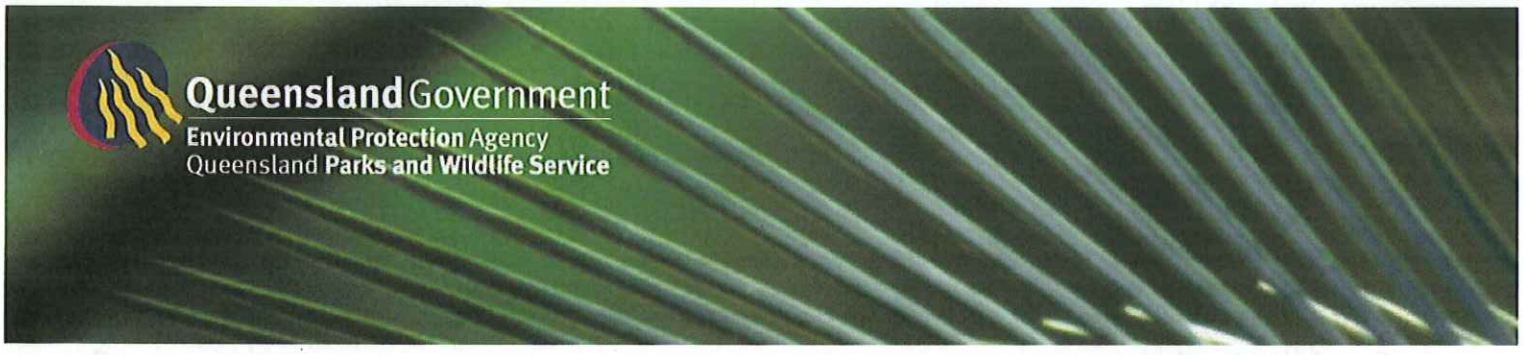

Assessment Report under the *Environmental Protection Act 1994*

on the

Environmental Impact Statement

for the

Integrated Isaac Plains Project

proposed by

IP Coal Pty Ltd and Vale Australia (IP) Pty Ltd

managed by

Isaac Plains Coal Management Pty Ltd

March 2009

Department of Environment and Resource Management
www.epa.qld.gov.au ABN 87 221 158 786

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1 Introduction

This report provides an evaluation of the Environmental Impact Statement (EIS) process pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act) for the Integrated Isaac Plains Project (IIPP) proposed by the IP Coal Pty Ltd and Vale Australia (IP) Pty Ltd Joint Venture. The Department of Environment and Resource Management (DERM), as the administering authority of the EP Act, coordinated the EIS process. This assessment report has been prepared pursuant to Sections 58 and 59 of the EP Act.

The objective of this assessment report is to:

(a) assess the adequacy of the EIS in addressing the final terms of reference (TOR), and the adequacy of the draft environmental management plan (EM plan);

(b) summarise key issues associated with the potential adverse and beneficial environmental, economic and social impacts of the Integrated Isaac Plains Project and the management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project; and

(c) make recommendations on the suitability of the project to proceed and where so, to make recommendations on necessary conditions for any approval required for the project.

Section 58 of the EP Act lists the criteria that the DERM must consider when preparing an EIS assessment report, while section 59 of the Act states what the content must be. The IIPP is not a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Consequently, matters prescribed in Part 1A of the Queensland *Environmental Protection Regulation 1998* (EP Reg) do not apply to this EIS assessment report for the project.

In summary, this assessment report addresses the adequacy of the EIS in addressing the final terms of reference (TOR), the suitability of the draft environmental management plan (EM plan) and other prescribed matters.

This report provides a summary and assessment of the key issues identified through the EIS process, and discusses in greater detail those issues of particular concern that were either not resolved or required specific conditions for the project to proceed.

The giving of this EIS assessment report to the proponent completes the EIS process under the EP Act.

1.1 Project details

The IP Coal Pty Ltd and Vale Australia (IP) Pty Ltd unincorporated joint venture partners are the proponents for the extension of the existing Isaac Plains coal mine into the expansion area, known as the Integrated Isaac Plains Project (IIPP). Isaac Plains Coal Management Pty Ltd (IPCM) will act on behalf of the proponents as the management company responsible for all operations undertaken as part of the IIPP. The EIS assessed in this report was required for amendment of the existing environmental authority (number MIN100329505) to allow the proposed mining activities. The triggers for the project EIS of particular relevance for this EIS assessment report was mining more than 2 million tonnes a year (Mt/y) of run-of-mine (ROM) coal and clearing endangered regional ecosystems classified as Category B Environmentally Sensitive Areas.

The proposed expansion area would be located approximately 12km south-east of the township of Moranbah and 127km west-southwest of the city of Mackay, within Isaac Regional Council (Formerly Belyando Shire Council), in the Bowen Basin, central Queensland. The main infrastructure and mining pits for the IIPP would be located on Mining Lease Applications (MLA) 70361 and MLA70381. The proposed access/haul road linking the expansion area to the existing Isaac Plains coal mine requires construction of a low level crossing over the Isaac River, as well as an underpass beneath the Peak Downs Highway and would be located within MLA70380 and MLA70382 for infrastructure only. The expansion area is a satellite deposit located to the south-southeast of the existing Isaac Plains coal mine.

The existing Isaac Plains coal mine is located approximately 8km north-northwest of the proposed expansion area and about 4.5km east of the Moranbah township. The Isaac Plains coal mine is an open-cut, truck and shovel operation currently approved to mine at a rate of 1.9 Mt/y of ROM coal, producing a nominal annual average of 1.6Mt/y of product coal.

IP Coal Pty Ltd and Vale Australia (IP) Pty Ltd propose to operate the IIPP as a contractor-operated, open-cut dragline operation producing a combined throughput (i.e. existing operation and proposed expansion area) of up to 4Mt/y of ROM coal for a nominal annual average of 3.3Mt/y of product coal over a 15 year mine life. It is proposed to replace the truck and shovel fleet at the existing Isaac Plains coal mine with a dragline until the coal resource is depleted in approximately 2016. Meanwhile the expansion area will be prepared for mining. Then when the dragline is available it will be walked over the low level crossing of the Isaac River to commence operating in the expansion area.

The IIPP will use some existing infrastructure and facilities, such as the CHPP and rail loop and rail loading facilities, located at the Isaac Plains coal mine, thereby minimising the disturbance footprint. The construction workforce for the expansion area will consist of 20-40 employees for approximately three to six months. Assembly of the dragline will also require a peak workforce of 70 employees for twelve months. The operational workforce for the IIPP will increase by 40 persons, from 70 existing employees to 110 employees. About 95% of the construction and operation workforces are proposed to be housed in the MAC Coppabella Camp on the Peak Downs Highway, approximately 26km east of the IIPP and approximately 50km east of Moranbah. Approximately 5% of the construction and operational workforces are anticipated to live in Moranbah.

The target coal seams for the expansion area are the Leichhardt seam and the upper Vermont seams in the Rangal Coal Measures. Mining these coal seams will produce approximately 25% coking coal, 50% pulverised coal injection (PCI) and 25% thermal coal for the export market via rail transport to the Dalrymple Bay coal terminal near Mackay.

The proposed residual void for the expansion area remaining at the end of the mine life will be up to 80m deep over an area of 26ha and will be above the probable maximum flood (PMF) level of the Isaac River.

Approximately a 2.4km length of Conrock Gully (an ephemeral tributary of the Isaac River) traversing the open-cut pits at the expansion area is proposed to be diverted north to the Isaac River to allow access to an economic coal reserve identified beneath the current Conrock Gully alignment. The Department of Natural Resources and Water has determined that Conrock Gully is not a defined watercourse under the provisions of the *Water Act 2000* and does not require a riverine protection permit. The proposed 6.2km diversion has been assessed and

designed using the Australian Coal Association Research Program (ACARP) stream diversion design criteria. The proposed diversion channel requires the construction of a dam at the western boundary of MLA70361 of the expansion area to raise water levels and increase the head sufficiently for water to discharge under gravity into the diversion channel. The dam reservoir area will cover approximately 25ha with a storage capacity of about 318ML and extend off-lease beyond the western boundary of MLA70361. Prior to the end of mine life the Conrock Gully dam is proposed to be decommissioned and backfilled with compacted overburden to natural ground level to restore free drainage into the diversion channel without ponding water. The proponent is currently in negotiation with the tenure holders, Anglo Coal and Exxaro, for consent to apply for an MLA over the dam reservoir area.

Approximately a 1.2km length of Smoky Creek (an ephemeral tributary of the Isaac River) traversing the open-cut pits at the existing Isaac Plains coal mine is proposed to be diverted to the south to allow access to an economic coal reserve beneath the current Smoky Creek alignment identified subsequent to approval of the existing Isaac Plains coal mine. The former Department of Natural Resources and Water determined that Smoky Creek is a defined watercourse under the provisions of the *Water Act 2000* and will require a riverine protection permit. The proposed diversion is not anticipated to change the catchment area contributing to Smoky Creek and flood flows along the new alignment are expected to remain unaltered.

Groundwater inflows to the pit in the expansion area are expected to be minimal due to the poor water yielding characteristics of the alluvial sediments and Rangal Coal Measures indicated by the historically low levels of dewatering required in the pits at the current operation. Advanced pit dewatering appears unnecessary and groundwater inflows to the pit will be collected in sumps constructed on the pit floor to achieve a dry pit during mining.

1.2 Approvals

The following approvals are required for the Integrated Isaac Plains Project:

Approval	Legislation (Administering Authority)
Environmental authority (mining activities)	*Environmental Protection Act 1994* (Department of Environment and Resource Management)
Mining Leases (MLA70361 and MLA70381 for mining; MLA70380 and MLA70382 for transport corridor infrastructure; and an MLA application over the Conrock Gully diversion dam reservoir area.	*Mineral Resources Act 1989* (Department of Employment, Economic Development and Innovation)
Cultural Heritage Management Plan	*Aboriginal Cultural Heritage Act 2003* (Department of Environment and Resource Management)
A riverine protection permit for the low level crossing of the Isaac River and Smoky Creek diversion A water licence for taking or interfering with sub-artesian water (pit dewatering)	*Water Act 2000* (Department of Environment and Resource Management)
Waterway barrier works approval (construction of low level crossing over the Isaac River)	*Fisheries Act 1994* (Department of Employment, Economic Development and Innovation)

1.3 Impact assessment process

1.3.1 The EIS process

The EIS for the IIPP was conducted under Chapter 3 of the EP Act. The EIS process was initiated by the management company, IPCM, acting on behalf of the project proponents, by application to the former Environmental Protection Agency (EPA) to prepare a voluntary EIS for the IIPP to allow extension of the existing Isaac Plains coal mine into the expansion area. An assessment level decision was made on 9 June 2006 that an EIS was required for the proposed IIPP and the proponent was notified of the decision on 21 June 2006.

The EPA approved the draft TOR and issued a notice of publication of draft TOR to IPCM on 3 November 2006. The comment period was set at 30 business days. The draft TOR were available for public comment from 6

November 2006 until 15 December 2006 with the EPA placing a public notice on the EPA's website on 3 November 2006 and in The Courier-Mail and Mackay Daily Mercury on 4 November 2006. IPCM issued copies of the public notice to affected and interested persons.

The EPA received 11 submissions on the draft TOR within the public comment period. Submissions were received from nine State government departments and agencies, one local government and one non-government organisation. These submissions, together with one from the EPA, were forwarded to the proponent on 15 January 2007. Matrix+ Consulting, on behalf of IPCM, responded to the comments on 23 February 2007. The EPA considered all submissions received on the draft TOR and the response submitted by Matrix+ Consulting prior to issuing the final TOR to the proponent on 23 March 2007.

Matrix+ Consulting, on behalf of IPCM, submitted the draft EIS on 5 September 2007 to the EPA for review prior to public notification. The EPA compared the draft EIS to the final TOR and on 2 October 2007 decided to issue an extension notice to IPCM until 17 October 2007 to allow amendments to be made to the draft EIS. An amended draft EIS was received by the EPA on 16 October 2007 and after comparison with the final TOR a decision to allow the EIS to proceed was made on 17 October 2007. The notice of decision to allow the submitted EIS to proceed to public notification was issued to IPCM on 24 October 2007. The submission period was set at 30 business days.

The draft EIS was available for public submissions for 30 business days from 12 November 2007 to 8 January 2008. IPCM placed a public notice in the Mackay Daily Mercury on 7 November 2007 and in The Courier-Mail on 10 November 2007, and the EPA placed a public notice on the Agency website. IPCM also issued copies of the public notice to affected and interested persons and made the EIS documents available on the Matrix+ Consulting website.

The EPA received 14 submissions from government and non-government organisations on the draft EIS within the submission period. Submissions were received from 10 State government departments and agencies, two local governments, and two non-government organisations. The EPA also received from Belyando Shire Council (now Isaac Regional Council) 377 public submissions on the draft EIS addressed to Belyando Shire Council. These submissions, together with one from the EPA, which were initially due to be submitted to IPCM on 22 January 2008, but were delayed due to the declared disaster zone in central Queensland as a result of severe flooding, and were eventually forwarded to IPCM on 19 February 2008 for consideration and response. Matrix+ Consulting on behalf of IPCM submitted a response to submissions (referred to hereafter as the supplementary EIS) to the EPA on 6 June 2008.

On 10 June 2008, copies of the supplementary EIS were issued to those members of the advisory body who had previously requested additional information. These advisory body members were requested to consider the supplementary EIS, in context with the EIS, and provide comments by 25 June 2008.

The EPA received 11 submissions on the supplementary EIS. This included 10 submissions from State government departments and agencies and one submission from a local government.

On 4 July 2008 IPCM was notified that the administering authority had decided to extend until 29 August 2008 the decision under s56A about whether to allow the submitted EIS to proceed under Chapter 3, Divisions 5 and 6 of the EP Act. The reasons for the extension was to allow IPCM time to provide further information in response to the advisory body comments about the impacts of the project and proposed mitigation measures and make all appropriate amendments to the submitted EIS. The administering authority advised the proponent that once the additional information and amendments had been undertaken the decision to allow the EIS to proceed would be made.

An Addendum to the supplementary EIS titled, "Response to EPA Comments, Supplementary IIPP EIS, Version 1" was received on 29 August 2008 and the s56A decision was extended until 10 November 2008 so copies of the Addendum could be issued to those members of the advisory body whose concerns had not been adequately addressed in the supplementary EIS.

Three submissions, including two from State Government agencies and one from a local government, were received on the Addendum.

In response to queries on the Addendum, the proponent provided additional information on 10 November 2008 and 28 November 2008 that constitutes part of the EIS. The s56A decision was extended until 19 December

2008 so copies of the additional information could be issued to the advisory body members whose concerns had not previously been adequately addressed in the Addendum.

Upon review of the additional information two key outstanding issues remained. One related to the post-mining landform design in the floodplain of the Isaac River and the other related to the proposed Conrock Gully diversion dam reservoir area being situated outside current mining lease areas.

Consequently, on 19 December 2008 the administering authority decided to further extend the s56A decision until 13 February 2009 to allow time for:

- the proponent to address the key outstanding issues and submit a revised, consolidated EIS covering all current project proposals;
- the proponent and the EPA to meet and discuss the proposed response to outstanding project issues; and
- the EPA to consider the response to outstanding project issues and make a decision under s56A.

On 30 January 2009 the EPA extended the s56A decision until 27 March 2009 because a suitable meeting date to discuss the outstanding issues could not be arranged within the statutory timeframe.

The EPA decided under s56A of the EP Act on 13 March 2009 that the submitted EIS should proceed under Division 5 (EIS assessment report) and Division 6 (Completion of process). A notice of the decision to allow the submitted EIS to proceed, together with a copy of this EIS assessment report, will be issued to the proponent on 27 March 2009.

The DERM in the preparation of this EIS assessment report has considered comments from the advisory body and other interested parties made at all stages of the EIS process. This EIS assessment report will be available to the public on the DERM's website (www.epa.qld.gov.au).

1.3.2 Consultation program

Public consultation

In addition to the statutory requirements for public notification of the TOR and draft EIS and identification of interested and affected parties, the proponent undertook community consultation with affected landowners and government agencies prior to the submission of the draft EIS. Matrix+ Consulting, on behalf of IPCM, also made available information about the IIPP on their website.

Advisory Body

The former EPA invited the following organisations to assist in the assessment of the TOR and EIS by participating as members of the advisory body for the IIPP:

- Department of Natural Resources and Water;
- Department of Primary Industries and Fisheries;
- Department of Infrastructure and Planning;
- Queensland Health;
- Department of Main Roads;
- Queensland Transport;
- Agforce;
- Sunwater;
- Nebo-Broadsound Landcare Group;
- Capricorn Conservation Council;
- Nebo Shire Council;
- Belyando Shire Council;
- Department of Housing;
- Department of Emergency Services;
- Queensland Police Service;
- Central Highlands Regional Resource Use Planning and Co-operative;
- Fitzroy Basin Association;
- Department of Mines and Energy;
- Department of Communities;

- Mackay City Council;
- Clermont Fish Stocking Group Inc;
- Emerald Fish Stocking Group Inc;
- Mackenzie River Fish Stocking Association Inc; and
- Sunfish Mackay.

Advisory body briefings were held Brisbane during the draft TOR stage of the EIS process, and in Mackay during the draft EIS stage of the EIS process.

Public notification

In accordance with the statutory requirements, advertisements were placed in The Courier-Mail and the Mackay Daily Mercury to notify the availability of the draft TOR and draft EIS for review and public comment as stated in Section 1.3.1 above. In addition, notices advising the availability of the draft TOR and the draft EIS for public comment were displayed on the former EPA website.

The draft TOR and draft EIS were placed on public display at the following locations during their respective public notification/submission periods:

- EPA Website (draft TOR and IAS only);
- EPA Customer Services Centre, EPA Central Office, Brisbane;
- EPA Whitsunday/Coalfields Office, Emerald;
- Matrix+ Consulting Website;
- Matrix+ Consulting, Brisbane (copies of the draft EIS could also be purchased);
- Moranbah Public Library; and
- Nebo Shire Council (draft EIS only).

1.3.3 Environment Protection and Biodiversity Conservation Act 1999

The proposal to extend the existing Isaac Plains coal mine into the expansion area was referred (EPBC referral 2006/3043) under section 68 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the then Commonwealth Department of the Environment and Heritage (now known as the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA)) on 8 September 2006. A decision that the proposed project was not a controlled action was made by DEWHA on 6 October 2006.

2 Matters considered in the EIS assessment report

Section 58 of the EP Act requires, when preparing this EIS assessment report, the consideration of the following matters:
(a) the final TOR for the EIS;
(b) the submitted EIS;
(c) all properly made submissions and any other submissions accepted by the chief executive;
(d) the standard criteria;
(e) another matter prescribed under a regulation.

These matters are addressed in the following subsections.

2.1 The final TOR

The final TOR document, issued on 23 March 2007, was considered when preparing this EIS assessment report. While the TOR were written to include all the major issues associated with the project that were required to be addressed in the EIS, they were not exhaustive, nor were they to be interpreted as excluding all other matters from consideration.

Where matters outside of those listed in the final TOR were addressed in the EIS, those matters have been considered when preparing this EIS assessment report.

2.2 The submitted EIS

The "submitted EIS" was considered when preparing this EIS assessment report. The "submitted EIS" comprised the:

(i) draft EIS that was publicly released on 12 November 2007;

(ii) supplementary report titled, "Integrated Isaac Plains Project, Response to Stakeholder Comments on the Draft Environmental Impact Statement, June 2008";

(iii) addendum report titled, "Response to EPA Comments, Supplementary IIPP EIS, Version 1, 29 August 2008;

(iv) letter from Isaac Plains Coal Management dated 10 November 2008 containing revised post-mining landform designs;

(v) letter from Isaac Plains Coal Management dated 28 November 2008 containing additional project information, including a report on Conrock Gully diversion concept design;

(vi) revised EM plan dated December 2008; and

(vii) amalgamated EIS Version 1, including a revised EM plan, dated February 2009.

2.3 Properly made submissions

The former EPA received a total of 406 submissions on the submitted EIS over its various stages. All submissions were properly made and all were considered when preparing this EIS assessment report.

2.4 The standard criteria

Section 58 of the EP Act requires that, among other matters, the standard criteria listed in Schedule 3 of the EP Act must be considered when preparing the EIS assessment report. The standard criteria are:

(a) the principles of ecologically sustainable development as set out in the National Strategy for Ecologically Sustainable Development*;*
(b) any applicable environmental protection policy;
(c) any applicable Commonwealth, State or local government plans, standards, agreements or requirements;
(d) any applicable environmental impact study, assessment or report;
(e) the character, resilience and values of the receiving environment;
(f) all submissions made by the applicant and submitters;
(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—
(i) an environmental authority;
(ii) an environmental management program;
(iii) an environmental protection order;
(iv) a disposal permit;
(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument;
(i) the public interest;
(j) any applicable site management plan;
(k) any relevant integrated environmental management system or proposed integrated environmental management system;
(l) any other matter prescribed under a regulation.

The DERM has considered the standard criteria when assessing the IIPP. With regard to criterion (l), there was no other matter prescribed under a regulation that required consideration.

3 Recommendations for conditions for any approval

There is an existing environmental authority (EA) MIN100329505 for the Isaac Plains coal mine. The original EA was granted in 2006. Since that time, best practice management and continual improvement has progressed significantly and a number of advances in conditioning requirements have taken place. Consequently, a number of conditions from the existing EA require amendment or replacement. These conditions are listed below without any additional explanatory text and should be inserted in the relevant parts of the EA or replace existing conditions as required. Some of the conditions outlined below are introduced with explanatory text as these have been developed specifically for the IIPP and relate to issues identified during the EIS process.

It is recommended that the conditions in the existing EA should apply to the IIPP except as detailed below and where recommendations are made in the following sections of this report to amend or add to those conditions.

3.1 Recommendations for amended or new conditions

Department Interest: Air

20.5.4 Proposed EA Conditions – Air

Section 20.5.4 of the EM plan outlines proposed air management and monitoring conditions for the IIPP. Condition B1-3 outlines the air quality monitoring dust deposition and PM_{10} limits. The proposed PM_{10} limit states:

"The net contribution of the mine to the ambient concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time for more than five times per year, at a sensitive or commercial place downwind of the operational land .... "

This appears to indicate that the mine can contribute an additional 50µg/m^3 over a 24-hour averaging time to the existing background PM_{10} concentrations. However, this is inconsistent with the new *Environmental Protection (Air) Policy 2008* which stipulates an absolute limit of 50µg/m^3 over a 24-hour averaging time for more than 5 times per year. This limit is a National Environmental Protection Measure established for the protection of human health and well-being. Consequently the proposed EA condition B1-3 should be amended as follows:

B1-3 *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) (PM_{10}) 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, 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 PM_{10} high-volume sampler with size-selective inlet -Gravimetric method; or

ii. any alternative method of monitoring PM_{10} which may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority.

20.6.6 Proposed EA Conditions - Water

Section 20.6.6 of the EM plan outlines proposed water management and monitoring conditions for the IIPP. There is limited surface water quality data for the current site. Consequently it has been difficult to develop end-of-pipe and receiving environment water quality limits for the IIPP.

The DERM, in consultation with its water scientists has developed an interim approach to water management and monitoring where no or limited background water monitoring data is available for a site. The key changes to previous water licence conditions include the following:

- upstream, downstream and end-of-pipe sampling for metals, petroleum hydrocarbons, ammonia and nitrate during discharge and associated end-of-pipe and receiving environment trigger values;
- a maximum end-of-pipe electrical conductivity trigger value of 1400µS/cm to protect downstream aquatic ecosystems;
- a minimum upstream flow volume for controlled releases based on historical measurements of upstream natural flow, designed to avoid times of poor mixing and flushing;

- a maximum controlled discharge rate not exceeding 20% of the specified minimum upstream flow volume;
- a non-discharge water quality monitoring program to expand the background dataset to allow review and development of site specific end-of-pipe and receiving water trigger values/release limits; and
- stream sediment monitoring to identify cumulative impacts.

The interim approach is based on setting end-of-pipe and receiving water limits for pH, Electrical Conducitivty (EC) and turbidity and trigger values for metals and other significant toxicants. Condition C18 requires ongoing background water quality monitoring for physico-chemical parameters during all non-discharge flow events to expand the ambient dataset so the existing end-of-pipe and receiving water limits can be refined with a high level of confidence, if necessary.

Upstream, mid-stream and downstream monitoring locations for the Conrock Gully and Smokey Ck Diversions should also be included in Table 6 (Receiving environment monitoring locations and frequency).

Consequently, the proposed EA conditions in Section 20.6.6 of the EM plan should be replaced with the following:

Department Interest: Water

C1 Authorised Releases

Process water and storm water contaminated by mining activities must only be released to surface waters at the authorised discharged points as defined in Table 1 (Discharge locations) and in compliance with the release limits defined in Table 2 (End of pipe contaminant release limits).

Table 1 (Discharge locations)

Authorised discharge point	*Latitude (GDA94)*	*Longitude (GDA94)*	*Location description*
Discharge Point 1	*XXXXXX*	*XXXXXX*	*XXX Dam*
Discharge Point 2	*XXXXXX*	*XXXXXX*	*XXX Dam*
Discharge Point 3	*XXXXXX*	*XXXXXX*	*XXX Dam*
Discharge Point 4	*XXXXXX*	*XXXXXX*	*XXX Tailings Dam*

Table 2 (End of pipe contaminant release limits)

Quality characteristic	*Units*	*Minimum*	*Maximum*
pH	*pH units*	*6.5*	*8.5*
Electrical Conductivity	*µS/cm*	*N/A*	*1400 (maximum)*
Turbidity	*NTU*	*N/A*	*≤ upstream value*

C2 *If end of pipe water quality during authorised release flow events exceed any of the contaminant trigger levels stated in Table 3 (End of pipe contaminant trigger levels), the environmental authority holder must:*

a) complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm; and

b) provide a written report to the administering authority within twenty-eight (28) days of the date of the original exceedence, outlining:

i) details of the investigations carried out; and

ii) actions taken to prevent environmental harm.

Table 3 (End of pipe contaminant trigger values)

Quality characteristic	Units	Minimum	Maximum
Aluminium	µg/L	N/A	150
Ammonia	µg/L	N/A	1000
Total Arsenic	µg/L	N/A	13
Boron	µg/L	N/A	370
Cadmium	µg/L	N/A	1
Chromium (CrVI)	µg/L	N/A	40
Copper	µg/L	N/A	2.5
Iron	µg/L	N/A	10
Lead	µg/L	N/A	9.4
Manganese	µg/L	N/A	3600
Mercury (inorganic)	µg/L	N/A	0.06
Molybdenum	µg/L	N/A	1
Nickel	µg/L	N/A	17
Nitrate (NO_3)	µg/L	N/A	7600
Petroleum Hydrocarbons (C6-C9)	µg/L	N/A	20
Petroleum Hydrocarbons (C10-C36)	µg/L	N/A	100
Phosphate (PO_4) (Filterable reactive phosphate	µg/L	N/A	30
Selenium (total)	µg/L	N/A	34
Sulphate	mg/L	N/A	500
Total Suspended Solids	µg/L	N/A	200
Zinc	µg/L	N/A	31

Note: Metals to be measured for total and dissolved

C3 *End of pipe release limits for process water and storm water contaminated by mining activities must be monitored at the locations and frequencies defined in Table 4 (End of pipe monitoring locations and frequencies), and comply with the contaminant limits defined in Table 2 (End of pipe contaminant release limits).*

Table 4 (End of pipe monitoring locations and frequencies)

Monitoring Point	Location Description	Latitude (GDA94)	Longitude (GDA94)	Frequency
Monitoring Point 1	XXXXX	XXXXX	XXXXX	Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 3.

Monitoring Point 2	*XXXXX*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 3.*
Monitoring Point 3	*XXXXX*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 3.*

C4 *Authorised releases of process water and storm water contaminated by mining activities to the receiving environment in accordance with conditions **C1** and **C2** shall be only during periods of natural flow events in compliance with Table 5 (Flow events for authorised discharge) upstream of the associated discharge point.*

Table 5 (Flow events for authorised discharge)

Flow Monitoring Point	*Monitoring Point Description*	*Latitude (GDA94)*	*Longitude (GDA94)*	*Minimum*	*Frequency*
Monitoring Point 1	*xxxxx Creek Upstream*	*XXXXX*	*XXXXX*	*X m^3/sec*	*Daily during discharge*
Monitoring Point 2	*xxxxx Creek Upstream*	*XXXXX*	*XXXXX*	*X m^3/sec*	*Daily during Discharge*
Monitoring Point 3	*xxxxx Creek Upstream*	*XXXXX*	*XXXXX*	*X m^3/sec*	*Daily during Discharge*

Note: Minimum flow can vary from but there must be a measurable volume

C5 *Discharge volumes must be monitored at the monitoring points and at the frequencies specified in Table 4 (End of pipe monitoring locations and frequencies).*

C6 *The volume of wastewater discharged into a waterway at the authorised discharge points in Table 1 (Discharge locations) must not exceed 20 per cent of the natural flow volume of the receiving waterway as measured at the corresponding upstream flow monitoring point specified in Table 5 (Flow events for authorised discharges).*

C7 ***Notification of Discharge***

The authority holder must within 24 hours prior to a discharge notify the administering authority by email or facsimile the following information:

a) *discharge date;*
b) *is the discharge in accordance with the Environmental Authority, Transitional Environmental Program, Emergency Direction or an unauthorised discharge;*
c) *discharge point/s;*
d) *receiving water/s;*
e) *is the discharge quality limits in accordance with EA limits;*
f) *flow volume of natural waterway;*
g) *discharge volume (estimated);*
h) *end of pipe water quality parameters in accordance with EA; and*

i) *upstream and downstream compliance point water quality parameters in accordance with EA.*

C8 *The authority holder must, within 24 hours after discharge has ceased, provide email or facsimile notification to the administering authority including updated information required in Condition C6.*

C9 *If the end of pipe contaminant limits defined in Table 2 (End of pipe contaminant release limits) are exceeded then the environmental authority holder must notify the administering authority within fourteen (14) days of receiving the analysis results.*

C10 *The authority holder must, within twenty-eight (28) days of a water release, provide a report to the administering authority detailing:*

a) *the reason for the release;*
b) *the location of the release;*
c) *all water quality monitoring results;*
d) *any general observations;*
e) *all calculations; and*
f) *any other matters pertinent to the water release event.*

C11 *In addition to the quality characteristic limits specified in Table 2 (End of pipe contaminant release limits), process water and storm water contaminated by mining activities released in accordance with conditions C1-C5 must not have any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm.*

C12 ***Receiving waters***

Waters must be monitored during discharge events at the locations and frequencies defined in Table 6 (Receiving water monitoring locations) and for the parameters specified in Table 7 (Receiving water contaminant limits) and Table 8 (Receiving water condition indicators and monitoring frequencies) and Table 9 (Receiving water contaminant trigger values).

Table 6 (Receiving water monitoring locations and frequency)

Sampling location	Location Description	Latitude (GDA94)	Longitude (GDA94)	Frequency
Upstream Reference Point				
Monitoring Point 1	*xxxxx Creek Upstream*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 9*
Monitoring Point 2	*xxxxx Creek Diversion Upstream*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 9*
Downstream Reference Point				
Monitoring Point 3	*xxxxx Creek Downstream*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge*

				and weekly thereafter for parameters in Table 9
Monitoring Point 4	*xxxxx Creek Diversion Mid-stream*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 9*
Monitoring Point 5	*xxxxx Creek Diversion Downstream*	*XXXXX*	*XXXXX*	*Daily during discharge for pH, Turbidity, EC. Once on first discharge and weekly thereafter for parameters in Table 9*

Note: 1. Upstream reference point - No mine within 20km.

2. Downstream reference point – No greater than 50m from discharge point

C13 *Monitoring results from sampling at the locations defined in Table 6 (Receiving water monitoring locations and frequency) must comply with the contaminant limits defined in Table 7 (Receiving water contaminant limits).*

Table 7 (Receiving water contaminant limits)

Parameter	*Unit*	*Receiving Water Limits*	*Limit Type*
pH	*pH units*	*6.5 – 8.5*	*Minimum - Maximum*
Electrical Conductivity	*µS/cm*	*1000*	*Maximum*

C14 *If the receiving water contaminant defined in Table 8 (Receiving water condition indicators and monitoring frequencies) are detected then the environmental authority holder must notify the administering authority within* ***fourteen (14) days*** *of receiving the analysis results.*

Table 8 (Receiving water condition indicator and monitoring frequency)

Parameter	*Unit*	*Frequency*
Chlorophyll A	*µg/L*	*Daily during discharge from the identified discharge location associated with the monitoring point in Table 6 (Receiving water monitoring locations and frequency).*

C15 *If water quality of the receiving waters during authorised release flow events exceed any of the contaminant trigger levels stated in Table 9 (Receiving water contaminant trigger levels), the environmental authority holder must:*

c) complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm; and

d) provide a written report to the administering authority within twenty-eight (28) days of the date of the original exceedence, outlining:

i) details of the investigations carried out; and

ii) actions taken to prevent environmental harm.

Table 9 (Receiving water contaminant trigger levels)

Parameter[1]	*Unit*	*Trigger Levels*

Aluminium	*µg/L*	*55 (pH> 6.5)*
Ammonia	*µg/L*	*900 (pH= 8)* *2180 (pH< 7)* *180 (pH > 9)*
Antimony	*µg/L*	*9*
Arsenic (As III)	*µg/L*	*24*
Boron	*µg/L*	*370*
Cadmium	*µg/L*	*0.2*
Chromium (CrVI)	*µg/L*	*1*
Copper	*µg/L*	*1.4*
Iron	*µg/L*	*300*
Lead	*µg/L*	*3.4*
Manganese	*µg/L*	*1900*
Mercury (inorganic)	*µg/L*	*0.06*
Molybdenum	*µg/L*	*34*
Nitrate (NO_3)	*µg/L*	*100*
Nickel	*µg/L*	*11*
Petroleum hydrocarbons (C6-C9)	*µg/L*	*20*
Petroleum hydrocarbons (C10-C36)	*µg/L*	*100*
Phosphate (PO_4) (Filterable reactive phosphate)	*µg/L*	*30*
Selenium (Total)	*µg/L*	*5*
Sulphate	*µg/L*	*1000*
Total Suspended Solids	*µg/L*	*200*
Zinc	*µg/L*	*8*

Note 1: All parameters are dissolved unless specified.

C16 ***Water Monitoring***

The following information must be recorded in relation to all water sampling required under Agency Interest: Water –

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 upstream daily flow volume at the time of sampling; and

e) the results of all monitoring.

C17 *The method of water sampling required by this environmental authority must comply with that set out in the current edition of the Environmental Protection Agency's Water Quality Sampling Manual.*

Non-Discharge Water Quality Monitoring

C18 The authority holder must collect water quality samples in accordance with Table 10 (Non-Discharge Water Quality Monitoring and Frequency) during natural flow events, when the authority holder is not discharging, from locations specified in Table 6 (Receiving water monitoring locations and frequency). The monitoring data must be submitted annually with the annual return.

Table 10 (Non-Discharge Water Quality Monitoring and Frequency)

Parameter	Unit	Frequency
Electrical Conductivity	µS/cm	Upon commencement of natural flow, then weekly during natural flow.
pH	pH units	Upon commencement of natural flow, then weekly during natural flow.
Total Suspended Solids	mg/L	Upon commencement of natural flow, then weekly during natural flow
Flow rate	m^3/sec	Upon commencement of natural flow, then weekly during natural flow

C19 Water Sediment controls

All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the movement of sediment, including:

a) all clean waters, from undisturbed areas, kept separate from dirty waters from disturbed areas;

b) water from disturbed catchments diverted into the mine water management system and sedimentation dams;

c) new sedimentation dams designed to capture the sediment volume calculated for the catchment area for a 24 hour 10 year annual recurrence interval (ARI) storm event; and

d) sediment shall be excavated from sediment dams as required to maintain design capacity.

Water and stormwater management

C20 *A water management, erosion and sediment control plan must be prepared and implemented prior to commencement of mining activities in the expansion area and must include a site water balance indicating sources and quality of water for mining activity use, contact testing of relevant overburden, ore and waste material from the site, as well as identifying methods to:*

a) determine the adequacy of the system to prevent unauthorised discharges during Average Recurrence Interval (ARI) 1 in 25, 1 in 50, 1 in 100, 1 in 200, and 1 in 1000 year rainfall events considering both an operational water balance and the ability to deal with rainfall events that may occur on site at any time;

b) undertake the application of 'time of concentration' design rainfall events for catchments contributing to individual relevant dams or storages or to groups of dams or storages, under conditions arising from water balance modelling or more conservative alternatives; so as to determine the failure outcomes for worst case contaminant release including overtopping and likely collapse of structures and the Annual Exceedence Probability (AEP) levels at which such outcomes occur;

c) develop and implement control measures for routine operations to minimise the likelihood of environmental harm;

d) manage seepage and drainage for all hazardous or regulated dams and storages on site;

e) *undertake erosion control mitigation measures for the site for areas that drain or lead directly to receiving waters;*

f) *prevent contamination of stormwater and manage on-site overland water flows;*

g) *develop and implement contingency plans and emergency procedures for non-routine situations;*

h) *develop and implement a system for emergency spills or discharges;*

i) *manage off site water releases and minimise sediments and salinity releases;*

j) *incorporate a risk management approach to how changing levels of floods, drought and water quality risks should be addressed;*

k) *minimise the potential for soil and spoil erosion, soil contamination and acid rock drainage, particularly with regard to first flush flows following rainfall events;*

l) *review and monitor the water management system, hydrological processes performance indicators and sediment retention pond capacities to ensure the release limits defined in* ***Agency Interest: Water*** *are met; and*

m) *develop and implement an annual review of environmental performance and continual improvement.*

Stream sediment contaminant levels

C21 *The environmental authority holder must undertake an investigation of the bed of the receiving waters, affected by the release of process water and storm water contaminated by the mining activities and submit the final report to the DERM within 6 months of issue of this environmental authority.*

C22 *At each receiving waterway, in intervals of 50m, 100m, 200m and 500m from the discharge location, composite stream sediment samples must be taken, and a composite upstream sample at each reference site. A record must be kept for each sample location and include GDA94 co-ordinates.*

Table 10: Receiving stream sediment monitoring locations and frequency

Sampling location	Location Description	Latitude (GDA94)	Longitude (GDA94)	Monitoring frequency
Receiving waters				
Monitoring Point 1	Downstream XXXX Creek	XXXX	XXXX	Once on first discharge and weekly there after until discharge has ceased.
Monitoring Point 2	Downstream xxxxx	XXXX	XXXX	Once on first discharge and weekly there after until discharge has ceased.
Monitoring Point 3	Downstream xxxx Creek at lease boundary	XXXX	XXXX	Once on first discharge and weekly there after until discharge has ceased.
Monitoring Point 4	Downstream xxxx Creek Discharge Point 1	XXXX	XXXX	Once on first discharge and weekly there after until discharge has ceased.
Reference sites				

Monitoring Point 5	*Upstream XXXX Creek Reference site for Monitoring Point 1*	*XXXX*	*XXXX*	*Once on first discharge and weekly there after until discharge has ceased.*
Monitoring Point 6	*Upstream xxxx Creek Reference site for Monitoring Point 2*	*XXXX*	*XXXX*	*Once on first discharge and weekly there after until discharge has ceased.*
Monitoring Point 7	*Upstream xxxxx Creek. Reference site for Monitoring Point 3.*	*XXXX*	*XXXX*	*Once on first discharge and weekly there after until discharge has ceased.*
Monitoring Point 8	*Upstream xxxx Creek. Reference site for Monitoring Point 4*	*XXXX*	*XXXX*	*Once on first discharge and weekly there after until discharge has ceased.*

C23 *If the stream sediment quality at receiving waters exceed any of the contaminant trigger levels stated in Table 11 (Receiving stream sediment contaminant trigger levels), the environmental authority holder must:*

a) *complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm;*
b) *details of the investigations carried out; and*
c) *actions taken to prevent environmental harm during discharges and remediate the existing stream bed disturbance.*

Table 11: Receiving stream sediment contaminant trigger levels

Parameter	Unit	Trigger Levels
Acid Volatile Sulfides[1]	*mg/Kg of dry weight*	-
Antimony[1]	*mg/Kg of dry weight*	2
Aluminium[1]	*mg/Kg of dry weight*	-
Ammonia[1]	*mg/Kg of dry weight*	-
Total Arsenic	*mg/Kg of dry weight*	20
Boron[1]	*mg/Kg of dry weight*	-
Cadmium[1]	*mg/Kg of dry weight*	1.5
Chromium[1]	*mg/Kg of dry weight*	80
Copper[1]	*mg/Kg of dry weight*	65
Lead[1]	*mg/Kg of dry weight*	50
Iron[1]	*mg/Kg of dry weight*	-
Manganese[1]	*mg/Kg of dry weight*	-
Mercury[1]	*mg/Kg of dry weight*	0.15
Molybdenum[1]	*mg/Kg of dry weight*	-
Nickel[1]	*mg/Kg of dry weight*	21
Thallium[1]	*mg/Kg of dry weight*	-
Selenium[1]	*mg/Kg of dry weight*	-

Silver[1]	*mg/Kg of dry weight*	*1*
Vanadium[1]	*mg/Kg of dry weight*	*-*
Zinc[1]	*mg/Kg of dry weight*	*200*

[1] *All parameters are to be measured as dilute-acid-soluble metal concentration, unless otherwise stated.*

[2] *Where (-) indicates the value, any detection of the contaminant is required to be reported to the administering authority.*

C24 *The authority holder must, within* ***twenty-eight (28) days*** *of receiving analysis results indicating that the receiving water limits defined in Table 11: Receiving stream sediment condition indicators have been exceeded, provide a report to the administering authority detailing:*

a) the monitoring location at which the receiving water nutrient triggers were detected;

b) all water nutrient quality monitoring results for reference and impacted sites;

c) any general observations;

d) all calculations; and

e) any other matters pertinent to the monitoring.

C25 *All stream sediment sampling must be undertaken in accordance with AS5667.1 Guidance on Sampling of Bottom Sediments of 1998.*

C26 ***Temporary Interference with waterways***

Temporary 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 Department of Natural Resources and Water Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities.

Groundwater

C27 *If the groundwater investigation trigger levels defined in Table 11 (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 11 (Groundwater investigation trigger levels)

Parameter	*Unit*	*Trigger Levels*	*Limit Type*
pH	*pH Units*	*6.5 - 8.5*	*Minimum/Maximum*
Electrical Conductivity	*µS/cm*	*To be provided*	*Maximum*
Total Dissolved Solids	*mg/L*	*To be provided*	*Maximum*
Calcium	*µg/L*	*To be provided*	*Maximum*
Magnesium	*µg/L*	*To be provided*	*Maximum*
Sodium	*µg/L*	*To be provided*	*Maximum*
Potassium	*µg/L*	*To be provided*	*Maximum*
Chlorine	*µg/L*	*To be provided*	*Maximum*
SO4	*µg/L*	*To be provided*	*Maximum*

CO3	*µg/L*	*To be provided*	*Maximum*
HCO3	*µg/L*	*To be provided*	*Maximum*
Iron	*µg/L*	*To be provided*	*Maximum*
Aluminium	*µg/L*	*To be provided*	*Maximum*
Silver	*µg/L*	*To be provided*	*Maximum*
Arsenic	*µg/L*	*To be provided.*	*Maximum*
Mercury	*µg/L*	*To be provided*	*Maximum*
Antimony	*µg/L*	*To be provided*	*Maximum*
Molybdenum	*µg/L*	*To be provided*	*Maximum*
Selenium	*µg/L*	*To be provided*	*Maximum*
Total Petroleum Hydrocarbons	*µg/L*	*To be provided*	*Maximum*

Note: Trigger levels derived from existing groundwater monitoring data from unaffected sites

C28 *Groundwater levels and groundwater drawdown fluctuations in excess of 2m per year, not resulting from the pumping of licensed bores, must be notified within* ***seven (7) days*** *to the administering authority following completion of monitoring.*

C29 *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 annual groundwater data.*

C30 *The following information must be recorded in relation to all groundwater water sampling:*

a) the date on which the sample was taken;

b) the time at which the sample was taken;

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

d) the results of all monitoring.

Section 20.6.5.3 Isaac River Buffer Zone

There is some concern by the DERM about the proximity of the proposed open-cut excavation at the northern most end of the expansion area to the high bank of the Isaac River. The proponent is proposing a minimum 100m buffer distance between the high bank of the Isaac River and the open-cut excavation. A minimum 50m of this buffer closest to the Isaac River is designated as a vegetation corridor. A 1-in-500-year average recurrence interval (ARI) (Q500) operational levee will take up the majority of the remaining 50m of the buffer zone up to the open-cut excavation. At the end of mine life the proponent proposes to raise the Q500 operational levee to the probable maximum flood (PMF) level. Section 20.6.5.3 of the EIS identifies that the footprint of the PMF levee in the vicinity of the Isaac River will be up to 75m wide. Therefore, the proposed PMF levee will not fit in the designated 50m wide corridor and up to 25m of the PMF levee would have to be constructed on backfilled open-cut pits to maintain the 50m wide vegetation corridor up to the high bank of the Isaac River. The DERM does not consider unconsolidated, partially compacted spoil in backfilled open-cut pits as a suitable foundation for constructing a post-mining landform levee which is meant to be, amongst other things, stable and self-sustaining. Consequently, the currently proposed minimum buffer distance of 100m between the high bank of the Isaac River and the open-cut excavation is inadequate.

Also of concern is the project's geological conditions identified in Section 7.1.4 Fault Zones in the EIS. Section 7.1.4 identifies 3 key issues including:

- extensive faulting throughout the expansion area;

- the regional Isaac thrust fault system is a major thrust fault that trends along the Isaac River; and
- thrust faults in the middle to northern section of the expansion area have caused throws of up to 25m.

The northern most end of the expansion area is significant for three reasons:

- it is the area of closest approach of open-cut mining to the high bank of the Isaac River;
- it is the deepest area of open-cut mining; and
- it is the area where faulting of rock is the greatest.

For the reasons identified above it is evident that during mining in the expansion area the highest risk of pit wall collapse is in the northern section of the open-cut pit closest to the Isaac River. A detailed investigation of geological conditions in the proposed pit wall near the river is required due to the significant consequences of failure or collapse of the mining wall near the river (i.e. stability of the Isaac River high bank and flood immunity levee bank).

The following additional EA conditions are recommended for inclusion in the draft EA to adequately identify the hazards, risks and consequences of mining walls within close proximity to the levee bank and high bank of the Isaac River and adjust the mine plan, if required:

C31 *Where the advance of the open-cut excavation reaches a point where the highwall or endwall edge of the mine excavation is at a distance of 80m from the inside toe of the Q500 levee a geotechnical investigation must be undertaken by a suitably qualified and experienced person to determine the stability of the pit highwall or endwall in the proposed open-cut excavation.*

C32 *Prior to any advance of the excavation closer than 80m to the inside toe of the Q500 levee two copies of a certified report must be submitted to the administering authority. The certified report must demonstrate the stability, with a minimum factor of safety of 1.5 against collapse, of the highwall or endwall excavations and adjacent levees under all foreseeable conditions, and include the passage and weight of floodwaters outside the levees which would occur during a Q500 flood event in the Isaac River. This certified report will be treated as a design plan which is submitted under the conditions of this licence relating to Regulated Dams, and will form part of the certified design plan for the design and construction of the levees.*

C33 *Where, on the basis of a satisfactory geotechnical report, open-cut mining advances closer than 80m to the inside toe of the Q500 levee, the excavations for mining must at all times and unconditionally leave a buffer distance of at least 30m between the inside toe of the Q500 levee and the highwall or endwall edge of the mine excavation.*

C34 *The highwall or endwall edge of the mine excavation adjacent to, or parallel to, the Isaac River must at all times and unconditionally be at least 150m from the high bank of the Isaac River.*

C35 *During mining operations the minimum 30m buffer between the inside toe of the Q500 levee and the highwall or endwall edge of the mine excavation must be monitored for signs of surface cracking. Any cracking or signs of highwall or endwall collapse must be reported to the administering authority within 24 hours.*

20.10.5 Environmental Protection Objectives and Strategies – Nature Conservation

Section 10.7 of the EIS identifies that approximately 68ha of remnant vegetation, including 25ha of Brigalow is proposed to be cleared for the IIPP, including for the Smoky Creek and Conrock Gully diversions. Furthermore, the vegetation along the Isaac River forms part of a regionally significant wildlife corridor, comprising remnant riparian vegetation immediately adjacent to the river and woodland on alluvial/flood plains further from the river. The regionally significant wildlife corridor will be impacted by clearing for the proposed low level crossing, mining pits and levee construction.

Section 20.10.5 of the EM plan includes a control strategy to offset the loss of the 68ha of remnant vegetation. This control strategy should be reflected as a condition of the nature conservation section of the EA as follows:

Department Interest: Nature Conservation

H1 *The environmental authority holder must develop and submit to the administering authority within 6 months of issue of this environmental authority an offsets package in accordance with the Queensland Government Environmental Offsets Policy 2008 (QGEOP) specific issue policy for vegetation management titled, "Policy for Vegetation Management Offsets, September 2007, Department of Natural*

Resources and Water" (or any other relevant specific issue offsets policy prepared under the QGEOP framework) to offset the loss of 68ha of remnant vegetation required to be cleared for the IIPP.

H2 *As a minimum requirement the offsets package must include the following:*

(a) a proposed ecologically equivalent vegetation community to be managed and/or rehabilitated in perpetuity;

(b) agreement and commitment of parties to implement the offset package;

(c) a management plan including a map of the boundary of the proposed offset, environmental objectives, performance criteria, monitoring, reporting, corrective action, and responsibility and timing for permanent protection and management including control of weeds, cattle, site access, erosion and sedimentation and fire management.

Other proposed conditions for general, noise and vibration, waste, land, dams and levees

It is recommended that the following conditions relating to general, noise and vibration, waste, land, and levees be included in the draft EA:

Department Interest: General

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 to 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.

Notification of emergencies, incidents and exceptions

A5-1 *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.*

A5-2 *As soon as practicable after becoming aware of any emergency, incident or 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.*

A5-3 *Not more than ten (10) business days following the initial notification of an emergency, incident or 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 circumstances which result or may result in environmental harm.

A5-4 *As soon as practicable, but not more than six (6) weeks following the initial notification of an emergency, incident or 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.

A5-5 *Contaminants must not be released to the receiving environment unless they are in accordance with the contaminant limits authorised by this environmental authority.*

A5-6 *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.*

Department Interest: Noise and vibration

D1 ***Noise nuisance***

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 specified in Table 11 (Noise limits) at any sensitive receptor or commercial place.*

D3 ***Noise monitoring***

When requested by the administering authority, noise monitoring must be undertaken to investigate any compliant 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 following levels in the time periods specified in Table 11 (Noise limits).*

Table 11 (Noise limits)

Noise level dB(A)	***Monday to Sunday (including public holidays)***		
	7am - 6pm	***6pm - 10pm***	***10pm - 7am***
	Noise measured at a 'Sensitive Receptor'		
$L_{A10,\ adj,\ 10\ mins}$	*B/g + 5*	*B/g + 5*	*B/g + 3*
$L_{A1,\ adj,\ 10\ mins}$	*B/g + 10*	*B/g + 10*	*B/g + 8*
	Noise measured at a 'Commercial place'		
$L_{A10,\ adj,\ 10\ mins}$	*B/g + 10*	*B/g + 10*	*B/g + 5*
$L_{A1,\ adj,\ 10\ mins}$	*B/g + 15*	*B/g + 15*	*B/g + 10*

D5 *The method of measurement and reporting of noise monitoring must comply with the current edition of the Environmental Protection Agency'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.*

D7 *Prior to dragline use noise monitoring equipment must be installed between the current Isaac Plains coal mine and the Moranbah township. Real time results must be linked via telemetry to the proponent's website for public access and results updated no less than weekly.*

D8 *At least 28 days prior to dragline use the environmental authority holder must submit to the administering authority a site shut-down procedure for the existing site and expansion area in the event of significant and sustained adverse meteorological conditions which may result in elevated noise emissions in the direction of the Moranbah township based on trends from background and/or ongoing monitoring results in condition D7. The site shut-down procedure must be implemented.*

Department Interest: Waste

E1 *A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.*

E2 *Records must be kept for five 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.

E3 *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.*

Waste Management

E4 *A Waste Management Plan, in accordance with the Environmental Protection (Waste Management) Policy 2000, must be implemented and must cover:*

a) *describe how the Integrated Isaac Plains coal mine recognise and apply the waste management hierarchy;*

b) *identify characterisations of wastes generated from the project and general volume trends over the past 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);*
   a) *cover a disposal procedure for hazardous wastes;*
   b) *outline the process to be implemented to allow for continuous improvement of the waste management systems;*
   c) *identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and*
   d) *cover a staff awareness and induction program that encourages re-use and recycling.*

Department Interest: Land

Post Closure Management Plan

F1 *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.*

F2 *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.*

Acid rock drainage and leachate management

F3 *Subject to the release limits defined in Agency Interest: Water, all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater*

F4 ***Storage and handling of flammable and combustible liquids***

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.

F5 *Spillage of all flammable and combustible liquids must be controlled in a manner that prevents environmental harm.*

F6 ***Storage and handling of chemicals***

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.

F7 *Spillage of all chemicals must be controlled in a manner that prevents environmental harm.*

Infrastructure

F8 *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

F9 *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: Dams

G1 *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.*

G2 *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 Department of Mines and Energy's Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland 1995.*

G3 *Dams having a hazard category assessed as significant or high, must be specifically authorised by an environmental authority.*

G4 *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.

G5 *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 28 days of that event.*

G6 *The holder of this environmental authority must not abandon any dam but must decommission each dam such that ongoing environmental harm is prevented.*

G7 *As a minimum, decommissioning must be conducted such that each dam:*

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.

Regulated Dams - Location and basic specifications

G8 *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 12 (Location of regulated dams).*

Table 12 (Location of Regulated dams)

Name of regulated dam	Latitude (GDA94)	Longitude (GDA94)
XXXXX		

G9 *The following are the only regulated dams authorised under this environmental authority, and those dams are to accord with the basic specifications in Table 13 (Basic specification of regulated dams).*

Table 13 (Basic specification of regulated dams)

Name of regulated dam	Maximum surface area (ha)	Maximum volume (ML)	Maximum depth (m)	Purpose of dam
XXX	xxxx	xxxx	xxxx	XXX
XXXX	xxxx	xxxx	xxxx	Containment dam for pit water runoff.
Tailings Storage Facility	xxxx	xxxx	xxxx	Tailings storage and medium term water storage.
XXXX	xxxx	xxxx	xxxx	Medium term water storage and tailings disposal
Flood Protection Levee	XXX	XXX	XXX	XXX

G10 *The following are the only regulated dams authorised under this environmental authority, and those*

dams are to accord with the hydraulic specifications in Table 14: Hydraulic performance of regulated dams below.

Table 26: Hydraulic performance of regulated dams

Regulated Dam	Design Storage Allowance	Spillway or Protection Critical Design Event	Mandatory Reporting Level
xxxx	*xxxx*	*xxxx*	*xxxx*
xxxx	*xxx*	*AEP 1 in xxx*	*xxx*
xxxx	*xxxx*	*xxxx*	*xxxx*
Flood Protection Levee	*xxxx*	*xxxx*	*xxxx*

Certification and operation

G11 *Documentation required by the conditions in this schedule must be kept available for inspection by the regulating 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.*

G12 *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 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 20 business days has passed since the receipt of those documents, or the administering authority notifies the holder that a design plan and certification, has been received.

G13 *Each regulated dam design plan under this 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,*

G14 *Each regulated dam design plan under this authority must include the outcomes from water balance modelling, in accordance with condition **C19**, of at least the five worst case scenarios of wet season storage and discharges. This information must be presented graphically at a monthly and daily timestep and be able to compare the incident rainfall, runoff and environmental releases for all regulated dams.*

G15 *When construction or modification of any regulated dam is complete, the holder of this environmental authority must submit to the administering authority two 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.*

G16 *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.*

G17 *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.*

G18 *The holder of this environmental authority must ensure that, where a current operational plan covers*

decommissioning and rehabilitation, those operations are consistent with the objectives in any design plan for the dam.

G19 *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

G20 *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.*

G21 *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.*

G22 *The holder of this environmental authority must immediately act upon recommendations arising from an annual inspection on condition and adequacy of a dam.*

G23 *At each annual inspection, the adequacy of the available storage against the design storage allowance specified must be assessed and, if a mandatory reporting level is required, it must be determined and marked on each regulated dam.*

G24 *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**.*

G25 *For each annual inspection, two 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

G26 *The design plan in accordance with condition **G12** must include:*

a) *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 **G27**; and*

b) *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.*

G27 *Design requirements for the levee and adjacent mining excavation include:*

b) *the design level of the levee crest shall be 0.5m above the estimated AEP 1 in 500 flood event for the adjacent watercourses; and*

c) *mining excavation slopes adjacent to the levee must remain stable and are to be designed with a factor of safety of 1.5 or above based on an accepted stability analysis.*

G28 *The flood protection levee authorised under this environmental authority must be constructed and maintained such that:*

a) *it does not result in increased erosion of the bank or bed of any adjacent creek or river;*

b) it does not significantly impact upon riparian or existing remnant vegetation; and

c) the levee itself will not erode during any flood events up to the AEP 1 in 500 event.

Flood Protection Levee – Inspection and Remedial Works

G29 *The condition of constructed levees including the surface area between the non-creek side of the 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.*

G30 *For each levee annual inspection, two copies of the inspection report, including any recommendations for remedial works, must be provided to the administering inspection within twenty-eight (28) days of the date of inspection.*

G31 *Remedial works identified as being required for the flood protection levee during the inspections and assessments conducted under conditions **G29** and **G30**, must be notified in writing to the administering authority within 5 business days of the completion of the inspections, and commenced within twenty-eight (28) days unless otherwise agreed in writing by the administering authority.*

G32 *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 levee inspection 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.*

4 Adequacy of the EIS in addressing the TOR

The submitted EIS adequately addressed the TOR. This section of the EIS assessment report discusses aspects of the proposal that require special mention due to unusual circumstances or require further consultation upon completion of the EIS process, or relate to project approvals other than EA MIN100329505.

4.1 Conrock Gully Diversion

The proposed Conrock Gully diversion (Section 1.1 Project Details) will require the construction of a dam to allow water to flow under gravity into the diversion channel. The dam reservoir area currently extends beyond the western boundary of MLA70361.

The proponent is currently in negotiation with the tenure holders, Anglo Coal and Exxaro, for consent to apply for an ML over the dam reservoir area. The consent will include an operational agreement between the proponent and the tenure holders so the dam reservoir area can be potentially underground mined by the current tenure holders at some point in the future.

The DERM accepts the conceptual diversion design for the purposes of completing the EIS process. Subsequent to the completion of the EIS process the draft EA and ML tenure will be released for public notification according to the legislative requirements of the EP Act and *Mineral Resources Act 1989* (MR Act) and progress through the Land Court process, prior to final issue. However, the Department of Employment, Economic Development and Innovation (DEEDI), formerly the Department of Mines and Energy, will not be recommending grant of the ML tenure until receipt of MLAs from the proponent over the entire mining project, including the Conrock Gully diversion dam reservoir area. DEEDI will also need to receive a copy of the operational agreement between the proponent and the current tenure holders of the dam reservoir area to assess compliance against the legislative requirements of the MR Act.

The above DEEDI requirements have the potential to cause issues with streamlining the public notification process for the draft EA and MLAs (i.e. the MLA over the dam reservoir area will require separate public notification if it has not been received by DEEDI prior to release of the draft EA and other project MLAs for public notification).

The timing of public notification can be determined by the release date of the draft EA. Consequently, following completion of the EIS process for the IIPP, the DERM can negotiate with the proponent about the agreed release date for the draft EA and extend the refusal period under section 207 of the EP Act, if required.

4.2 Dragline

The proponent proposes to replace the truck and shovel fleet with a dragline at the current Isaac Plains coal mine as part of the expansion activities. The eastern outskirts of the Moranbah township are approximately 4km from the active mining pits at the existing Isaac Plains coal mine. As mining progresses further east the distance of active mining to the Moranbah township will increase. At the end of mine life at the current Isaac Plains coal mine in approximately 2016 the dragline is proposed to be walked across a low level crossing of the Isaac River to commence operating in the expansion area located some 10-12km away from the Moranbah township. Many public submissions raised concerns with the potential for increased air, noise and aesthetic impacts from introducing a dragline at the current operation due to its proximity to the Moranbah township.

Dust deposition modelling in Chapter 8 of the EIS produced a comparative result of less than 27mg/m^2/day (including ambient levels) for either truck and shovel or dragline operations on the Moranbah township. This is well below the DERM dust deposition limit of 120mg/m^2/day. The predicted PM_{10} dust concentration levels (including ambient levels) at Moranbah were within the limits of the Environmental Protection (Air) Policy 2008 (the fifth highest predicted 24-hour PM_{10} concentration was 41µg/m^3). This is below the DERM PM_{10} dust concentration human health and wellbeing objective of 50µg/m^3 (24-hour average, maximum allowable exceedences 5 days a year).

Air quality control measures in the EM plan include ensuring that dragline operators are properly trained to reduce drop heights from the dragline bucket to minimise dust generation. The proponent has also committed in the EM plan to installing dust samplers to monitor PM_{10} concentrations between the current Isaac Plains coal mine and the Moranbah township in real time with results linked via telemetry to the site communications system so that immediate remediation measures can be implemented to address dust levels approaching the specified limits. The proponent has also committed to conducting field verification of dust emissions from the dragline bucket during mining operations for comparison with the modelled results and EA limits. If dust emissions are found to be excessive, control strategies are proposed to be developed in conjunction with the administering authority.

Noise levels at the current operation are not expected to significantly increase from replacing a truck and shovel fleet with a dragline because the dragline will be operating in-pit which will buffer noise transfer to surrounding areas. Spoil dumps and/or specifically constructed earthen mounds will be used to reduce noise emissions from the project, if required. The proponent is also committed to conducting ongoing training of dragline operators to ensure that noise from dragline sheaves and rope sockets (which cannot be noise dampened due to maintenance requirements) is minimised and the dragline is operated in the quietest way possible. Skilled dragline operation, in combination with other noise mitigation measures (including spoil dump and/or constructed earthen barriers, if required) will minimise noise generation and transfer to surrounding areas, including the Moranbah township and other noise sensitive areas.

The proponent also intends implementing a shut down procedure in the event of significant and sustained adverse meteorological conditions with the specific purpose of protecting noise and air quality amenity for residents within Moranbah and at other sensitive receptors (Refer to Section 5).

Visual impacts of introducing a dragline at the current operation will be most evident during the latter part of its twelve month construction phase. During operation the dragline will generally be obscured from view within the active mining pit. Vegetation and earthen screens will also be used to improve visual amenity at surrounding residential locations.

4.3 Transport

4.3.1 State Controlled Roads

The proponent has applied for a mining lease for infrastructure over the Peak Downs Highway in order to construct an underpass for access to the proposed expansion area. Access to the expansion area prior to the construction of the Peak Downs Highway underpass will be via Winchester Road.

Construction of the proposed Peak Downs Highway underpass would be of a significant nature and is expected to take in the order of nine months to complete. From an operational and safety perspective (i.e. construction workforce and passing traffic) it would be impractical to accommodate traffic along the existing Peak Downs Highway alignment during the construction of the underpass. Therefore, the draft EIS proposes a side-track to divert highway traffic around the underpass construction site. The side-track will be constructed to accommodate two-way traffic. The road works associated with the construction of the Peak Downs Highway underpass include the following:

- Construction of an underpass of the Peak Downs Highway;
- Construction of an underpass side-track;
- Installation of category V5 lighting at the intersection of the access road to the Peak Downs Highway; and
- Installation of retro-reflective raised pavement markers.

Queensland Department of Transport and Main Roads (Main Roads) is concerned about the potential impacts of the Peak Downs Highway underpass construction on the safe operation of the State controlled road network. Main Roads is also concerned about the impact of construction and operational traffic on pavement life and the need for increased maintenance on the State-controlled road network. To ensure that all regulatory approvals for the underpass construction are obtained from Main Roads and the safe and efficient operation of the State-controlled road network is maintained, the proponent should work in close consultation with Main Roads' district representatives to achieve the following recommendations:

1. *Prior to construction of any works within or under the surface of the State-controlled road reserve the proponent must obtain approval from the Queensland Department of Transport and Main Roads under sections 33 and 50 of the* Transport Infrastructure Act 1994 *(TIA). Proposed works must comply with the Main Roads' Road Planning Design Manual. The proponent must also ensure that the construction and operation of the underpass and ancillary activities, and the mine operations do not interfere with the safe operation of the Peak Downs Highway.*

2. *If applicable, the proponent is to enter into an agreement for compensation with Department of Transport and Main Roads for the proposed mining lease over State-controlled road reserves as required by section 50 of the TIA.*

3. *To maintain road safety and efficiency, the existing channelised intersection access to the Peak Downs Highway shall continue to remain the only point of access to the Peak downs Highway during the construction and operational phases of the IIPP.*

4. *To maintain pavement life of the State-controlled road network, the proponent shall contribute to accelerated increase in road maintenance costs for the upkeep of the 26km of the Peak Downs Highway as per the recommendations in Section 14.4.5 of the supplementary report.*

4.3.2 Rail

Product coal is proposed to continue to be transported via the Goonyella rail line from the existing Isaac Plains coal mine to the Dalrymple Bay coal terminal (DBCT) near Mackay. The proposed IIPP would increase ROM coal production from 1.9Mt/y to 4Mt/y for 15 years. This would see IIPP's contribution to coal dust emissions on the Goonyella rail system increase from approximately 2.2% to 4.6% per annum, or by 110% in absolute terms. The calculated increase is based on total coal throughput at Hay Point and Dalrymple Bay coal terminals of 86.3Mtpa in 2006/07.

The DBCT is currently being expanded from 68 to 85Mt/y throughput capacity, with completion scheduled for April 2009. Hay Point coal terminal at Mackay also services the Goonyella rail system and has a current capacity of 44Mt/y. Therefore, by April 2009 nominal coal terminal throughput capacity servicing the Goonyella rail system will be approximately 129Mt/y.

Improved management of coal dust across the whole coal transport corridor is a high priority for the Queensland Government. Consequently, at the request of the former EPA, Queensland Rail Limited (QR) has recently completed an *Environmental Evaluation of the impact of coal dust from trains in Central Queensland.* The Environmental Evaluation report recommended a number of dust mitigation measures including:

- Spraying chemical dust suppressants on loaded coal wagons;
- Improving coal loading techniques at coal mines (including over-load controls and minimising parasitic coal on sills and bogies during loading); and
- Improved load profiling to create a more streamlined and consistent surface of coal in each wagon.

The former EPA accepted the Environmental Evaluation report as meeting its requirements and requested that QR prepare a Transitional Environmental Program for implementing the recommendations of the report. The Transitional Environmental Program report was completed and submitted to the former EPA in August 2008.

To ensure that all relevant coal dust mitigation measures are implemented at the IIPP, the proponent should work in close consultation with QR's Network Access Division to determine the likely requirements for new coal-loading facilities, load controls and spray-on coal dust suppressants as a result of the implementation of the final Transitional Environmental Program. Enquiries regarding the timing and implementation of the TEP should be directed to:

Graham Stockwell
Project Manager
Coal Loss Management Project
Telephone: (07) 3235 5620
E-mail: graham.stockwell@qr.com.au

The implementation of additional measures to reduce coal dust emissions from trains servicing the IIPP should be included in the list of Control Strategies in the relevant section of the Environmental Management Plan.

4.4 Waterway barrier works approval under the *Fisheries Act 1994*

The former Department of Primary Industries and Fisheries (DPIF) advised the former EPA that the EIS adequately addressed the issues related to the need for a waterway barrier works approval under the *Fisheries Act 1994* for the low level crossing of the Isaac River. DPIF did not recommend conditions for the approval at this stage, but advised that a detailed assessment of the key fisheries issues associated with the proposed development will be undertaken when the proponent applies for the waterway barrier works approval.

5 Adequacy of the EM plan for the project

A draft EM plan was included with the draft EIS that was released for public notification. The draft EM plan was subsequently amended in the supplementary and addendum reports and again in the amalgamated EIS received by the administering authority on 27 February 2009. However, it does not yet contain the recommended EA conditions outlined above, or the environmental protection commitments and additional information requirements discussed below and for the purposes of the statutory requirements cannot be considered adequate.

The following outstanding issues in the EM plan have been identified and must be addressed:

20.5.3 Environmental Protection Objectives and Control Strategies – Air Quality & 20.7.3 Environmental Protection Objectives and Control Strategies – Noise & Vibration

Section 8.6 of the EIS and section 20.5.3 of the EM plan includes, amongst other things, a commitment to develop and implement a site shut-down procedure in the event of significant and sustained adverse meteorological conditions with the specific purpose of protecting air quality amenity for residents at Moranbah and other dust sensitive receptors. Section 9.7 of the EIS and section 20.7.3 of the EM plan includes a similar commitment to protect the acoustic amenity of noise sensitive receptors, including Moranbah residents. The procedure is proposed to be implemented at the commencement of mining activities in the expansion area on the southern floodplain of the Isaac River.

While the DERM supports the development and implementation of a site shut-down procedure, further information is required in the EM plan about the details of the shut-down procedure to assist the DERM when

drafting EA conditions. Specifically, the proponent should provide information to define "significant and sustained adverse meteorological conditions". This should include a review of the long-term historical meteorological conditions for the area to identify significant events and assess the significance of the events in light of available air quality monitoring data. It is understood that prior to commencing existing operations Isaac Plains conducted an ambient air quality survey in 2004, and since late 2005 in conjunction with Broadlea and Carborough Downs mines have been undertaking dust deposition monitoring at 22 locations within the existing mine and surrounding area. In terms of monitoring the acoustic environment, prior to project commencement noise surveys were conducted in 2004 and 2005 at Moranbah, Broadlea and Wotonga homesteads. A survey of the existing ambient noise levels was also conducted at the Winchester Downs homestead and Moorvale homestead in May 2006. These are significant noise and air quality datasets upon which to draw when assessing which meteorological conditions may contribute to elevated emission levels so that "significant and sustained meteorological conditions" may be defined for the purposes of developing a site shut-down procedure.

The above assessment should be used to develop a draft site shut-down procedure which should also be included in a revised EM plan for the purposes of assisting the DERM with drafting EA conditions.

Also, the EM plan should be amended to commit to implementing the site shut-down procedure upon introduction of the dragline at the existing operation. The existing operation is much closer to the Moranbah township than the expansion area and dust and noise emissions from the existing operation have a far greater potential to impact on the health, well-being and aesthetic amenity of Moranbah residents.

20.9.3 Environmental Protection Objectives and Control Strategies – Land

Section 19.1.4 of the EIS and section 20.9.3 of the EM plan describes, amongst other things, the post-mining landform drainage system. The proponent proposes an overburden emplacement in the Nogoa River floodplain protected from flooding by a PMF levee. The landform is proposed to be externally drained with runoff directed to a series of 1-in-20-year ARI (Q20) contour drains. Overburden runoff collecting around the perimeter of the final landform in the 20m wide corridor between the toe of the overburden and the inside of the PMF levee is proposed to be collected in a 10m wide table drain. Runoff is then proposed to be conveyed to the surrounding floodplain environment by a series of culverts fitted with floodgates installed underneath the PMF levee.

The DERM does not accept some of the concept in the overall post-mining landform and PMF levee design. Sediment laden run-off from the overburden emplacement will flow into the table drain, and under average flow conditions sediment will drop out of suspension and fill the table drain. The deposition of sediment will eventually block the culverts which are diverting run-off water underneath the PMF levee to the surrounding floodplain environment. The proposed arrangement of table drains on the inside of the PMF levee discharging through culvert pipes and floodgates may be manageable during the operating life of the project. However, the proposal to leave the drain, culvert and floodgate arrangement in place after closure, as a long term water management system is not acceptable. This proposal would create a substantial and permanent maintenance requirement. The DERM's expectation of rehabilitated mining projects is that they will have a life of at least 150 years and be stable and self-sustaining without requiring major maintenance or other interventions. The post-mining drain, culvert and floodgate arrangement proposed in Section 19.1.4 and Figures 19-1 to 19-5 of the EIS does not, in the Department's view, meet that requirement.

The drainage arrangements can be simplified, and the longevity of the PMF levees increased by integrating the overburden emplacement into the PMF levee and directing rainfall run-off from the overburden emplacement via durable engineered channels directly over the top of the PMF levee to the surrounding floodplain environment. This could be achieved by reconfiguring the spoil emplacement to a higher elevation on both the Conrock Gully and Isaac River sides. Run-off would be discharged by gravity flow through a series of lined channels at appropriate slopes, and at levels and in positions to minimise erosion. In relation to Figure 19-1 of the EIS the above arrangement could be achieved on the Isaac River side of the overburden emplacement by raising uniformly the level of the eastward draining spoil under the blue label "0.5%" directly over the top of the PMF levee. A more elevated spoil emplacement would have the benefit of buttressing the PMF levee against the effects of erosion in the longer term.

Figure 19-5 of the EIS shows a PMF levee with a considerably narrow crest width of just 5m. Unless rock protection and filters were used on both the inside and outside faces of the proposed levee over its full length, a crest width of 5m would not normally be sufficient to withstand the erosive forces and maintain structural integrity for 150 years.

On the Conrock Gully side of the overburden emplacement direct discharge to the external floodplain can be achieved by moving the PMF levee closer to the spoil in order to achieve integration with the slope of the spoil dump emplacement.

The alternative proposal outlined above would require sediment dams on the outside of the PMF levee during the initial years following project closure. This would be necessary to manage sediment in run-off before rehabilitation and revegetation of the spoil dump emplacement becomes effective in controlling sediment movement on the surface of the emplacement.

The contour plan of the spoil emplacement in Figure 19-1 of the EIS should also show the positions of drainage channels carrying run-off from the top of the spoil emplacement down into the surrounding floodplain environment. Figure 19-1 shows external slopes of 1:6 but no details about drainage paths, or typical drawings or cross-sections of the main channels discharging water down the external slopes. The DERM requires this information to understand the likely success of the drainage plan for the overburden emplacement. This information will be particularly relevant for a drainage plan which channels water down the emplacement and across the top of the PMF levee to the surrounding floodplain environment. For a target post-mining landform lifespan of 150 years the Department's expectation would be for the main drainage channels to be armoured or lined and be able to carry flows safely and without sustaining flow damage.

The proponent should reconsider the current post-mining landform design and submit in an amended EM plan an alternative design which addresses the issues raised above. Also, the proponent should outline who will be responsible for the ongoing maintenance of the post-mining landform.

Content requirements of EM plan

The recommended changes to the EM plan outlined in sections 4 & 5 and the recommended conditions and associated auditable commitments from the recommended conditions outlined in section 3 of this EIS assessment report should be fully integrated into the EM plan. The revised EM plan, which must meet the content requirements of s203 of the EP Act, must be resubmitted for assessment before the decision under s207 is made on whether to allow the application to proceed to the draft EA stage.

6 Suitability of the project

The DERM has considered the final TOR, the submitted EIS, all submissions on the submitted EIS, and the standard criteria. The submitted EIS and supplementary information have not identified impacts of sufficient magnitude to prevent the project from proceeding. Therefore, the project is considered suitable to proceed to the next stage of the approval process. However, the recommendations of this EIS assessment report should be fully implemented.

Approved by

S. J. Cameron

Signature

27/3/2009

Date

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