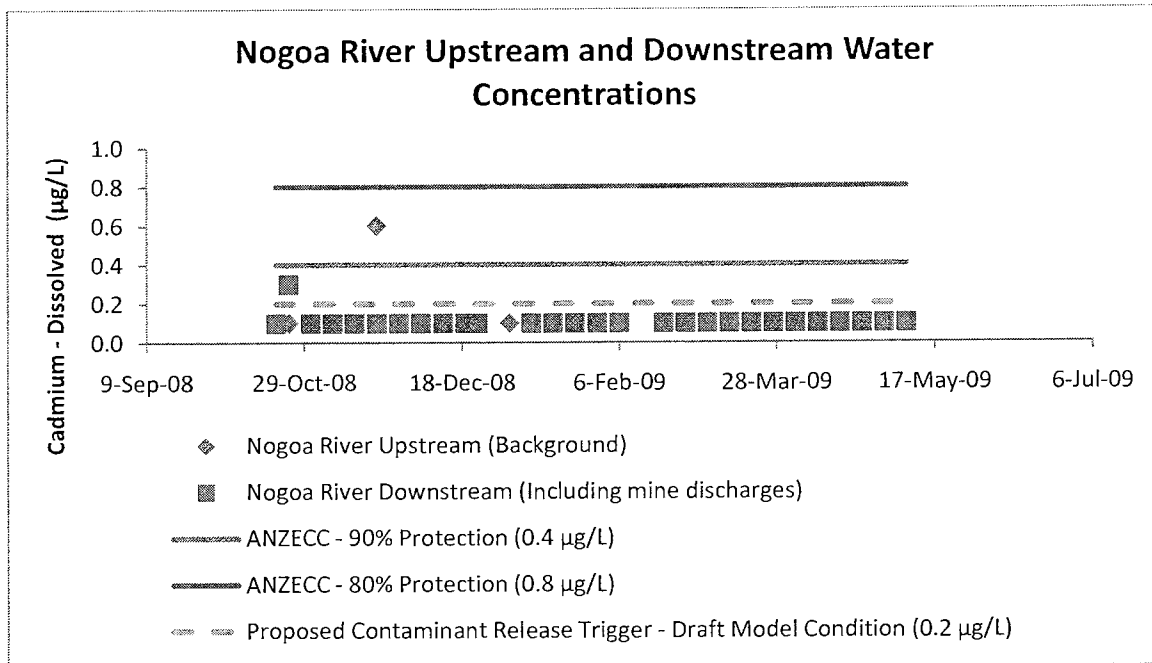
3.7 ARSENIC



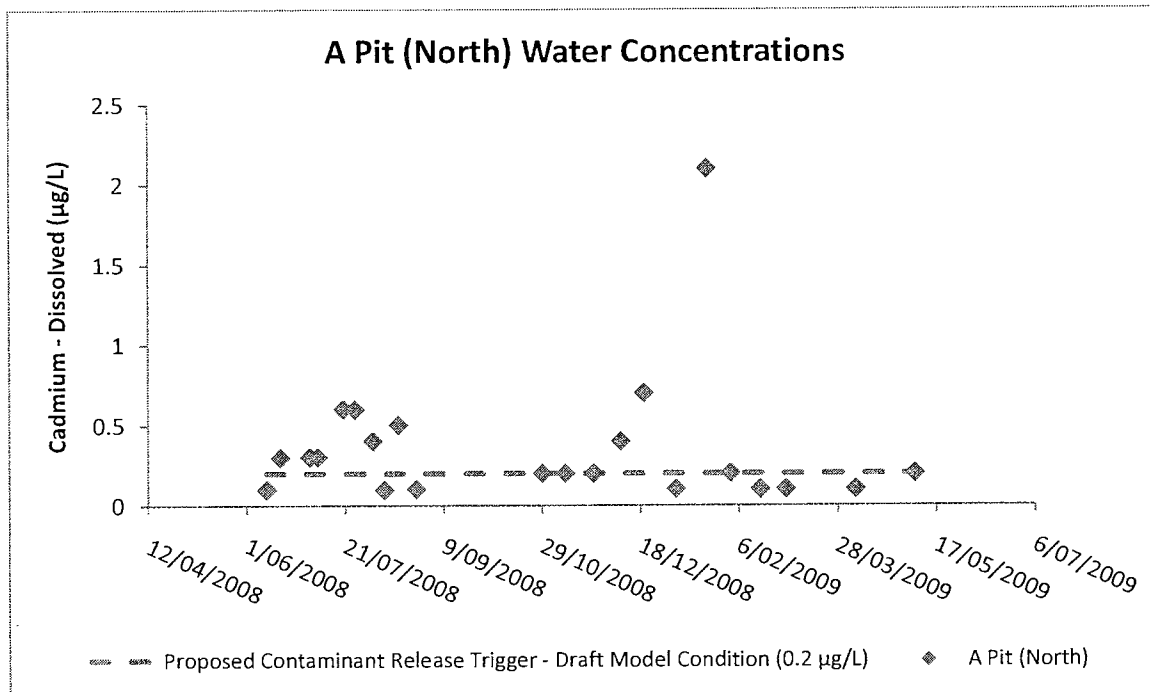
3.8 BORON



3.9 CADMIUM

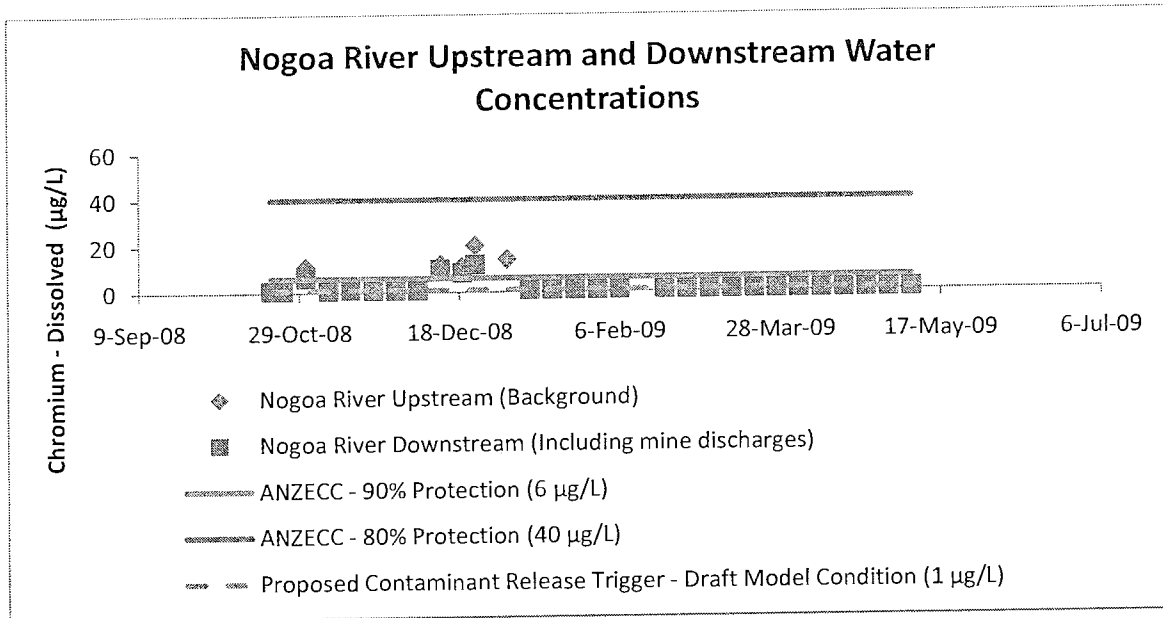


Note: 0.1 $\mu\text{g/L}$ is the detection limit used for this data set

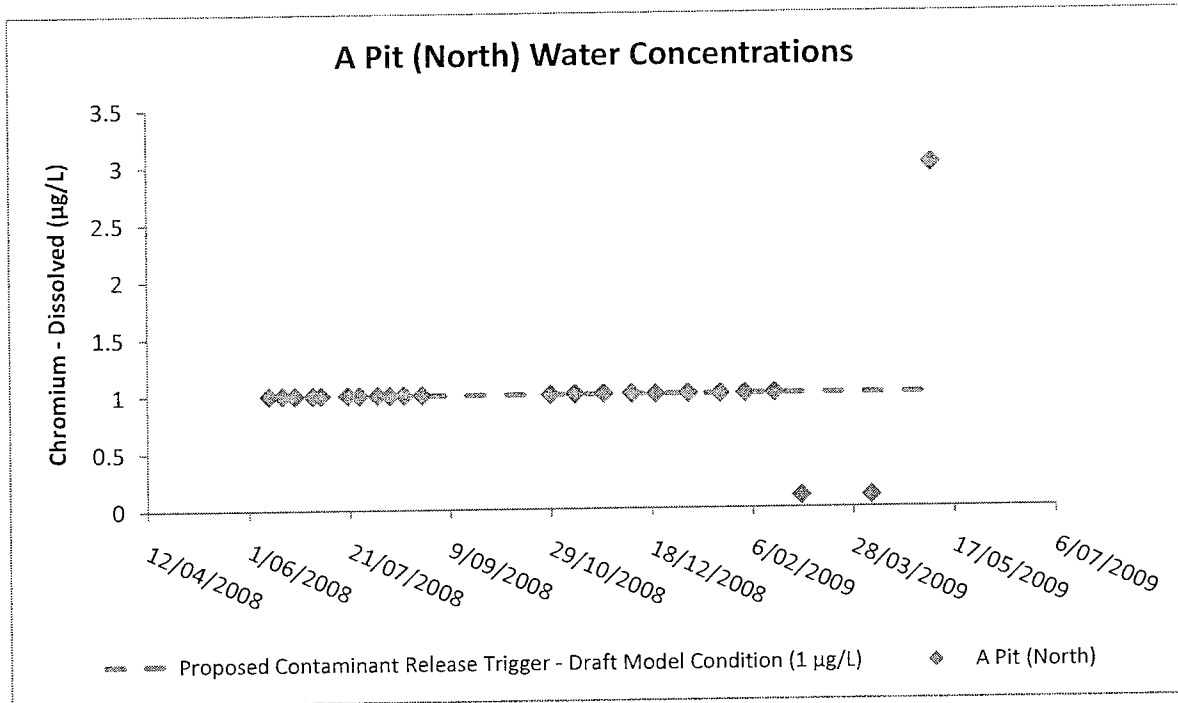


Note: 0.1 $\mu\text{g/L}$ is the detection limit used for this data set

3.10 CHROMIUM

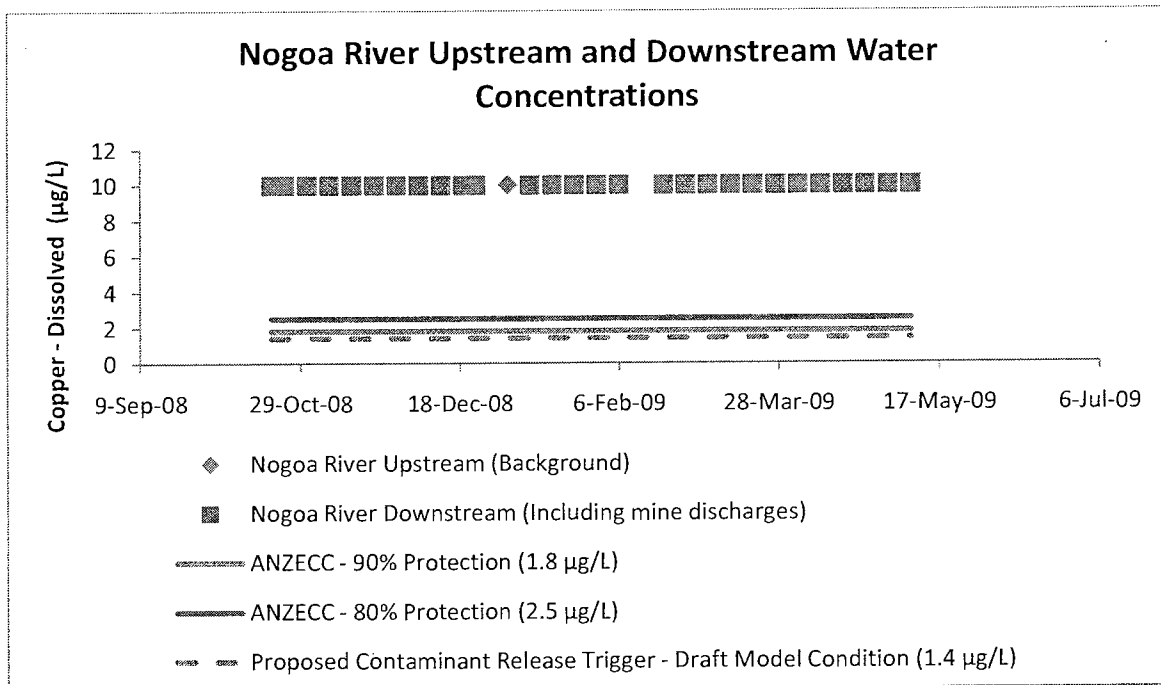


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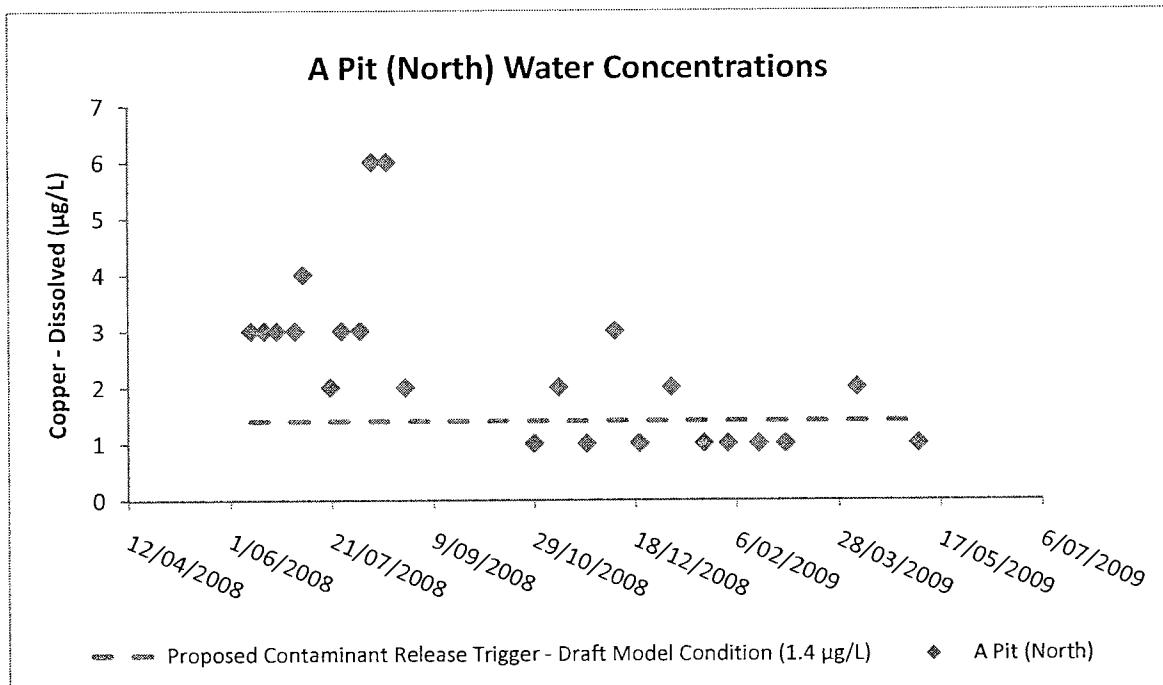


Note: 0.1 µg/L is the detection limit used for this data set

3.11 COPPER



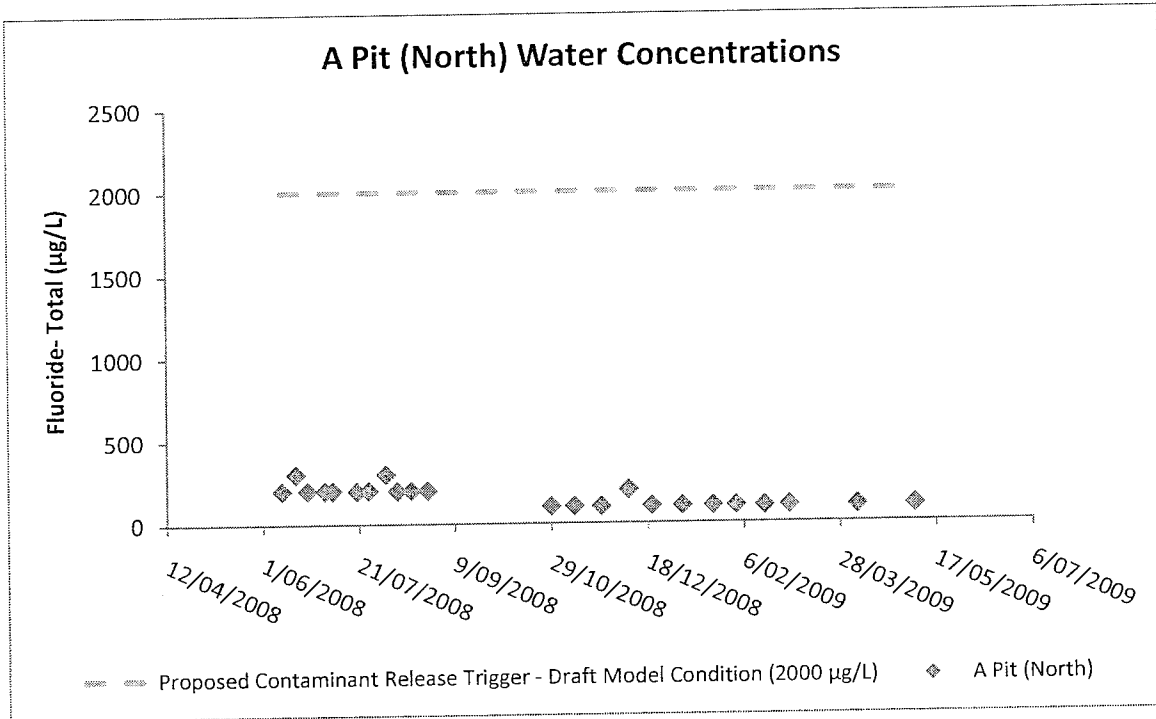
Note: 10 µg/L is the detection limit used for this data set



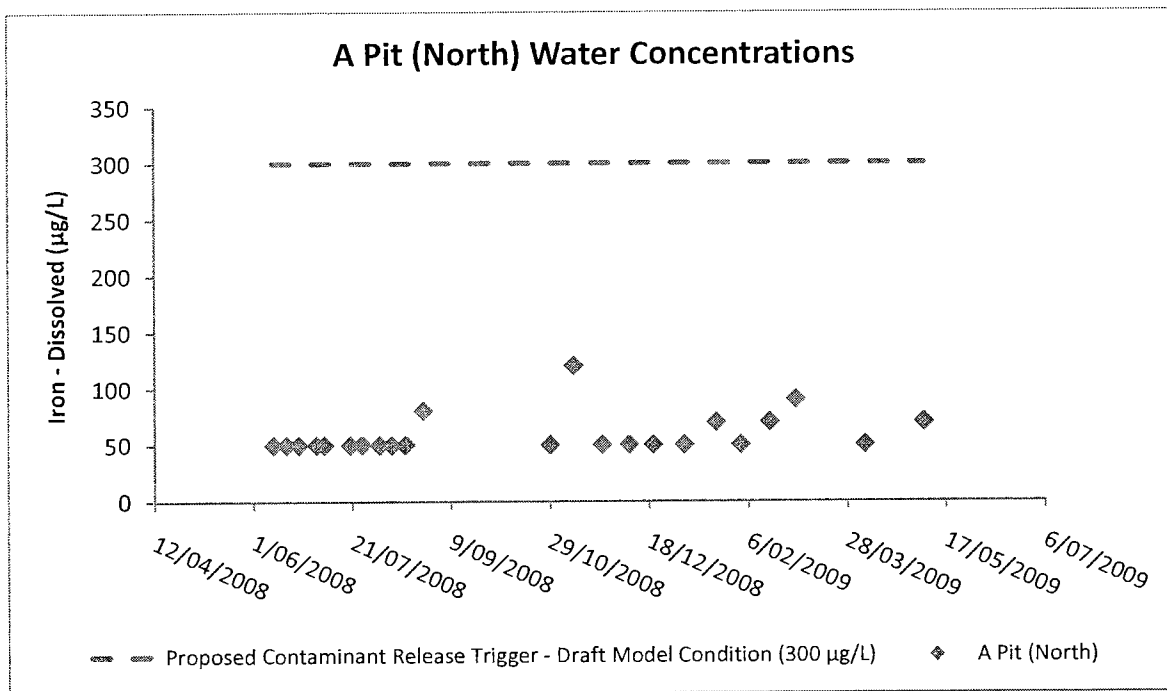
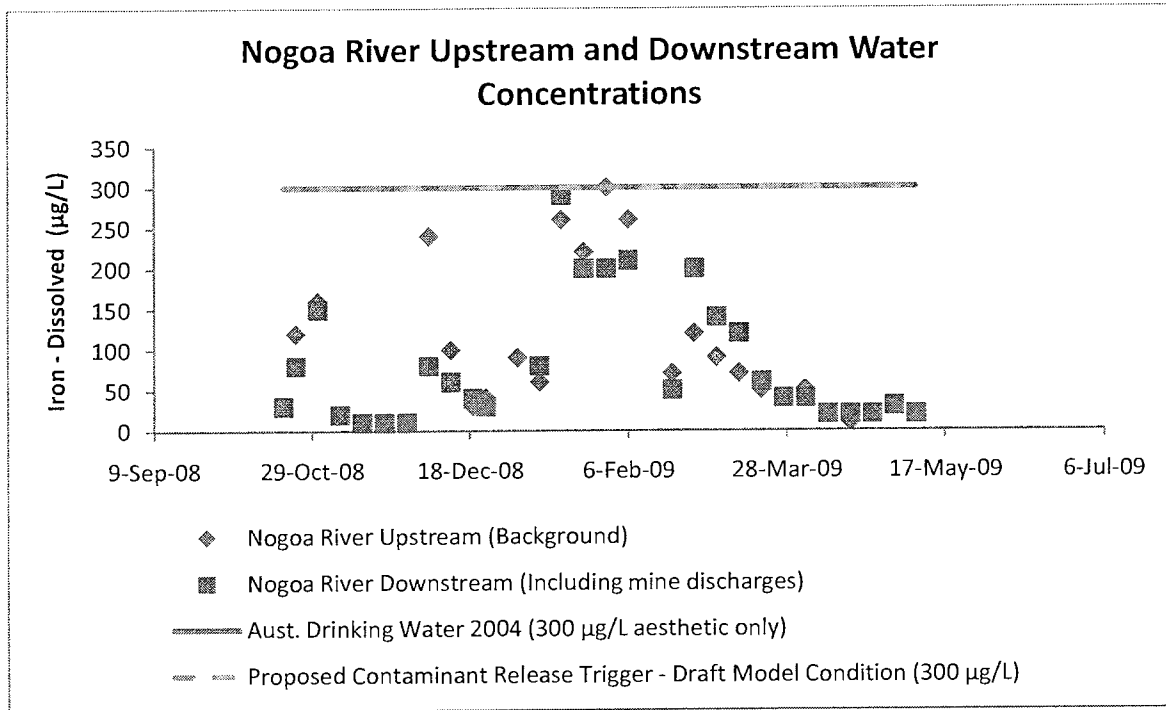
Note: 1 µg/L is the detection limit used for this data set

3.12 FLUORIDE

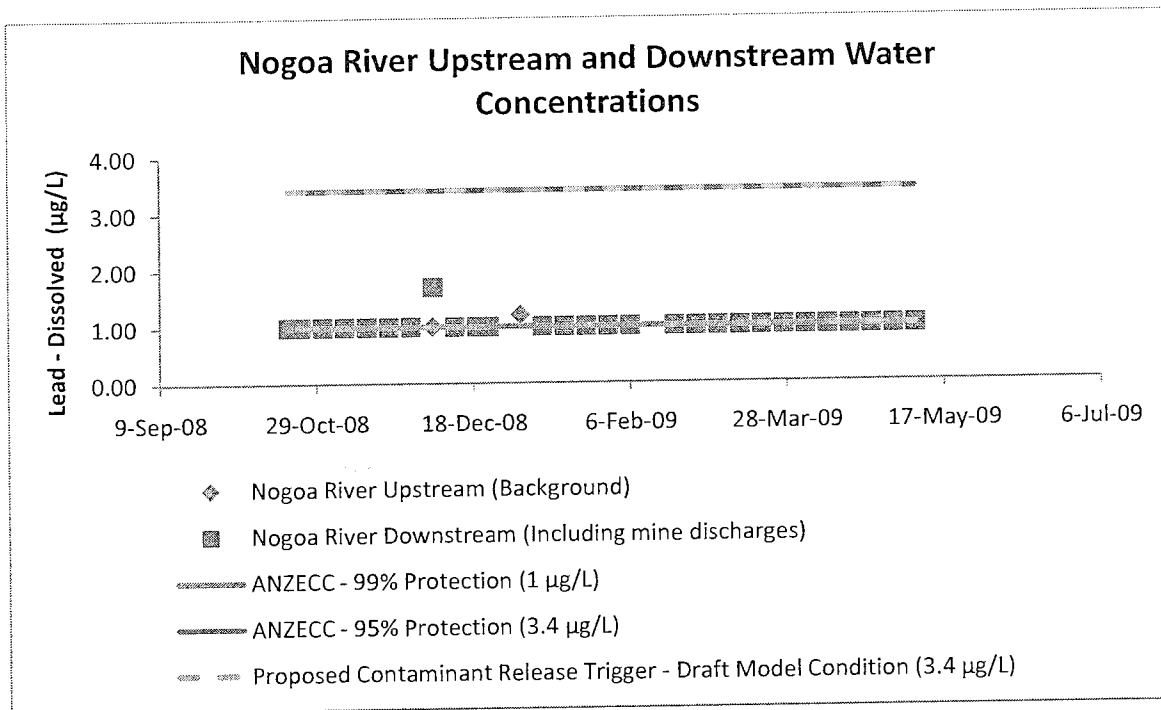
There are no Nogoia River (upstream and downstream) water quality monitoring results available for Fluoride.



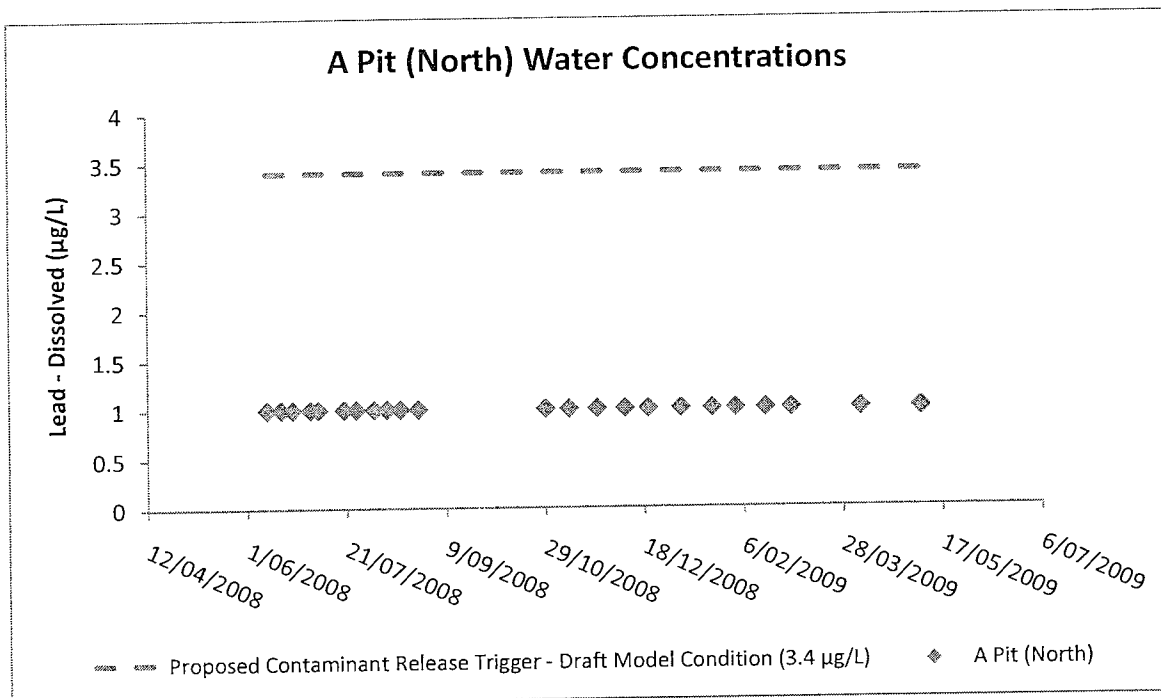
3.13 IRON



3.14 LEAD

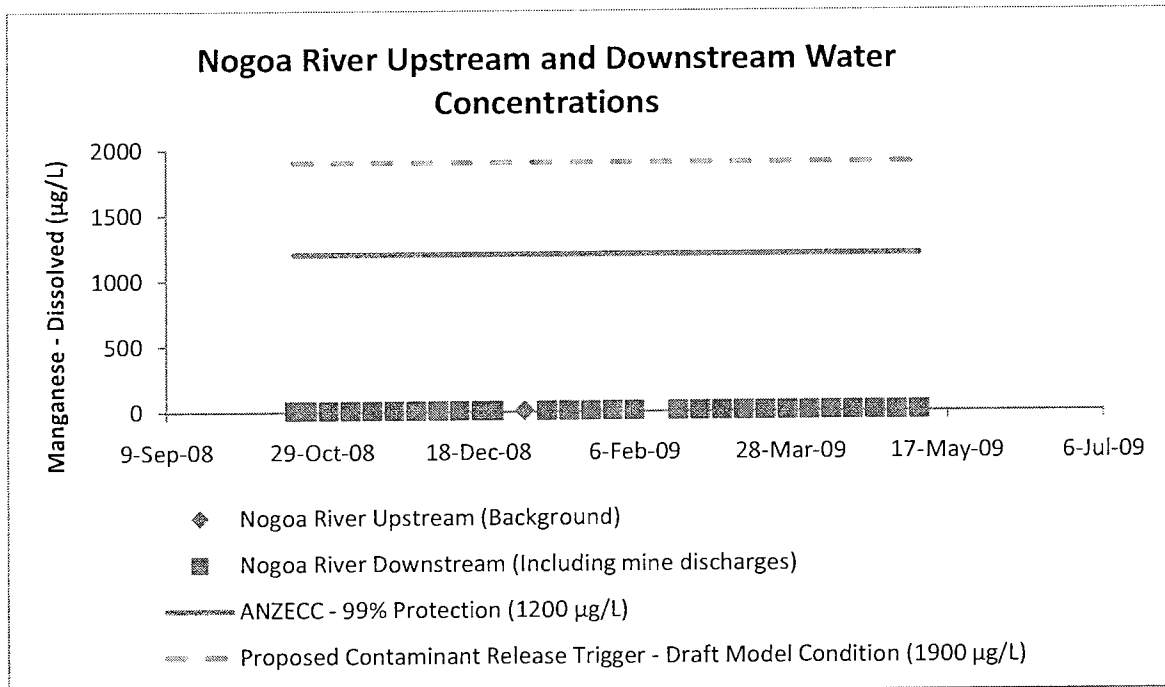


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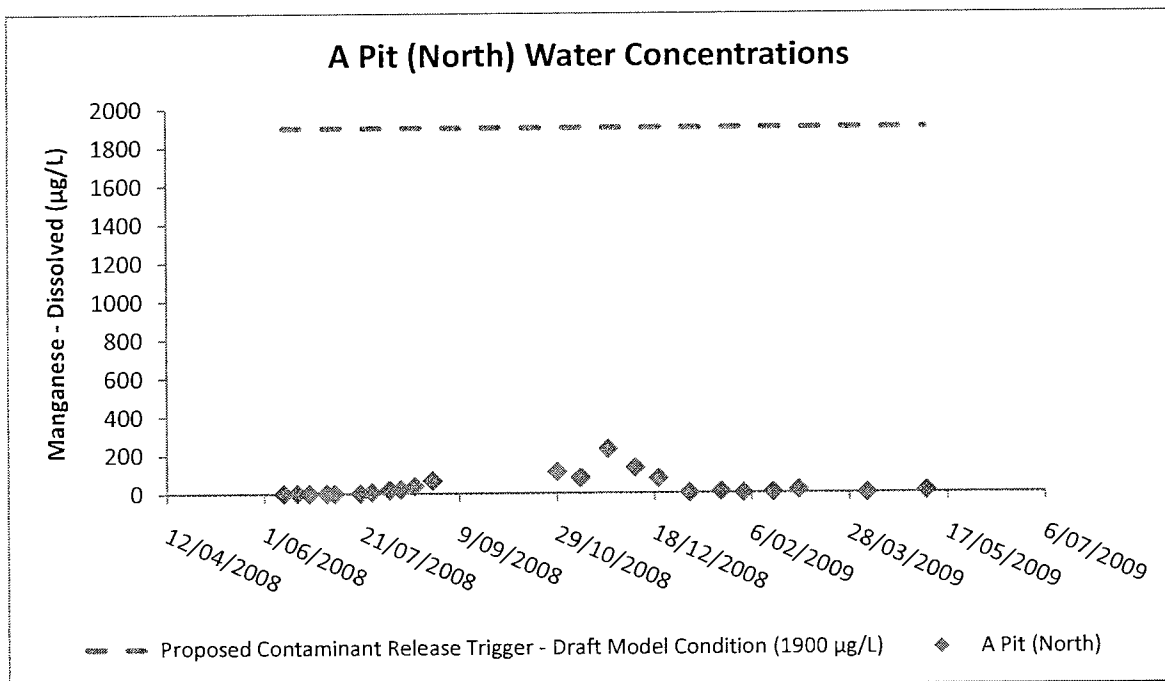


Note: 1 µg/L is the detection limit used for this data set

3.15 MANGANESE

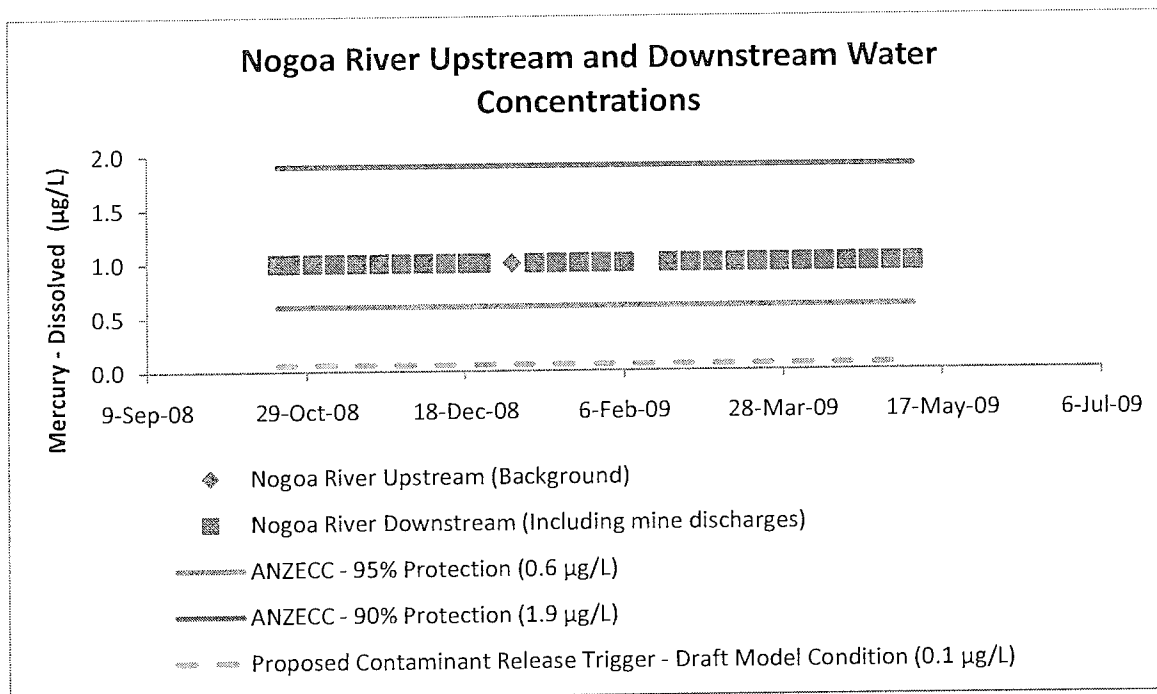


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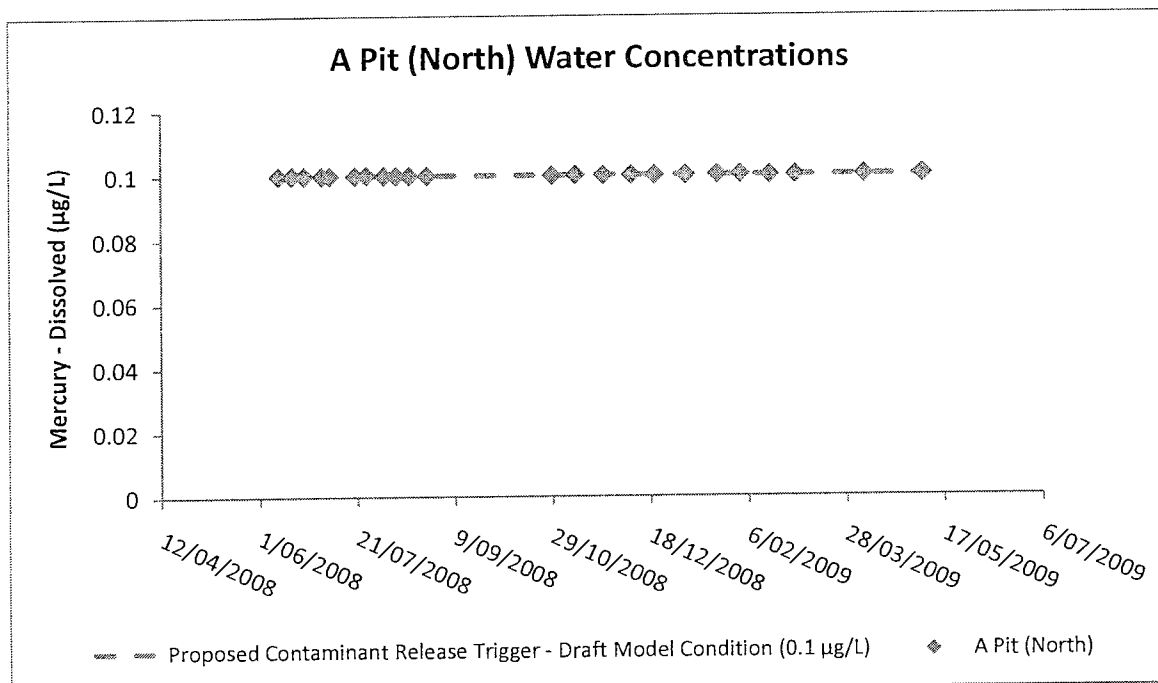


Note: 10 µg/L is the detection limit used for this data set

3.16 MERCURY



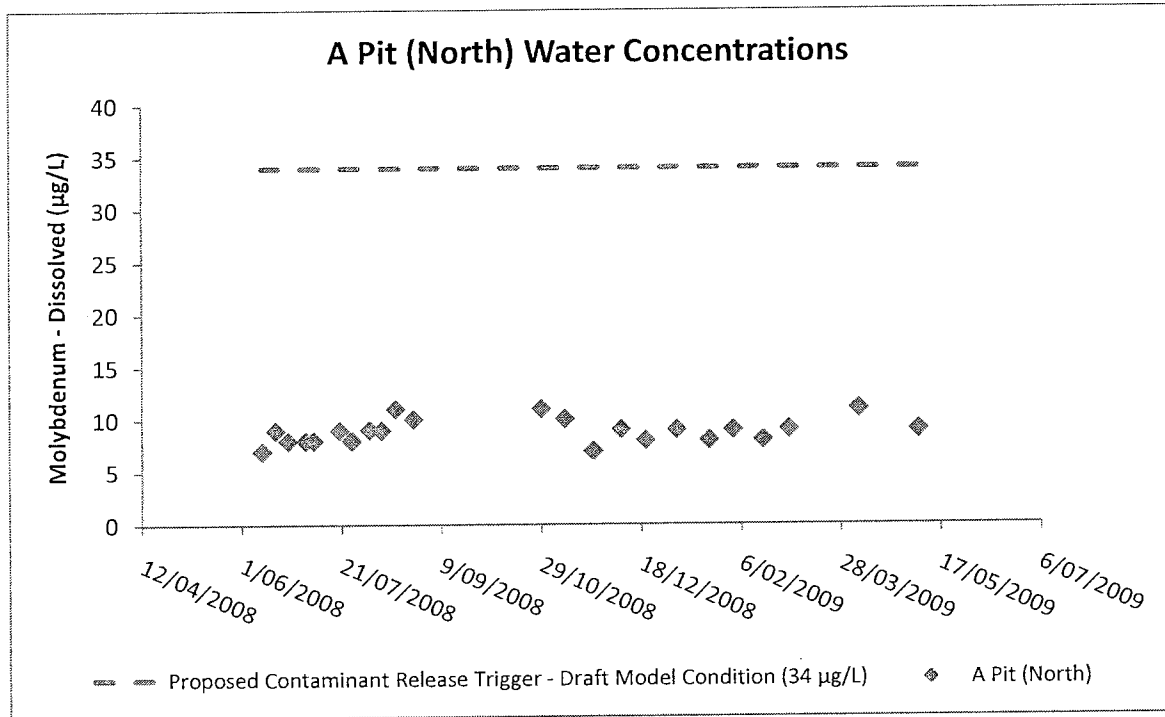
Note: 1 µg/L is the detection limit used for this data set



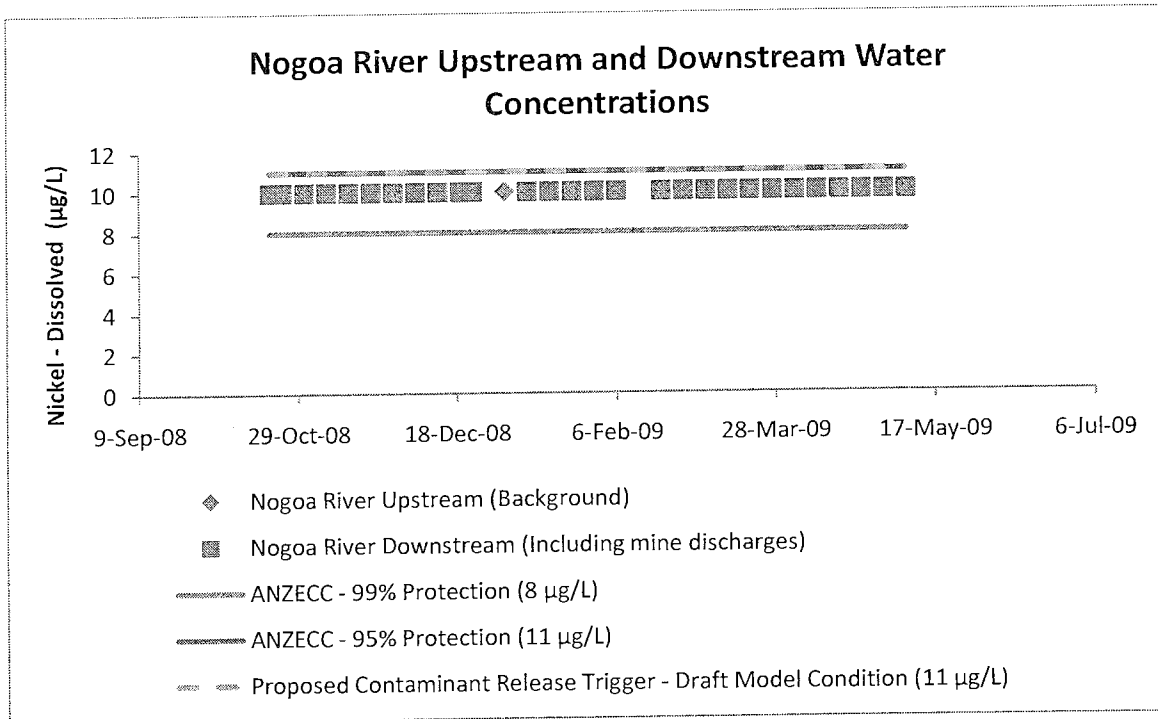
Note: 0.1 µg/L is the detection limit used for this data set

3.17 MOLYBDENUM

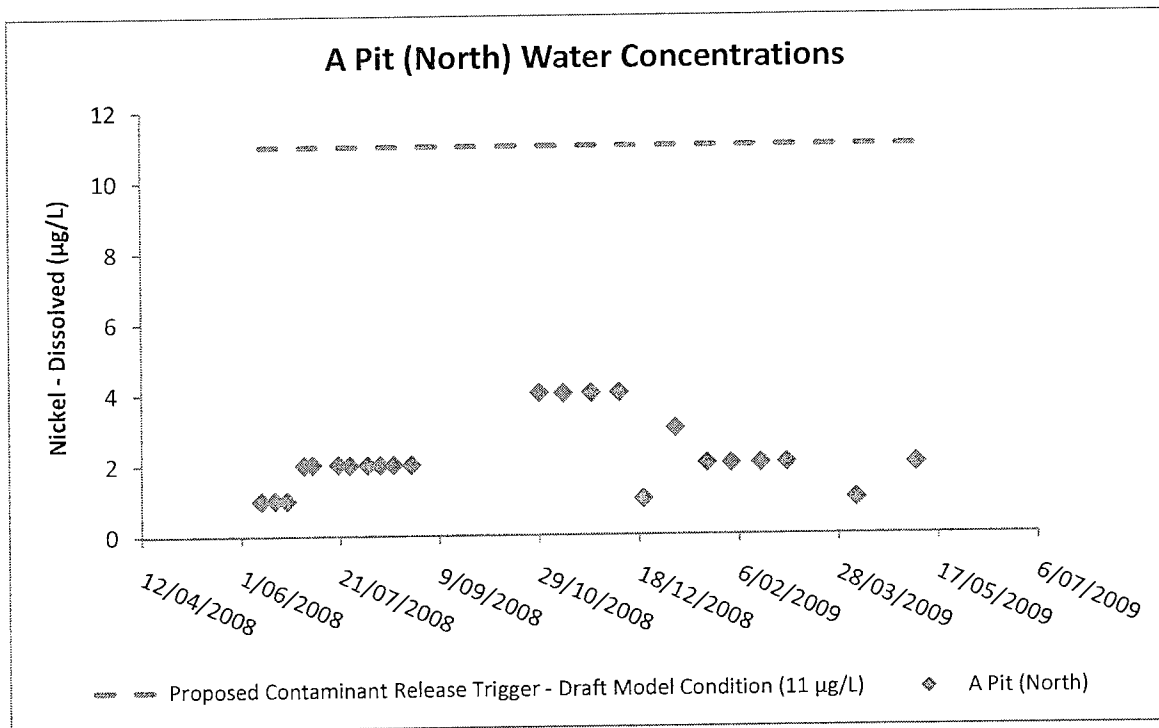
There are no Nogoia River (upstream and downstream) water quality monitoring results available for Molybednum.



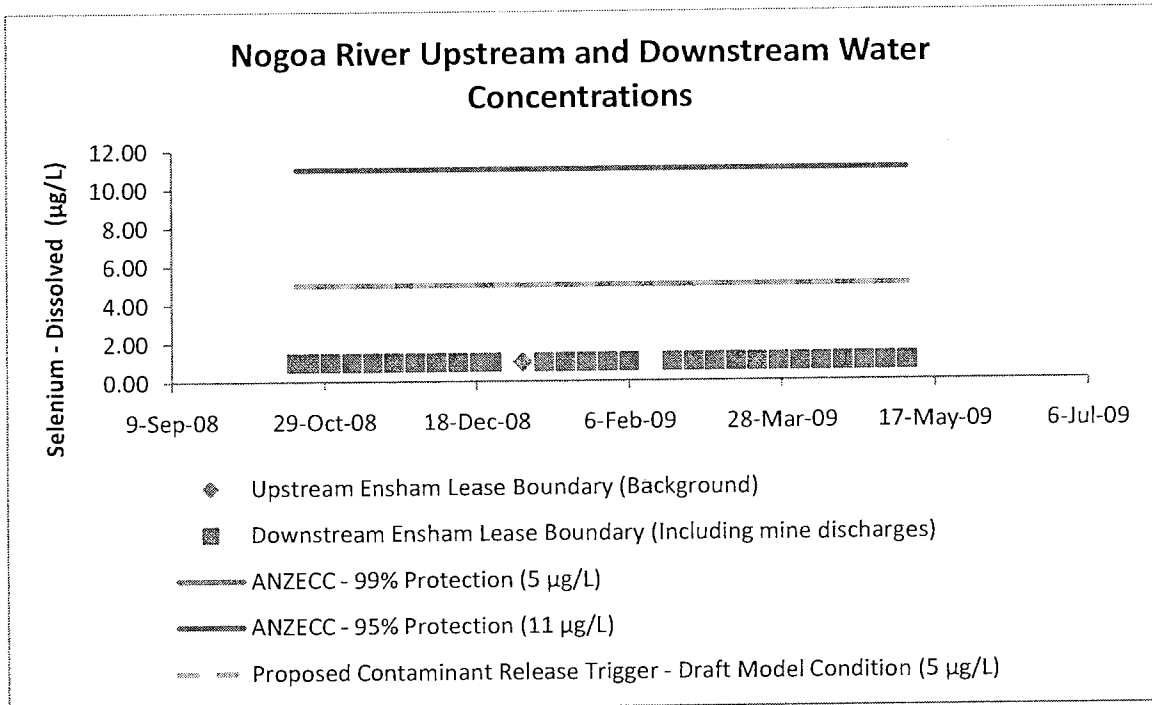
3.18 NICKEL



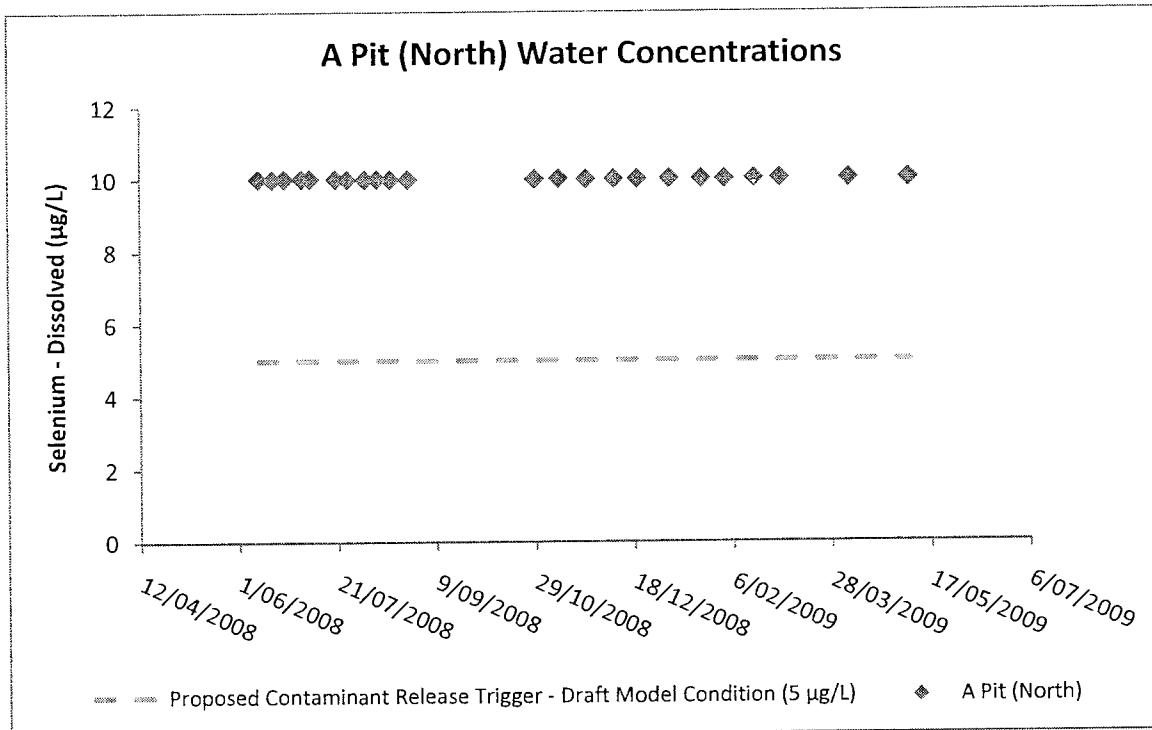
Note: 10 µg/L is the detection limit used for this data set



3.19 SELENIUM



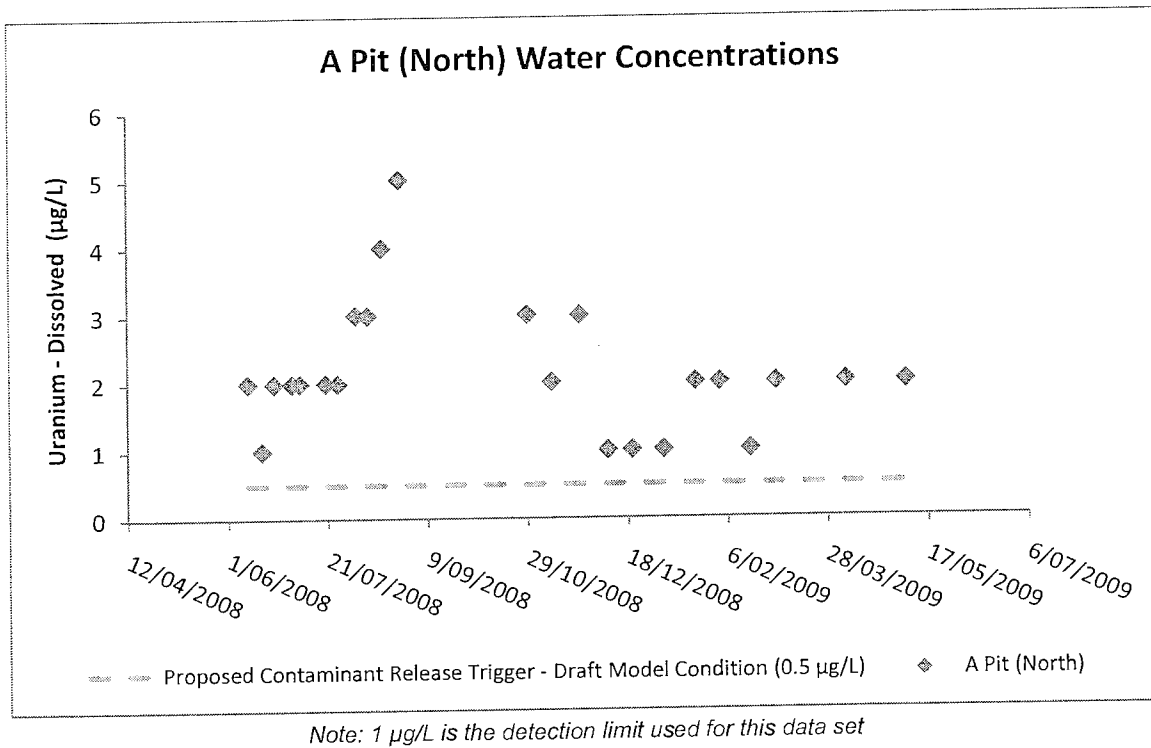
Note: 1 µg/L is the detection limit used for this data set



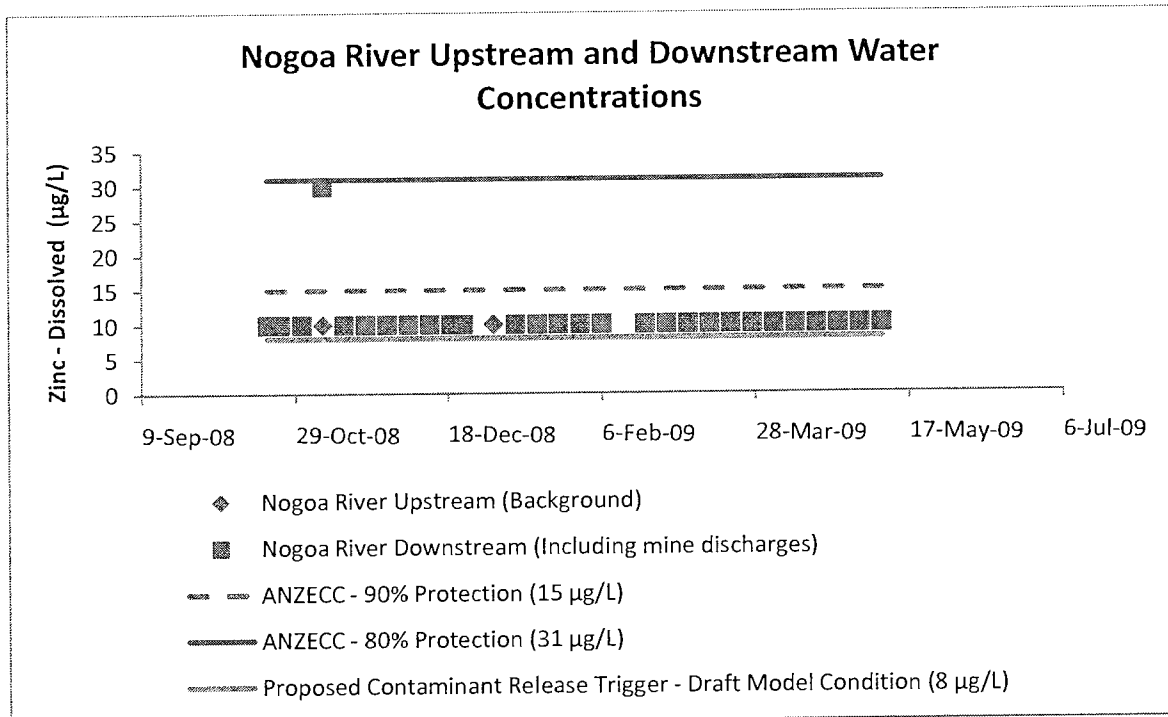
Note: 10 µg/L is the detection limit used for this data set

3.20 URANIUM

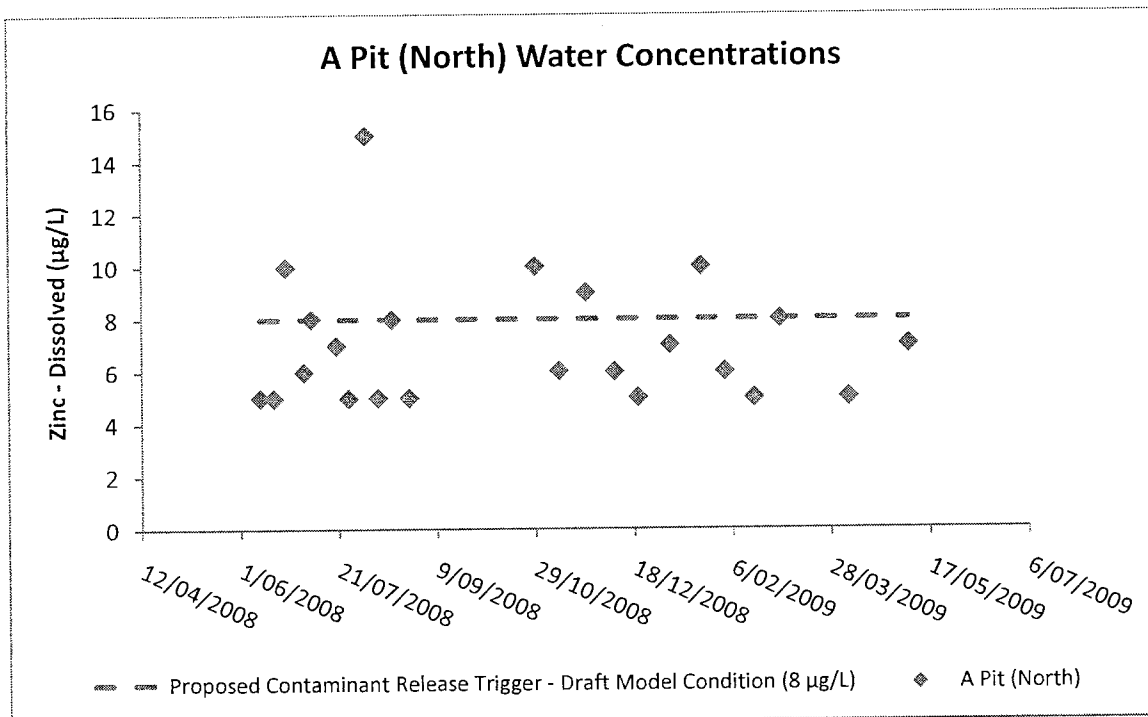
There are no Nogoia River (upstream and downstream) water quality monitoring results available for Uranium.



3.21 ZINC



Note: 10 µg/L is the detection limit used for this data set



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*

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for
HANSEN BAILEY



Environmental Scientist



Director

APPENDIX A

*Draft Model Water Conditions for Coal Mines in the
Fitzroy Basin
(issued 30 June 2009)*

Notice

Environmental Services - Mining 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.

Bligh Coal Limited
C/-Ensham Resources Pty Ltd
Level 20 AMD place
EMERALD QLD 4720

CC: Peter Westerhuis
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Your reference: Transitional Environmental Program (TEP) Ensham Mine Dewatering MAN11139

Our reference: MAN11139 File: EMD6

Attention: Mr Peter Westerhuis,

Re: Application for an approval for a transitional environmental program for Ensham Coal Mine – Transitional Environmental Program (TEP) – Ensham Mine Dewatering

Thank you for your application for an approval for a transitional environmental program. This application has been issued with the Certificate Approval number: MAN11139 (attached to this notice)

Your application, which was received by this office on 07 December 2010, has been approved with additional conditions as described in the Certificate of Approval.

Fees apply for the assessment of a draft transitional environmental program (TEP). The fees are outlined in the attached operational policy *Transitional Environmental Program (TEP) fees*.

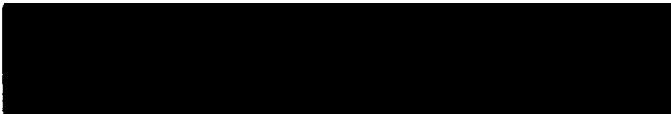
A fee of **\$2461.50** is payable.

Decision notice regarding a transitional environmental program

You may apply to the Department of Environment and Resource Management 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

Should you have any queries in relation to this notice, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.



SIGNATURE

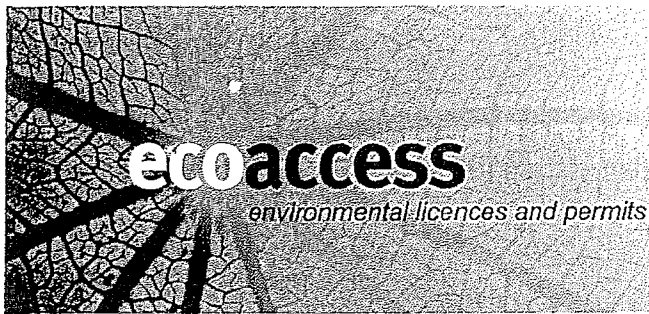
10 December 2010

DATE

[REDACTED]
Regional Manager (Environmental Services - Mining)
Central West Region
Delegate of the Administering Authority
Environmental Protection Act 1994

Enquiries:

Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568



Environmental Services - Mining

Transitional environmental program certificate of approval number MAN11139

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:

Bligh Coal Limited
C/-Ensham Resources Pty Ltd
Level 20 AMD place
EMERALD QLD 4720

approving the draft Transitional Environmental Program; titled *Ensham Mine Dewatering: Transitional Environmental Program* dated 7 December 2010, for non-compliance with conditions of Environmental Authority MIM800086202 for management of mine affected water at the Ensham Coal Mine, Mining Lease (ML) 7459, ML7460, ML70049, ML40326, MLA70365, MLA70366 and MLA70367.

The draft Transitional Environmental Program, titled *Ensham Mine Dewatering: Transitional Environmental Program* was received by this office on 07 December 2010.

The draft Transitional Environmental Program is approved, subject to the following conditions:

- **Undertaking the release of mine affected water**
- 1 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 this Transitional Environmental Approval – Certificate of Approval, unless otherwise authorised to under the *Environmental Protection Act 1994*.
- 2 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 Figure 1 attached to this Transitional Environmental Program – Certificate of Approval.
- 3 The release of contaminants to waters must not exceed the release limits stated in Table 4 at the monitoring points specified in *Table 1: Contaminant release points, sources and receiving waters* and *Table 2: Contaminant release monitoring points* of this Transitional Environmental Program – Certificate of Approval.
- 4 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*, *Table 2: Contaminant release monitoring points* and *Table 6: Receiving water downstream monitoring points* for each quality characteristic and at the frequency specified in *Table 3: Contaminant release limits* and *Table 4: Release contaminant trigger investigation levels* of this Transitional Environmental Program – Certificate of Approval.



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- 5 If quality characteristics of the release exceed any of the trigger levels specified in *Table 4: Release contaminant trigger investigation levels* during a release event, the Transitional Environmental Program holder must compare the downstream results in the receiving waters identified in *Table 6: Receiving water downstream monitoring points* to the trigger values specified in *Table 4: Release contaminant trigger investigation levels* and:
- a) where the trigger values are not exceeded then no action is to be taken
 - b) where the downstream results exceed the trigger values specified *Table 4: Release contaminant trigger investigation levels* for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and
 - i) if the result is less than the background monitoring site data, then no action is to be taken or
 - ii) 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
 - 1) details of the investigations carried out
 - 2) actions taken to prevent environmental harm.
- 6 If an exceedance in accordance with condition 5(a)(ii)(2) is identified, the holder of the Transitional Environmental Program must notify the administering authority within 24 hours of receiving the result. The notification must include written verification of the exceedance forwarded to the administering authority either via facsimile (07) 4982 2568 or email to Manager.MiningCWR@derm.qld.gov.au.

Table 1: Contaminant release points, sources and receiving waters

Release point (TEP RP)	Easting (GDA94)	Northing (GDA94)	Contaminant source and location	Monitoring point	Receiving waters
TEP RP 1	653714	7401500	B, C, D and E Pits – release via pipe	TEP MP 1	Nogoa River
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	
TEP RP 2	655399	7414491	Y Pit – release via pipe	TEP MP 2	Boggy Creek
				TEP MP 5	
				TEP MP 6	
TEP RP 3	654270	7412235	Y Pit – release via pipe	TEP MP 3	Boggy Creek
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	
TEP RP 4	653674	7401350	B, C, D and E Pits – release via pipe	TEP MP 4	Nogoa River
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	

Table 2: Contaminant release monitoring points

Monitoring point (TEP MP)	Easting (GDA94)	Northing (GDA94)	Contaminant source and location	Monitoring point location	Receiving waters
TEP MP 1	653714	7401500	B, C, D and E Pits	End of Pipe	Nogoa River
TEP MP 2	655399	7414491	Y Pits	End of Pipe	Boggy Creek
TEP MP 3	654270	7412235	Y Pits	End of Pipe	Boggy Creek
TEP MP 4	653674	7401350	B, C, D and E Pits	End of Pipe	Nogoa River

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TEP MP 5	653509	7408061	B, C, D, E and Y Pits	1500m downstream of TEP RP 1 and TEP RP 4	Nogoa River
TEP MP 6	N/A	N/A	B, C, D, E and Y Pits	5km upstream of Bedford Wear Headwater (weir structure)	Mackenzie River
TEP MP 7	N/A	N/A	B, C, D, E and Y Pits	500m upstream of Bedford Wear Headwater (weir structure)	Mackenzie River

Table 3: Contaminant release limits

Quality characteristic	Release Limit	Monitoring Frequency	Sample Type	Monitoring Point
Electrical conductivity (uS/cm)	4000	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 1
				TEP MP 4
			Samples require laboratory analysis ²	TEP MP 1
				TEP MP 4
	2000	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 2
				TEP MP 3
			Samples require laboratory analysis ²	TEP MP 2
				TEP MP 3
	360	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 5
				TEP MP 6
				TEP MP 7
			Samples require laboratory analysis ²	TEP MP 5
TEP MP 6				
TEP MP 7				
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 1
				TEP MP 2
				TEP MP 3

Transitional environmental program certificate of approval

				TEP MP 4
			Samples require laboratory analysis ²	TEP MP 1
				TEP MP 2
				TEP MP 3
				TEP MP 4
pH (pH Unit)	6.5 (minimum) 8.5 (maximum)	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 5
				TEP MP 6
				TEP MP 7
	Samples require laboratory analysis ²		TEP MP 5	
			TEP MP 6	
			TEP MP 7	
Total Suspended Solids (mg/L)	300	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	Samples require laboratory analysis ²	TEP MP 1
				TEP MP 4
	500		Samples require laboratory analysis ²	TEP MP 2
				TEP MP 3
Sulphate (SO ₄ ²⁻) (mg/L)	1000	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	Samples require laboratory analysis ²	TEP MP 1
				TEP MP 2
				TEP MP 3
				TEP MP 4

¹ In situ samples can be taken using electronic sampling equipment.

² Samples are required to be analysed at a NATA accredited facility in accordance with this Transitional Environmental Program – Certificate of Approval.

Table 4: Release contaminant trigger investigation levels

Quality characteristic	Trigger levels (µg/L)	Monitoring frequency	Monitoring Point
Aluminium	55	Commencement of release and thereafter weekly during release	TEP MP 1 TEP MP 2 TEP MP 3 TEP MP 4
Arsenic	13		
Cadmium	0.2		
Chromium	1.0		
Copper	2.0		
Iron	300		
Lead	10		
Mercury	0.2		
Nickel	11		
Zinc	8.0		
Boron	370		
Cobalt	90		
Manganese	1900		
Molybdenum	34		
Selenium	10		
Silver	1.0		
Uranium	1.0		
Vanadium	10		
Ammonia	900		
Nitrate	1100		
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000		

Table 5: Contaminant release during flow events

Receiving waters	Release point (TEP RP)	Gauging station description	Easting (GDA94)	Northing (GDA94)	Minimum flow in receiving water required for a release event	Flow recording frequency
Nogoa River	TEP RP1 TEP RP 2 TEP RP 3 TEP RP 4	TEP W1	650392	7402391	116m ³ /sec	Continuous (minimur daily)

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Table 6: Receiving water downstream monitoring points

Monitoring points (TEP MP)	Receiving waters location description	Easting (GDA94)	Northing (GDA94)
TEP MP 5	1500m downstream of TEP RP 1 and TEP RP 4	653509	7408061

Contaminant Release Events

- 7 Notwithstanding any other condition of this Transitional Environmental Program – Certificate of Approval, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Table 5: Contaminant release during flow events* for the contaminant release point(s) specified in *Table 1: Contaminant release points, sources and receiving waters*.
- 8 The Transitional Environmental Program holder must operate and maintain a stream flow gauging station to determine and record stream flows at the locations specified in *Table 5: Contaminant release during flow events* for any receiving waters into which a release occurs.
- 9 Notwithstanding any other condition of this Transitional Environmental Program, the release of contaminants to waters must only take place from TEP RP 1 and TEP RP 4 at a maximum combined rate of 100 Megalitres per day.
- 10 Notwithstanding any other condition of this Transitional Environmental Program, the release of contaminants to waters must only take place from TEP RP 2 and TEP RP 3 at a maximum combined rate of 30 Megalitres per day.
- 11 The daily quantity of contaminants released from each release point must be measured and recorded at the release points identified in *Table 1: Contaminant release points, sources and receiving waters*.

Notification of Release Events

- 12 The Transitional Environmental Program holder must notify the administering authority within 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 (either via facsimile (07) 4982 2568 or email to Manager.MiningCWR@derm.qld.gov.au) of the following information:
 - a) release commencement date/time
 - b) expected release cessation date/time
 - c) release point/s
 - d) the anticipated release volume (estimated)
 - e) receiving water/s including the natural flow rate
 - f) any details (including available data) regarding likely impacts on the receiving water(s).
- 13 The Transitional Environmental Program holder must provide the administering authority, daily during the release of mine affected water, information on the release of contaminants to waters. The information must be provided in writing (either via facsimile (07) 4982 2568 or email to Manager.MiningCWR@derm.qld.gov.au) and include the following:
 - a) all in situ monitoring data for that day
 - b) the receiving water flow rate
 - c) the release flow rate
 - d) the volume of water released from each release point.
- 14 The Transitional Environmental Program holder must notify the administering authority as soon as practicable, (no later than within 24 hours after cessation of a release) of the cessation of a release notified under condition 12 and within 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 this Transitional Environmental Program (i.e. contamination limits, natural flow, discharge volume)

Transitional environmental program certificate of approval

- e) all in-situ water quality monitoring results
- f) any other matters pertinent to the water release event.

Notification of release event exceedence

- 15 If the release limits defined in Table 3 are exceeded, the holder of the Transitional Environmental Program must notify the administering authority within 24 hours of receiving the results.
- 16 The Transitional Environmental Program holder must, within 28 days of a release that exceeds the conditions of this Transitional Environmental Program – Certificate of Approval, 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
 - f) any other matters pertinent to the water release event.

Erosion and Sediment Control

- 17 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.
- 18 Erosion protection must be designed, installed and maintained at each release point authorised by this Transitional Environmental Program and must:
- a) designed and constructed by a suitably qualified and experienced person, and
 - b) be inspected by a suitably qualified and experienced person
 - i. prior to the commencement of dewatering operations; and
 - ii. following the cessation of release in accordance with the conditions of this Transitional Environmental Program – Certificate of Approval.
- 19 The holder of this Transitional Environmental Program must provide a report to the administering authority within 10 business days following the cessation of release of mine affected water authorised under authority of this Transitional Environmental Program. The report must detail the performance of erosion protection measures, including:
- a) identification of erosion, slumping and scour impacts to vegetation,
 - b) rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm, and
 - c) detailed engineering assessment of erosion protection works completed to date and any proposed works to be undertaken.

Requirements to cease the release of mine affected water

- 20 The release of mine affected waters must cease immediately if any water quality limit as specified in *Table 3: Contaminant release limits* is exceeded.
- 21 The release of mine affected waters must cease immediately if identified that the release of mine affected waters is causing erosion of the bed and banks of the receiving waters, or is causing a material build up of sediment in such waters.
- 22 The release of mine affected waters must cease immediately if the holder of this Transitional Environmental Program is directed to do so by the administering authority.
- 23 The release of mine affected waters authorised under this Transitional Environmental Program must cease by **13 May 2011**.

Monitoring Requirements

- 24 Where monitoring is a requirement of this Transitional Environmental Program, ensure that a competent person(s) conducts all monitoring.

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- 25 All monitoring undertaken as a requirement of this Transitional Environmental Program must be undertaken in accordance with the administering authority's Water Sampling Manual.

Notification of emergencies, incidents and exceptions

- 26 As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Transitional Environmental Program, the administering authority must be notified of the release by telephone, facsimile or email.
- 27 The notification of emergencies or incidents must include but not be limited to the following:
- the holder of the Transitional Environmental Program
 - the location of the emergency or incident
 - the number of the Transitional Environmental Program
 - the name and telephone number of the designated contact person
 - the time of the release
 - the time the holder of the Transitional Environmental Program became aware of the release
 - the suspected cause of the release
 - the environmental harm caused, threatened, or suspected to be caused by the release, and
 - actions taken to prevent any further release and mitigate any environmental harm caused by the release.
- 28 Not more than fourteen days following the initial notification of an emergency or incident, written advice must be provided of the information supplied to the administering authority in relation to:
- proposed actions to prevent a recurrence of the emergency or incident, and
 - outcomes of actions taken at the time to prevent or minimise environmental harm.

Reporting

- 29 The holder of this Transitional Environmental Program must submit a report to the administering authority on the fifth business day of each month detailing:
- all activities undertaken under the Transitional Environmental Program,
 - how the Transitional Environmental Program holder has met the objectives of the Transitional Environmental Program, taking into account:
 - the best practice environmental management for the activity, and
 - the risks of environmental harm being caused by the activity, and
 - how the Transitional Environmental Program holder has complied with all conditions contained within the Transitional Environmental Program – Certificate of Approval.
- 30 The holder of this Transitional Environmental Program must submit a report to the administering authority by **27 May 2011** including:
- details of the completion of the Transitional Environmental Program,
 - details on all activities undertaken under the Transitional Environmental Program,
 - identification of how the Transitional Environmental Program holder has met the objectives of the Transitional Environmental Program, taking into account:
 - the best practice environmental management for the activity, and
 - the risks of environmental harm being caused by the activity,
 - identification of how the Transitional Environmental Program holder has complied with all conditions contained within the Transitional Environmental Program – Certificate of Approval, and
 - confirmation that at closure of the Transitional Environmental Program, the holder will be able to comply with the conditions of the current Environmental Authority issued for the Ensham Coal Mine, located at ML7459, ML7460, ML70049, ML40326, MLA70365, MLA70366 and MLA70367 and the *Environmental Protection Act 1994*.

This transitional environmental program remains in force until **30 June 2011**.

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*

Transitional environmental program certificate of approval

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, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.

[REDACTED SIGNATURE]

SIGNATURE

10 December 2010

DATE

[REDACTED]

Delegate of the Administering Authority
Regional Manager (Environmental Services - Mining)
Central West Region

Enquiries:

Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568

ENSHAM MINE

2010 - 2011 DEWATERING

TRANSITIONAL ENVIRONMENTAL PROGRAM – MAN11139 AMENDMENT



Ensham

R E S O U R C E S

05 January 2011

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

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**ENSHAM MINE DEWATERING
TRANSITIONAL ENVIRONMENTAL PROGRAM AMENDMENT
for
Ensham Resources Pty Ltd**

1 INTRODUCTION

Ensham Resources is seeking an amendment to Transitional Environmental Program (TEP) MAN11139. The amendment is sought to authorise the release of remnant flood waters that has been stored in mining pits. It is proposed that the remnant flood water be released in a controlled manner to the Nogoia River during the high flow events expected throughout the remainder of the 2011 wet season (end May 2011 consistent with current TEP).

It is proposed to amend the conditions applicable to the current release point 3 to allow an end of pipe limit of up to 8,500 EC with a maximum release amount of 250ML/day. Similar to the current conditions of the TEP Ensham proposes that any water release from this location would cease once flows at the Duckponds gauging station reach 10,000ML/day allowing for a natural 'flushing flow' to occur through the system.

2 ADDITIONAL DEWATERING ACTIVITIES

2.1 INTRODUCTION

In 2008 when Ensham ceased dewatering activities a decision was taken to store the remaining 9,000ML of remnant flood water in one mining pit (Ramp 22) with a view that this water would eventually be consumed in mining activities allowing eventual access to the coal resource. Subsequent weather patterns including rainfall rates at more than twice the 10 year average and recharged groundwater aquifers have seen onsite storage volumes increase to approximately 13,000ML, requiring the use of 3 mining pits (Ramps 22, 21 and 20) for storage which are nearing capacity.

Over the past 12 months Ensham has been examining all options to manage the remnant flood water to allow mining activities to recommence including:

- Construction of new water storages to capture overland flow to provide onsite dilution prior to release
- Purchase of flood harvesting licences to conduct on site dilution prior to release
- Applying for water diversions to take water from the Nogoia River for onsite dilution prior to release
- Use of reverse osmosis technologies;
- Options for increasing onsite reuse via forced evaporation, misting and land sharks.

All these options were determined as not being viable given the significant volume of remnant flood water.

Most recently Ensham has been working with Dr Chris Cuff of C and R consulting to understand the impacts of releasing the remnant water into the Nogoia River in high flow events. This work has included specific Direct Toxicity Assessments using water from the mining pit as well as an assessment on the aquatic fauna currently thriving in the remnant flood water.

2.2 PIT DEWATERING

2.2.1 Proposed Changes to Release Point Three

Release point three was established for the TEP because the release point currently authorised in the Ensham EA to the Nogoia River from the southern end of the site is in an unknown condition due to significant volumes of water travelling through the Nogoia. Release Point Three has been established in close proximity to the EA authorised release point to release water captured in B Pit via the Ramp 24 dam (Figure 1). It is proposed to move water from Ramps 20, 21, and 22 to the Ramp 24 dam then to the Nogoia River. Pumping capacity will be mobilised to release up to 250ML/day.

DRAFT

2.3 RELEASE IMPACT MANAGEMENT

It is proposed that the same release impact management conditions will continue to apply to Release Point three.

3 WATER QUALITY

3.1 INTRODUCTION

The water proposed to be released via this TEP amendment was primarily accumulated as a result of the January 2008 flood event and has been stored in mining pits for nearly three years. Over this period the stored water has been comprehensively monitored on a regular basis.

3.2 PIT WATER QUALITY

3.2.1 PIT WATER RESULTS

With the exception of salinity the pit water does not exceed water quality trigger levels specified in the Ensham EA. A summary of pit water results as well as upstream background water quality monitoring results was contained as Attachment 1 in the original TEP application. The most recent (4/1/11) in situ results recorded from the mining pits are outlined below.

Pit	EC us/cm	pH
Ramp 20	Not accessible	Not accessible
Ramp 21 (surface sample)	3,940	8.62
Ramp 22 (surface sample)	6,600	8.52
Ramp 22 (36mt below surface)	6,730	8.20

EC results through the water column over time have been relatively uniform with the highest levels recorded at approximately 7,600EC.

Recent surveys have been conducted of aquatic fauna within the main Ramp 22 pit water storage (draft report attachment one). Eleven fish species from six families have been observed and/or positively identified within the remnant flood water storage including, Barred Grunter (*Amniataba percooides*), Fork-tailed Catfish (*Arius graeffei*), Spangled Perch (*Leiopotherapon unicolor*), Boney Bream (*Nematalosa erebi*), Hyrtl's Catfish (*Neosilurus Hyrtlii*), Rainbowfish (*Melanotaenia splendida splendida*) and Leathery Grunter (*Scortum Hillii*). The fish found in the mining pit appeared physically healthy, this was further reinforced by the observation of sexually reproductive species.

In addition to the aquatic fauna surveys direct toxicity assessments (draft report attachment one) were conducted by Hydrobiology using water from the Ramp 22 storage on the following species:

- Ceriodaphnia cf dubia (freshwater cladoceran)
- Lemna disperma (aquatic duckweed)
- Selenastrum capricornutum (green algae)
- Paratya australiensis (freshwater shrimp)
- Melanotaenia splendid (rainbowfish).

In summary the DTA results indicate that to protect 95% of species within the receiving ecosystem, as required by ANZECC and ARNCANZ guidelines, the remnant flood water concentration must not exceed 23.3% this equates to a mixing ratio of approximately 1L of remnant flood water to 5L of receiving ecosystem water. To protect 99% of species within the receiving ecosystem the remnant flood water concentration must not exceed 16.5% of the receiving waters. This is a mixing ratio of 1L of remnant flood water to 7L of receiving ecosystem water. The dilution that will be achieved by the proposed release limits will achieve significantly higher levels mixing ratios providing further protection to aquatic species.

3.3 PROPOSED WATER QUALITY LIMITS

The water quality limits requested for Release Point 3 in this amended TEP are proposed to be consistent with those contained in the current EA with the exception of electrical conductivity and suspended solids. For these parameters the following limits are required:

Nogoa River Release Point Three

Quality Characteristic	Contaminant Release Limit
Electrical conductivity (us/cm)	8500
Suspended Solids	300

While the current water quality results indicate a maximum conductivity of 7,600 EC previous experiences have shown that water trapped in spoil can be further elevated. As a result the maximum conductivity proposed in this TEP amendment is 8,500 EC.

3.3.1 FLOWS

The Nogoa River is currently flowing at a rate in excess of 200,000ML/day at the Duckponds gauging station. It is expected that the River will continue to run with elevated flow rates for an additional 2 – 3 weeks. The current Ensham EA requires a minimum flow rate of 20 m³/sec or 1,720ML/day before any mine water can be released. The current TEP requires water releases to cease once the flow at the Duckponds reached a flow of 116 m³/sec or 10,000ML/day. It is proposed that 10,000ML/day flow also be used as the trigger to cease discharging from release point three.

Stopping releases when the flow reaches 10,000ML/day will provide enough flow to provide a natural flush of the system.

3.3.2 EXPECTED DILUTIONS AND DOWNSTREAM WATER QUALITY RESULTS

It is proposed that the increased EC level at the end of pipe proposed under this TEP amendment will be managed by restricted release rates and high flow rates. A minimum 50:1 mixing ration would be maintained at all times. Assuming a background receiving water

conductivity of 180 EC and a release water conductivity of 8000 EC the following downstream results are expected:

Nogoa Flow ML/day	Expected EC $\mu\text{S/cm}$	Meters downstream from release point
10,750	460	50
	360	100
12,900	415	50
	331	100
17,200	357	50
	294	100
21,500	322	50

As a point of comparison the current conditions in the Ensham EA the downstream EC levels are achieved.

Nogoa Flow ML/day	Expected EC $\mu\text{S/cm}$	Meters downstream from release point
1,720	459	1000

These estimated water quality dilution effects indicate that there are no risks to the receiving environment or people, in the form of downstream domestic water supply integrity. These results are well below the Australian Drinking Water Guidelines (2004) at 1000 EC and below the expected downstream results currently authorised in the Ensham EA.

4. MONITORING AND REPORTING

4.1 MONITORING AND REPORTING

It is proposed that no change be made to the monitoring and reporting conditions contained in the current TEP.

5. COMMUNITY INTEREST

5.1 ADDRESSING COMMUNITY INTERESTS

Ensham successfully engaged stakeholders as part of the process to obtain the current TEP. It is proposed that a similar consultation process be adopted including information to stakeholders via email and direct phone contact with key stakeholders. In addition monitoring data collected for the TEP will be published on the Ensham website.

DRAFT

ecoaccess

Notice

Environmental Services - Mining Decision to grant amendment of an approval of a 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.

Bligh Coal Limited
C/-Ensham Resources Pty Ltd
Level 20 AMD place
EMERALD QLD 4720

CC: Peter Westerhuis
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Your reference: Transitional Environmental Program (TEP) Ensham Mine Dewatering MAN11280

Our reference: MAN11280 File: EMD6

Attention: Mr Peter Westerhuis,

Re: Application for the amendment of an approval for a transitional environmental program for Ensham Coal Mine – Transitional Environmental Program (TEP) – Ensham Mine Dewatering

Thank you for your application for the amendment of an approval for a transitional environmental program. This application has been issued with the Certificate Approval number: MAN11280 (attached to this notice)

Your application, which was received by this office on 05 January 2011, has been approved with additional conditions as described in the Certificate of Approval.

Fees apply for the assessment of a draft transitional environmental program (TEP). The fees are outlined in the attached operational policy *Transitional Environmental Program (TEP) fees*.

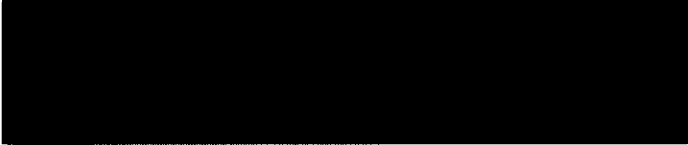
A fee of \$2461.50 is payable.

Decision notice regarding a transitional environmental program

You may apply to the Department of Environment and Resource Management 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

Should you have any queries in relation to this notice, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.



05 January 2011

SIGNATURE

DATE

Mark Evans
Regional Manager (Environmental Services - Mining)
Central West Region
Delegate of the Administering Authority
Environmental Protection Act 1994

Enquiries:
Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568

Environmental Services - Mining

Transitional environmental program certificate of approval number MAN11280

This certificate of approval is issued by the administering authority pursuant to section 339 of the Environmental Protection Act 1994. A 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:

Bligh Coal Limited
C/-Ensham Resources Pty Ltd
Level 20 AMD place
EMERALD QLD 4720

Approving the amendment to Transitional Environmental Program; titled *Ensham Mine 2010 Dewatering: Transitional Environmental Program* dated 7 December 2010, for non-compliance with conditions of Environmental Authority MIM800086202 for management of mine affected water at the Ensham Coal Mine, Mining Lease (ML) 7459, ML7460, ML70049, ML40326, MLA70365, MLA70366 and MLA70367.

The application to amend Transitional Environmental Program, titled *Ensham Mine 2010 Dewatering: Transitional Environmental Program* was received by this office on 5 January 2011.

The amended Transitional Environmental Program is approved, subject to the following conditions:

Undertaking the release of mine affected water

- 1 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 this Transitional Environmental Program – Certificate of Approval, unless otherwise authorised to under the *Environmental Protection Act 1994*.
- 2 The release of contaminants to waters must only occur from the release points specified in *Table 1: Contaminant release points, sources and receiving waters* of this Transitional Environmental Program – Certificate of Approval.
- 3 The release of contaminants to waters must not exceed the release limits stated in *Table 3* at the monitoring points specified in *Table 1: Contaminant release points, sources and receiving waters* and *Table 2: Contaminant release monitoring points* of this Transitional Environmental Program – Certificate of Approval.
- 4 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*, *Table 2: Contaminant release monitoring points* and *Table 6: Receiving water downstream monitoring points* for each quality characteristic and at the frequency specified in *Table 3: Contaminant release limits* and *Table 4: Release contaminant trigger investigation levels* of this Transitional Environmental Program – Certificate of Approval.

Transitional environmental program certificate of approval

- 5 If quality characteristics of the release exceed any of the trigger levels specified in *Table 4: Release contaminant trigger investigation levels* during a release event, the Transitional Environmental Program holder must compare the downstream results in the receiving waters identified in *Table 6: Receiving water downstream monitoring points* to the trigger values specified in *Table 4: Release contaminant trigger investigation levels* and:
- a) where the trigger values are not exceeded then no action is to be taken
 - b) where the downstream results exceed the trigger values specified *Table 4: Release contaminant trigger investigation levels* for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and
 - i) if the result is less than the background monitoring site data, then no action is to be taken or
 - ii) if the result is greater than the background monitoring site data, complete an investigation in accordance with the ANZECC & ARM CANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining
 - 1) details of the investigations carried out
 - 2) actions taken to prevent environmental harm.
- 6 If an exceedance in accordance with condition 5(b)(ii) is identified, the holder of the Transitional Environmental Program certificate must notify the administering authority within 24 hours of receiving the result. The notification must include written verification of the exceedance forwarded to the administering authority either via facsimile [REDACTED] or email to Manager.MiningCWR@derm.qld.gov.au.

Table 1: Contaminant release points, sources and receiving waters

Release point (TEP RP)	Easting (GDA94)	Northing (GDA94)	Contaminant source and location	Monitoring point	Receiving waters
TEP RP 1	653714	7401500	B, C, D and E Pits – release via pipe	TEP MP 1	Nogoa River
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	
TEP RP 2	655399	7414491	Y Pit – release via pipe	TEP MP 2	Boggy Creek
				TEP MP 5	
				TEP MP 6	
TEP RP 3	654270	7412235	Y Pit – release via pipe	TEP MP 3	Boggy Creek
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	
TEP RP 4	653674	7401350	B, C, D and E Pits – release via pipe	TEP MP 4	Nogoa River
				TEP MP 5	
				TEP MP 6	
				TEP MP 7	

Table 2: Contaminant release monitoring points

Monitoring point (TEP MP)	Easting (GDA94)	Northing (GDA94)	Contaminant source and location	Monitoring point location	Receiving waters
TEP MP 1	653714	7401500	B, C, D and E Pits	End of Pipe	Nogoa River
TEP MP 2	655399	7414491	Y Pits	End of Pipe	Boggy Creek
TEP MP 3	654270	7412235	Y Pits	End of Pipe	Boggy Creek

Transitional environmental program certificate of approval

TEP MP 4	653674	7401350	B, C, D and E Pits	End of Pipe	Nogoa River
TEP MP 5	653509	7408061	B, C, D, E and Y Pits	1500m downstream of TEP RP 1 and TEP RP 4	Nogoa River
TEP MP 6			B, C, D, E and Y Pits	Rileys Crossing	Mackenzie River
TEP MP 7	N/A	N/A	B, C, D, E and Y Pits	5km upstream of Bedford Wear Headwater (weir structure)	Mackenzie River
TEP MP 8	N/A	N/A	B, C, D, E and Y Pits	500m upstream of Bedford Wear Headwater (weir structure)	Mackenzie River

Table 3: Contaminant release limits

Quality characteristic	Release Limit	Monitoring Frequency	Sample Type	Monitoring Point
Electrical conductivity (uS/cm)	4000	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 1
			Samples require laboratory analysis ²	
	8500	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 4
			Samples require laboratory analysis ²	
	2000	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 2
			<i>In situ</i> ¹	TEP MP 3
			Samples require laboratory analysis ²	TEP MP 2
				TEP MP 3
	360	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 5
			Samples require laboratory analysis ²	
		Daily during release (the first sample must be taken within 4 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 6
			Samples require laboratory analysis ²	
Fortnightly during release		<i>In situ</i> ¹	TEP MP 7	
		<i>In situ</i> ¹	TEP MP 8	
	Samples require laboratory analysis ²	TEP MP 7		
		TEP MP 8		

Transitional environmental program certificate of approval

pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 1	
				TEP MP 2	
				TEP MP 3	
				TEP MP 4	
	6.5 (minimum) 8.5 (maximum)	Twice daily during release (the first sample must be taken within 2 hours of commencement of release)	Daily during release (the first sample must be taken within 4 hours of commencement of release)	<i>In situ</i> ¹	TEP MP 5
					TEP MP 6
					TEP MP 7
					TEP MP 8
300	300	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	Samples require laboratory analysis ²	TEP MP 1	
				TEP MP 4	
				TEP MP 2	
				TEP MP 3	
500	500	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	Samples require laboratory analysis ²	TEP MP 2	
				TEP MP 3	
				TEP MP 1	
				TEP MP 2	
1000	1000	Three hourly during release (the first sample must be taken within 2 hours of commencement of release)	Samples require laboratory analysis ²	TEP MP 1	
				TEP MP 2	
				TEP MP 3	
				TEP MP 4	

¹ In situ samples can be taken using electronic sampling equipment.

² Samples are required to be analysed at a NATA accredited facility in accordance with this Transitional Environmental Program – Certificate of Approval.

Transitional environmental program certificate of approval

Table 4: Release contaminant trigger investigation levels

Quality characteristic	Trigger levels (µg/L)	Monitoring frequency	Monitoring Point
Aluminium	55	Commencement of release and thereafter weekly during release	TEP MP 1 TEP MP 2 TEP MP 3 TEP MP 4
Arsenic	13		
Cadmium	0.2		
Chromium	1.0		
Copper	2.0		
Iron	300		
Lead	10		
Mercury	0.2		
Nickel	11		
Zinc	8.0		
Boron	370		
Cobalt	90		
Manganese	1900		
Molybdenum	34		
Selenium	10		
Silver	1.0		
Uranium	1.0		
Vanadium	10		
Ammonia	900		
Nitrate	1100		
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000		

Table 5: Contaminant release during flow events

Receiving waters	Release point (TEP RP)	Gauging station description	Easting (GDA94)	Northing (GDA94)	Minimum flow in receiving water required for a release event	Flow recording frequency
Nogoa River	TEP RP1 TEP RP 2 TEP RP 3 TEP RP 4	TEP W1	650392	7402391	116m ³ /sec	Continuous (minimum daily)

Transitional environmental program certificate of approval

Table 6: Receiving water downstream monitoring points

Monitoring points (TEP MP)	Receiving waters location description	Easting (GDA94)	Northing (GDA94)
TEP MP 5	1500m downstream of TEP RP 1 and TEP RP 4	653509	7408061
TEP MP 6	Rileys Crossing	N/A	N/A
TEP MP 7	5km upstream of Bedford Wear Headwater (weir structure)	N/A	N/A
TEP MP 8	500m upstream of Bedford Wear Headwater (weir structure)	N/A	N/A

Contaminant Release Events

- 7 Notwithstanding any other condition of this Transitional Environmental Program – Certificate of Approval, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Table 5: Contaminant release during flow events* for the contaminant release point(s) specified in *Table 1: Contaminant release points, sources and receiving waters*.
- 8 A stream flow gauging station must be operated and maintained to determine and record stream flows at the locations specified in *Table 5: Contaminant release during flow events* for any receiving waters into which a release occurs.
- 9 Notwithstanding any other condition of this Transitional Environmental Program, the release of contaminants to waters must only take place from TEP RP 4 when the flow in receiving waters allows for the dilution of release water at a ratio of 50:1 (50 parts receiving water to 1 part mine affected water)
- 10 Notwithstanding any other condition of this Transitional Environmental Program, the release of contaminants to waters must only take place from TEP RP 2 and TEP RP 3 at a maximum combined rate of 30ML per day.
- 11 The daily quantity of contaminants released from each release point in *Table 1: Contaminant release points, sources and receiving waters* must be measured and recorded

Notification of Release Events

- 12 The Transitional Environmental Program certificate holder must notify the administering authority within 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 (either via facsimile (07) 4982 2568 or email to Manager.MiningCWR@derm.qld.gov.au) of the following information:
 - a) release commencement date/time
 - b) expected release cessation date/time
 - c) release point/s
 - d) the anticipated release volume (estimated)
 - e) receiving water/s including the natural flow rate
 - f) any details (including available data) regarding likely impacts on the receiving water(s).
- 13 The Transitional Environmental Program certificate holder must provide the administering authority, daily during the release of mine affected water, information on the release of contaminants to waters. The information must be provided in writing (either via facsimile (07) 4982 2568 or email to Manager.MiningCWR@derm.qld.gov.au) and include the following:
 - a) all in situ monitoring data for that day
 - b) the receiving water flow rate
 - c) the release flow rate
 - d) the volume of water released from each release point.

Transitional environmental program certificate of approval

- 14 The Transitional Environmental Program certificate holder must notify the administering authority as soon as practicable, (no later than within 24 hours after cessation of a release) of the cessation of a release notified under condition 12 and within 28 days provide the following information in writing:
- release cessation date/time
 - natural flow volume in receiving water
 - volume of water released
 - details regarding the compliance of the release with the conditions of this Transitional Environmental Program (i.e. contamination limits, natural flow, discharge volume)
 - all in-situ water quality monitoring results
 - any other matters pertinent to the water release event.

Notification of release event exceedence

- 15 If the release limits defined in Table 3 are exceeded, the holder of the Transitional Environmental Program must notify the administering authority within 24 hours of receiving the results.
- 16 The Transitional Environmental Program certificate holder must, within 28 days of a release that exceeds the conditions of this Transitional Environmental Program – Certificate of Approval, provide a report to the administering authority detailing:
- the reason for the release
 - the location of the release
 - all water quality monitoring results
 - any general observations
 - all calculations
 - any other matters pertinent to the water release event.

Erosion and Sediment Control

- 17 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.
- 18 Erosion protection must be designed, installed and maintained at each release point authorised by this Transitional Environmental Program and must:
- designed and constructed by a suitably qualified and experienced person, and
 - be inspected by a suitably qualified and experienced person
 - prior to the commencement of dewatering operations; and
 - following the cessation of release in accordance with the conditions of this Transitional Environmental Program – Certificate of Approval.
- 19 The holder of this Transitional Environmental Program certificate must provide a report to the administering authority within 10 business days following the cessation of release of mine affected water authorised under authority of this Transitional Environmental Program. The report must detail the performance of erosion protection measures, including:
- identification of erosion, slumping and scour impacts to vegetation,
 - rehabilitation, including earthworks, scour protection and flow velocity controls undertaken to minimise environmental harm, and
 - detailed engineering assessment of erosion protection works completed to date and any proposed works to be undertaken.

Requirements to cease the release of mine affected water

- 20 The release of mine affected waters must cease immediately if any water quality limit as specified in Table 3: *Contaminant release limits* is exceeded.
- 21 The release of mine affected waters must cease immediately if identified that the release of mine affected waters is causing erosion of the bed and banks of the receiving waters, or is causing a material build up of sediment in such waters.
- 22 The release of mine affected waters must cease immediately if the holder of this Transitional Environmental Program is directed to do so by the administering authority.

Transitional environmental program certificate of approval

- 23 The release of mine affected waters authorised under this Transitional Environmental Program must cease by **13 May 2011**.

Monitoring Requirements

- 24 Where monitoring is a requirement of this Transitional Environmental Program, ensure that a competent person(s) conducts all monitoring.
- 25 All monitoring undertaken as a requirement of this Transitional Environmental Program must be undertaken in accordance with the administering authority's Water Sampling Manual.

Notification of emergencies, incidents and exceptions

- 26 As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Transitional Environmental Program, the administering authority must be notified of the release by telephone, facsimile or email.
- 27 The notification of emergencies or incidents must include but not be limited to the following:
- the holder of the Transitional Environmental Program
 - the location of the emergency or incident
 - the number of the Transitional Environmental Program
 - the name and telephone number of the designated contact person
 - the time of the release
 - the time the holder of the Transitional Environmental Program became aware of the release
 - the suspected cause of the release
 - the environmental harm caused, threatened, or suspected to be caused by the release, and
 - actions taken to prevent any further release and mitigate any environmental harm caused by the release.
- 28 Not more than fourteen days following the initial notification of an emergency or incident, written advice must be provided of the information supplied to the administering authority in relation to:
- proposed actions to prevent a recurrence of the emergency or incident, and
 - outcomes of actions taken at the time to prevent or minimise environmental harm.

Reporting

- 29 The holder of this Transitional Environmental Program certificate must submit a report to the administering authority on the fifth business day of each month detailing:
- all activities undertaken under the Transitional Environmental Program,
 - how the Transitional Environmental Program holder has met the objectives of the Transitional Environmental Program, taking into account:
 - the best practice environmental management for the activity, and
 - the risks of environmental harm being caused by the activity, and
 - how the Transitional Environmental Program holder has complied with all conditions contained within the Transitional Environmental Program – Certificate of Approval.
- 30 The holder of this Transitional Environmental Program certificate must submit a report to the administering authority by **27 May 2011** including:
- details of the completion of the Transitional Environmental Program,
 - details on all activities undertaken under the Transitional Environmental Program,
 - identification of how the Transitional Environmental Program certificate holder has met the objectives of the Transitional Environmental Program, taking into account:
 - the best practice environmental management for the activity, and
 - the risks of environmental harm being caused by the activity,
 - identification of how the Transitional Environmental Program certificate holder has complied with all conditions contained within the Transitional Environmental Program – Certificate of Approval, and
 - confirmation that at closure of the Transitional Environmental Program, the holder will be able to comply with the conditions of the current Environmental Authority issued for the Ensham Coal Mine, located at ML7459, ML7460, ML70049, ML40326, MLA70365, MLA70366 and MLA70367 and the *Environmental Protection Act 1994*.

Transitional environmental program certificate of approval

This transitional environmental program remains in force until **30 June 2011**.

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, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.

[REDACTED SIGNATURE]

SIGNATURE

5 January 2011

DATE

Mark Evans
Delegate of the Administering Authority
Regional Manager (Environmental Services - Mining)
Central West Region

Enquiries:
Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568

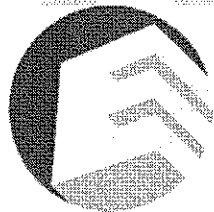
ATTACHMENT TWO

ENSHAM MINE

2010 - 2011 DEWATERING

**TRANSITIONAL ENVIRONMENTAL
PROGRAM – MAN11280**

AMENDMENT



Ensham

R E S O U R C E S

31 January 2011

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

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DRAFT

ENSHAM MINE DEWATERING
TRANSITIONAL ENVIRONMENTAL PROGRAM AMENDMENT
for
Ensham Resources Pty Ltd

1 INTRODUCTION

Ensham Resources is seeking an amendment to Transitional Environmental Program (TEP) MAN11280. The amendment is sought to further enable the release of remnant flood waters that has been stored in mining pits. It is proposed to amend the conditions as follows:

- EC limit for RP1 (northern bank of the Nogoa River) to be increased from 4000 EC to 8,500 EC
- Reduce the minimum flow requirements in the Nogoa River from 10,000ML/day to 5,000 ML/day measured at the Duckponds gauging station; and
- Reduce laboratory analysis requirements from 3 hourly to twice daily for monitoring points 1 - 4.

It is proposed that the remnant flood water be released in a controlled manner to the Nogoa River during the high flow events expected throughout the remainder of the 2010/2011 wet season (end May 2011 consistent with current TEP).

2 DEWATERING ACTIVITIES

2.1 INTRODUCTION

It is proposed to amend the current water release conditions to facilitate mine dewatering for the remainder of the 2010/2011 wet season. Since December 2010 Ensham has been operating under a TEP to facilitate dewatering activities and has consistently managed to ensure EC levels in the receiving environment at the closest downstream monitoring point have not exceeded the 360 EC as specified in the TEP. The highest EC recorded at the closest downstream monitoring point has been 273 EC.

2.2 PIT DEWATERING

2.2.1 Proposed Changes to Release Point One

Release point one (Figure 1) is currently authorised to release mine water with 4000 EC directly to the Nogoa River. Because of the length of time water has been sitting in mining pits previously being dewatered via RP1 water quality testing is showing EC levels increasing higher than 4000 EC.

It is proposed to amend this release point to increase the EC limit to 8,500 EC consistent with the limits established for release point 4 (southern bank of the Nogoa River).

2.2.2 PROPOSED CHANGES TO MINIMUM FLOW

It is proposed that the minimum flow rate for the Nogoia River authorised under this TEP be reduced to 5,000 ML/day or 58 cubic metres per second. Modelling has been undertaken to demonstrate that under reduced flow rates and managed release volumes, downstream water quality limits can be achieved as outlined below.

Flow Rate	Discharge Rate	EC@50mt downstream	EC@100mt downstream	EC@200mt downstream	EC@500mt downstream	EC@1000mt downstream	EC@1500mt downstream
20m3/sec	34.56ML/day	500	385	365	350	347	346
50m3/sec	86.4ML/day	500	385	365	350	347	346
100m3/sec	172.8ML/day	500	385	365	350	347	346

Modelling assumes background water @ 180EC and discharge water @ 8,500EC.

The estimated water quality dilution effects and minimum flow requirements indicate that there are no risks to the receiving environment or people, in the form of downstream domestic water supply integrity.

3. MONITORING

3.1 PROPOSED CHANGES TO MONITORING REQUIREMENTS

It is proposed that laboratory analysis requirements for monitoring points 1,2, 3 and 4 be reduced from three hourly to twice daily. In situ monitoring would continue at monitoring points 1, 2, 3 and 4 at three hourly intervals.

4. COMMUNITY INTEREST

4.1 OPENNESS AND TRANSPARENCY

Ensham will continue to post monitoring results collected for the TEP on the Ensham website.

Notice

Environmental Services - Mining Decision to grant amendment of an approval of a 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.

Bligh Coal Limited
C/-Ensham Resources Pty Ltd
Level 20 AMD place
EMERALD QLD 4720

CC: Peter Westerhuis
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Your reference: Transitional Environmental Program (TEP) Ensham Mine Dewatering MAN11280

Our reference: MAN12039 File: EMD6

Attention: Mr Peter Westerhuis,

Re: Application for the amendment of an approval for a transitional environmental program for Ensham Coal Mine – Transitional Environmental Program (TEP) – Ensham Mine Dewatering

Thank you for your application for the amendment of an approval for a transitional environmental program. This application has been issued with the Certificate Approval number: MAN12039 (attached to this notice)

Your application, which was received by this office on 03 February 2011, has been approved with additional conditions as described in the Certificate of Approval.

Fees apply for the assessment of a draft transitional environmental program (TEP). The fees are outlined in the attached operational policy *Transitional Environmental Program (TEP) fees*.

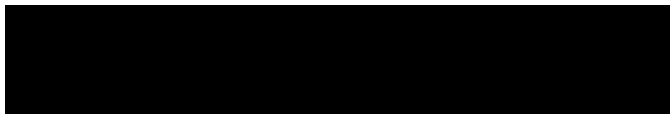
A fee of **\$180.40** is payable.

Decision notice regarding a transitional environmental program

You may apply to the Department of Environment and Resource Management 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

Should you have any queries in relation to this notice, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.



SIGNATURE

11 February 2011

DATE

[REDACTED]
Regional Manager (Environmental Services - Mining)
Central West Region
Delegate of the Administering Authority
Environmental Protection Act 1994

Enquiries:

Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568

Transitional environmental program certificate of approval number MAN12039

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:

Bligh Coal Limited
 C/-Ensham Resources Pty Ltd
 Level 20 AMD place
 EMERALD QLD 4720

Approving the amendment to Transitional Environmental Program; titled *Ensham Mine 2010 Dewatering: Transitional Environmental Program* dated 7 December 2010, for non-compliance with conditions of Environmental Authority MIM800086202 for management of mine affected water at the Ensham Coal Mine, Mining Lease (ML) 7459, ML7460, ML70049, ML40326, MLA70365, MLA70366 and MLA70367.

The application to amend Transitional Environmental Program, titled *Ensham Mine 2010 Dewatering: Transitional Environmental Program* was received by this office on 3 February 2011.

The amended Transitional Environmental Program is approved, subject to the following conditions:

1. Departmental Review of TEP

The release of mine affected water under authority of this TEP may be reviewed at any time in accordance with Table 1: Trigger Values at Downstream Locations. The department may require the TEP holder to cease any release if values are met or exceeded at these locations.

Table 1: Trigger Values at Downstream Locations (Mackenzie River)

Quality characteristic	Trigger Value	Flow Trigger	Monitoring Point
Electrical conductivity (uS/cm)	450	All Flows	DERM Gauging Station 130113A (Riley's Crossing)

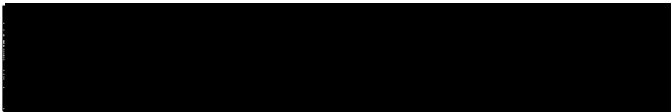
This transitional environmental program remains in force until **30 June 2011**.

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*

Transitional environmental program certificate of approval

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, Christopher Loveday of the department on telephone [REDACTED] would be happy to assist you.



SIGNATURE

11 February 2011

DATE



Delegate of the Administering Authority
Regional Manager (Environmental Services - Mining)
Central West Region

Enquiries:

Department of Environment and Resource
Management
PO Box 19
EMERALD QLD 4720
Phone: 4980 6200
Fax: 4982 2568



ENSHAM
RESOURCES
PTY LIMITED

ABN 23 011 048 678

As Operator of the
Ensham Coal Project

Duckponds Road
via Emerald
PO Box 1565
Emerald QLD 4720
Australia

Telephone:
+61 7 4987 3601

Facsimile:
+61 7 4987 3622

Website:
www.ensham.com.au

The Ensham Coal Project
is a joint venture of the
following companies which
are liable severally in the
following proportions:

Ensham Coal Limited
ABN 23 011 048 678
47.5%

Idemitsu Australia
Resources Pty Ltd
ABN 45 010 236 272
37.5%

J-Power Australia Pty Ltd
ABN 59 002 307 682
10.0%

LG International
(Australia) Pty Limited
ABN 12 002 806 831
5.0%



13 December 2010

Department of Environment and Resource Management
Via email: [REDACTED]

Dear Sir / Madam,

Re: Notification of Release Event Exceedence

Ensham Resources is the holder of Transitional Environmental Program (TEP) MAN11139 for mine dewatering. Condition 15 of TEP MAN11130 requires any exceedence of water release limits to be reported to the administering authority within 24 hours.

Ensham Resources wishes to provide formal notification that an end of pipe release limit was exceeded for monitoring point TEP MP1. An in-situ measurement of 4,700us/cm electrical conductivity (EC) was reported at approximately 08:30hrs on Sunday 12 December 2010. The site TEP MP1 allows an end of pipe EC release limit of 4,000us/cm. The previous EC measurement at site MP4 was 3,200us/cm taken at 16:40hrs on Saturday 11 December 2010. Earlier results sampled at 12:10hrs on Saturday 11 December 2010 at commencement of pumping was 3,090us/cm.

Flow rate in the Nogoia River at the time of the exceedence was approximately 350m³ / sec.

Once the in-situ sample results was recorded, immediate action taken by Ensham Resources was to shut-down the pumps transferring water at site TEP RP1 (TEP MP1) so no further water was released into the Nogoia River. Ensham Resources thereafter measured downstream EC levels at site TEP MP5 and a level of 190us/cm was recorded. The level of EC permissible at the TEP MP5 downstream site is 360us/cm. EC measurements were also then taken at the upstream site TEP W1 and the downstream Riley's Crossing site and EC levels were 189us/cm and 176us/cm respectively. It is estimated that a maximum of 8ML of water could have been released during this period, at the very most.

At the time of recording the end of pipe EC exceedence, the upstream EC level of 189us/cm was nearly identical to the downstream EC levels of 190 and 176us/cm. Based on the data recorded and the immediate action taken by Ensham Resources to shut-down the pumps, it is considered that negligible impact would have occurred to downstream water quality.

Please contact me directly on [REDACTED] if you would like to discuss this matter.

Yours Sincerely

[REDACTED]
Acting Manager – Environment
Ensham Resources



Queensland
Government

File/Ref EMD6

Department of
**Environment and Resource
Management**

4 July 2011

[REDACTED]
Manager - Environment
Ensham Resources Pty Ltd
PO Box 1565
Emerald Qld 4720

Dear [REDACTED]

**Re: Warning letter for non-compliance with transitional environmental program
MAN11139**

The Department of Environment and Resource Management (the department) has investigated the discharge of mine affected water from mine sites in the Central Queensland region during the heavy rains experienced since November 2010.

Information supplied to the department by Ensham Resources P/L (Ensham) identified it was in breach of a condition of its Transitional Environmental Program (TEP) MAN11139 for the following event:

Condition 3 The release of contaminants to waters must not exceed the release limits stated in Table 4 at the monitoring points specified in Table 1: Contaminant release points, sources and receiving waters and Table 2: Contaminant release monitoring points of this Transitional Environmental Program – Certificate of Approval.

On 12 December 2010, mine affected water was discharged from TEP MP1 with an electrical conductivity (EC) greater than the release limit. Ensham notified the department in accordance with condition 15 of TEP MAN11139 on 13 December 2010 that EC was recorded at 4700 $\mu\text{s}/\text{cm}$. The limit for EC at TEP MP1 is 4000 $\mu\text{s}/\text{cm}$.

You will be aware that it is an offence under section 432 of the *Environmental Protection Act 1994* to contravene a program.

The department has a responsibility to respond to any non-compliance with legislative requirements. In the event of non-compliance with the legislation and the environmental performance standards, the department has the ability to use a number of enforcement measures in accordance with its Enforcement Guidelines (copy enclosed).

Department of Environment and Resource Management
99 Hospital Road
PO Box 19
Emerald Qld 4720
Telephone 07 4987 9320
Facsimile 07 4987 9399
Website www.derm.qld.gov.au
ABN 46 640 294 485

In this instance the department has exercised its discretion to provide a formal warning letter for the offences.

You should be aware that any future breaches relating to non-compliant discharge of mine affected water will be viewed seriously and an escalated enforcement response may be adopted. Further warning letters for similar events may not be considered an appropriate enforcement response.

The department is focussed on achieving environmental outcomes and takes this opportunity to remind Ensham of its obligation to assess, manage and mitigate the risk associated with the mining activity.

Should you have any further enquiries, please do not hesitate to contact [REDACTED] on telephone [REDACTED]

Yours sincerely

[REDACTED]

Christopher Loveday
**Manager, Environmental Services - Mining
Central West Region**

Encl: *Enforcement Guidelines*

Enquiries
Telephone
Your reference
Our reference

[REDACTED]
Ensham Coal Mine
EMD6-11



Queensland
Government

1 February 2008

Environmental Protection Agency
Incorporating the
Queensland Parks and Wildlife Service

[REDACTED]
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 [REDACTED] from Ensham Resources Pty Ltd and Jon Womersley, [REDACTED] from the Environmental Protection Agency (EPA), and a site visit undertaken by [REDACTED] from the EPA on 31 January 2008, and supporting information provided to the EPA by [REDACTED] on 1 February 2008, regarding permission to discharge mine affected water from mining pit B on the southern side of the Nogoia River, and mining pits C and D on the northern side of the Nogoia 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 Nogoia 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 Nogoia 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 gullies flowing into the Nogoia River.

Pits C and D dewatering north of Nogoia 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 [REDACTED]

Yours sincerely

[REDACTED]
District Manager

Inquiries
Telephone
Your reference
Our reference

[REDACTED]
Ensham Coal Mine
EMD6-11



Queensland
Government

15 February 2008

Queensland Parks and Wildlife Service

An entity of the
Environmental Protection Agency

[REDACTED]
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 Nogoia River, and mining pits C and D on the northern side of the Nogoia 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 Nogoia 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 Nogoia 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 gullies flowing into the Nogoia River.

Pits C and D dewatering north of Nogoia River

- Mine affected water may be released via an engineered channel excavated from the pit C highwall and conveyed to the anabranch of the Nogoia 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 Nogoia River anabranh 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, Nogoia River anabranh, and the Nogoia River.
- Water quality must also be monitored at the upstream and downstream lease boundary Nogoia 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 Nogoia 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.

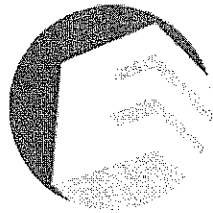
If you have any questions regarding this emergency direction, please contact [REDACTED]

Yours sincerely

[REDACTED]
District Manager

**ENSHAM MINE
FLOOD DEWATERING**

**TRANSITIONAL ENVIRONMENTAL
PROGRAM**



Ensham
R E S O U R C E S

29 February 2008

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

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Appendix A	Pump Capacities
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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 Nogoia 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 Nogoia 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 Nogoia 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 m³/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 m³/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 Nogoia 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 m³/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 Nogoia 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 m³/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 Nogoia River just downstream of the Ensham haul road crossing is approximately 3,000 m³/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 Nogoia River (Figure 4). The estimated capacity of the Winton Creek channel is 10 m³/s. The total combined pump discharge to these channels to Old Winton Creek will be limited to a maximum of 10 m³/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 banded 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 Nogoia 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 Nogoia anabranch (Figure 4). The capacity of Boggy Creek has been estimated as 10 m³/s by the engineer. The capacity of the Nogoia River anabranch has been previously estimated as 1,250 m³/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 m³/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 Nogoia 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 Nogoia 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 Nogoia 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 Nogoia River with pH ranging from 7.3 to 8.0 and EC ranging from 120 to 240 $\mu\text{S}/\text{cm}$. TSS results to 4 February 2008 also indicate that pit water quality is similar to that of the Nogoia 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 Nogoia River or the Nogoia River anabranch; and
- Nogoia 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 Nogoia 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.

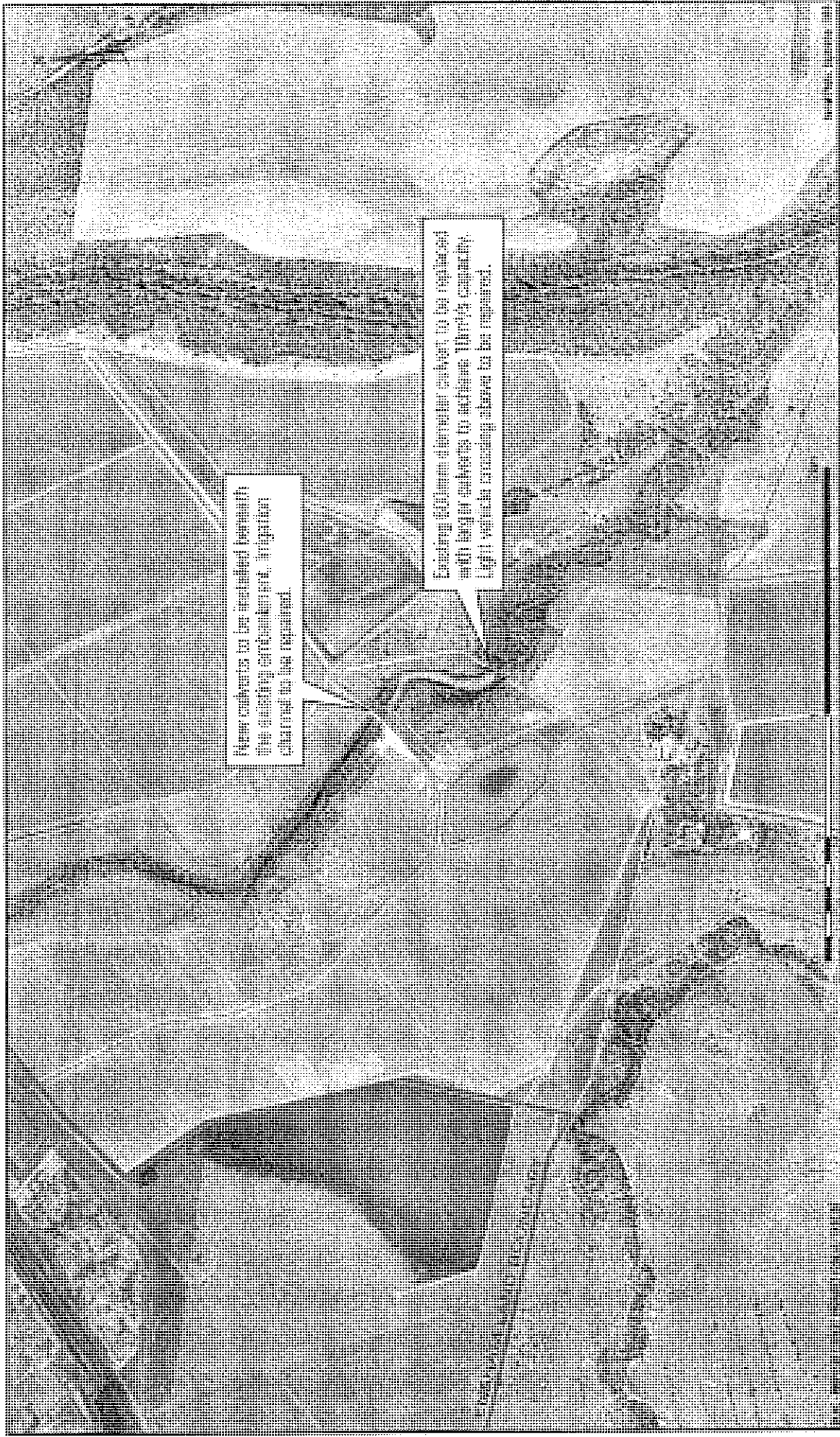
The first report will cover data from the start of the project through to the end of February 2008 and the plan for the period of March 2008. Successive monthly reports will be prepared and issued at the end of each month and delivered to the EPA by the fifth business day of the month.

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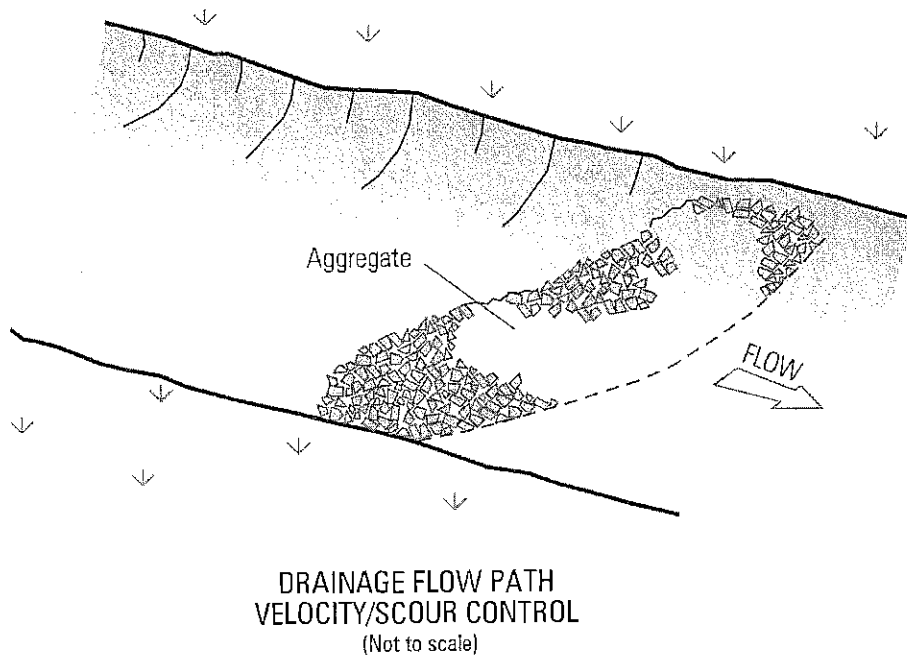
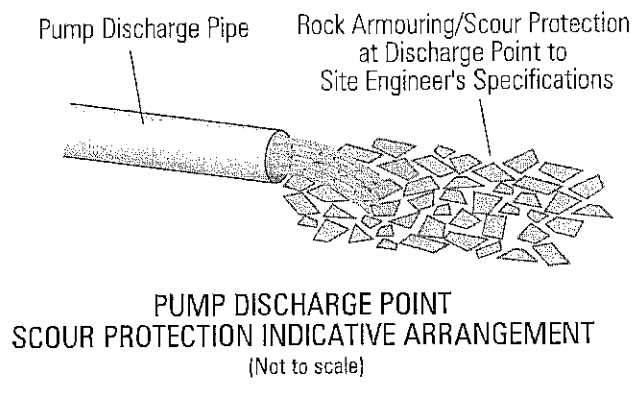
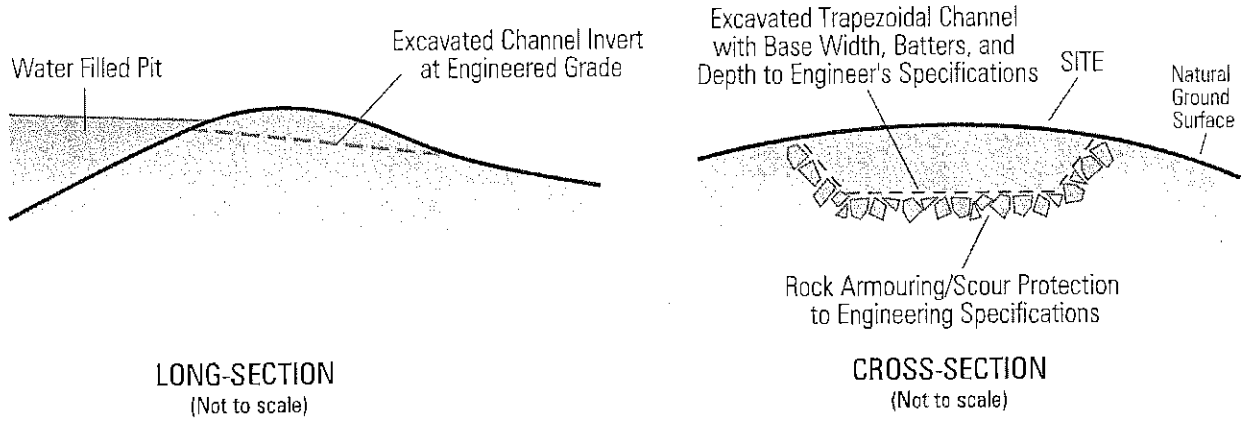
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FIGURES



Proposed Culvert Upgrades along Old Winton Creek on Currimundi Property

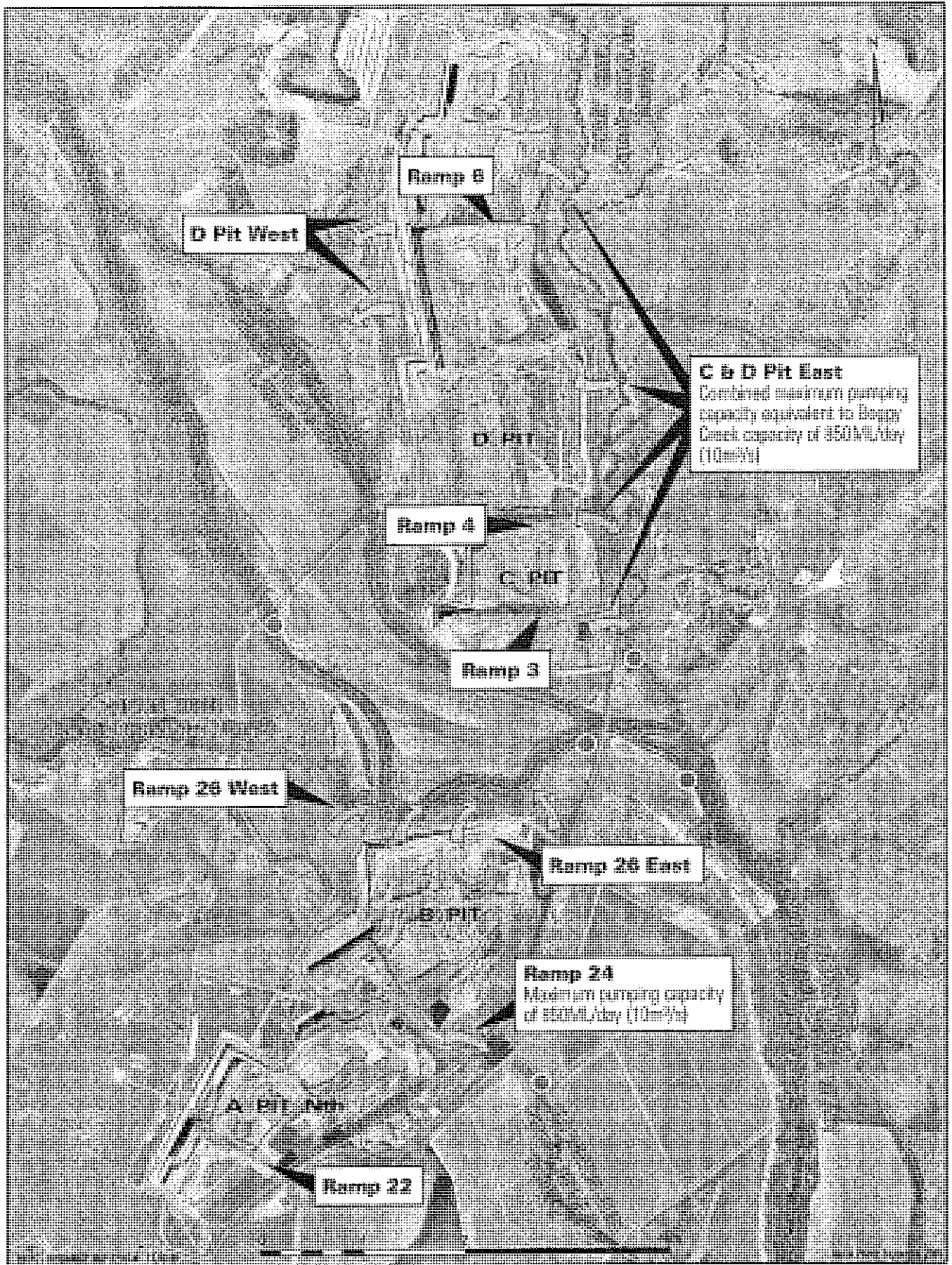


EW HC - Pit Overflow 0100.ai 31.01.08

Scour Protection Typical Sections



FIGURE 3



- Water Quality Monitoring Location
- ➔ Potential Pumping Discharge Location

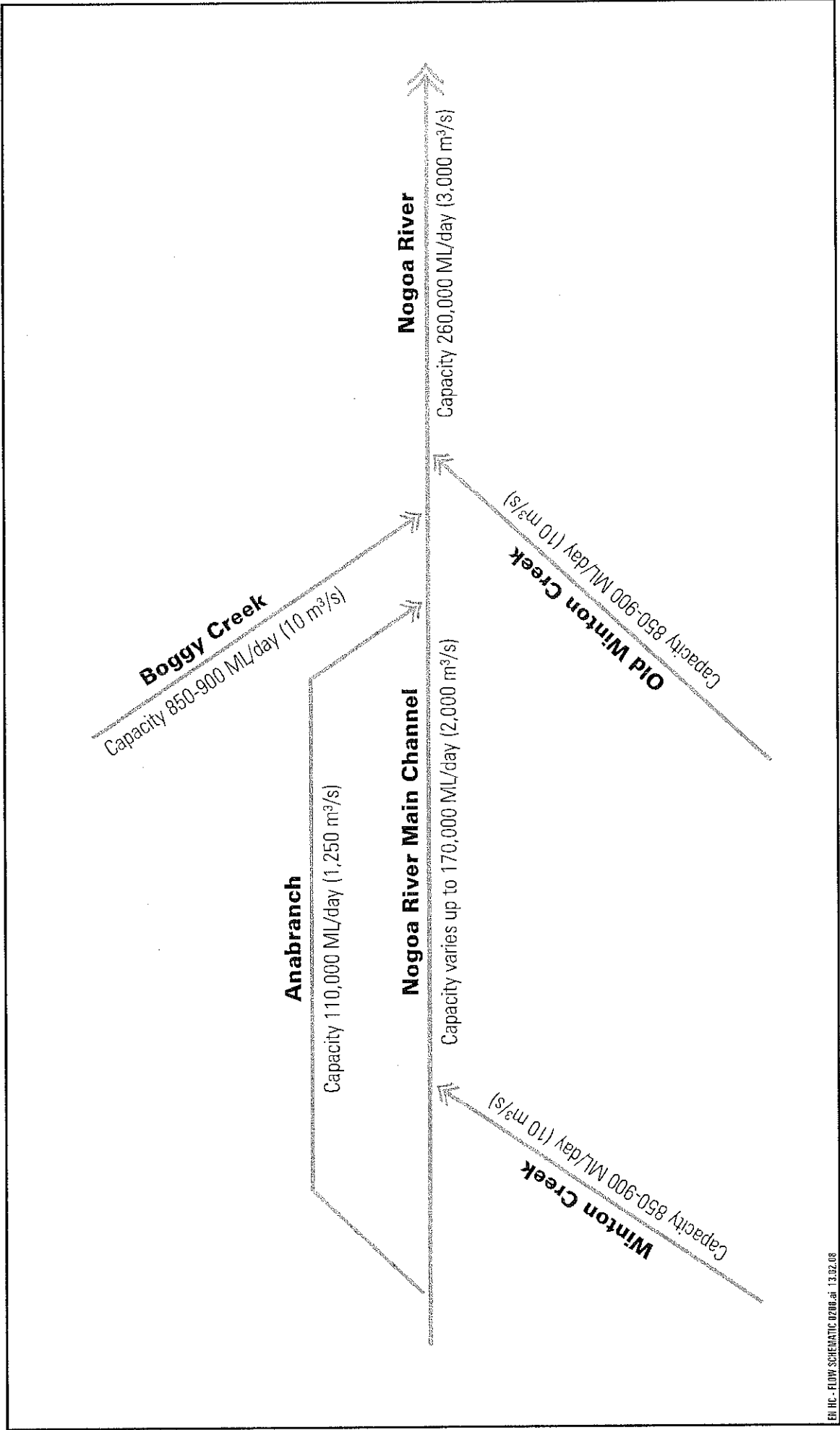
Indicative Preliminary Pumping Arrangements

Typical Dewatering Pump Installations
(currently Ramp 26 West)



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



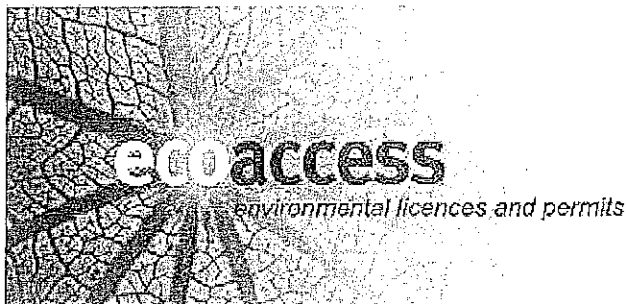


EN-HC - FLOW SCHEMATIC 02018.dwg 13.02.08

River and Creek Flow Schematic



FIGURE 6



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 

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



Decision notice regarding an environmental management program

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

[REDACTED SIGNATURE]

SIGNATURE

[REDACTED NAME]

District Manager, Emerald
Environmental Protection Agency

6/3/08

DATE

Enquiries:
Emerald District Office
99 Hospital Road, Emerald
Phone: (07) 4982 4555



Enquiries [REDACTED]
Telephone [REDACTED]
Your reference Ensham Pit Dewatering
Our reference EMD6-12

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

28 April 2008

[REDACTED]
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Attention: [REDACTED]

Dear [REDACTED]

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.”

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 [REDACTED] of the EPA on telephone [REDACTED] would be happy to assist.

Yours sincerely

[REDACTED]

District Manager



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

Environmental management program certificate of approval

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 Nogoia 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 Nogoia 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 (07) 4980 6200 would be happy to assist you.

Environmental management program certificate of approval

[Redacted Signature]

SIGNATURE

28/4/08

DATE

[Redacted Name]

District Manager, Emerald
Environmental Protection Agency

Enquiries:

Emerald District Office
99 Hospital Road Emerald
Phone [Redacted]



Enquiries
Telephone [REDACTED]
Your reference Ensham Pit Dewatering Operation
Our reference EMD6-14

2 June 2008

[REDACTED]
Ensham Resources Pty Ltd
PO Box 1565
EMERALD QLD 4720

Attention: [REDACTED]

Dear [REDACTED]

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, 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 1200 μ S/cm into Corkscrew Creek;
- (b) Condition 4 – A new condition allowing the release of mine affected water at 2000 μ S/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

- (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 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 inquiries regarding this information [REDACTED] of the EPA on telephone [REDACTED] would be happy to assist.

Yours sincerely

[REDACTED]

District Manager