

Environmental Impact Statement (EIS) Assessment Report under the *Environmental Protection Act 1994*

Eaglefield Expansion Project
Proposed by Peabody (Bowen) Coal
Pty Limited

October 2011

Prepared by: Environment and Natural Resource Regulation , Department of Environment and Resource Management

© The State of Queensland (Department of Environment and Resource Management) 2011

Copyright inquiries should be addressed to <copyright@derm.qld.gov.au> or the Department of Environment and Resource Management, 41 George Street, Brisbane QLD 4000

Disclaimer

This document has been prepared with all due diligence and care, based on the best available information at the time of publication. The department holds no responsibility for any errors or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties. Information contained in this document is from a number of sources and, as such, does not necessarily represent government or departmental policy.

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3224 8412.

This publication can be made available in an alternative format (e.g. large print or audiotape) on request for people with vision impairment; phone +61 7 3224 8412 or email <library@derm.qld.gov.au>.

October 2011

Contents

1.0 Introduction	2
2.0 Project details	3
3.0 The EIS process	5
3.1 Timeline of the EIS process	5
3.2 Approvals	5
3.3 Consultation program	6
3.4 Matters considered in the EIS assessment report	8
3.5 Environment Protection and Biodiversity Conservation Act 1999	11
4.0 Adequacy of the EIS in addressing the ToR	11
4.1 Introduction	11
4.2 Regulatory approvals	11
4.3 Project need and alternatives	12
4.4 Project description	12
4.5 Climate	13
4.6 Land	13
4.7 Transport	17
4.8 Waste	18
4.9 Water resources	19
4.10 Air Quality	21
4.11 Noise and vibration	22
4.12 Nature conservation	22
4.13 Cultural heritage	25
4.14 Matters of National Environmental Significance	25
4.15 Social issues	26
4.16 Economy	27
4.17 Health and Safety	27
4.18 Hazard and Risk	27
4.19 Rehabilitation	28
5.0 Adequacy of the environmental management plan	31
6.0 Recommended conditions of approval	31
7.0 Suitability of the project	31

8.0 Completion of this EIS process	31
Approved by	32

List of Tables

Table 1 State Government Changes	7
Table 2 Local Government Changes	8
Table 3 Approvals required for the Eaglefield Expansion Project	12

1.0 Introduction

This report provides an assessment of the environmental impact statement (EIS), pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act), for the Eaglefield Expansion Project (EEP) proposed by Peabody (Bowen) Pty Ltd (Peabody), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd. The development of the EEP will require Peabody to apply to amend its environmental authority ((EA)(MIN100590107) for the existing Eaglefield (open cut) and North Goonyella (underground) coal mines, both of which are located on Mining Lease (ML) 6949.

The Department of Environment and Resource Management (DERM) coordinated the EIS process as the administering authority under the EP Act. This assessment report has been prepared pursuant to Sections 58 and 59 of the EP Act. Section 58 of the EP Act lists the criteria that must be considered in preparing an EIS assessment report and Section 59 describes what must be contained in an EIS assessment report.

The EP Act requires an EIS assessment report to:

- (a) address the adequacy of the EIS in addressing the final terms of reference (ToR)
- (b) address the adequacy of the draft environmental management plan (EM plan)
- (c) make recommendations about the suitability of the project
- (d) recommend any conditions on which any approval required for the project may be given.

This assessment report summarises key issues associated with the potentially adverse and beneficial environmental, economic and social impacts of the EEP. It takes into account the cumulative impacts associated with the current mining activities on ML 6949 and the rehabilitation proposed for these activities, as well as for the EEP proposal. The report also discusses the planning, management, monitoring, and other measures proposed to minimise the adverse environmental impacts of the project. Finally, the report discusses those issues of particular concern that were either not resolved in EIS documentation, or that will require specific operating conditions for the project to proceed.

Section 2 of this report provides details of the EEP; Section 3 outlines the EIS process followed and the approvals required for the project to proceed; Section 4 addresses the adequacy of the EIS in addressing the Terms of Reference (ToR) and discusses the main issues requiring environmental management and the environmental protection commitments made in the EIS; Section 5 assesses the adequacy of the environmental management plan (EM plan) for the project in incorporating the environmental protection commitments, and in meeting the requirements of Section 203 of the EP Act; Section 6 comments on the recommendations for conditions to be included in the draft environmental authority; and Section 7 comments on the suitability of the project.

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

2.0 Project details

The Eaglefield Expansion Project (EEP) proposal would extend the current Eaglefield Coal Mine operations and increase production from 5 to 10.2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal. The existing Eaglefield Coal Mine and North Goonyella Mine are located on Mining Lease ML 6949, located approximately 36 km north of Moranbah, in central Queensland. The existing Eaglefield and North Goonyella operations are expected to cease mining operations in 2013 and 2016 respectively. The Eaglefield Coal Mine is located in the south west corner of the Mining Lease and the North Goonyella Coal Mine in the northern part of the lease – the latter occupying the area proposed to receive the mine overburden and much of the waste from the EEP. This external waste rock emplacement (EWRE) area would occupy approximately 1,650 ha. The EEP also would extend the current mine-impacted area of approximately 815ha to almost the entire Mining Lease, an area of some 3,555ha.

The EEP is proposed to cut through the Fort Cooper and Moranbah coal measures, targeting the GU, GM and GL seams, as well as mine the lesser over and under-lying seams in the Moranbah Coal Measures. The mining depth for the proposed open-cut ranges from 260 m to 400 m from the soil surface.

The proposed coal mining operations comprise:

- an open pit of approximately 850ha and up to 400 m deep, producing up to 10.2 Mtpa of ROM coal producing, in turn, approximately 6.8 Mtpa of product coal for the export market;
- an EWRE of 1,650ha, benched to a height of 140m above natural ground surface to be placed progressively and only commencing after approximately 10 of mine operations;
- an in-pit waste rock emplacement (IWRE) of 605 ha, of which 320 ha will extend to 80 m above natural ground surface. Approximately 285ha will remain below natural ground surface and bench to the final pit floor area of 30 ha at 400m below natural ground surface;
- a mine-water management system, including clean water diversion drains, integrated mine area run-off collection and settlement dams, pit water management and on-site water reuse procedures to minimise water discharge from the EEP site;
- coal rejects and tailings returned by conveyor and spreader to the EWRE and later (>year10) to the IWRE;
- an upgrade of the existing coal handling and preparation plant (CHPP);
- an upgrade to the existing ROM facility;
- an additional temporary office complex, new workshop facility and supporting infrastructure; and
- the installation of two waste rock in-pit crushing and conveying (IPCC) systems and one coal IPCC system.

Peabody intends to use an IPCC system and with haul trucks to produce coking coal for the export market. The proposed mine life would be approximately 22 years but future exploration may serve to extend the operating life of the mine.

Coal would be transported approximately 200 km by existing rail infrastructure, for export from the Dalrymple Bay Coal Terminal (DBCT).

The EEP would utilise some of the existing Eaglefield Coal Mine infrastructure, such as power supply, sewage treatment facility and wastewater management infrastructure. Existing site offices and industrial areas also would be utilised.

The EEP would also require the realignment of the site access road on the lease.

Aerial photography indicates some encroachment by a neighbouring mining operation into the southern portion of ML 6949. However, advice from the Department of Employment, Economic Development and Innovation (DEEDI) is that there is no surface area allocated to either Peabody, or any other mining company on that part of the lease.

Peabody has advised that it is investigating future use options for the existing Eaglefield Coal Mine pit, which would preclude its use for spoil or mine waste from the EEP.

Peabody also indicated that it has been discussing the feasibility of receiving future waste rock from neighbouring mining operations into its final EEP void. Such future use options were discussed briefly in the Final Landscape Briefing Paper which was forwarded to DERM on 1 July 2011.

Peabody has committed to developing mine plans that minimise the size of final voids and of waste rock emplacements. Such a commitment would require Peabody to prepare a comprehensive rehabilitation plan for the entire mining lease (ML 6949), addressing both final voids (Eaglefield and the Eaglefield Expansion voids) and external waste rock emplacements. Peabody has advised that discussions have commenced with surrounding mining operators, with the view to developing the most sustainable, contiguous final landform on completion of mining in the area.

3.0 The EIS process

3.1 Timeline of the EIS process

The EIS process was initiated by Peabody on 16 September 2008 by application to DERM for approval to prepare a voluntary EIS under Section 70 of the EP Act. DERM approved this application on 19 September 2008. Peabody submitted the draft ToR on 6 January 2009 and DERM notified Peabody on 28 January 2009 of the decision to publish them on Friday 30 January 2009 in the Courier Mail, and in the Mackay Daily Mercury on 31 January 2009. The comment period for the draft ToR extended from Monday, 2 February 2009, until close of business on Friday, 13 March 2009.

DERM received comments on the draft ToR from 15 advisory bodies/stakeholders during the comment period. These comments, together with those provided by DERM, were forwarded to Peabody on 27 March 2009. DERM considered all comments received on the draft ToR and Peabody's response prior to issuing the final ToR on 21 May 2009.

On 17 January 2011, Peabody submitted the draft EIS for DERM review. DERM compared the draft EIS to the final ToR and, on 15 January 2011, decided to allow the EIS to proceed. On 23 February 2011, DERM issued a notice of the decision to Peabody. The public submission period was set at 35 business days starting on Monday 28 February 2011 and continuing until close of business on Friday, 15 April 2010.

DERM publicly notified the start of the submission period for the draft EIS on its website on Friday 25 February 2011, and in the Courier-Mail and Mackay Daily Mercury on Saturday, 26 February 2011 and the Central Queensland News and Miners' Midweek on Wednesday, 2 March 2011. Peabody also provided copies of the public notice of the draft EIS to affected and interested persons.

DERM received 10 submissions on the draft EIS within the submission period. These included six submissions from state government departments and agencies, one from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities, one from the Fitzroy Basin Association, one from Birds Australia, Birds Observation & Conservation Australia (BOCA) and Mackay Conservation Group, one from the Capricorn Conservation Council and one from Macarthur Coal. DERM received another submission from the Isaac Regional Council after the close of the submission period. All 11 submissions were accepted in accordance with Section 55 of the EP Act. The submissions, together with a submission from DERM were forwarded to Peabody on 5 May 2011 for consideration and response.

Peabody provided a supplementary EIS ((SEIS) that included a response to submissions and an amended environmental management plan (EMP)) on 2 June 2011. Copies of the SEIS were distributed for review to those advisory bodies/stakeholders who had made a submission on the draft EIS. DERM decided under Section 56A of the EP Act on 11 August 2011, that the submitted EIS should proceed under Division 5 (EIS assessment report) and Division 6 (Completion of process) of the EP Act. A notice of the decision to allow the submitted EIS to proceed was issued to Peabody on 26 August 2011.

In the preparation of this EIS assessment report, DERM considered submissions and comments from members of the advisory body (see Section 3.3.2 of this document for advisory body constituents) and other interested parties made at all stages of the EIS process. The EIS assessment report will be available on DERM's website (www.derm.qld.gov.au).

3.2 Approvals

Development of the EEP would require an amendment to the existing EA MIN100590107, under Chapter 5 of the EP Act. The amended EA would need to cover the following activities that are directly associated

with, or facilitate or support, the mining activities, and which would otherwise require approval under the EP Act as environmentally relevant activities:

- ERA 8 - Chemical storage (including petroleum storage)
- ERA 16 - Extracting rock or other material
- ERA 18 – Boilermaking or engineering
- ERA 56 – Regulated waste storage
- ERA 60 - Waste disposal
- ERA 63 - Sewage treatment.

3.3 Consultation program

3.3.1 Public consultation

In addition to the statutory requirements for advertising the ToR, EIS and notices to interested and affected parties, Peabody consulted members of the public, other stakeholders and the community and held meetings in Brisbane and the region during the public submission period of the draft EIS. Subsequent community consultation was undertaken by Peabody and included:

- an updated meeting with the EEP Community Reference Group (4th April 2011)
- a staffed information booth in the Moranbah town centre
- an update to the registered native title group (17th March 2011)
- the provision of an EEP EIS update fact sheet to all interested and affected persons
- the provision of a 24 hour EIS hotline
- the provision of a website for the EIS to be viewed and downloaded.

3.3.2 Advisory Body

DERM invited the following organisations to assist in the assessment of the ToR and EIS by participating as members of the advisory body for the EEP:

- Former Department of Emergency Services
- Former Department of Housing
- Former Department of Infrastructure and Planning
- Former Department of Mines and Energy
- Former Department of Natural Resources and Water
- Former Department of Primary Industries and Fisheries
- Former Queensland Transport
- Former Department of Main Roads
- Former Commonwealth Department of the Environment, Water, Heritage and the Arts
- Former Department of Tourism, Regional Development and Industry
- Department of Communities
- Queensland Health
- Queensland Police Service
- Department of Community Safety
- Department of Employment , Economic Development and Innovation

- Department of Transport and Main Roads
- Queensland Treasury
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities
- Isaac Regional Council
- Mackay Regional Council
- Capricorn Conservation Council
- Central Queensland Land Council
- Wiri People 2
- Fitzroy Basin Association
- Mackay Conservation Group Inc.
- SunWater
- Ergon Energy
- Maureen Cooper, Member of Birds Australia, BOCA and Mackay Conservation Group.

An advisory body briefing was held in Brisbane on 15 March 2011 and in Moranbah on 22 March 2011 during the EIS public submission period and a site inspection was conducted on 22 March 2011.

State Government Changes

In accordance with the Public Service Department Arrangements Notice No.2 2009 the following changes became effective 26 March 2009 to Queensland Government Departments referred to in this report.

Table 1 State Government Changes

New Department (as of 26 March 2009)	Previous Department/s
Department of Employment, Economic Development and Innovation – DEEDI	Department of Primary Industries and Fisheries Department of Mines and Energy Department of Tourism, Regional Development and Industry Department of Employment and Industrial Relations
Department of Environment and Resource Management – DERM	Environmental Protection Agency Department of Natural Resources and Water
Department of Transport and Main Roads – DTMR	Department of Main Roads Queensland Transport
Department of Communities - DoC	Department of Communities Department of Housing Department of Local Government, Sport and Recreation Disability Services Queensland
Department of Community Safety - DCS	Department of Emergency Services

Local Government Changes

Since the start of this EIS process, the changes summarised in Table 2 occurred to local government referred to in this report.

Table 2 Local Government Changes

New Councils (as of 15 March 2008)	Previous Councils
Isaac Regional Council – IRC	Belyando Shire Council Nebo Shire Council; Broadsound Shire Council
Mackay Regional Council – MRC	Mackay City Council Mirani Shire Council Sarina Shire Council

3.3.3 Public notification

In accordance with the statutory requirements, public notices of the draft ToR and EIS and public comment periods was made in the Courier-Mail, Mackay Daily Mercury, the Central Queensland News and the Miners Midweek and on DERM's website.

The draft ToR and EIS were placed on public display at the following locations during their respective public comment and submission periods:

- DERM Website (draft ToR only)
- DERM Customer Service Centre, 160 Ann Street, Brisbane (draft ToR only)
- DERM office, 99 Hospital Road, Emerald
- Moranbah Town Library, Grosvenor Complex, Bachelor Parade, Moranbah
- Nebo Library, Reynolds Street, Nebo (EIS only)
- Peabody Energy Australia Pty Limited, Level 4, HSBC Building, 300 Queen Street, Brisbane (draft ToR only)
- Peabody Energy Australia Pty Limited, Level 13, BOQ Centre, 259 Queen Street, Brisbane (EIS only).

3.4 Matters considered in the EIS assessment report

Section 58 of the EP Act requires that an EIS assessment report consider the following matters:

- the final ToR for the EIS
- the submitted EIS (including the proponent's responses, addendum and amended EM plan)
- all properly made submissions and any other submissions accepted by the chief executive
- the standard criteria
- another matter prescribed under a regulation.

These matters are addressed in the following subsections.

3.4.1 The final ToR

The final ToR, issued on 21 May 2009, were considered when preparing this EIS assessment report.

Although compiled to include all the likely significant issues the ToR stated that if other significant matters

arose during the preparation of the EIS then such issues should be fully included. All such matters have been considered in the EIS assessment report.

3.4.2 The submitted EIS

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

- the EIS that was made available for public submissions on 28 February 2011;
- properly made submissions;
- the response to submissions and the amendments to the EIS (in the form of a supplementary EIS) and a draft Environmental Management Plan were received by the department on 2 June 2011; and
- additional information provided by Peabody on 28 June 2011 and 1 July 2011 and other information submitted from time to time after 1 July 2011.

DERM accepted 12 submissions on the EIS from the following:

- Department of Communities;
- Department of Community Safety;
- Department of Employment, Economic Development and Innovation;
- Department of Transport and Main Roads;
- Queensland Police Service;
- QR National;
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities;
- Isaac Regional Council;
- Fitzroy Basin Association;
- Maureen Cooper, Member of Birds of Australia and BOCA;
- Macarthur Coal Limited; and
- Capricorn Conservation Council.

DERM also made its own submission on the EIS.

All submitters were also given the opportunity to provide a follow-up response to DERM on their view of the suitability of Peabody's response to their respective submissions.

All submissions and other comments made by submitters were considered when preparing this EIS assessment report.

3.4.3 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. (i) an environmental authority
 - ii. (ii) a transitional environmental program
 - iii. (iii) an environmental protection order
 - iv. (iv) a disposal permit
 - v. (v) a development approval;
- 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; and
- l. any other matter prescribed under a regulation.

The department has considered the standard criteria when assessing the project.

3.4.4 Prescribed matters

In addition, Section 58 of the EP Act requires that the following prescribed matters, under the Environmental Protection Regulation 2008, are considered when making an environmental management decision for this project:

- Section 51, matters to be considered for environmental management decisions
- Section 52, conditions to be considered for environmental management decisions
- Section 53, matters to be considered for decisions imposing monitoring conditions
- Section 55, release of water or waste to land
- Section 56, release of water, other than stormwater, to surface water
- Section 57, release of stormwater
- Section 60, activity involving storing or moving bulk material
- Section 62, activity involving acid-producing rock
- Section 64, activity involving indirect release of contaminants to groundwater.

3.4.5 Notifiable activities

The proponent has only partially identified and listed all the relevant notifiable activities under schedule 3 of the EP Act that would apply to the project:

- Notifiable activity 6 - Chemical manufacture
- Notifiable activity 7 - Chemical storage
- Notifiable activity 14 - Engine reconditioning works
- Notifiable activity 24 - Mine wastes
- Notifiable activity 29 - Petroleum product or oil

Peabody would be required to notify the Contaminated Lands Register of all notifiable activities and the identified notifiable activities should be clearly identified and listed in the EM plan. Any notifiable activity, as defined under Schedule 3 of the EP Act would be a relevant mining activity if it is directly associated with, or supports or facilitates the mining or processing of coal on the EEP tenures.

3.5 Environment Protection and Biodiversity Conservation Act 1999

On 8 January 2009, Peabody referred the EEP to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 5 February 2009, SEWPaC determined the project to be a controlled action pursuant to Section 75 of the EPBC Act. The relevant controlling provisions related to listed threatened species and ecological communities (Sections 18 and 18A of the EPBC Act). The project has the potential to impact matters of national environmental significance (MNES) as approximately 381 ha of remnant vegetation is proposed to be cleared as part of the expansion project, including the following Threatened Ecological Communities:

- approximately 2.1 ha of *Acacia harpophylla* (Brigalow) (dominant and co-dominant);
- approximately 19.1 ha of Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions; and
- approximately 40.3 ha of Natural Grassland of the Queensland Central Highlands and the northern Fitzroy Basin.

The following Threatened Species (listed as ‘vulnerable’ under the *Nature Conservation Act 1992* (NC Act) and EPBC Act) are either possible, or confirmed to occur within the EEP area:

- the bird species, *Geophaps scripta scripta* (Squatter Pigeon, confirmed); and
- the reptile species, *Denisonia maculata* (Ornamental Snake, possible).

In addition, *Chalinolobus picatus* (Little Pied Bat) is listed as vulnerable under the EPBC Act and Near Threatened under the NC Act and possibly occurs within the EEP area.

Matters of national environmental significance are further discussed in Section 4.14 of this EIS assessment report.

This EIS process is accredited for the assessment under Part 8 of the EPBC Act in accordance with the Bilateral Agreement between the Commonwealth of Australia and the State of Queensland (2009). The Commonwealth was included as an advisory body for the assessment of the project and provided comments on the draft ToR and EIS documents. A copy of this EIS assessment report will be given to the Commonwealth Environment Minister to assist in making a decision on the project under the EPBC Act.

4.0 Adequacy of the EIS in addressing the ToR

4.1 Introduction

The EIS provided an adequate introduction to the project, its objectives and scope. The EIS correctly identified the necessary approvals and outlined the assessment and approval processes.

4.2 Regulatory approvals

The EIS provided an adequate summary of the of legislative and regulatory approvals required for the EEP.

Table 3 Approvals required for the Eaglefield Expansion Project

Approval	Legislation (Administering Authority)
Environmental authority (mining activities)	<i>Environmental Protection Act 1994</i> (Department of Environment and Resource Management)
Amendment required to existing Development Plan for the ML 6949	<i>Mineral Resources Act 1989</i> (Department of Employment, Economic Development and Innovation)
Approval to undertake action that may impact on a matter of national environmental significance (nationally listed threatened species and ecological communities)	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Department of Sustainability, Environment, Water, Population and Communities)
Cultural Heritage Management Plan (CHMP)	<i>Aboriginal Cultural Heritage Act 2003</i> (Department of Environment and Resource Management)
Explosives Licence (Number 0600247)	<i>Explosives Act 1999</i> (Department of Employment, Economic Development and Innovation)
Protected Plants Clearing Permit (Nature Conservation (Protected Plants) Conservation Plan, 2000) A Species Management Plan must be submitted to DERM for approval for tampering with some animal breeding places (Section 332 of the Nature Conservation (Wildlife Management) Regulation, 2006) Rehabilitation Permit (spotter catcher endorsement) (Section 207 of the Nature Conservation (Wildlife Management) Regulation, 2006). Damage Mitigation Permit (removal and relocation) (Section 181 of the Nature Conservation (Wildlife Management) Regulation, 2006).	<i>Nature Conservation Act 1992</i>

4.3 Project need and alternatives

This section of the EIS adequately described the project and briefly outlined its social, economic and environmental benefits and costs, which were addressed in more detail in later sections of the EIS.

It discussed the principles of ecologically sustainable development (ESD) and these were again raised in the feasibility and planning stages of the EEP.

The positive and negative impacts, appropriate mitigation and management measures and environmental protection commitments of the EEP were addressed in later sections of the EIS.

Alternatives addressed feasible mining methods and advantages of the preferred (open cut) method, while noting that underground mining was unsuitable if resource recovery was to be maximised.

4.4 Project description

The EIS adequately described the location, scope and phases of the project. DERM requested further information that included issues relating to the waste rock and coal rejects characterisation, geotechnical

assessment of the void and revised water balance data. Peabody's SEIS provided further information and/or a commitments to providing detailed information at a later date in the assessment and approval process. A brief outline of the project is in Section 2 of this report.

4.5 Climate

The EIS described how the local climate could affect the potential for environmental impacts and risks and the management of operations at the site. The principal aspect of concern is the effect of occasional flooding on water management at the site. A cessation of mining activities might be necessary during such infrequent events. However, the risk of off-site contamination by flood waters would be extremely low.

4.6 Land

The EIS adequately described existing and proposed qualities, characteristics and soil profiles in the land that would be affected by the project with the following subsections addressing the matters in more detail.

4.6.1 Land disturbance

The project will result in significant land disturbance. The open cut operation would change the local topography and change the surface water drainage patterns, including the diversion of the upper reaches of Goonyella Creek. It would disturb approximately 850 ha of land resulting in the loss of approximately 381 ha of remnant vegetation. Disturbance also will include the EWRE, and creation of a mine pit 4km long by 2km wide. The footprint of the final EEP void would occupy an area of 530 ha and a depth of up to 400m. In addition, the excavated waste rock and coal rejects would be deposited on the land area over the current underground long wall North Goonyella Mine. The area of the EWRE would be approximately 1,650 ha and would have an elevation of 140m above natural ground surface. Some of the waste rock and coal rejects would be progressively deposited back into the EEO pit, but this deposition (internal waste rock emplacement (IWRE)) would be deferred until after year 10 of the mining operations. The IWRE would be elevated approximately 80m above the natural ground surface. Such disturbances are additional to the existing Eaglefield pit and out of pit disposal area, which would be increased in the early years of the EEP operation.

Although there is no formal departmental policy on final void sizes, DERM has expressed its concern at the relatively large sizes of the proposed final void, EWRE and IWRE, particularly the legacy issues that these would pose for future landholders. Peabody was requested to justify its preferred method of open cut mining and the resultant EWRE and IWRE areas, which would effectively sterilise all such areas from grazing as a future land use.

Peabody responded that the characteristics of the EEP make it suitable for open cut, in-pit crushing and conveying (IPCC) systems. Rope shovels and/or excavators would feed haul trucks which travel short distances to a dump hopper and crusher where coal and overburden is transported out of the pit using a conveyor system. Peabody stated that this system has been selected as the most feasible method to recover the maximum coal resources from the EEP pit and to provide environmental benefits by minimising hydrocarbon use/greenhouse gas emissions.

Underground mining has been conducted to the south of the mine access road under the existing EWRE (i.e. to the immediate west of the EEP pit as shown on Figure 4-12 of the EIS). Previous underground mining experience was taken into account during the EEP prefeasibility stage, but was considered to be sub-optimal for the EEP from an economic perspective, particularly when risk factors associated with geotechnical uncertainty were considered.

Peabody stated that to completely backfill the EEP void would require rehandling of approximately 850 million cubic metres of waste rock, which if undertaken using a truck and shovel method, would cost some \$4 billion, cause the emission of a significant amount of greenhouse gases, and continue noise and air quality impacts for years following the completion of mining activities.

DERM requested confirmation on the geotechnical assessment with respect to blasting in close proximity to the existing long wall underground works. Peabody responded that a geotechnical assessment of the proposed EEP pit, undertaken by International Mining Consultants Pty Ltd (IMC) and submitted as part of the supplementary EIS Found that the initial geotechnical designs were considered feasible. The work also led to the adoption of a number of geotechnical parameters for the EEP design. The IMC report assessed the proposed stand-off distance (i.e. the horizontal distance) from the proposed EEP pit to the adjacent long wall underground works as sufficient to mitigate the impacts of blasting. The stand-off distance from the old underground workings 80 m to the west of the proposed EEP pit was also assessed as sufficient to minimise the likelihood of slope instabilities.

A final void investigation would be conducted by Peabody to develop mine decommissioning acceptance criteria (Section 5.9.5 of the EIS). Part of such an investigation would include a pit wall stability study that would consider the effects of long-term erosion and weathering of the pit wall as well as the effects of significant hydrological events. The study would also consider the capability of the final void to support native flora and fauna.

DERM and other submitters raised concerns regarding the potential for the EWRE and IWRE to impact on the environmental values of both the surrounding land and waterways in the region. DERM specifically highlighted the potential for acid drainage. Peabody stated that drainage controls for the EWRE will be developed having regard for the outcomes of on-going monitoring of drainage controls on the existing EWRE at the Eaglefield Coal Mine. Geochemical investigations at the Eaglefield Coal Mine have found that the waste rock is predominantly intermediate (or non-acid producing) and that detrimental environmental impacts from acid rock drainage are unlikely. If monitoring indicates the occurrence of acid mine drainage from the EWRE, Peabody would implement management measures in accordance with the Managing Acid and Metalliferous Drainage handbook in the series *Leading Practice Sustainable Development Program for the Mining Industry (DITR, 2007b)*. Peabody's commitment to such action in its EM plan would be acceptable to DERM officers.

Notwithstanding the above, Peabody would be required to develop a Coal Rejects and Waste Rock Management Plan following approval of the EEP. This plan would need to detail the management of waste rock, rejects and tailings, including their handling, mixing and placement in the EWRE and IWRE to ensure appropriate stability and containment of contaminants.

DERM raised the issue of the stability of the proposed EWRE and the potential for internal and external erosion. Peabody responded that it has outlined strategies to manage erosion and stability in Section 7.7.7 of the EIS. In addition, management measures currently being used successfully to control erosion on the existing Eaglefield Coal Mine EWRE site would be implemented. Measures to manage erosion on the existing EWRE have proven successful in minimising erosion and preventing slips of material. This includes re-grading, placement of good quality topsoil, using a hay mulch crimped into the soil, seeding with a cover crop (Japanese millet) to hold topsoil in place and the installation of drains to control runoff. The southern slope of the EWRE has been reshaped and has remained stable throughout the last two wet seasons (i.e. 2009-2010 and 2010-2011).

Further discussion on the stabilisation of the site post mining and proposed associated EA conditions can be found in Section 4.19.

4.6.2 Land use

Land within the EEP has historically been used for beef cattle grazing, although the last 20 years has also seen significant coal mining and exploration works undertaken in the surrounding region. The majority of the EEP has been cleared for improved pasture, with buffel grass well established in most soil units.

The EIS included two land suitability assessments comparing grazing and cropping land uses for each soil type identified on the EEP. No land areas within the EEP were identified as suitable for either rain-fed or dryland cropping. Land suitability Classes 2, 3, and 4 (grazing) were identified where Class 1 is the highest through to Class 4 the lowest. The predominant land suitability Classes (grazing) on the EEP are 2 and 3.

The EIS stated that the EEP would result in the permanent loss of approximately 2,480 ha of grazing land from the pre-mining land use. This loss of grazing land will be the result of the final void, ramps (530 ha), IWRE (320 ha) and EWRE (1,630 ha) remaining (in a rehabilitated state but unsuitable for grazing) at the end of the mine operations.

The EIS assessed that approximately 2,340 ha of mine disturbed land (including all mine infrastructure) would be rehabilitated. All areas that would be rehabilitated would provide stable landforms with a self-sustaining vegetation cover. Progressive and final rehabilitation measures would provide stable final landforms for native bushland and grazing. The final void and the IWRE and EWRE would be permanently isolated from grazing.

4.6.3 Soils and land suitability

The soils and land suitability assessment were adequately discussed. The EIS provided sufficient detailed information on land resources to determine soil type, distributions, land suitability, soil erosion, rehabilitation potential and stormwater runoff quality. The EIS has indicated that the EWRE and IWRE would be unsuitable for grazing and no attempt would be made to strip top-soil from the proposed EWRE would be made.

4.6.4 Resource utilisation

The EIS stated that in February 2010 Arrow Energy had applied for a petroleum lease that overlaps ML 6949 and that Peabody and Arrow Energy are discussing the possibility of entering into a cooperative arrangement to facilitate the grant of overlapping leases.

Peabody had stated that it does not propose commercial recovery of coal seam gas from ML 6949. Peabody is aware that it would need apply for additional approvals for the commercial extraction of coal seam gas, should this position change in the future.

DEEDI has expressed concern that the EEP as proposed by Peabody, would involve the EWRE being located on land underlain by a significant resource of good quality metallurgical coal (in one of the Goonyella Lower seams referred to by Peabody as the GLB2 Seam). DEEDI contends that a substantial proportion of this coal resource could be mined by underground methods and notes that the EEP, as described in the Initial Advice Statement and other EIS documentation, does not include any plans to develop this resource.

DEEDI is concerned that the EWRE might present technical constraints to future evaluation, underground mine development and mine operation which would make it too difficult or too expensive to recover the underground coal, thereby effectively sterilising the resource. However, it is understood that detailed discussions between Peabody and DEEDI have made progress in establishing that mining of this resource may be feasible once construction of the EWRE was underway, and that Peabody will plan to extract the resource, either simultaneously with or after completion of, the construction of the EWRE. Peabody acknowledges that such a change to the mining plan would also require amendment of the environmental authority under the Environmental Protection Act 1994.

DEEDI acknowledges that the operation of the Denham Pit, as proposed in the EEP, would enable greater extraction of the coal resource than would underground mining for that part of the mining lease, and that Peabody may prove successful in extraction of the targeted Goonyella Lower seam by underground methods in the northern part of the lease, irrespective of the overlying waste rock dump. However, DEEDI continues to assert its preference for underground coal extraction from the Goonyella Lower Seam before construction commences on the EWRE, or before construction is significantly progressed.

It is noted that Peabody has submitted a Later Development Plan to DEEDI, in accordance with Part 7AA of the Mineral Resources Act 1989, and approval of that Plan will be required for the proposed changes to mining activities on the mining lease. One of the matters that the Minister must consider in deciding whether to approve or refuse the Plan (see sections 318EF and 318EA of the Act) is “whether the mining of minerals that, under section 234, are sought to be specified in the lease will be optimised in the best interests of the State, having regard to the public interest”. Thus the proponent should be aware that the resource

stewardship concerns raised by DEEDI in the EIS process would be considerations in the Minister's assessment of the Later Development Plan for the mining lease.

DEEDI has expressed a desire to see Peabody expedite an application to amend its environmental authority to enable underground mining in the northern section of the mining lease and it is understood that Peabody is willing to pursue this course of action.

4.6.5 Land contamination

The EIS reported no evidence of site contamination from past farming practices, or facilities on the EEP within ML 6949. However a number of sites, mainly notifiable activities associated with Eaglefield and North Goonyella mining activities are noted within ML 6949 on the Environmental Management Register. These comprise mine wastes, petroleum product/oil storage, and landfill. The proposed mining activities would inevitably result in further contamination of land. The EIS proposed a range of mitigation measures to reduce the potential negative impacts to land and waters from operational activities, including accidental spills of hydrocarbons and chemicals.

The EIS identified the following notifiable activities that would be conducted on the site:

- Notifiable activity 6 - Chemical manufacture or formulation
- Notifiable activity 7 - Chemical storage
- Notifiable activity 14 - Engine reconditioning
- Notifiable activity 24 - Mine wastes
- Notifiable activity 29 - Petroleum product or oil storage.

In accordance with Section 371 of the EP Act, if Peabody became aware of on-site contamination by a hazardous contaminant, it must notify DERM (EMR/CLR Registrar).

4.6.6 Landscape character and visual amenity

The EIS described the EEP site as comprising predominantly flat to undulating land rising to low hills. The site is impacted by past clearing for grazing and more recent mining activities. Although some remnant riparian vegetation is still evident along drainage lines, all (approximately 381 ha) would be cleared for the EEP.

ML 6949 is entirely surrounded by mining tenures, with mines to the south (Goonyella Riverside Mine) and drilling to the north (Wards Well leases). Grazing currently occurs to the east and west of the ML. Surface infrastructures associated with the existing mines are located immediately to the west of the EEP. There is also an existing EWRE area associated with the current Eaglefield Open Cut Mine, authorised to a height of 65m above natural ground surface. Other EWRE areas at the Goonyella Riverside Mine to the south are in excess of 50m above natural ground surface.

The construction of the EWRE and IWRE would result in new elevated landforms in the local landscape. The magnitude of ground level visual impact associated with these landforms would be low to moderate due to the limited vantage points providing views of the EEP infrastructure. Although the EWRE and IWRE areas would be visible in some parts of the local area, including along some sections of the local road network, no sensitive private receptors (individual homesteads) would be significantly affected as the homesteads are located some 2-8km from the EEP and their views are largely screened by vegetation and intervening landforms.

Night lighting impacts at most sensitive receptors would be associated with a 'glow' from the operation, rather than direct light impacts. However, where direct light impacts could potentially affect sensitive receptors, the EIS presented a number of mitigation measures that would be implemented, including the installation of light fixtures in accordance with applicable Australian Standards.

The final landform needs to be considered along with the impacts associated with the existing Eaglefield and the Goonyella Riverside Mines with the aim of producing a seamless, homogenous final design. As the final

void(s) will pose a significant risk to animals and humans, it would be necessary to ensure that security and surveillance are assured in perpetuity, or until such time as an alternative, more benign landform is negotiated and approved (discussed further in Section 4.19).

4.7 Transport

The EIS adequately addressed this section.

4.7.1 Road

The proposed EEP would be accessed via the existing mine access road, which connects to the external road network at the Suttor Developmental Road (82A) and to the Peak Downs Highway (33B). The EEP site also is accessible via Red Hill and Goonyella roads to the south, which is the most direct route to Moranbah. The transport of mining equipment and personnel working at the EEP would be along the Peak Downs Highway and Suttor Developmental Road. Road and pavement impacts have been assessed in accordance with the Department of Transport and Main Roads' guidelines. The results of EIS intersection analyses indicate that the EEP would increase traffic volumes at two key intersections, but as there are low existing traffic volumes, increases caused by EEP traffic would remain well below intersection capacities.

The EIS concluded that no mitigation measure would be required for any link, intersection or pavement impact as a result of the EEP. Pavement maintenance and rehabilitation contributions may be required for some State-controlled roads, but neither maintenance nor rehabilitation contributions would be required on any Council-controlled roads. The Isaac Regional Council submitted a formal response during the EIS public notification period, but did not raise any comments regarding rehabilitation commitments for the EEP. The EIS also concluded that there would be no significant impact on the safety, efficiency and condition of road operations and assets as a result of the EEP.

A number of minor impacts on existing transport routes might result from incremental increases in transport use including the following:

- additional road traffic generation due to workforce changes
- minor pavement impacts on sections of the Peak Downs Highway and Suttor Developmental Road.

The EIS states that the maintenance contribution for the Suttor Developmental Road between the Peak Downs Highway and the mine access road may need to be negotiated between DTMR and Peabody. If required, the payment would be made by a single up-front payment based on the 'present value of costs' or annual payments, which will be subject to DTMR agreement. Rehabilitation contributions may also be required for this section of the Suttor Developmental Road. The maintenance contribution for the impacted section of the Peak Downs Highway between Greenmount Road / Kellys Road and the Suttor Developmental Road has been estimated to be \$30,485 over the life of the mine. The contribution would be required as a single up-front payment by Peabody at the starting year of construction.

The EIS stated that approximately 95% of the predicted 950 additional EEP mine employees (construction and operational) would be expected to be accommodated in mining camps and to reside in various regional centres, the majority in Mackay, from where they would fly in/fly out (FIFO) or bus-in-bus-out (BIBO).

Shuttle buses with a capacity of 55 seated persons would be used to transport employees from the accommodation camp to/from the mine.

The EIS estimated that approximately 5% of employees would choose to live locally in either Moranbah or Glenden, the latter a distance of 32 km. These employees would be expected to find their own means of transport. Some employees may choose to car pool.

DTMR is generally satisfied with the proponent's proposal to resolve traffic issues, but would require that Peabody consult further to resolve the following:

- the safety aspects with additional traffic flows and turning movements at the intersection of the Suttor Developmental Road and the mine access road
- maintenance contributions for the Suttor Developmental Road.

It is recommended that the proponent continue to liaise with the Planning Policy and Major Development Team of DTMR to discuss and resolve the outstanding issues.

4.7.2 Rail

Currently approximately 2.5 to 3Mt/yr of coal is transported by 350 train movements per year from the existing Eaglefield Mine via the existing Riverside Mine balloon loop and Goonyella coal chain system to the DBCT. The EEP would use the existing coal load-out facility and dedicated rail-loop. At peak production, it is expected that the EEP would increase coal production to 6-7Mt/yr and train movements to 825 per year.

QR National was generally satisfied with the EIS. However, QR National requested that Peabody consult on the following:

- dust control, particularly at the rail load out facility
- potential impacts of increased train movements on the rail system.

4.7.3 Port

The anticipated additional coal product volume would equate to approximately 50 additional shipping movements from the DBCT, an increase of approximately 4.8% on current DBCT operations. The EIS states that Peabody has existing contracts with DBCT that are sufficient for the commencement of the EEP.

4.7.4 Air

As the EEP is proposed as predominantly a BIBO/DIDO operation, the EIS concluded that additional passenger demand for air transport services at Mackay, Emerald and Moranbah airports would be insignificant.

4.8 Waste

The EIS adequately addressed the terms of reference with respect to waste. It identified the EEP's major sources of waste with the potential to cause impacts to the environment and to human health as the following:

- mine waste that may produce poor quality saline water runoff/seepage including:
 - waste rock and overburden (approximately 1774 million bank cubic metres)
 - coarse rejects and fine tailings (approximately 31.5 million tonnes) which are the waste by-products from the Coal Handling and Preparation Plant (CHPP) process;
- regulated wastes including, hydrocarbon contaminated wastes/materials, batteries, tyres, cleaning chemicals, vehicle wash down waters and detergents and solvents from workshop activities;
- general waste including, timber and wooden pallets, green waste and domestic waste including, food scraps, wrapping paper from office administration and workshops areas;
- recyclable materials including, paper and cardboard, glass and aluminium cans, scrap metal from workshop and office administration areas; and
- sewage waste including sewage effluent and dried sewage sludge from wash rooms and office administration areas.

The EIS identified that the inappropriate management and disposal of wastes might lead to contamination of land and water with potential adverse impacts on human and ecosystem health.

Peabody has committed to managing waste generated by the EEP in accordance with the waste management hierarchy (i.e. avoidance, recycling, waste to energy and disposal) and in accordance with relevant legislation including the Queensland Environmental Protection (Waste Management) Policy 2000 (EPP Waste). Peabody would incorporate a program of best practice waste management, including the ongoing assessment of cleaner production and waste management opportunities for the life of the project. Regulated

waste would be removed off-site by an appropriately licensed waste management service contractor for disposal at a licensed waste facility.

4.8.1 Mine waste / Waste rock and Overburden

The primary mining-related waste generated by the EEP would be waste rock, coal rejects and tailings. The EEP proposed two waste rock emplacement areas, viz the EWRE & IWRE as well as the co-disposal during early years (<year10). On commencement of the EEP both the coarse and fine rejects would be co-disposed.

Coarse Reject Material

Coarse reject material would be trucked from the CHPP to a bin feeding two waste conveyors to the EWRE (or later in the mine life) back into the in-pit IWRE. The coarse reject material would be evenly spread back onto the waste rock in low concentrations.

Fine Reject Material

Fine reject material, including tailings, would be thickened to a 30 - 40 % mixture and pumped to one of the spreader conveyors on the EWRE (or the IWRE) and discharged with the waste material from the pit at the end of the spreader conveyor. The fine reject material would be evenly spread through the waste rock emplacement in low concentrations (with the contained moisture enhancing dust suppression).

The above methodology has the potential to deliver environmental benefits such as removing the need for the construction of other specific co-disposal facilities. It also allows for the current co-disposal facility to dry out and be capped with waste material sourced from the EEP prior to final rehabilitation. The aim of this plan is to provide sufficient treatment and storage capacity for coal washing waste for the remainder of the mine life.

Approximately 3 % of the waste material stored in the EWRE or IWRE would be made up of combined coarse and fine reject material and tailings. The results of the geochemical assessment/characterisation program of the waste from the CHPP indicate that the quality of this material is alkaline with relatively low salinity and sulphur levels and has a low level of acid generation.

Overburden material was assessed in the EIS as generally alkaline, with low salinity, and a low risk of producing acid. Acid mine drainage from the overburden is therefore unlikely. Any waste rock and overburden material with high sodicity, salinity or is net acid producing will be encapsulated within waste rock dumps. Potential acid forming material will be encapsulated within non acid forming material.

Further detail on the ongoing management of the waste rock and coal rejects is included in the EM plan and thus DERM considers this acceptable.

4.8.2 Regulated waste

The EIS adequately addressed the management of regulated waste generated by the EEP. All regulated waste generated by the EEP would be segregated, stored and managed in accordance with relevant legislation and then collected and transport by a appropriately licensed contractor and disposed of or recycled at a waste management facility licensed to accept such waste.

4.8.3 Other waste

The EIS adequately addressed the management of general, recycled and sewage waste generated by the EEP.

4.9 Water resources

The EIS adequately addressed the ToR with respect to water resources.

4.9.1 Surface Water

The EEP is located within the Isaac River catchment. The site is located in the upper reaches of the Goonyella Creek catchment, which flows into the Isaac River approximately 9 km downstream of the EEP. The upper reaches of Goonyella Creek (within ML 6949) are ephemeral and are not a designated

watercourse under the *Water Act 2000*. Flows in the Issac River and its upper reaches and associated tributaries are highly variable with the largest flows most likely to occur during the period from December to March. The EEP site covers an area of 32 km², representing 0.15% of the approximate 22,400 km² Isaac River catchment area.

Variations in water quality may exist over small spatial scales in the Goonyella Creek system due to differing land management practices, and local industry (such as mining and agriculture) discharging or releasing waters into ephemeral streams. Two characteristics often typifying ephemeral waterways are high turbidity and high sediment loads. Large flow events generally carry a large sediment load that are intensified by a long preceding dry period.

The EEP proposes to divert clean water from undisturbed parts of the catchment around the proposed mining operations to minimise the surface runoff impacted by mining operations. The EEP also would require minor diversions to the upper reaches of Goonyella Creek.

The existing Burton Gorge Dam water supply allocation and on-site collected and recycled mine-impacted water would be stored in existing and proposed mine water storages to meet the increased water requirements for the EEP. Water releases into Goonyella Creek would be permitted only during periods of natural flow and only when it is of an acceptable quality, i.e. in compliance with the conditions of the EA which should take account of draft DERM report *Establishing Environmental Values, Water Quality Guidelines and Water Quality Objectives for Fitzroy Basin Waters* (2010).

The EEP site does not intersect any declared waterways and is not subject to riverine flooding. The local run-off generated from rainfall events in the catchment upstream of the EEP would be managed by diversions around the site. Flood modelling has shown that the pit would be outside the 100 year average recurrence interval (ARI) flood level and the mine pit would be protected from flooding.

4.9.2 Groundwater

The removal of overburden and extraction of coal seams would require the localised dewatering of aquifers. The EIS assessed and modelled the groundwater resource of the EEP and surrounding area to predict changes in groundwater quality and quantity, standing water levels and the potential impacts of dewatering on the local and regional groundwater values. The EIS concluded that mine dewatering operations would reduce both water-table levels and groundwater flows and, consequently, reduce borewater yields on the site and in surrounding areas. No change in water quality during mining operations would be expected as the net movement of groundwater would be towards the void.

Three existing landholder bores are predicted to be impacted by the EEP proposal by lowering groundwater potentiometric heads and reducing bore pumping rate. However, there is minimal use of the aquifers due to marginal water quality and generally low inflow rates. Surrounding landholders source water for domestic consumption from rainfall. Stock water is predominantly supplied from dams, supplemented by small volumes from the Permian Coal Measures aquifers.

Prior to commencing operations on the EEP, Peabody has committed to developing and implementing a revision of its existing groundwater monitoring program to monitor the existing groundwater environment and potential impacts and would enter into landholder agreements with the three landholders whose groundwater bores are predicted to be impacted.

Following cessation of mining at the EEP and surrounding mines, dewatering would cease and groundwater would continue to discharge into the EEP void. The high evaporation rates in the region would slow the rate of recovery of groundwater levels by constantly removing water from the final void. Modelled simulation of groundwater indicates that regional groundwater levels would recover progressively, reaching equilibrium conditions after approximately 265 years. Post mining, water quality in the final EEP void would be expected to deteriorate over time. However, this reduction in water quality would be unlikely to impact on the surrounding aquifers for the following reasons:

- Evaporation of the final void water body would cause a permanent sink in the regional potentiometric surface within the vicinity of the final void;

- groundwater would flow under pressure towards the final void along a hydraulic gradient, from areas of high pressure head to areas of low pressure head (i.e. the final void); and
- the local and regional aquifers would be replenished by rainfall on groundwater recharge zones, and are not expected to change in quality from pre-mining levels.

DERM expressed concern over the impending loss of good quality water for future beneficial use.

Post mining, groundwater monitoring would continue using monitoring bores installed during the EEP operations.

4.10 Air Quality

The EIS adequately addressed the air quality matters raised in the ToR, including dust emissions and greenhouse gas emissions.

The EEP site is located approximately 36 km north of Moranbah and 32km south west of Glenden. Five homesteads are located within 10 km of the proposed mine. The major sources of particulate emissions to air from the proposed open-cut mine would include:

- clearing vegetation and removal of topsoil;
- drilling, blasting and extracting over and inter-burden;
- coal crushing, stockpiling and rail load-out;
- gas emissions from mobile plant and equipment exhausts;
- wind erosion from stockpiles and waste rock emplacements and areas of bare soil; and
- vehicle movements on unsealed roads.

Air quality modelling undertaken for the EIS concluded that concentrations of both suspended (i.e. particulate matter less than 2.5 micrometres, particulate matter less than 10 micrometres, and total suspended particulates) and deposited particulates would be slightly elevated at the five sensitive receptors. However, concentrations would still be at or below the air quality objectives stated in the *Environmental Protection (Air) policy 2008*. There are no predicted impacts of suspended or deposited particulates in the towns of Moranbah and Glenden.

Notwithstanding compliance with air quality objectives as described above, a range of commitments have been made in the EIS to manage dust from the EEP, include the following:

- minimise surface disturbance to the area necessary for mining activities;
- rehabilitate progressively;
- remove and dump waste rock as soon as practicable after blasting;
- where practicable, avoid topsoil stripping and replacement during windy conditions;
- use water sprays and water trucks for dust suppression;
- investigate use of chemical suppressants on haul roads;
- minimise the number of tracks and roads around the EEP;
- limit vehicular access on site to authorised vehicles and designated routes;
- limit the internal speed on unsealed roads to 60 km/h; and
- minimise dump truck haul routes.

The DTMR and QR National raised the issue of dust emissions and loss of coal from rail link/rail load-out facility. Peabody responded that it will amend its EIS to acknowledge the that coal trains are a potential source of dust. In addition, Peabody acknowledged the goal of the QR National Coal Dust Management Plan (2010) to reduce coal loss and associated dust emissions during rail transport. Accordingly, Peabody has stated it will consult DTMR and QR National regarding rail load-out dust management measures and the QR National Coal Dust Management Plan (2010). This issue is also addressed in the EM plan.

The EIS included an adequate assessment of potential Greenhouse gas (GHG) emissions using the National Greenhouse Accounts Factors published by the Commonwealth Department of Climate Change and Energy Efficiency.

The direct and indirect GHG-emissions generated from the EEP include:

- fuel (diesel) burning in heavy mining earthmoving equipment and light vehicles;
- methane emissions (fugitive) from exposed coal seams; and
- land clearing (e.g. burning of vegetation).

Peabody has presented a number of abatement measures aimed at reducing its GHG-emissions including the following:

- minimising the area of land cleared on the site;
- a commitment to energy management, including undertaking periodic energy audits with a view to improved energy efficiencies; and
- the use of renewable energy sources where practicable.

4.11 Noise and vibration

The EIS adequately addressed the noise and vibration matters raised in the ToR. There are five noise-sensitive places (homesteads) within 10 km of the site, the closest being Denham Park (old) residence, 2km to the north west. Modelling of noise levels undertaken for the EIS concluded that the noise-sensitive places would not be impacted by noise or vibration from the EEP at any time of day, evening or night except during worst-case conditions at the Denham Park ((old) residence (38dB(A)). The EIS stated that compliance at this residence is likely to be met if the IPCC is located optimally within pit, where the pit walls would provide a barrier to the IPCC noise emissions. Furthermore, the IPCC would be selected to comply with specified sound power levels. Post construction noise monitoring would be undertaken to ensure compliance with noise level limits. The modelling also concluded that noise levels from the proposed mining operations would be below the background noise level goal (known as 'background creep'). Low frequency noise levels at noise-sensitive places are also predicted to be within noise level limits.

Noise emissions from road and rail traffic would be unlikely to adversely impact any noise-sensitive place.

4.12 Nature conservation

Submissions were received on this subject from DERM, DEEDI, SEWPaC, Fitzroy Basin Association and the Capricorn Conservation Council. As a result of these submissions Peabody made minor amendments to the EIS and associated EM Plan.

4.12.1 Flora and Fauna

The EIS provided sufficient detail on ecological impacts and adequately dealt with avoidance mitigation measures.

The majority of the vegetation on the EEP site has been extensively modified as a consequence of historical vegetation clearing practices for beef and sheep grazing activities and clearing associated with the existing mine operations and exploration. No threatened or near threatened flora species have been recorded on the ML.

Potential impacts on nature conservation as a result of the EEP include:

- approximately 381 ha of remnant vegetation will be cleared, including 358 ha of vegetation mosaics containing EPBC Act listed Threatened Ecological Communities (TECs)
- approximately 21 ha of Brigalow vegetation (REs 11.3.1a, 11.4.8, 11.4.9) is planned to be cleared

- approximately 14 ha (RE 11.8.13) and 19 ha (RE 11.5.15) of Semi-evergreen Vine Thicket are planned to be cleared
- approximately 40 ha of 'of concern' dominant or sub-dominant *Dichanthium* bluegrass vegetation (RE 11.8.11) is planned to be cleared
- Regional ecosystems (REs) proposed for clearing (11.3.1a, 11.4.8, 11.4.9, 11.5.15, 11.8.13) have a biodiversity status of 'endangered' and constitute Category B Environmentally Sensitive Areas (ESA) and are listed under the *Environmental Protection Regulation 2008*
- the proposed clearing would remove available habitat for threatened and near threatened vertebrate species known or likely to occur within the EEP area (i.e. *Geophaps scripta scripta* (Squatter Pigeon), *Chalinolobus picatus* (Little Pied Bat) and *Denisonia maculata* (Ornamental Snake))
- no recorded or likely migratory species would be significantly affected by the proposed disturbance activities of the EEP
- the potential to spread weed species existing within the EEP due to disturbances during mining activities
- mortality of fauna individuals within the proposed disturbance zones during vegetation clearing activities
- the proposed clearing would eliminate all native vegetation corridors on the ML. These areas of vegetation are peripheral to the larger mapped areas of vegetation to the east and their loss is unlikely to significantly affect the corridor or context and connection values of the remainder of the adjoining vegetation or the local populations or movement patterns of fauna..

The clearing of vegetation, including clearing for surface mining, is one of the most significant impacts on biodiversity. Removal of vegetation for the EEP would have an impact on local biodiversity through habitat loss and individual mortality. Riparian vegetation, such as that along creek lines, is particularly susceptible to such impacts. Fragmentation of 'of concern' or 'endangered' REs would result in a reduction of core habitat values of these areas. The removal of existing vegetation on the EEP site might impact locally significant and/or State or Commonwealth-protected species. Accordingly, a commitment was made in the EIS to develop an offset proposal together with a management plan and conservation program for species and communities impacted by the EEP.

DERM and the Capricorn Conservation Council (CCC) raised concerns about the clearing of vegetation corridors. The Fitzroy Basin Association (FBA) also asked whether vegetation corridors would be established as part of a rehabilitation management plan. Peabody responded that the native vegetation corridors on the ML are peripheral to the much larger mapped areas of vegetation to the east and the EEP footprint would be unlikely to significantly affect the corridor or context and connection values of the remainder of the adjoining vegetation, local populations, or movement patterns of significant fauna. To manage and mitigate these potential impacts, Peabody would develop a number of strategies in consultation with DERM, including a Threatened Flora and Fauna Species and Ecological Communities Management Plan to satisfy the requirements of the *Nature Conservation (Wildlife Management) Regulation 2006*. This would require approval by DERM prior to the commencement of any works that may impact the potential habitat of a species listed under the NC Act. Peabody also stated that it would consider the reestablishment of vegetation corridors as part of the post mining rehabilitation works, which will be further investigated during the development of the rehabilitation plan.

The EIS stated that vegetation clearing would be undertaken in accordance with best practice to minimise the potential impact and would include the following:

- contractors and operators being made aware of the potential presence of threatened and near threatened species and will be instructed to temporarily cease clearing if these species are identified;
- vegetation clearing activities occurring in an appropriate direction, to direct animals into adjacent habitat;
- reconstruction of riparian habitat along the diversion channel to include the strategic placement of removed logs to provide habitat features; and

- disturbance to the Goonyella Creek drainage lines associated with realigned road infrastructure conducted during the dry season, where practicable.

The EIS committed to developing pest and weed management measures for the EEP to include:

- regular pest control actions in conjunction with local authorities and landholders, particularly for pests such as dogs, cats and foxes;
- ensuring that any putrescible waste does not accumulate outside of designated areas. Such designated areas to be animal-proof and wastes to be regularly removed;
- restricting vehicle movements in areas outside mining and processing activity areas and during and following rainfall; and
- enforcing wash-down procedures for all vehicles in designated areas (including clearing and construction machinery) prior to entering clearance zones, grazing areas or conservation areas.

Rehabilitation programs would be developed and implemented to revegetate native vegetation as necessary.

Actions impacting on protected native flora and fauna are regulated under the NC Act and subordinate legislation. Accordingly, some or all of the following permits may be required for the EEP:

- a Species Management Plan must be submitted to DERM for approval for tampering with some animal breeding places (Section 332 Nature Conservation (Wildlife Management) Regulation 2006);
- a Rehabilitation Permit (spotter catcher endorsement) for managing fauna during clearing activities (Section 207 Nature Conservation (Wildlife Management) Regulation 2006); and
- a Damage Mitigation Permit (removal and relocation) for removal and relocation of fauna during construction and operational phases (Section 181 Nature Conservation (Wildlife Management) Regulation 2006).

The removal of vegetation must take into account mitigation measures under the Queensland Government Environmental Offsets Policy 2008 and the Biodiversity Offsets Policy 2011.

Negotiations have commenced on an offset proposal for listed species under the EPBC Act and NC Act but this has not been finalised at the time of writing.

4.12.2 Aquatic ecology

The eastern edge of the ML is dissected by a minor ephemeral creek system whose main channel comprises the upper reach of Goonyella Creek. This creek flows mainly in a south-easterly direction until joining the Isaac River. The ephemeral creek system is shallow and unlikely to contain large ponds for any length of time. The only potentially semi-permanent water is around culverts where the mine access road that bisects the ML crosses the upper reaches of Goonyella Creek. The diversity of species generally increases substantially with stream order, as this is related to the length of time during which surface water is available. Sites further upstream are likely to experience surface water for much shorter periods of time and hence have limited aquatic fauna species diversity. As the EEP area contains only the upstream portion of Goonyella Creek, it is likely that the aquatic fauna and flora would be less abundant and diverse and therefore less ecologically important than downstream sections. The upper reaches of Goonyella Creek (within the ML) are not classified as a watercourse by DERM, with Goonyella Creek only becoming a watercourse downstream of the ML boundary.

The floristic diversity is relatively poor, with a very limited presence of aquatic species, e.g. no submergent or floating plants. This situation is likely to be similar for faunal diversity. Accordingly the EIS included no aquatic fauna survey.

The EIS stated that the impacts on the aquatic values, particularly downstream where aquatic life is expected to be more prolific would be mitigated through best practice sediment and erosion controls. As previously stated in Section 4.9 *Water resources*, off-site water releases into Goonyella Creek would be controlled and only permitted during periods of natural flow and when such releases are of an acceptable quality, i.e. in compliance with the conditions of the EA.

4.13 Cultural heritage

The EIS has adequately addressed both the Indigenous cultural heritage and Non-Indigenous cultural heritage matters raised in the ToR.

4.13.1 Indigenous cultural heritage

The nature of the activities associated with the EEP would result in significant surface disturbance within areas of the ML not previously subject to significant ground disturbance. This has the potential to affect Aboriginal cultural heritage that may exist within the EEP area. Project activities would be undertaken, monitored, audited and reviewed in accordance with the Cultural Heritage Management Plan (CHMP) agreed with the Aboriginal party (Wiri People #2) for the EEP area as approved by the DERM under Part 7 of the *Aboriginal Cultural Heritage Act 2003* (ACH Act). The CHMP entered into with the Aboriginal party for the area relates to the protection and management of Aboriginal cultural heritage on the EEP area. EEP activities would be undertaken strictly in accordance with the terms of the approved CHMP.

Aboriginal cultural heritage surveys were conducted within areas of the ML in 2009/2010 as part of the EEP assessments. This EIS also stated that a brief site archaeological survey was undertaken on the ML in 1990 as part of the North Goonyella Coal Mine assessments. A total of 1017 locations of cultural inters were recorded during these surveys. A number of indigenous cultural heritage sites were identified and included:

- stone artefacts and stone artefacts scatters
- scarred trees, including some with associated isolated stone artefacts
- five hearths, four of which were associated with isolated stone artefacts.

The EIS committed to managing indigenous cultural heritage related to the EEP in accordance with the terms of the CHMP entered into with the aboriginal party for the area pursuant to the ACH Act.

4.13.2 Non Indigenous cultural heritage

A non-indigenous cultural heritage assessment was undertaken of the EEP site and concluded that the earliest European land use practice was sheep grazing that was established in the area in the early 1860s. This was soon replaced by cattle grazing, which along with coal mining, are the predominant current land uses in the region. Extensive vegetation clearing occurred in the area between 1950-1990.

The EIS concluded that no sites of non-Indigenous cultural heritage significance had been identified on-site.

4.14 Matters of National Environmental Significance

On 8 January 2009, Peabody referred the EEP to SEWPaC in accordance with the EPBC Act. On 5 February 2009, SEWPaC determined the project to be a controlled action pursuant to Section 75 of the EPBC Act to be assessed through an EIS in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland.

This EIS process is accredited for assessment under Part 8 of the EPBC Act in accordance with the Bilateral Agreement between the Commonwealth of Australia and the State of Queensland (2009). The Commonwealth was included as an advisory body for the project and provided its comments on the draft ToR and EIS documents.

The relevant controlling provisions are Sections 18 and 18 (A) (listed threatened species and ecological communities) of the EPBC Act. The EEP has the potential to impact matters of national environmental significance (MNES) as approximately 381 ha of remnant vegetation would be cleared including the following threatened ecological communities:

- approximately 21 ha of *Acacia harpophylla* (Brigalow) (dominant and co-dominant);
- approximately 33 ha of Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions; and

- approximately 40 ha of Natural Grassland of the Queensland Central Highlands and the northern Fitzroy Basin.

In addition, the following threatened species (listed as ‘vulnerable’ under the *Nature Conservation Act 1992* (NC Act) and EPBC Act) are either possible, or confirmed to occur within the EEP site:

- one bird species, *Geophaps scripta scripta* (Squatter Pigeon, confirmed); and
- one reptile species, *Denisonia maculata* (Ornamental Snake, possible).

SEWPaC considers that the offset proposed is not adequate to mitigate the impact of the EEP with respect to MNES. SEWPaC also noted that additional offsets will need to be proposed before its approval of the EEP can occur, for example, to mitigate the impacts of the EEP on the natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin and semi-evergreen vine thicket ecological communities. Consequently, SEWPAC has requested specific additional information, including:

- details on any further proposed offset(s);
- details on which portion of the land will be the offset for the EEP given that Peabody proposes to use the offset proposal for more than one project;
- details on contingency plans and management activities to be enacted if the establishment of the remnant community is unsuccessful;
- details of the party/parties responsibly for the management of the offset areas and how the offsets will be protected in perpetuity; and
- clarification of the ecological communities in the proposed offset area.

A copy of this EIS assessment report will be provided to the Commonwealth Environment Minister for his consideration in making a decision on whether to approve or refuse the controlled action with reference to the EPBC ACT Environmental Offsets Policy, consultation draft (August 2011) under Part 9 of the EPBC Act.

4.15 Social issues

The EIS adequately addressed the terms of reference with respect to social issues.

The EEP is located in a rural area within the Isaac Regional Council area, the closest towns are Moranbah and Glenden. Historically the surrounding area has been used for cattle grazing. Current neighbouring land uses involve cattle grazing and coal mining. The EEP would commence in 2012 and continue for a period of approximately 22 years. The current workforce is comprised of 220 persons (Eaglefield Coal Mine) and 502 persons (North Goonyella Coal Mine). The EEP workforce is expected to number up to 650 persons during construction and up to 700 during its operation.

The EIS assessed the potential impacts on the lifestyle, wealth, safety, health and wellbeing of the community surrounding the EEP. Baseline data in the EIS were sourced from desktop studies, statistical and demographic reports. Consultation with residents of Moranbah, Glenden and the wider community was undertaken via a Stakeholder and Community Engagement Program.

The EEP would be likely to contribute to the cumulative negative social impacts of mining on the community on a local and regional level. The negative social impacts identified in the EIS included, housing demand and supply, community infrastructure and services and social implications of the EEP and workforce housing and accommodation arrangements. In one of its submissions on the EIS, the Isaac Regional Council stated its opposition 'to any development in the Isaac Regional area that did not support the fundamentals of growing vibrant sustainable communities and the provision of accommodation choice for families and workers that wish to seek employment in the area.'

Although the EIS generally addressed the social impact matters raised in the ToR, a Social Impact Management Plan (SIMP) is required by DEEDI for the EEP in accordance with the Queensland

Government's Sustainable Resource Communities Policy 2008. The SIMP would provide the framework for ongoing management of social impacts during the operation and decommissioning stages of the EEP.

A draft SIMP was included as an annexure to Section 15 of the EIS. This two page document essentially outlined the main issues to be addressed in the SIMP, such as action plans, monitoring, reporting and dispute resolution mechanisms, and public enquiries and complaints. Peabody has committed to further develop and submit a final SIMP to DEEDI for review following the EEP approval.

4.16 Economy

The EIS adequately addressed the economic impact matters raised in the ToR.

The value of impacts on the regional economy were assessed using input-output analysis. This approach is based on industry tables that model the structure of an economy by describing inter-industry relationships.

The economic base of the region is supported by agricultural activities such as sugar, beef and aquaculture and coal mining. Coal mining contributes the largest portion of economic activity to the region.

The EEP would result in the removal of approximate 381 ha of remnant vegetation. To account for this clearance, the EIS incorporated a value for ecosystem services of \$103,000 per annum (\$2.6 million over 25 years), and assessed a net project opportunity cost (i.e. revenue forgone as a result of the EEP) for the site of \$4.8 million over the next 25 years.

The EIS cites 2005/2006 agricultural census data as indicating that the average value of gross return from livestock grazing on the site was approximately \$32 per ha. Thus the forgone opportunity cost for the EEP mine site (2,830 ha) for cattle grazing would be approximately \$ 90,560 per annum and \$2,26 million over the life of the mine.

The value of the coal resource to be mined would be subject to the exchange rate and coal price fluctuations. The royalty payment to the Queensland Government was estimated in the EIS as \$37-\$53 million per year for the first nine years, increasing to \$76- \$109 million per year of the following 12 years.

The EIS estimated that the EEP would generate an additional 240 - 650 new jobs at the mine and approximately another 800 - 1100 jobs in other industries. The total employment-related contribution to the local and regional economy was estimated at approximately \$7.5 billion over the life of the mine.

The EIS concluded that EEP would have a generally positive economic impact on the local and regional economic environment as well as the state and national economies.

4.17 Health and Safety

The health and safety section of the EIS adequately addressed the matters raised in the ToR, noting that the potential impacts on the workforce are covered by other relevant legislation and are not the subject of approvals under the EP Act.

The EIS committed to modify and implement the existing Safety and Health Management System (S&HMS) from the current mining operation. The revised EEP S&HMS should ensure all activities that have the potential to impact on occupational health and safety on the mine site are carried out in accordance with all relevant legislation and Australian Standards.

Air modelling undertaken for the EIS predicted that the air quality criteria for protection of health and wellbeing would be met at nearby sensitive receptor locations. The EIS concluded that dust emissions to air from the EEP are unlikely to impact on health in the community.

4.18 Hazard and Risk

The EIS conducted a hazard and risk assessment of the potential hazard and risks to people and property associated with the EEP. The EIS presented an acceptable Risk Management Framework and Risk Assessment Methodology and Criteria for the EEP.

The EIS summarised the risk and hazard sources and outlined management measures. The EIS includes a commitment to:

- review and revise the existing Eaglefield Mine's Emergency Management Plan (EMP) in consultation with the relevant emergency and health services
- provide a detailed evaluation of the hazards associated with the EEP prior to the commencement of the construction and operational phases of the EEP when the mine's detailed design and operational plans are finalised.

The EMP would include the following:

- an analysis of the key incidents likely to take place for each operational area
- an assessment of the degree of impact likely to occur
- an assessment of what constitutes an emergency for the particular operation
- an on-site plan to handle incidents / emergencies
- a plan covering off-site emergency services
- communication, emergency responsibilities, control centre establishment
- post emergency procedures, including recovery, debriefing and review of plan
- emergency plan training and testing sessions.

The EIS outlined control strategies for all identified potential hazards and risks for the project to mitigate and manage the risks to acceptable levels.

The EIS adequately addressed the matters related to hazard and risk raised in the ToR.

4.19 Rehabilitation

The potential impacts that will need to be addressed through a program for rehabilitation and decommissioning on ML 6949 include:

- surface disturbance - during the life of mine, the following approximate land disturbance areas are proposed:
 - EEP pit of 850 ha footprint including a 320 ha IWRE;
 - 1,630 ha EWRE;
 - 390 ha of disturbance for all other infrastructure;
 - approximately 381 ha of remnant vegetation would be cleared (included in figures above);
- a final Eaglefield void of 530 ha;
- final void associated with Eaglefield Mine;
- external waste rock and co-disposal area associated with North Goonyella and Eaglefield mines and also proposed to be utilised by EEP during its early years; and
- permanent realignment of the upper reaches of Goonyella Creek..

The EIS reported that all areas of land that would be disturbed by mining activities, other than the final voids and the EWRE and IWRE would be rehabilitated to create a stable landform with the aim of establishing a self-sustaining vegetation cover of native trees, shrubs and grasses, including specific areas suitable for cattle grazing as the post mining land use. The intended land use for the co-disposal area, and the proposed EWRE and IWRE areas is native bushland. However, the voids would remain unrehabilitated.

Following the cessation of mining on EEP, groundwater, surface water and rainfall would continue to flow into its final void. The EIS presented the results of modelling indicating that the water level would remain at least 210 m below the spill level and thus there is no risk form a spill from the void. However, void water quality would continue to diminish, with salinity increasing.

The final void would need to be maintained in perpetuity, either by Peabody, or another future landholder. Responsibilities would include:

- fence and signage maintenance;
- monitoring of void water and surrounding groundwater quality;
- monitoring of surrounding groundwater levels; and
- monitoring of the stability/integrity of the void batters followed by any necessary earthwork maintenance.

The EIS stated that the rehabilitation design would be based on the following criteria:

- EWRE slopes would be designed at no greater than 1(V):6(H) gradient;
- the surface of both the EWRE and IWRE would be shaped as a gently undulating topography to mimic the surrounding landscape and naturally encourage localised ponding, where appropriate, thereby enhancing habitat values;
- the low wall of the final void would be benched in accordance with geotechnical conditions and would drain internally into the final void;
- the high wall slope would remain at the final batter angles and made safe in accordance with geotechnical conditions, to minimise the potential for humans and animals to be harmed;
- perimeter stormwater diversion drains would be designed and constructed to meet appropriate standards; and
- appropriate fencing would be utilised to restrict access where required.

The FBA submissions noted that Peabody intended to disturb a total of approximately 3,000 ha of native vegetation and pasture during the life of the mine, including clearing of 381 ha of remnant vegetation. FBA submitted that Peabody must fully offset all remnant vegetation and high-value regrowth communities that are cleared. Peabody responded by stating that it will offset all endangered ecological communities listed under the EPBC ACT proposed to be cleared for the EEP through a Nature Refuge agreement with the Queensland Government under the NC Act.

DERM, the FBA, the CCC and a private submitter have all expressed their concerns with the legacy of the final voids and how they conflict with the principles of ecological sustainability: the voids would remain sterilised against any beneficial future land use. Similarly, both the EWRE and IWRE areas also would be effectively sterilised, although there are plans to rehabilitate with native plant species.

Peabody's response to these concerns has been previously discussed in Section 4.6.6. Peabody presented an economic and efficiency of resource recovery argument in defence of its preferred mining method, site management and rehabilitation, and proposed final landforms.

On 1 July 2011 Peabody submitted a final landscape briefing paper to DERM. The paper stated that Peabody has been engaging with surrounding mining companies to investigate options to enable full recovery of resources; the future use (including possible use as waste disposal sites) of mine voids; and possible ways of coordinating mining activities to achieve a more sustainable, final landform following completion of mining in the area. Peabody also has committed to continued negotiations towards such outcomes.

DERM is supportive of further consultation/engagement process between the mining companies in the local area aimed at minimising void sizes and waste rock emplacements; and achieving improved rehabilitation plans and final landforms. Accordingly, it is recommended that a condition be developed for inclusion in the EA to this end. DERM would require biannual reporting on the status of Peabody's negotiations with neighbouring mining companies on the subject of this collaborative approach.

The rehabilitation of the EEP and the final landform cannot be considered in isolation. In keeping with Peabody's above commitments, it needs to ensure that the rehabilitation for this project is consistent with the rehabilitation management plans (RMPs) for the North Goonyella and Eaglefield Coal Mines. In addition, negotiations should be conducted with other adjacent mining and landholder interests with respect to the rehabilitation and final landform. The required outcome following the decommissioning of these mining operations should be a seamless, integrated final landform.

Although the EIS provided no RMP, Peabody has committed to providing an RMP for the whole ML within 12 months of being granted an EA.

Peabody's RMP needs to align with DERM's *Guideline 18, Rehabilitation requirements for mining projects (2008)* and be consistent with Peabody's Mission Statement, which is quoted in part in the EIS as follows: 'when the mining is complete, we will leave the land in a condition equal to or better than when we found it.'

A finalised RMP should be required to ensure that the intent stated in the EIS is achieved. The plan must address the following aspects, at a minimum:

- landform design and acceptance criteria for all end of mine landforms, including residual voids;
- detailed progressive rehabilitation methods for all disturbed areas;
- water management criteria;
- leading practice rehabilitation performance criteria;
- revegetation criteria;
- rehabilitation monitoring and success criteria;
- weed and pest management;
- a process to progressively report the rehabilitation management actions undertaken, the outcome of those actions and the mechanisms to be used to identify the need for improved management;
- a description of the potential risks to successful management and rehabilitation on site and a description of the contingency measures that would be implemented to mitigate these risks; and
- details of the parties responsible for reviewing and implementing the plan.

The success or failure of rehabilitated lands disturbed by mining activities would be measured against yet to be agreed outcomes and rehabilitation completion criteria for land suitability, land use, landform stability and land contamination.

The RMP must be prepared as early as possible following the granting of an amended EA for the site. The RMP must be comprehensive of the entire ML, demonstrate how it is integrated with the surrounding landscape, and be presented as part of the mine closure management plan. The mine closure management plan must address not only the disturbed overburden, mine pits, residual voids, regulated dams and mine infrastructure, but also be integrated with any areas not directly affected by mining activities.

Peabody needs to be cognisant of the requirements contained in DERM's Financial Assurance Guideline: *Guideline, mining, Calculating financial assurance for mining projects*. Moreover there is likely to be a significant financial residual risk on completion of the mining activity due to the extent of disturbance and large areas that would not be rehabilitated, particularly the remaining void. Both of these issues were raised with Peabody during the EIS process.

5.0 Adequacy of the environmental management plan

A draft EM plan was included with the EIS and subsequently updated in July 2011. However, it does not contain all the environmental protection commitments that would be necessary for the EM plan to comply, Consequently, it cannot be considered adequate.

The EM plan should include auditable commitments that will allow conditions to be developed for the draft EA. 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 environmental authority stage.

6.0 Recommended conditions of approval

Section 59 of the EP Act states that this EIS assessment report must recommend any conditions on which any approval required for the project may be given. However, Section 202 of the EP Act states it is the purpose of the submitted EM plan to propose environmental protection commitments to help the administering authority prepare the draft EA for the application. As the submitted EM plan is not yet adequate and must be revised and resubmitted, there was insufficient information for this EIS assessment report to be able to recommend specific conditions for the draft EA. The EA would need to be drafted after the proponent has submitted a satisfactory EM plan.

7.0 Suitability of the project

DERM has considered the final ToR, the submitted EIS, all submissions on the EIS, including the supplementary EIS, and the standard criteria. Despite the need for a revised EM plan, and submission of a satisfactory rehabilitation plan, the submitted EIS has identified no impacts of sufficient magnitude to prevent the project from proceeding.

8.0 Completion of this EIS process

Provided a satisfactory EM plan, rehabilitation plan and offset strategy is presented addressing all outstanding matters, DERM is satisfied that an EA could be conditioned adequately to address the specific environmental protection commitments set out in the EIS/SEIS, Accordingly, the project may proceed to the next stage of the assessment/approval process.

This EIS assessment report has been approved by the delegate for the chief executive. The giving of this EIS assessment report to the proponent completes the EIS process.

Approved by

Lindsay Delzoppo

7 October 2011

Signature

Lindsay Delzoppo
Director, Environmental Impact Assessments
Department of Environment and Resource Management

Date

Enquiries: EIS Coordinator
Ph. (07) 3330 5600
Fax. (07) 3330 5754