Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Assessment Report under the

Environmental Protection Act 1994

on the

Environmental Impact Statement

for the

Carborough Downs Mine Expansion Project

proposed by

Carborough Downs Joint Venture

July 2007

Environmental Protection Agency
www.epa.qld.gov.au ABN 87 221 158 786

Table of Contents

Glossary of terms and abbreviations

CDJV	Carborough Downs Joint Venture
CDM	Carborough Downs Mine
CDMEP	Carborough Downs Mine Expansion Project
CHPP	Coal handling and preparation plant
DNRW	Department of Natural Resources and Water
EIS	Environmental impact statement
EM plan	Environmental management plan
EPA	Environmental Protection Agency
EP Act	*Environmental Protection Act 1994*
MDL	Mineral development lease
ML	mining lease
Mtpa	Million tonnes per year (annum)
ROM coal	Run-of-mine coal (i.e. extracted coal before processing through the CHPP)
TOR	Terms of reference

1 Introduction

This report provides an evaluation of the environmental impact statement (EIS) pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act) for the Carborough Downs Mine Expansion Project (CDMEP) proposed by the Carborough Downs Joint Venture (CDJV). The Environmental Protection Agency (EPA) 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) summarise key issues associated with the potential adverse and beneficial environmental, economic and social impacts of the Carborough Downs Mine Expansion Project and the management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project; and

(b) 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 EPA must consider when preparing an EIS assessment report, while section 59 of the Act states what the content must be. 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 Carborough Downs Mine (CDM) is an existing underground coal mine located in Central Queensland approximately 21km east of the township of Moranbah along the Peak Downs Highway, and 150km south-west of Mackay. The existing CDM is covered by two mining leases (MLs), the Annandale ML (ML70340) and the Carborough Downs ML (ML70339). The Annandale ML is located predominantly to the north west of the Peak Downs Highway, but also covers a section of the highway. The Carborough Downs ML is located to the south east of the Peak Downs Highway. The coal handling and preparation plant (CHPP) and rail loop are located within ML70340. Coal is hauled from ML70339 to ML70340 via a private haul road that passes beneath the Peak Downs Highway.

The existing CDM has an approved production rate of 1.9 million tonnes per year (Mtpa) run-of-mine (ROM) coal. CDJV proposes to increase the rate of mining to approximately 5Mtpa ROM coal and extend ML70340 to the north-east and ML70339 to the south. The extensions to the area covered by ML70340 and ML70339 are referred to as the "expansion areas" and are located outside the current mining lease boundaries but within mineral development lease MDL354. Two additional MLs are required for these areas. Increasing the rate of production will be achieved either through a continuation of the existing mining method, pillar extraction, or, subject to further evaluation, the introduction of longwall mining techniques. The CHPP will be duplicated to accommodate the increase in ROM coal production.

1.2 Approvals

The following approvals are required for the Carborough Downs Mine Expansion Project:

Approval	Legislation (Administering Authority)
Environmental authority (mining activities)	*Environmental Protection Act 1994* (EPA)
Water Licence (for Annandale Secondary Dam, and possibly for subsidence effects on watercourses)	*Water Act 2000* (Natural Resources and Water)

1.3 Impact assessment process

1.3.1 The EIS process

The EIS for the Carborough Downs Mine Expansion Project was conducted under Chapter 3 of the EP Act. The EIS process was initiated by CDJV by application to the EPA to prepare a voluntary EIS under section 70 of the EP Act. The EPA approved the application to undertake a Voluntary EIS on 11 July 2006.

The EPA issued a notice of publication of the draft TOR to CDJV on 21 August 2006. The EPA placed a public notice on the EPA's website and in the Mackay Daily Mercury newspaper and in The Courier-Mail on 26 November 2006. The draft TOR was available for public comment from 28 August 2006 to 6 October 2006. CDJV issued copies of the public notice to affected and interested persons.

Thirteen submissions were received by the EPA on the draft TOR within the public comment period. These submissions, together with one from the EPA, were forwarded to CDJV on 19 October 2006 to which CDJV responded on 30 October 2006. The EPA considered all submissions received on the draft TOR and CDJV's response prior to issuing the final TOR on 17 November 2006.

CDJV submitted the draft EIS on 13 December 2006 to the EPA for review prior to public notification. The EPA compared the draft EIS to the final TOR and on 25 January 2007 issued to CDJV a notice of decision to proceed with the draft EIS. The public notification and submission period was set at the minimum 30 business days.

A public notice was placed on the EPA's website and advertised in the Mackay Daily Mercury newspaper and in The Courier Mail on 10 February 2007. The draft EIS was available for public comment from 12 February 2007 to 23 March 2007. CDJV also issued copies of the public notice to affected and interested persons.

Nine submissions were received by the EPA on the draft EIS within the submission period, of which eight were received from State government departments and agencies, and one from Belyando Sire Council. These submissions, together with one from the EPA were forwarded to CDJV for consideration and response on 10 April 2007.

CDJV submitted a response to submissions and a revised version of the EIS, known as Version 8, to the EPA on 6 June 2007 with a Notice of Amendment of Environmental Impact Statement.

On 12 June 2007, copies of Version 8 of the EIS were provided for review to members of the advisory body who made submissions on the draft EIS. On 19 June 2007 a notice was issued under s555 of the EP Act extending the period to decide under s56A of the EP Act whether the EIS should proceed. The period was extended to 18 July 2007. Another notice was issued on 17 July 2007 extending the decision period until 27 July 2007.

Of the nine members of the advisory body who reviewed Version 8 of the EIS, six made comments and/or recommended mitigation measures or conditions that should apply to the project.

A notice of the decision to allow the submitted EIS to proceed was issued on 25 July 2007.

The EPA 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. Copies of this EIS assessment report are to be forwarded to all members of the advisory body, interested and affected persons, and it will be available on the EPA'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, CDJV prepared and implemented a community consultation plan.

Advisory Body

The 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 CDME Project:

- Capricorn Conservation Council
- Central Queensland Land Council Aboriginal Corporation
- Department of Communities
- Department of Emergency Services
- Department of Environment and Heritage
- Department of Housing
- Department of Local Government, Sport and Recreation
- Department of Main Roads
- Department of Natural Resources and Mines
- Department of Primary Industries & Fisheries
- Department Transport
- Education Queensland
- Fitzroy Basin Association
- Gurang Land Council Aboriginal Corporation
- Mackay Conservation Group
- Nebo Shire Council
- Nebo/Broadsound Land Care Group
- Office of the Coordinator-General (now Department of Infrastructure)
- Queensland Health

- Queensland Police Service, Central Police Region
- Queensland Transport

An Open Day was held in Nebo Town Hall on 26th February 2007 during which discussions were held with stakeholders (including government agencies) and members of the public. A Brisbane meeting with stakeholders was subsequently held on 2nd March 2007.

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 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 Initial Advice Statement only);
- EPA Customer Service Centre, EPA Central Office, Brisbane;
- EPA District Office, Emerald;
- Nebo Shire Library;
- Belyando Shire Council offices (draft EIS only)
- Matrix+ Consulting, Brisbane.

Copies of the draft EIS were available for purchase from Matrix+ Consulting.

Site visit

Site visits were held on 11 May 2006 and 22 November 2006.

1.4 Environment Protection and Biodiversity Conservation Act 1999

The CDME Project was referred by CDJV to the then Commonwealth Department of Environment and Heritage (DEH – now the Department of Environment and Water Resources) on 22 September 2006 for consideration under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). DEH decided on 2 November 2006 that the CDME Project was not a controlled action and therefore would not require approval under that Act. Consequently, there is no requirement for this EIS assessment report to address matters of national environmental significance.

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 17 November 2006, 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. The TOR stated that if significant matters arose during the course of preparation of the EIS that were not incorporated in the TOR (e.g. currently unforeseen issues that emerge as important or significant from environmental studies) then these issues should also be fully addressed in the EIS.

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 made available for public submissions on 12 February 2006;

(ii) the revised EIS, known as version 8, received by the EPA on 6 June 2007 that was provided to relevant advisory body members.

2.3 Properly made submissions

Nine submissions were received by the EPA on the draft EIS. All were properly made and all were considered when preparing this EIS assessment report. The EPA also received comments from six stakeholders on version 8 of the revised EIS.

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

3 Recommendations for conditions for any approval

The EPA has developed a set of conditions known as the streamlined conditions that form the basic set from which a draft environmental authority may be developed for a particular level 1 mining project. The EPA recommends that the streamlined conditions should apply to the Carborough Downs Mine Expansion Project except where recommendations are made in the following sections of this report to amend or add to those conditions.

4 Adequacy of the EIS in addressing the TOR

The submitted EIS adequately addressed most components of the TOR. The sections considered adequate are generally not discussed in this assessment report except where they were of particular importance in the assessment of the project, such as requiring modification of, or addition to, the streamlined conditions.

However, a number of requirements of the TOR were not fully addressed by the submitted EIS including issues relating to:

- subsidence;
- water resources and management;
- nature conservation;
- waste;
- transport; and
- housing.

None of these issues where of sufficient magnitude to prevent the EIS from progressing. Nevertheless, the proponent must provide additional information, assessment of impacts and propose mitigation measures for the impacts in a revised EM plan before the approval process can progress to the draft environmental authority stage. The additional requirements are outlined below.

Cumulative impacts

Adequacy of this section of the EIS

The TOR required the proponent to provide a description of any cumulative impacts on environmental values (whether ecological, social or health related) caused by the CDMEP, either in isolation or by combination with other known existing or planned sources of contamination.

Belyando Shire Council commented in their submission on the draft EIS and their further comments on Version 8 that the EIS "is deficient in the assessment of cumulative impacts of initial start up activity under the EIS threshold and the subsequent expansion of operations on a qualitative basis without quantitative cumulative analysis. Taking into consideration of the prolific clustering of activity within a 30 km locality radius of the site. The EIS clearly avoids quantitative impact assessment by the method of implementation."

The Proponent responded that it considers that the information sought was outside the TOR for the EIS.

The final TOR contained the statement that "If it transpires during the preparation of the EIS that previously unforeseen matters not addressed in the terms of reference are found to be relevant to the assessment of impacts of the proposal, those matters must be included in the EIS". Consequently, no significant matter can be considered outside the TOR for the EIS and the statement made by the proponent is incorrect. The proponent is also wrong in their statement in Version 8 of the EIS that "Projects which are under the EIS “threshold” and which subsequently expand that are not in the public domain are incapable of direct measurement by the Proponent." In practice, all level 1 projects, including those not currently or formerly subject to an EIS requirement, are "in the public domain" and certain documents, such as their submitted EM plans, are available for scrutiny.

Nevertheless, and having considered the Council's comments, the EPA assessed that in general cumulative impacts have been adequately assessed in the submitted EIS unless where specifically indicated in other parts of this EIS Assessment report.

Section 4—Infrastructure requirements

Adequacy of this section of the EIS

The description of the water supply and storage infrastructure, including Figure 4-1, has not been amended as requested in the EPA’s submission on the draft EIS. For example, silt traps 1, 2, 3 and 4 present in Figures 3-4 and 3-5 do not appear in the water schematic (Figure 4-1).

Recommendations:

The Proponent should provide in the EM plan a full description of the water supply and storage infrastructure, including all sources of water, all storages, all potential uses and all potential discharge points, and illustrate them on a schematic diagram. Maps and mine water schematics in section 6 of the EM Plan should include all water storage infrastructure including silt traps.

Condition F4-1 of the EPA's streamlined conditions should be included in the EM plan.

Section 5—Physical environment, Subsidence

Adequacy of the EIS

The Department of Natural Resources and Water (DNRW) has assessed that the EIS has not adequately addressed the matters outlined below in regard to mining and subsidence. DNRW has requested that the Proponent should address these issues. The findings should be reported directly to DNRW and also included with regard to impacts, mitigation measures and monitoring requirements in an amended EM plan.

Recommendations:

DNRW has requested that the Proponent address the following issues:

Geotechnical assessment is required across the floodplain and within the bed and banks of the watercourses. This should include an assessment of possible permeability issues related to cracking in the sub-surface layers of the river bed and banks. The Department of Natural Resources and Water is interested in the impact and interaction with local ground water tables, loss of water from the system, etc.

Operational timetable for mining: provide details to DNRW of mining timeline for longwall panels, and detail the plans for subsidence remediation, installation of timber pile field or groynes, expected number of panels/year to be mined, etc.

Quantify subsidence across the impacted area including:

- Length of drainage lines and watercourses impacted by subsidence.
- Expected average depths of subsidence across individual panels and pillar zones.
- Predicted subsidence should be modelled to indicate the change in surface elevations and goafing angles that can be expected. The watercourse may be indirectly impacted just by the goafing from subsidence.
- Quantify volumes of water captured within the bed of the drainage lines and watercourses from creation of 'new' waterholes and the impact to downstream users.
- Extent of overland flow captured by the panel catchment that would be directed back to the watercourse as, over time, this would equate to significant volumes when accounting for numerous panels considering the total area impacted is generally 2 - 4km in length, up to 300m wide and average of 2m deep.

Groundwater:

- Assessment of groundwater flow through the sand slug of the watercourse. This information would determine whether the excavations/subsidence effects the movement of water through the sand layers to downstream areas and impacts on users reliant on water.
- Movement of water into groundwater which can be lost from the system or impact water quality (accumulation of salts, heavy metals) and quantity downstream.
- Rise of local water table by the average depth of subsidence.

Expected process of erosion/deposition over subsided areas:

- Indicate potential engineering solutions to minimise such processes if warranted (timber and pile field designs in stream bed, removal of vegetation through the floodplain to target cracking of the surface).
- Hydraulic modelling should be based on large flows rather than smaller, more regular flows.

- Lowering of bed and banks within the watercourse, the consequences for greater floodplain interaction during flood events and potential creation of a new channel.

Expected process of erosion/deposition due to subsidence:

- Including examining effects on tributaries, diversions, stream widening and incision processes.
- Local gullying impacts along pillar zones through the floodplain and watercourse.
- Starving of sediment downstream, effects and impacts.

Sediment:

- Sediment transport modelling to indicate expected bedloads prior to and after subsidence has occurred.

Remediation:

- Detail the processes to seal/repair any cracks that were caused by subsidence in the bed and banks of the watercourse including the adjacent floodplain.

Monitoring is critical to better inform all stakeholders on what processes worked and what made them successful. DNRW have requested the following information for monitoring purposes:

- Digital Terrain Model developed annually to verify the expected subsidence across the floodplain, bed and banks of the watercourse. This tool can be used to identify potential erosion issues that may surface following the wet season.
- Index Diversion Condition monitoring and assessment as per current diversion monitoring programs.
- Aerial photography to assess impact on changes to bed and banks of the watercourse. This is particularly important from a vegetation perspective as the stability of the subsided reach will be influenced by vegetation. Riparian vegetation monitoring (ecological condition assessments) is therefore critical and should be included in future reports.
- Flow events measured and verified by mine personal.
- Longitudinal surveys conducted on an annual basis (depending on flow events) from a significant distance upstream and downstream of the impacted area.
- Panel catchments inspected after significant rainfall events or at least annually.
- Both vertical and horizontal subsidence displacement needs to be monitored in order to gain a better understanding of the underlying mechanisms.

DNRW have indicated that the following general topics are of interest when the Proponent is preparing responses to the outstanding matters on subsidence:

- Water Losses (base flow impacts)
    - Details and effects of water ponded in pools.
    - Increased evaporation losses from water remaining in the pools.
    - Increased accessions to shallow aquifers from water within the pools.
    - Potential losses of water to fractured beds and cracking through the banks and floodplain.
- Vegetation
    - Potential loss of riparian trees through root shearing.
    - Waterlogging in the subsided panels around pools could impact on vegetation.
    - Change in vegetation types – disturbance may result in weed infestations.
- Water Quality
    - Water quality in stagnant pools
    - Increased turbidity from the re-working of sands

- Change of substrate – removal of material (mainly sand) from the bed of the river.
- Increased volume and persistence of pools
- Impact on or by stock watering
- Dependence of water quality on the mine water management that is implemented.

Section 6—Water resources

Adequacy of this section of the EIS

Coal seam gas water: The EIS proposes that water extracted from gas drainage activities will be used on site. However, DNRW have advised that such water can only be used if the holder of the petroleum lease (currently Arrow Energy NL) holds a water licence to supply the water under the provisions of s206(5) of the Water Act 2000.

Flooding: The assessment of flooding provided in the EIS was only qualitative. This is not adequate. The Proponent must provide a quantitative assessment using appropriate modelling of the likely impacts on the integrity of on-site infrastructure (such as the Dry Rejects Disposal Area dump and dam) from a range of AEP rainfall events, and assess the consequent risks to the environment from the failure of any structures.

Groundwater—monitoring bores: The proposed method of monitoring groundwater impacts through the use of old mineral exploration holes is not acceptable. DNRW require that new monitoring bores be constructed in accordance with the guideline *Minimum Construction Requirements for Water Bores in Australia* (Land and Water Biodiversity Committee) with particular reference to Section 19 of that document. In addition, DNRW require that all monitoring bores be grout sealed to protect against contamination by surface waters or shallow sub-surface waters; and the annular space shall be sealed from the surface to the appropriate depth needed to protect the bore. The bores should be of sufficient number and located to optimise the monitoring and evaluation of the impacts of mining on groundwater.

Groundwater—resources: The EIS does not fully assess the potential impacts of the proposed mining activities on groundwater in the Tertiary deposits. The assessment provided in the EIS is conjecture based on unrelated observations in exploration bores rather than a targeted investigation. The fact that Tertiary aquifers are not presently being used does not detract from the fact that there may be a resource present that could be adversely impacted by fracturing due to subsidence.

Overland flow: DNRW advise the Proponent that while there is currently an exemption for overland flow works on a mining tenement, this situation may change during the life of the mine and that overland flow works may become subject to regulation by amendment to the Fitzroy Basin Resource Operations Plan.

Subsidence: The measures proposed to deal with the impacts on drainage lines and watercourses in section 6.7.2 are not adequate. The management of impacts needs to be more proactive, with greater involvement of such measures as bank stabilisation, and energy dissipation at the base of steepened sections of channels. In regard to the latter, the proposal to place “woody debris to retard flow at the toe of steepened sections” is not acceptable—more substantial measures will be required.

Watercourses: The EIS assessed that all ephemeral streams on the site, with the exception of that containing the Annandale Secondary Dam, are "mere drains" and not watercourses within the definition of the Water Act. DNRW advise that the classification of such streams as either watercourses or drainage lines cannot be made by the proponent. It will be necessary for the proponent to engage DNRW to review the streams and determine whether or not they are watercourses. If any that are classified as watercourses will be impacted by mining activities (e.g. by subsidence) the proponent must obtain a water licence under the *Water Act 2000*.

Recommendations:

Coal seam gas water: The Proponent must ensure that water extracted from gas drainage activities will be used on site only if the holder of the petroleum lease (currently Arrow Energy NL) holds a water licence to supply the water under the provisions of s206(5) of the Water Act 2000.

Flooding: The EM Plan must incorporate the requirement for modelling at AEP levels of 0.02, 0.01, and 0.001, based on time of concentration for the contributing catchments; in order to determine the outcomes at those levels for dams on site, and to assess the impact on the final surface drainage lines and watercourses on site.

Groundwater—monitoring bores: The Proponent must construct new groundwater bores in accordance with the guideline *Minimum Construction Requirements for Water Bores in Australia* (Land and Water Biodiversity Committee) with particular reference to Section 19 of that document. All monitoring bores shall be grout sealed to protect against contamination by surface waters or shallow sub-surface waters; and the annular space shall be sealed from the surface to the appropriate depth needed to protect the bore. The bores should be of sufficient number and located to optimise the monitoring and evaluation of the impacts of mining on groundwater.

Groundwater—resources: The Proponent should conduct a targeted survey to determine whether there are tertiary aquifers present that contain a usable water resource, and, if so, assess the likely impacts of the aquifers being drained during the subsiding of panels.

Subsidence: The following measures should be included in the EM plan with regard to subsidence:

- The EM Plan should require the establishment of a baseline description, including photographic evidence, prior to mining of those parts of the site to be affected by subsidence including the ephemeral water courses and drainage lines.
- The EM Plan should require a survey and testing of surface materials in areas to be subsided within six months of grant of the EA.
- The EM Plan should require that monitoring of the effects of subsidence, and any necessary rehabilitation actions, on each panel should commence within four weeks after subsidence occurs.
- Rehabilitation actions should include provision of energy absorbing rock structures and channel re-shaping where necessary.
- The EM Plan should require the proponent to provide an independent opinion by a specialist geomorphologist as to the most appropriate assessment and action to stabilise the channels.

Watercourses: The proponent must engage DNRW to review the streams and determine whether or not they are watercourses. If any that are classified as watercourses will be impacted by mining activities (e.g. by subsidence) the proponent must obtain a water licence under the Water Act 2000.

Water management structures:

The environmental authority is recommended to have conditions requiring the proponent to develop and implement a water management plan requiring, but not limited to:

- which dams will contain raw, clean, mine, or potable water and which are containment facilities for hazardous material;
- the storage capacity of the facility and the likely standing water volume during normal operation and predicted wet season volumes;
- freeboard and maximum depth limits, maintenance and monitoring;
- regular water quality monitoring of each containment facility;
- on site and off-site stormwater flow directions;
- identification of stormwater diversions to prevent water entering the mine;
- detail of the design and monitoring of sediment detention structures;
- identify diversions and drains on site, and distinguish types of water being redirected;
- demonstration of how clean water generated on site is kept separated from contaminated water;
- identification of the drains that contribute to the discharge of water from the site, and the quality and quantity of water discharging from the site;

- detail of how management of off-site water releases will be conducted to minimise sediment and salinity released and minimise the potential for soil and spoil erosion, soil contamination and acid rock drainage, particularly with regard to first flush flows following rainfall events;
- division of the site into individual catchments based on the identified drains and catchment facilities;
- identification of a discharge scenario during nominal events in order to calculate discharge volumes at each catchment and the consequences on the receiving environment of these events to ensure protection of the environmental values of the receiving waters downstream as it relates to the activity;
- diversions and drains directing stormwater and process water into these storage facilities;
- identification of which storage facilities pump into other storages or mine pits;
- details of pumping facilities;
- management and maintenance of dams, including desilting programs, and inspections by qualified engineers;
- incorporation of a risk management approach of how changing weather patterns will effect frequency of floods, drought; and
- incorporation of review and monitoring of the water management system and hydrological processes performance indicators.

The EIS did not find that any of the on-site storage facilities were dams requiring compliance with the *Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Wastes*. Consequently, it is recommended that no dams containing hazardous waste (referred to in the EIS as hazardous dams) should be authorised under the amended environmental authority for the CDMEP. Nevertheless, the EM plan should commit the Proponent to monthly monitoring of storages to assist determination of whether any storages should be regulated under the Code. Parameters to be monitored should be appropriate to the potential contaminants and include, but not necessarily limited to, pH, Ag, As, Hg, Sb and Se, which were identified in the EIS as potential contaminants from waste material. It is recommended that the environmental authority have conditions requiring the monitoring.

Section 7—Water management

Adequacy of this section of the EIS

Discharges: Section 7 of the EIS is not adequate in its treatment of releases of water and wastewater from the infrastructure and the site and has not fully addressed the requirements outlined in the EPA's submission on the draft EIS.

There can be no authorised "uncontrolled" releases in the sense proposed in the EIS. Because releases will occur only after a specific rainfall event does not change the fact that they are nonetheless discharges to be regulated by the environmental authority. All discharges must be controlled by the site infrastructure within given parameters including, but not necessarily limited to, the location and design of discharge points, the location and characteristics of the receiving environment, the circumstances when discharges may occur, the quality of discharged water, and the quality of water and other potentially affected values in the receiving environment.

The Proponent must revise the EM plan to address the issues mentioned above for all watercourses (as determined by DNRW) and water infrastructure. Water quality objectives must be derived from studies of the receiving environment, and water quality limits for discharge at the discharge points must be derived from, and be appropriate to, water quality objectives for the receiving environment. Discharge locations must be identified precisely by eastings and northings (GDA94), and illustrated on a map or maps of suitable scale.

Dewatering: Section 7.1.3 of the EIS stated that dewatering provides a potential source of water for beneficial use at the mine site, such as for dust suppression on roads through the 10ML borrow pit dam. However, this section of the EIS does not make it adequately clear that before the water is taken from the 10ML borrow pit dam for watering roads it first passes through the Mine Wastewater Evaporation Dam. The electrical

conductivity of the mine water is stated as saline, ranging from 1600µS/cm to 3000µS/cm, and that salinity will inevitably be increased by storage in the evaporation dam.

Section 7.1.3 of the EIS commits to diluting water from the Mine Wastewater Evaporation Dam to <3000uS/cm for use in the CHPP, but no similar commitment is made to diluting water to be used for dust suppression (NB: water used for dust suppression is effectively irrigation water). The use of saline water on soils has the potential to impact adversely upon the receiving environment.

The Proponent must evaluate the propensity of the soils to be impacted by saline water, taking into account such factors as the sodium absorption ratio (SAR), and propose a maximum allowable salinity and sodium content for water to be applied to land. The Proponent should refer to the Salinity Management Handbook (DNR, 1997) for guidance on the maximum permissible salinity and sodium content. The Proponent is recommended to discuss the findings of the evaluation with the EPA before incorporating the salinity limit in the amended EM plan.

Monitoring: The claim in section 7.6 of the EIS that trigger approach outlined in that section for monitoring surface water discharges due to releases only being made during "uncontrollable events" was agreed with the EPA [at a meeting on 19 April 2007] is not correct. What was agreed was that monitoring the contents of a dam by sampling near the spillway was acceptable rather than from the spillway itself.

Treated effluent use: Section 7.1.6 states that "Monitoring of vegetation, soil erosion and structure and for surface ponding of treated effluent will be conducted via visual observations", but does not specify the precise methodology for these inspections or the frequency at which they will be conducted.

Recommendations:

Discharges: The Proponent must revise the EM plan to address the issues mentioned above for all watercourses (as determined by DNRW) and water infrastructure. Water quality objectives must be derived from studies of the receiving environment, and water quality limits for discharge at the discharge points must be derived from, and be appropriate to, water quality objectives for the receiving environment. Discharge locations must be identified precisely by eastings and northings (GDA94), and illustrated on a map or maps of suitable scale.

Dewatering: The Proponent must evaluate the maximum allowable salinity and sodium content for water to be applied to land, and incorporating the limits in the amended EM plan.

Treated effluent use: The Proponent should include in the EM plan the details of how visual monitoring and inspections are to be undertaken, who is to undertake the inspections, specify the frequency by which the inspections will be conducted, and detail the key indicators.

Section 8—Nature conservation, Aquatic biology

Adequacy of this section of the EIS

The TOR required the proponent to provide a description of the streams likely to be affected by the CDMEP (including North Creek), noting any patterns and distribution in the waterways. The description was to be illustrated by photographs and address the fauna and flora present or likely to be present in the ephemeral streams during and after flow events, and during prolonged periods of low rainfall. The description was to include:

- fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways within the affected area;
- aquatic plants;
- aquatic and benthic substrate; and
- habitat downstream of the CDMEP area.

The EIS provided a desk-top study of fish species recorded in the area, but did not provided a full description of the aquatic-ecological environmental values at, or downstream of, the site. As environmental values were not fully identified the assessment of impacts was similarly lacking.

However, despite the brevity of this section of the EIS, the EIS as a whole provided sufficient information for the administering authority to be confident that the CDMEP will not significantly impact on aquatic biology. Also, the Department of Primary Industries and Fisheries (DPI&F) provided comment that due to the highly ephemeral nature of the surrounding catchment, DPI&F consider that the immediate area surrounding the proposed mine area probable offers minimal fisheries habitat value, and that the short periods of flow and the high flow velocities experienced during typical flood events of the area make it unlikely that these waterways would be utilised by fish communities.

Recommendations:

Except for conditions recommended elsewhere in this EIS assessment report dealing with the protection of water quality, no variations to the streamlined conditions specifically related to aquatic biology are required.

Section 8—Nature conservation, Terrestrial flora

Adequacy of this section of the EIS

The Department of Natural Resources and Water noted in its review of Version 8 of the EIS that while the clearing of vegetation is exempt development on a mining lease, if subsidence resulted in the death of vegetation outside the mining lease prosecution could result unless the Proponent held the appropriate development permit.

Recommendations:

The EM plan should include provisions for the monitoring of impacts on vegetation due to subsidence outside the mining lease, and any impacts avoided unless the proponent has obtained a development permit under IPA for the destruction of remnant native vegetation.

Section 10—Noise and vibration

Adequacy of this section of the EIS

Belyando Shire Council commented in their submission on the draft EIS and their further comments on Version 8 that the EIS "does not satisfactorily address the cumulative effects of noise and vibration increases impacting in the locality particularly Moranbah and the surrounding residential locations".

The EIS assessed that noise and vibration will not be a significant issue even at the nearest sensitive receptors. Having considered the Council's comments and the submitted EIS, the EPA assesses that the EIS has adequately addressed noise and vibration from the CDMEP.

Recommendations:

The conditions in the current environmental authority for the CDM should apply in regard to noise and vibration with the following minor amendments to those proposed in the latest EM plan:

- Change $L_{A, max\ adj, T}$. to $LA_{max, adj,}$ T.
- Insert the descriptor $LA_{max, adj,}$ T in Schedule N – Table 1 following ‘receptor’.
- Insert “9am-7pm” in Schedule N – Table 3 after “Sunday”.

Section 11—Waste

Adequacy of this section of the EIS

Rejects disposal and management: Insufficient information has been provided in the EIS to assess whether the Dry Rejects Disposal Area and the associated dam will be stable in the long term when rehabilitated. The proposed 15% batter slopes for the Dry Rejects Disposal Area are likely to be too steep based on experience of other facilities in the area. The Dry Rejects Disposal Area facility, including the associated catch dam and bunds will need to be designed to standards determined from a hazard assessment of the potential consequences of failure of the structure.

Disposal of waste off-site: Belyando Shire Council commented on Version 8 that the EIS "does not satisfactorily address the cumulative effects of waste generation…impacting in the locality particularly Moranbah and the surrounding residential locations". The EIS does not clearly identify where domestic and industrial waste will be taken for disposal, stating only that domestic waste will go to either Nebo or Moranbah and that some items of industrial waste will go to Clermont and Townsville.

Recommendations:

Rejects disposal and management: The Proponent should undertake an assessment of the stability of the final structure of the Dry Rejects Disposal Area based on available geotechnical information from similar stockpiles. The assessment should then be used to develop alternative concepts for the final structure, which should include an investigation of the design and consequential impacts of a dump with 10% slopes and a more natural appearance. An assessment of the adequacy of the volume and necessary wall height of the Dry Rejects Disposal Area Dam should also be included. The amended EM plan should propose a preferred option. It is recommended that the environmental authority conditions require the proponent to provide, in due course, a certified design plan of the preferred option for this facility and the associated structures.

Disposal of waste off-site: The Proponent should inform both Belyando and Nebo Shire Councils how much domestic and/or industrial waste will be sent to council facilities for disposal. If Belyando and Nebo Shire Councils believe the CDMEP will impact on their services, facilities or activities, the *Local Government Act 1993* appears to have provisions that would allow the councils to impose special rates or charges.

Section 13—Transport, Rail

Adequacy of this section of the EIS

The statement in the Executive Summary and sections 4.2.1 and 13.7 of the EIS that "no additional [rail] infrastructure is required" is not totally accurate. Queensland Transport commented that whilst the statement is true of the Carborough Downs mine site, it is not the case on the rail network comprising the Goonyella system of which Carborough Downs forms a part, and from which the expanded project will required additional capacity. Queensland Transport has ongoing infrastructure upgrades are planned or are underway that include:

- a 3rd balloon loop at DBCT;
- expansion of the Jilalan Depot, which is a significant project undergoing an EIS under the State Development and Public Works Organisation Act 1971;
- additional holding roads at Coppabella;
- signalling headway upgrades at Connors Range;
- duplication between Broadlea – Wotonga; and
- additional electrical feeder stations at Mindi and Bolingbroke.

Assessment

Despite the inaccurate statement, Queensland Transport considered the level of assessment in the EIS was sufficient to assess the impacts on the rail network of the additional 3.1Mtpa of coal that will be transported on the rail network.

Section 13—Transport, Roads

Adequacy of this section of the EIS

In its review of Version 8 of the EIS, the Department of Main Roads noted that should a change to the area of mining lease or level/nature of mining activity result in an impact on road safety or the transport efficiency of the Peak Downs Highway, any existing Compensation and Infrastructure Agreements will need to be updated.

The predicted link traffic volumes for 2018 stated in Table 13-10 of the EIS made no allowance for cumulative growth. Furthermore, the predicted link volumes in Appendix H were based on a significantly lower growth rate (4%) than the 10% currently being experienced. The Department of Main Roads (DMR) determined that the proponent should review future requirements for mine access and intersection lighting using the current traffic growth rate (10%). If warranted, the proponent must undertake relevant mitigation measures, when given reasonable notice by Main Roads, to upgrade lighting for the mine access intersection with the Peak Downs Highway in accordance with Main Roads' Road Planning and Design Manual.

Compensation and Infrastructure agreements are currently in place between the State of Queensland (DMR) and the Proponent for Carborough Downs, which address maintaining the condition of the road surface of the mine access to and from the site. The agreements require resurfacing of the southern permanent mine site intersection/access with the Peak Downs Highway if warranted following reassessment. The surface condition of the intersection will be reassessed on a regular basis during upcoming warmer periods and, if warranted, the proponent will undertake asphalt surfacing.

Belyando Shire Council commented in their submission on the draft EIS and their further comments on Version 8 that the EIS "does not satisfactorily address the cumulative effects of transport increases both multiplier and firstly induced impacting in the locality as part of the start up and ongoing operations on the sites and other adjacent activities" and that the EIS "fails to commit to supporting transport demands from the proposal in the area of road and air transport infrastructure in Nebo or Belyando Shire".

The submitted EIS predicted relatively small increase in traffic. However, the EIS considered only movements to the camp and mine site from Mackay and between camp and mine site, and did not include any trips made from the camp between shifts. The EPA cannot impose conditions on the environmental authority that apply off the mining lease. However, if Belyando and Nebo Shire Councils believe the CDMEP will impact on their services, facilities or activities, the *Local Government Act 1993* appears to have provisions that would allow the councils to impose special rates or charges.

Recommendations:

Future expansion: The proponent should consider future expansion as a risk management issue and incorporate a management strategy in an amended EM plan.

Lighting: The proponent should review future requirements for mine access/intersection lighting using the current traffic growth rate (10%), and, if warranted, the proponent will undertake relevant mitigation measures, when given reasonable notice by Main Roads, to upgrade lighting for the mine access intersection with the Peak Downs Highway in accordance with Main Roads' Road Planning and Design Manual. Any need for lighting should be included in an amended EM plan as required.

Road surface: Following reassessment of the condition of surfacing on the permanent mine site intersection/access to the Peak Downs Highway and identification of a need for resurfacing, the proponent should provide asphalt surfacing of the mine access intersection to the extent and standard required at a time determined by Main Roads. Should resurfacing be necessary, this should be included in an amended EM plan.

Road and air transport infrastructure: Belyando and Nebo Shire Councils could examine the impacts of CDMEP on their services, facilities or activities, and evaluate the necessity to impose special rates or charges.

Section 13—Transport, Safety

Adequacy of this section of the EIS

The EIS indicated that shift workers are provided with bus transport between the Coppabella camp site and the mine. In addition, bus transport is provided to carry workers from the camp to Mackay at the end of shifts. The usage of buses by workers is stated to be between 90% and 98% for travel between the Coppabella camp and

the mine, and between 45% and 65% for travel between Mackay and the site at the start and end of each shift roster. Use of the buses is not compulsory for contract workers.

However, the EIS did not propose measures to increase the usage of the buses particularly between Mackay and the site. DMR commented that the Proponent should develop strategies to increase usage rates by both permanent and contract workers to ensure safety and minimise fatigue-related incidents, and that the strategies should be included in the EM plan.

Recommendations:

The Proponent must develop strategies to increase usage rates of buses by both permanent and contract workers, particularly between Mackay and the site, and include the strategies in the EM plan.

Section 16—Social

Adequacy of this section of the EIS

The Department of Housing commented in its review of Version 8 of the EIS that the identified impacts on housing were not satisfactorily mitigated by actions suggested by the Proponent in that they would do little to assist the building of sustainable communities in the vicinity of the mine, particularly in Nebo and Moranbah. While the Proponent was prepared to make some provision towards single persons' accommodation, none was proposed for the accommodation of family groups despite the EIS acknowledging that this is a significant issue.

Belyando Shire Council commented in their submission on the draft EIS and their further comments on Version 8 that the EIS "does not satisfactorily address the cumulative effects of the economic stimulus both direct and on the multiplier basis impacting in the immediate urban locality of Moranbah. In particular the factors that will continue the unsustainable demands on water and urban land resources. The Draft EIS fails to commit to supporting urban demands from the proposal in Belyando Shire". Belyando Shire Council is the government agency best able to assess the likely impacts on the urban environment of Moranbah. However, the EPA is unable to impose conditions that apply off the mining lease. Nevertheless, there appear to be other statutory mechanisms under the *Local Government Act 1993* by which the Council could obtain support from the Proponent for urban demands.

The Department of Communities noted in its review of Version 8 of the EIS that within Nebo Shire, the full-time equivalent (FTE) non-resident population is 156% of the resident population. With a construction workforce of 120 contractors for one year, housed in Coppabella and Nebo areas, and an operational workforce of 76 FTE employees, the increase in non-resident population associated with the CDMEP will be less than 4%.

Recommendations:

The Department of Housing recommends that the Proponent invest in additional housing, and meet with representatives of the department to discuss the department's interests further.

While the environmental authority cannot provide conditions related to urban development, if Belyando Shire Council believes the CDMEP will impact on their services, facilities or activities, the *Local Government Act 1993* appears to have provisions that would allow the council to impose special rates or charges.

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. A number of submissions on the draft EIS raised issues that required amendments to the draft EM plan and many of these amendments were addressed by CDJV in the draft EM plan included in Version 8 of the EIS. The EPA has reviewed the amended draft EM plan provided by CDJV in Version 8 of the EIS and has also received advice from some stakeholders on its adequacy.

The EM plan in its present form does not comply with s203 of the EP Act. An amended EM plan must be provided that satisfactorily addresses the recommendations of this assessment report and meets the content requirements of s203 of the EP Act. It will be necessary for the administering authority to be satisfied that an amended EM plan complies with s203 of the EP Act and issue an EM plan assessment report stating that the

amended EM plan complies before the decision can be made under s207 of the EP Act to allow the application to proceed to the draft EA stage.

The preceding section of this EIS assessment report outlined areas where the proponent must amend the submitted EM plan to address inadequacies in the EIS. Additionally, this section outlines areas where the proponent must amend the submitted EM plan to address inadequacies in the EM plan itself. In particular, proposed conditions in the EM plan are not acceptable in their current form. Consequently, the conditions proposed in the submitted EM plan are not recommended for any approvals needed by the CDMEP unless specifically noted in this section of the EIS assessment report. The Proponent should review the proposed conditions in all sections of the EM Plan and amend them as necessary to ensure consistency with the EPA's streamlined conditions. The Proponent should liaise with the EPA about the amendments. Recommended conditions for the environmental authority will include, but not necessarily be limited to, the streamlined conditions.

Section 3.1—Mining

Adequacy of this section of the EM plan

The proposed conditions in the EM Plan should be reviewed to ensure consistency with the EPA's streamlined conditions. Recommended conditions will include, but not necessarily be limited to, the streamlined conditions.

The description of the mining activities, sequencing, rehabilitation, facilities and infrastructure has not been detailed adequately for the EM plan's function as a planning document for the mining activities over the life of the mine.

Recommendations:

The EM plan must provide additional detail of the proposed mining activities and sequence, including the panels that are to be approved under the amended environmental authority. Provide a map (A3) of the proposed panels. Describe in detail the activities currently undertaken and proposed on the Carborough Downs mine leases, including, but not necessarily limited to, environmentally relevant activities, modifiable activities, extraction activities and infrastructure. Provide post mine land use with relationships to property descriptions, i.e. land use in relation to waterways, background landholders, etc.

Section 4—General

Adequacy of this section of the EM plan

As noted above, the conditions proposed in the EM plan are not adequate. The amended EM plan should base proposed conditions on the EPA's streamlined conditions.

Recommendations:

The Proponent should amended conditions in the EM plan and base them on the EPA's streamlined conditions. The Proponent is advised to discuss the necessary changes with the EPA's Project Manager for the CDMEP.

Section 5—Air

Adequacy of this section of the EM plan

Dust monitoring: The EIS makes a commitment to monitor dust at the nearest potentially affected residences to verify compliance with the guidelines, but that commitment has not been carried over into the EM plan.

Greenhouse gases: The control strategies in the EM plan in regard to greenhouse gas emissions are generally non-committal. The EM plan must address the individual greenhouse gases to be produced at the site, and should provide verifiable actions and audit frequencies for greenhouse gas emission control strategies.

Recommendations:

Dust monitoring: The EM plan must detail how the commitment made in the EIS for monitoring of dust will be undertaken at the nearest potentially affected residences to verify compliance with the guidelines. However,

that monitoring should be in addition to, rather than in lieu of, complaints-based monitoring as identified in the EM Plan.

Dust suppression: QR National is currently undertaking dust suppression trials but they have not yet been completed. If as a result of these studies QR National proposes the implementation of additional measures to reduce coal dust emissions from trains servicing the CDMEP project such measures should be considered in the list of Control Strategies as an amendment to the EM Plan.

Greenhouse gases: The EM plan should provide verifiable actions and audit frequencies for greenhouse gas emission control strategies.

Section 6—Water

Adequacy of this section of the EM plan

General comment: Section 5 of this EIS assessment report outlined deficiencies in the way the EIS has addressed water resources and water management issues. Because of the content of the EIS there have been consequential effects on the content of the EM plan. Section 6 of the EM plan is not adequate and should be revised as previously recommended in Section 5 of this EIS assessment report. The references to uncontrolled releases being part of the water management system are not adequate. The Proponent should amend the EM plan to either describe a closed circuit system with no uncontrolled releases or nominate discharge points, parameters and limits to authorise release.

Sewage treatment: The EM plan is not adequate in its description of: the necessary management of the sewage treatment plant; and parameters and concentration limits for sewage effluent quality.

Section 6.1.1 Environmental Values: This section discusses the protection of surface water flows so that the quality of water is suitable for agricultural use. The section further states that the 'water quality values for protection include modified aquatic ecosystems and irrigation and stock watering'. However, no biodiversity values have been listed and no quantitative water quality values have been provided in this section.

Ponding due to subsidence: Section 8.5.6 of the EIS states that "where excessive ponding occurs which could potentially affect canopy vegetation, earthworks will be undertaken to expedite surface drainage and reduce the duration of ponding. In contrast, the EM plan states "Mitigation measures to rectify surface ponding are not recommended (provided that the area does not exceed 9.5 ha) as the likely effects on remnant vegetation and the local fauna community are not considered significant or necessarily negative". This contradiction must be resolved in the amended EM plan in favour of the mitigation measure proposed in the EIS.

Proposed conditions:

The proposed water conditions in Table 6-3 of the EM Plan are unacceptable in their present form. It is recommended that uncontrolled releases will not be authorised by conditions in the environmental authority. It is recommend that the EPA's streamlined conditions related to water be applied including monitoring locations, frequency, triggers and limits in accordance with ANZECC 2000 and baseline studies. The Proponent should amend the proposed conditions in the EM plan accordingly.

The groundwater monitoring conditions are not appropriate in their present form. They must be amended in accordance with the wording of the streamlined conditions and include triggers for investigation and limits. The site-specific condition WA9 is acceptable.

The sewage effluent conditions are also not appropriate in their present form. They too must be amended in accordance with the wording of the streamlined conditions and include parameter limits to meet recycling water guidelines.

Recommendations:

General comment: Section 6 of the EM plan should be revised as previously recommended in Section 5 of this EIS assessment report. The revision should provide the information necessary to populate the tables of parameters in the streamlined conditions as they relate to water management and discharges. All references to uncontrolled releases being part of the water management system should be removed from the EM plan. The

Proponent should amend the EM plan to either describe a closed circuit system with no uncontrolled releases or nominate discharge points, parameters and limits to authorise release.

Sewage treatment: The EM plan should include management measures for the sewage treatment plant, and parameters and concentration limits for sewage effluent quality for all potential uses of the effluent.

Section 6.1.1 Environmental Values: Biodiversity values of water associated with the project need to be identified. Also, quantitative background water quality values need to be provided to justify the environmental impacts, protection objectives and control strategies proposed.

Ponding due to subsidence: The EM plan must provide measures for monitoring the effects of ponding and improving surface drainage should canopy vegetation be affected, whether or not the affected area exceeds 9.5ha.

Proposed conditions:

The proposed water conditions in Table 6-3 of the EM Plan should be amended in accordance with the EPA's streamlined conditions related to water, and should include monitoring locations, frequency, triggers and limits in accordance with ANZECC 2000 and baseline studies.

The groundwater monitoring conditions must be amended in accordance with the wording of the streamlined conditions and include triggers for investigation and limits. The site-specific condition WA9 is acceptable.

The sewage effluent conditions must be amended in accordance with the wording of the streamlined conditions and include parameter limits to meet recycling water guidelines.

Section 7—Noise

Adequacy of this section of the EM plan

The wording of some of the proposed conditions has been altered from that in the streamlined conditions. The wording should be amended so that it is in accordance with the streamlined conditions.

Recommendations:

The Proponent should amend the wording of the proposed conditions to be in accordance with the streamlined conditions.

Section 8—Waste

Adequacy of this section of the EM plan

Waste management: The waste section of the EM plan is not adequate in its requirements for a Waste Management Plan.

Storage of hazardous and flammable substances other than wastes: The waste section of the EM plan contains commitments related to the storage of hazardous goods, chemicals and flammable liquids other than wastes. Those commitments are inappropriate in the waste section and should be provided elsewhere in the EM plan in a section dedicated to the storage, handling and incident response of hazardous goods, chemicals and flammable liquids other than wastes so that the necessary actions are readily accessible to the user of the EM plan.

Recommendations:

Waste management: The EM plan must require the holder of the environmental authority to maintain and update a Waste Management Plan and ensure that it addresses at least the following matters:

(i) the types and amounts of wastes generated by the facility;

(ii) how the waste will be dealt with, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices mentioned in the waste management hierarchy (section 10 in the *Environmental Protection (Waste Management) Policy 2000*);

(iii) procedures for identifying and implementing opportunities to improve the waste management practices employed;

(iv) procedures for dealing with accident, spills, and other incidents that may impact on the waste management;

(v) details of any accredited management system employed, or planned to be employed, to deal with the waste;

(vi) how often the performance of the waste management practices will be assessed (at least annually);

(vii) the indicators or other criteria on which the performance of the waste management practices will be assessed.

The Waste Management Plan is to be managed through the Plan of Operations.

Storage of hazardous and flammable substances other than wastes: Amend the EM plan to provide a section dedicated to the storage, handling and incident response of hazardous goods, chemicals and flammable liquids other than wastes.

Section 9—Land/subsidence

Adequacy of this section of the EM plan

General comment: The proposed conditions related to land are not adequate and require modification to reflect the wording and intent of the EPA's streamlined conditions.

Dry rejects disposal: The EM plan does not adequately address the actions to be taken at the CDM and *en route* to the Broadlea Mine in relation to the disposal of dry rejects at Broadlea.

Hazards: The Department of Emergency Services noted in its submission on the draft EIS that *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* applied in respect of those hazards. The Proponent responded that issues related to SPP 1/03 had been addressed in the EIS. However, the submitted EM plan does not describe the adverse impacts of flood, bushfire and landslide nor mitigation measures related to them.

Rehabilitation: The EM plan is not adequate in the way it addresses progressive and final rehabilitation. It does not provide a description of the post mining landform and impacts on surrounding watercourses and aesthetic values, nor does it provide a plan or plans of the proposed final topography of excavations, waste areas, subsidence areas and dam sites. The EM plan is also deficient in its proposal of rehabilitation success criteria. The EM plan proposes that the Mine Wastewater Evaporation Dam should be left for water storage after mining ceases. That is not acceptable, and the EM plan should address the decommissioning and rehabilitation of the Mine Wastewater Evaporation Dam.

Subsidence—potential impact on pipelines: The Department of Natural Resources and Water noted in its review of Version 8 of the EIS that subsidence may impact on pipelines but the EM plan does not address this issue.

Recommendations:

General comment: The Proponent should undertake further consultation with the EPA regarding modification of the conditions proposed in the EM plan.

Dry rejects disposal: The EM plan should address the actions to be taken at the CDM and *en route* to the Broadlea Mine in relation to the disposal of dry rejects at Broadlea to ensure that impacts on the environment are avoided or minimised.

Hazards: The amended EM plan must address the adverse impacts of flood, bushfire and landslide in accordance with *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.

Rehabilitation: The EM plan should be expanded in regard to progressive and final rehabilitation, and proposed conditions should be consistent with the EPA's streamlined conditions. It should provide a description of the post mining landform and impacts on surrounding watercourses and aesthetic values, and a plan or plans of the proposed final topography of excavations, waste areas, subsidence areas and dam sites. The EM plan should propose rehabilitation success criteria. The EM plan should address the decommissioning and

rehabilitation of the Mine Wastewater Evaporation Dam. The EM plan should require the development of a Rehabilitation Management Plan. The Rehabilitation Management Plan should as a minimum:

a) propose acceptance criteria to meet the outcomes in Schedule L – Table 1 and Schedule L – Table 3;

b) map existing areas of rehabilitation;

c) described end of mine landform design plan and post mining land uses across the mine;

d) detail rehabilitation methods to be applied;

e) identify success factors for rehabilitated land;

f) detail future rehabilitation actions to be completed;

g) identify analogue sites to be used to develop rehabilitation success criteria;

h) contain landform design criteria including end of mine design;

i) detail how landform design will be consistent and integrated with the surrounding topography;

j) described rehabilitation monitoring and maintenance requirements to be applied to all areas of disturbance;

k) include a cost benefit analysis/triple bottom line assessment of the proposed final landform design criteria and alternatives; and

l) identify potential problems and how they will be addressed.

Subsidence—potential impact on pipelines: The EM plan should contain strategies for monitoring the potential for impacts due to subsidence on water pipelines and develop mitigation measures to be applied should impacts be predicted or observed.

Section 10—Nature conservation

Adequacy of this section of the EM plan

The proposed conditions related to nature conservation are not adequate and require further clarification and discussion with the EPA.

Recommendations:

The Proponent should undertake further consultation with the EPA regarding modification of the conditions proposed in the EM plan.

Section 11—Community

Adequacy of this section of the EM plan

The EM Plan lacks the identification of the key stakeholders to the mining operation and an outline of how future consultation programs will be conducted.

Recommendations:

The EM plan should identify the key stakeholders to the mining operation, and outline the future consultation programs.

6 Suitability of the project

The EPA has considered the final TOR, the submitted EIS, all submissions on the submitted EIS, and the standard criteria. Despite some areas where the TOR were not fully addressed, assessment of the submitted EIS has not identified impacts of sufficient magnitude to prevent the project from proceeding. However, the recommendations of this EIS assessment report should be fully implemented.

Disclaimer:

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Environmental Protection Agency should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

Approved by

ORIGINAL SIGNED	25 July 2007
Signature	Date

Stuart Cameron
Director, Integrated Assessment Branch
Environmental Operations
Environmental Protection Agency

Enquiries: EIS Coordinator
Development Assessment Unit
Ph. (07) 3227 6446
Fax. (07) 3227 7720