

Assessment Report under the
Environmental Protection Act 1994

on the

Environmental Impact Statement

for the

Lake Lindsay Coal Project

proposed by

Anglo Coal (Capcoal Management) Pty Ltd

October 2005

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1. Introduction

This report provides an evaluation of the Environmental Impact Statement (EIS) process pursuant to Chapter 3 of the *Environmental Protection Act 1994* (EP Act) for the Lake Lindsay Project proposed by Anglo Coal (Capcoal Management) Pty Ltd (Capcoal). The EIS process was coordinated by the Environmental Protection Agency (EPA) as the administering authority of the EP Act. This assessment report has been prepared pursuant to Sections 58 and 59 of the EP Act.

The objectives of this assessment report are to:

- (a) summarise key issues associated with the potential adverse and beneficial environmental, economic and social impacts of the Lake Lindsay Project and the management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project; and

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

It is a requirement of sections 58 and 59 of the EP Act that the EPA considers certain matters when preparing an EIS assessment report and that the assessment report then covers other prescribed matters listed in these sections. In summary, this assessment report addresses the adequacy of the EIS in addressing the final Terms of Reference (TOR), the suitability of the draft Environmental Management Plan (EM Plan) and other prescribed matters.

This report provides a summary and assessment of the key issues identified through the EIS process, and discusses in greater detail those issues of particular concern that were either not resolved or required specific conditions for the project to proceed. With regard to conditions, the EPA has developed a basic set of conditions that would typically apply to level one mining projects. Those are referred to in this report as the streamlined level one conditions. Those conditions will be applied to the draft Environmental Authority (EA) for the project, except where this report recommends modification of a condition in the streamlined set or additional conditions.

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

1.1 Project details

Anglo Coal (Capcoal Management) Pty Ltd (Capcoal) is the proponent for a new coal mine project known as the Lake Lindsay Project.

The proposed Lake Lindsay mine would be located approximately 21km south, south-west of the township of Middlemount, and 70km north-west of Emerald, wholly within Broadsound Shire in central Queensland. Middlemount is a small town with a population of around 2,050 located approximately 95km north-east of Emerald and 200km west, north-west of Rockhampton. Capcoal propose to construct an additional 150 single persons quarters and 20 additional houses at the Middlemount township.

Capcoal proposes to manage the Lake Lindsay Project as an open cut mine producing an average of 5Mt per annum (Mtpa) of ROM coal (but ranging from 4 to 6.5Mtpa) for up to 30 years.

The Lake Lindsay Project deposit consists of a 103 million tonne (Mt) resource including the Middlemount, Tralee and Pisces seams within the Rangal coal measures located in the Bowen Basin coal province. The deeper Girrah seam consists of multiple plies and partings of coal with a very poor yield and is not considered commercially viable for this project. The mining component of the Lake Lindsay Project is located on Mining Lease application (MLA) 70336, covering approximately 4171ha of land. Run of mine (ROM) coal will be transported approximately 28km from the project site via coal conveyor to a new coal processing plant (CPP) which will be constructed within the existing German Creek mining industrial area (MIA) on mining lease (ML)1831. Product coal will be transported for export using upgraded rail loop and loadout infrastructure also located within ML1831.

A flood protection levee bank of approximately 4km in length is proposed parallel to Oaky Creek along the southern extent of the mining operation. The levee bank will provide flood protection up to the 1-in-100-year flood event. There are no waterway diversions proposed as part of the Lake Lindsay Project.

Mine overburden will be drilled and blasted and removed by an excavator and truck fleet. After about year three, strip mining using a dragline or truck and shovel operation, will occur.

ROM coal will be transported either by truck haulage or overland conveyer to a new CPP at German Creek on ML1831 for processing. Tailings from the CPP will be disposed in selected German Creek residual voids. Supernatant from the disposed tailings will be pumped back to the German Creek MIA to be reused in the CPP. Course reject waste rock material from the CPP will be spread on top of tailings up to the height of the lowwall and will be covered with rock mulch and topsoil and will be progressively revegetated. A final void covering an area of 305ha and 165m in depth will remain on MLA70336 at the conclusion of mining the Lake Lindsay resource.

Product coal will be loaded onto trains using the existing German Creek rail loop and loadout facilities and transported to ship loading facilities for export at the Dalrymple Bay Coal Terminal located 38km south of Mackay.

Approximately 130 to 150 new fulltime permanent jobs will be created during the 30 years of project operations. Runoff from the MIA and ROM pads will be directed through the water management system (WMS) to be used for dust suppression. Water for the CPP will be obtained from the existing German Creek residual voids and recycled in a closed loop system.

1.2 Approvals

The following approvals are required for the Lake Lindsay Project:

Approval	Legislation (Administering Authority)
Environmental Authority (mining activities)	<i>Environmental Protection Act 1994</i> (EP Act)
Development approval for works to be undertaken off the mining lease (constructing the coal conveyer, haul road and transmission line easement outside of mining lease areas)	<i>Integrated Planning Act 1999</i> (local government approval)
Tree Clearing Permit (clearing for the coal conveyer, access road and transmission line easement outside of mining lease areas)	<i>Vegetation Management Act 1999</i> (Natural Resources and Mines)

1.3 Impact assessment process

1.3.1 The EIS process

The EIS for the Lake Lindsay Project was conducted under Chapter 3 of the EP Act. This process is described in the EPA's guideline "*The EIS process for non-standard mining projects*" [NB: non-standard mining projects are now known as level 1 mining projects].

The EIS process was initiated by Capcoal on 16 December 2003 by application to the EPA to prepare a voluntary EIS under section 70 of the EP Act. Also attached to the application was an Initial Advice Statement (IAS) describing the major aspects of the Lake Lindsay Project. The EPA requested additional information on 18 December 2003 with regard to whether the proposal was a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proponent responded on 18 December 2003 with advice from the Commonwealth indicating that formal assessment and approval under the EPBC Act was not required. The EPA approved the application to undertake a Voluntary EIS on 23 January 2004.

Capcoal submitted to the EPA the draft Terms of Reference (TOR) on 26 March 2004. The EPA approved the draft TOR and issued a notice of publication of draft TOR to Capcoal on 20 April 2004. The draft TOR were available for public comment from 27 April 2004 to 8 June 2004 with the EPA placing a public notice on the EPA's website on 23 April 2004 and in Central Queensland News and The Courier-Mail on 23 and 24 April 2004 respectively. Capcoal issued copies of the public notice to affected and interested persons in accordance with the requirements of the EP Act.

Fourteen submissions (including one provided by the EPA) were received on the draft TOR within the public comment period. Submissions were received from nine State government departments and agencies, two local government authorities and three non-government organisations. These submissions were forwarded to Capcoal on 23 June 2004 to which Capcoal responded on 1 July 2004. The EPA considered all submissions received on the draft TOR and Capcoal's responses prior to issuing the final TOR to Capcoal on 23 July 2004.

Capcoal submitted the draft Environmental Impact Statement (EIS) on 27 April 2005 to the EPA for review prior to public notification. The EPA compared the draft EIS to the final TOR and advised Capcoal on 6 June 2005 that the draft EIS addressed the TOR sufficiently to proceed to public notification. The public notification and submission period was set at 20 business days.

The draft EIS were available for public comment from 14 June to 11 July 2005. The EPA placed a public notice on the EPA's website on 10 June 2005 and Capcoal placed a public notice in the Central Queensland News and

The Courier-Mail on 10 and 11 June 2005 respectively. Capcoal also issued copies of the public notice to affected and interested persons.

Nine submissions from State government departments and agencies (including one provided by the EPA) were received on the draft EIS within the submission period. These submissions were forwarded to Capcoal for consideration and response on 22 July 2005. Capcoal submitted a response to submissions (Supplementary Report) to the EPA on 23 August 2005.

On 24 August 2005 copies of the Supplementary Report were issued to members of the advisory body who had requested additional information. These advisory body members were requested to consider the Supplementary EIS and provide comments and/or conditions of approval by 9 August 2005.

Six submissions were received on the Supplementary EIS from State government departments and agencies (including one provided by the EPA).

Comments from the advisory body members were considered by the EPA in the preparation of this EIS assessment report. Copies of this EIS assessment report are to be forwarded to all members of the advisory body, interested and affected persons and is to be available on the EPA's website (www.epa.qld.gov.au).

1.3.2 Consultation program

Public consultation

In addition to the statutory requirements for public notification of the TOR and draft EIS, Capcoal included a community consultation program during the development of the draft TOR and draft EIS. This program included a community newsletter, freecall hotline and project email address, community survey, and face to face discussions and public information sessions with the following groups:

- local landholders on, adjacent to and neighbouring the project area;
- State government departments and agencies;
- representatives of Peak Downs and Broadsound Shire Councils; and
- community services, local interest groups, local businesses and residents in the Middlemount township.

Advisory Body

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

- Broadsound Shire Council;
- Capricorn Conservation Council;
- Dauringa Dingo Landcare Group;
- Department of Communities;
- Department of Education and the Arts;
- Department of Emergency Services;
- Department of Housing;
- Department of Local Government, Planning, Sport and Recreation;
- Department of Main Roads;
- Department of Natural Resources and Mines;
- Department of Primary Industries;
- Department of State Development and Innovation;
- Fitzroy Basin Association;
- Mackenzie River Big Bend Landcare Group;
- Peak Downs Shire Council;
- Queensland Health;
- Queensland Police Service; and
- Sunwater.

Advisory body briefings were held in Brisbane and in central Queensland during the draft TOR and draft EIS stages of the EIS process.

Public notification

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

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

- EPA Website (draft TOR and IAS only);
- Naturally Queensland Information Centre, EPA Central Office, Brisbane;
- EPA District Office, Emerald;
- Middlemount Public Library; and
- Parsons Brinckerhoff, Brisbane.

Copies of the draft EIS could also be purchased from Capcoal.

Site visit

A site visit was organised for the advisory body on 1 July 2005 during the public notification period for the draft EIS. The purpose of the site visit was for Capcoal to show members of the advisory body key features of the project site including Oaky Creek, the proposed flood protection levee bank location, and the proposed mining and industrial areas. Capcoal also showed members of the advisory body the current German Creek operations including the existing CPP, rehabilitated waste rock dumps and potential tailings and course reject disposal locations for the Lake Lindsay Project. The advisory body members asked questions about the project to clarify issues of interest or concern. The site visit was attended by a number of advisory body members, including staff from the EPA project team.

1.3.3 Environment Protection and Biodiversity Conservation Act 1999

The Lake Lindsay Project was referred (EPBC 2001/276) to the Commonwealth Department of Environment and Heritage (DEH) on 7 May 2003 and a decision by DEH was made on 6 June 2003 that formal assessment and approval under the EPBC Act was not required.

2. Matters considered in the EIS assessment report

Section 58 of the EP Act requires, when preparing this EIS assessment report, the consideration of the following matters:

- (a) the final TOR for the EIS;
- (b) the submitted EIS;
- (c) all properly made submissions and any other submissions accepted by the chief executive;
- (d) the standard criteria;
- (e) another matter prescribed under a regulation.

These matters are addressed in the following subsections.

2.1 The final TOR

The final TOR document, issued to Capcoal on 23 July 2004, was considered when preparing this EIS assessment report. While the TOR were written to include all the major issues associated with the project that were required to be addressed in the EIS, they were not exhaustive, nor were they to be interpreted as excluding all other matters from consideration. The TOR stated that if significant matters arose during the course of preparation of the EIS that were not incorporated in the TOR, e.g. currently unforeseen issues that emerge as important or significant from environmental studies, then these issues should also be fully addressed in the EIS.

Where matters arose outside of those listed in the TOR dated 23 July 2004, those matters have been considered when preparing this EIS assessment report as though they were incorporated into the final TOR.

2.2 The submitted EIS

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

- (i) draft EIS that was publicly released on 14 June 2005; and
- (ii) the submissions response report (Supplementary EIS Report) received by the EPA on 23 August 2005 that was provided to relevant advisory body members.

2.3 Properly made submissions

Nine submissions were received by the EPA on the submitted EIS. Six submissions were received by the EPA on the submitted Supplementary EIS. All were properly made and all were considered when preparing this EIS assessment report.

2.4 The standard criteria

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

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

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

2.5 Another matter prescribed under a regulation

There is no other matter prescribed under a regulation that required consideration.

3. Adequacy of the EIS in addressing the TOR

The submitted EIS adequately addressed most components of the TOR. The key sections are discussed in this assessment report. However, a number of sections in the TOR were inadequately addressed by the submitted EIS including:

- post-mine landform design;
- post-mine landform stability;
- rehabilitation methods and rehabilitation success criteria; and

- water quality monitoring;
- noise and vibration monitoring; and
- air quality monitoring.

These issues are discussed in greater detail below.

3.1 Land Resources

3.1.1 Post-mine landform design

Spoil dumps are proposed to be rehabilitated at a slope of 1 Vertical:3 Horizontal (approximately 33 percent). Rock mulch with rock cobbles and boulders derived from quartz-lithic sandstone is proposed to be used as capping on spoil slopes to provide landform stability. The EIS stated that recent investigation by the Australian Coal Association Research Program (ACARP) presented in the ¹ACARP Project C12031 found this rock mulch method successful at stabilising dispersive spoils in the absence of suitable cover material. This rehabilitation method has been implemented at the nearby Anglo Coal Pty Ltd owned and operated German Creek and Oak Park mines. A report (Oak Park Environmental Status Report 2002) was referred to in the EIS as information supporting the use of the rock mulch method on spoil slopes at an angle of 33 percent. However, that report was not submitted as part of the EIS documentation, nor were its findings discussed in the EIS.

Assessment

While the ACARP Project C12031 found no significant correlation between rehabilitation performance of rock mulch and slope angle, a maximum slope angle with acceptable rates of erosion to maintain geotechnical stability was not specified. Furthermore, the ACARP Project C12031 identified a number of possible shortcomings of the rock mulch method, including the sensitivity of slope erosion to the proportion of finer and larger particle sizes as an overall component of the rock mulch. For example, if the rock mulch lacks a sufficient proportion of smaller particles, run-off may infiltrate into the underlying dispersive spoil, leading to tunnel erosion. Alternatively, if the rock mulch contains excessive finer particles, the mulch itself may be susceptible to erosion.

Capcoal have indicated in discussions with the EPA that research trials on the implementation of the rock mulch method were undertaken at German Creek and Oak Park. It is recommended that Capcoal submit to the EPA information on the research trials undertaken at German Creek and Oak Park mines. This information will form part of the assessment documentation used by the EPA to draft the EA for the Lake Lindsay Project.

Recommendations:

- 1) It is recommended that Capcoal, submit to the administering authority the Oak Park Environmental Status Report 2002 and any other available research information documenting the implementation and monitoring of the rock mulch rehabilitation method. Appropriate conditions will then be developed for the draft environmental authority.**

3.1.2 Post-mine landform stability

The TOR (section 4.3.2.1) required information on impacts of the project on agricultural land and erosion of the post-mining landform under the proposed post-mining land use.

Adequacy of this section of the EIS

The TOR has not been adequately addressed by the submitted EIS in regard to the erosion potential of the southern spoil dump during flooding of the post-mining landform in the Oak Creek floodplain.

The final landform design presented in the EIS (Figure 2.6) indicates that the southern most mining pit, which is on the floodplain of Oak Creek, is proposed to be backfilled with spoil and a spoil dump constructed and rehabilitated to a height of around 30m and at a slope angle of 1 Vertical:3 Horizontal. Based on the soils analysis provided in the EIS, the majority of the spoil material in this area consists of highly dispersive, tertiary clays. Capcoal proposes rock mulching in association with revegetation to manage the dispersive nature of

¹ The MINSERVE Group Pty Ltd. July 2004. ACARP Project C12031 Final Report - Rehabilitation of Dispersive Tertiary Spoil in the Bowen Basin.

these clays and achieve a geotechnically and erosionally stable post-mine landform. The levee bank is also proposed to be removed post-mining to partially re-instate the northern floodplain of Oaky Creek, which under some conditions would expose the rehabilitated spoil dump to flood waters.

According to the flood modelling presented in the EIS flood waters in a 1-in-100-year flood event will extend onto the backfilled floodplain and flow against the southern spoil dump. Therefore, that spoil dump will act as a barrier, similar to the levee bank, restricting the width of the northern floodplain. However, no hydrodynamic flood modelling was presented in the EIS to assess the changes in flood flow velocities and stream power attributed to the proposed post-mining floodplain environment. Furthermore, no information was presented on the long-term stability and erosion potential of this post-mine landform in a floodplain environment.

Assessment

It could be anticipated that post-mining the stream power against the external face of the spoil dump would range somewhere between the pre-mining calculations and the calculations predicted during mining with the levee bank intact. However, the external face of the rehabilitated spoil dump (depicted in Figure 2.6 of the EIS) is a different shape than the external face of the flood protection levee bank. Furthermore, as discussed in section 3.1.1, the material available for capping spoil dumps in the floodplain may not be suitable to provide long-term stability. Therefore, in the absence of flood modelling of the post-mining floodplain environment, and an assessment of erosion potential under flooding conditions, the EPA cannot determine whether or not the post-mining landform will remain geotechnically and erosionally stable and self-sustaining in the long-term (e.g. minimum of 150-years).

Therefore, additional hydrodynamic floodplain modelling will be required to assess the potential long-term impacts of flooding on the post-mine landform in the Oaky Creek northern floodplain.

Recommendations:

- 2) **It is recommended that the EA include a condition that at least 28 days prior to project commissioning a Hydrodynamic Flood Modelling Report showing long-term flooding impacts on the rehabilitated northern floodplain of Oaky Creek must be submitted to the administering authority. The Report must include:**
 - a) **predicted peak design flood levels extending 2km upstream and 2km downstream of the rehabilitated floodplain for the 1-in-10-year, 1-in-20-year, 1-in-50-year and 1-in-100-year flood events;**
 - b) **predicted velocities(m/s), stream power (W/m^2), flow volume (m^3/s) and Manning's 'n' roughness coefficient across the re-instated northern floodplain and against any proposed elevated structure above natural ground surface in the northern floodplain for each flood event;**
 - c) **predicted changes to the flow regime of flood waters as a result of an elevated structure above natural ground surface in the northern floodplain of Oaky Creek; and**
 - d) **an assessment of the long-term (minimum 150-year) sustainability of constructing a spoil dump in the active northern floodplain of Oaky Creek. The assessment should include information on long-term erosion potential and geotechnical stability of the spoil dump and if required, propose measures to ensure long-term stability of residual earthworks on the floodplain.**

3.1.3 Rehabilitation methods and rehabilitation success criteria

The TOR (section 3.10) required the EIS to provide strategies and methods for progressive and final rehabilitation of the environment disturbed by the mining activities in the context of the expected final landforms for nominated final land uses.

Adequacy of this section of the EIS and EM Plan

The requirements of the TOR regarding progressive and final rehabilitation in achieving landform stability and a self-sustaining vegetation cover in the context of proposed post-mining land use has not been adequately addressed by the submitted EIS. A broader range of acceptance criteria are required for bushland rehabilitated spoil and void areas that more accurately measure the success of the bushland rehabilitation in terms of achieving a self-sustaining vegetation cover. Acceptance criteria should also be developed for the desirable soil profile physical and chemical property limits required to support the desired self-sustaining vegetation cover and

desired level of post-mining land use. Furthermore, as an alternative to re-establishing all pre-mining communities on non-spoil and non-void areas, it would be acceptable for Capcoal to investigate other areas for rehabilitation to off-set the loss of pre-mining regional ecosystem (RE) communities. The main objective of this off-set rehabilitation program should be to improve and/or restore connectivity of surrounding vegetation, including riparian vegetation to enhance biodiversity in the local area as a whole. Capcoal should also develop a broader range of default acceptance criteria to measure the success of the off-set rehabilitation program at achieving self-sustaining vegetation communities compared with local reference sites.

To assist development of the draft EA, additional information is required on:

1. suitable rehabilitation acceptance criteria to demonstrate that the rehabilitation objective of bushland on spoil and void areas will provide a self-sustaining vegetative cover in the long-term; and
2. the potential for environmental off-set for the loss of RE communities to be cleared for the construction of roads and infrastructure areas.

Assessment

With regard to deficiency number one, the environmental protection objectives for land referred to in the draft EIS include to:

- return the land to a post-mining land use that will be self-sustaining and require minimal maintenance; and
- ensure that post-mining landforms are safe, stable and non-compromising for final land use.

The rehabilitation objective for void and spoil areas (which are unsuitable for grazing post-mining) is to rehabilitate these areas to native bushland that will be stable and self-sustaining. Bushland is defined in the draft EIS as:

“A functional, multi-layered, semi-natural plant community, including a permanent tree layer, capable of sustaining flora and fauna habitats”.

Undisturbed areas within the mining lease are proposed to be returned to cattle grazing.

There are three generally accepted, inter-dependant, rehabilitation objectives that should form part of any successful rehabilitation program. These are:

- landform stability;
- self-sustaining vegetation cover; and
- sustainable land uses.

Schedule F – Table 1 of the EM Plan proposed that spoil areas be capped with rock mulch (a mixture of selected erosion resistant rock and topsoil) and rehabilitated with a self-sustaining vegetative cover of “bushland” as defined above. This rock mulch method will provide landform stability on spoil slopes. However, the acceptance criteria proposed in Table 1 to indicate Capcoal’s rehabilitation objective of bushland on spoil areas do not provide an appropriate measure of having achieved a self-sustaining vegetation cover. For example, the acceptance criteria for measuring the success of establishing bushland on spoil has been stated in Table 1 as a mix of eucalypt, acacia and groundcover species providing 30% vegetation cover and >10 species with viable seed. These criteria alone are not adequate to measure whether the bushland community will remain self-sustaining in the longer term. Additional default acceptance criteria are necessary to measure whether the rehabilitation outcome of bushland is progressing towards becoming a self-sustaining vegetation community. These additional acceptance criteria should include:

- physical and chemical indicators of soil profile development; and
- ecosystem functionality characteristics such as key species recruitment, nutrient cycling, habitat complexity and successional change towards the defined bushland community.

The development and application of the above indicators as acceptance criteria for a rehabilitation program are comprehensively discussed in the ²ACARP Project C12045 and the ³Australian Centre for Mining

² O.G. Nichols (May 2004). ACARP Project C12045 Final Report – Development of Rehabilitation Completion Criteria for Native Ecosystem Establishment on Coal Mines in the Bowen Basin.

Environmental Research Publication – Indicators of Ecosystem Rehabilitation Success. These and other relevant references should be considered to broaden the range of default acceptance criteria for measuring the success of bushland rehabilitation on spoil areas compared with local reference site/s and should be further refined based on the outcomes of ongoing rehabilitation trials, monitoring and research programs.

With regard to deficiency number two the final land use for non-spoil and non-void areas disturbed by mining is proposed to be self-sustaining cattle grazing in pre-mining vegetation communities. Currently, some of the non-spoil and non-void areas proposed to be cleared for construction of the access road, haul roads and mining infrastructure are vegetated with native REs. The dominant RE proposed to be cleared for roads and infrastructure is RE 11.7.1/11.10.12 (mixed brigalow/poplar box woodland).

However, rehabilitating these areas with the pre-mining RE vegetation communities may not provide the most effective outcome for biodiversity in the longer-term for a number of reasons including:

- most of these rehabilitated areas will be subjected to grazing post-mining which may facilitate erosion and fragmentation; and
- some of these areas are vegetated with isolated stands of RE communities offering fauna minimal corridor connectivity to surrounding areas and hence would provide minimal function as fauna habitat.

Therefore, in the context of the likely post-mining land use of grazing, in some cases it may be more appropriate to rehabilitate areas cleared for roads and infrastructure with a mix of suitable pasture grasses. However, to compensate the loss of RE communities cleared to construct roads and infrastructure, Capcoal should investigate options for rehabilitating other, more appropriate areas within or surrounding the project site during the life of the project. Of course, this may include rehabilitating areas cleared for roads and infrastructure if the key objective of restoring connectivity and enhancing local biodiversity would be achieved. Default acceptance criteria should also be developed and further refined based on the outcomes of ongoing rehabilitation trials, monitoring and research programs.

Recommendations:

- 3) It is recommended that Schedule F – Table 1 of the EM Plan be amended to include additional completion criteria for measuring the success of bushland rehabilitation on spoil and void areas at achieving a self-sustaining vegetation cover. The acceptance criteria should include indicators for chemical and physical soil profile development, floristic characteristics such as species composition, cover percent, diversity and distribution, and ecosystem functionality characteristics such as key species recruitment, nutrient cycling, habitat complexity and successional change based on local reference site/s.**
- 4) It is recommended that the EA include a condition requiring that at least 28 days prior to project commissioning, an Environmental Off-set Rehabilitation Management Plan be provided to the administering authority. The Plan must include:**
 - a) surface area (in hectares) of RE communities proposed to be cleared for constructing roads and infrastructure;**
 - b) a progressive revegetation plan for an area no less than that proposed to be cleared for roads and infrastructure that identifies local areas, including riparian areas of Oaky Creek, that are appropriate to rehabilitate, and that achieves the key objective of enhancing corridor connectivity and promoting long-term local biodiversity;**
 - c) specific rehabilitation acceptance criteria including indicators for chemical and physical soil profile development, floristic characteristics such as species composition, cover percent, diversity and distribution, and ecosystem functionality characteristics such as key species recruitment, nutrient cycling, successional change and habitat complexity;**
 - d) a rehabilitation monitoring program designed to demonstrate progression of rehabilitated areas towards a self-sustaining vegetation community based on local reference site/s;**
 - e) an auditing and reporting mechanism to identify rehabilitation not achieving the required**

³ Australian Centre for Mining Environmental Research (ACMER) (July 2003). *Indicators of Ecosystem Rehabilitation Success, Stage 2 – Verification of EFA Indicators – Final Report.*

outcomes; and

- f) proposed remedial actions for rehabilitation areas not meeting the required outcomes.

3.2 Water Resources

3.2.1 Water Quality

The TOR (section 4.3.1.1) required information on the existing water quality in surface waters (including Oaky Creek) including a background water quality monitoring program.

Adequacy of this section of the EIS

Capcoal proposes no mine water discharge from the site and this has been conditioned accordingly in section 3.2.4 below. Therefore, Capcoal will not be required to monitor off-site water quality. However, Capcoal has decided to take a proactive approach and will monitor the water quality of Oaky Creek during the life of the project to ensure the project is not impacting on Oaky Creek.

Oaky Creek is an ephemeral waterway that has experienced only minor flows over the past 3 years. The EIS acknowledged that water quality can be highly variable in these ephemeral systems and water quality sampling must be undertaken over an extended period of time to establish accurate background water quality conditions. However, sampling data from only two stream flow events has been provided, which does not provide an accurate picture of background water quality. Therefore, it was not possible for Capcoal to ascertain background water quality conditions at the time of submitting the EIS.

Due to the lack of sufficient background water quality data Capcoal in the EM Plan (Schedule C – Table 2) has proposed WQO for Oaky Creek for pH and electrical conductivity, equivalent to the values adopted for a nearby mine site.

Adequacy of this section of the EM Plan

Capcoal made a commitment in the EM Plan to develop and implement a monitoring/research program by March 2006 primarily targeted at collecting contextual information and outlining methodologies for monitoring the impacts of the Lake Lindsay Project on Oaky Creek. Discussions held on 23 September with Parsons Brinckerhoff representing Capcoal indicated that this commitment includes undertaking an ongoing water quality monitoring program for Oaky Creek, including upstream and downstream monitoring and that this monitoring program has already commenced. However, Schedule C – Table 1 of the EM Plan proposes only one monitoring point for the water quality monitoring program. Therefore, Schedule C – Table 1 of the EM Plan should be amended to include the location of both upstream and downstream monitoring points. Monitoring at sites upstream and downstream of the project area prior to project commencement can best assess the background water quality. Upon project commencement the background condition can continue to be assessed only by monitoring upstream of the project and monitoring at reference sites.

Recommendations:

- 5) **It is recommended that Schedule C – Table 1 of the EM Plan be amended to include the coordinates for both the upstream and downstream receiving water monitoring locations on Oaky Creek. Figure 16.2 of the EM Plan should also be amended to show the location of both upstream and downstream receiving water monitoring locations on Oaky Creek.**

3.2.2 Flood Protection Levee

A 4km long flood protection levee bank is proposed within the Oaky Creek floodplain to protect the mining operations against flooding. The levee bank will be designed and constructed to a height ranging from 4m-5m to provide flood immunity up to and including the 1-in-100-year flood event. The toe of the levee is proposed to be constructed at a minimum of 50 metres from the top of the Oaky Creek bank. The dispersive nature of the in-situ topsoil is unsuitable for establishing vegetation on a sloped surface such as a levee bank. Therefore, rock armouring of the levee bank will be required to provide structural integrity.

The TOR (section 4.3.2.1) required information on the impacts of the levee on the integrity and stability of Oaky Creek, including erosion and waterway realignment and an assessment of the stability of the proposed levee, risk of failure of the levee and potential impacts arising from such failure.

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS.

The EIS provided information on the likely impacts of the levee based on modelling, including the likely increase in peak flood levels, redistribution of flood flows over the floodplain, increases in stream velocities and increases in stream power.

The draft EIS anticipated that increases in stream power may exacerbate localised meandering and therefore observation of creek movement may be necessary to enable preventative action to be taken to avoid undermining the levee bank toe. Capcoal has proposed in the Supplementary EIS to install permanent monitoring at the levee bank centreline to monitor the lateral migration of Oaky Creek and maintain a suitable buffer to the levee bank.

Adequacy of this section of the EM Plan

The requirements of the TOR have not been adequately addressed by the submitted EM Plan. The design of the levee bank proposed in the EIS has not been included as a commitment in the EM Plan. The potential impacts of the levee bank on flood heights and stream velocities during the mining operation were predicted by flood modelling based on the design and location of the levee bank proposed in the EIS. If the levee bank is not designed and constructed to meet these requirements, the impacts on the upstream and downstream environment may be different from those predicted in the EIS. Therefore, the specified design and construction requirements of the levee bank must be clearly defined in the EM Plan. Furthermore, monitoring proposed in the EIS to assess flood induced lateral erosion of the Oaky Creek high flow channel towards the levee bank toe has not been transposed as a control strategy in section 16.3.3.4 in the EM Plan. These deficiencies should be rectified.

Recommendations:

- 6) It is recommended that section 16.3.3.4 of the EM Plan be amended to include the commitment made in the EIS that monitoring will be undertaken of the lateral erosion of the Oaky Creek high flow channel towards the flood protection levee bank with the objective of maintaining an adequate buffer between Oaky Creek and the levee bank; and**
- 7) It is recommended that section 16.3.3.4 of the EM Plan be amended to include a control strategy to notify the EPA in the event that lateral erosion of the Oaky Creek high flow channel encroaches within 30 metres of the flood protection levee bank.**
- 8) It is recommended that the EA include a condition requiring the flood protection levee to be inspected and certified upon completion of construction by a ⁴*suitably qualified and experienced person* to meet the following requirements:**
 - a) the flood protection levee bank must be constructed at the location depicted in Figure 2.3 of the EIS with no part of the levee constructed closer than 50 metres from the top of the bank of the**

⁴ ***suitably qualified and experienced person*** means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988* or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:

- a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- b) at least five years of suitable experience and demonstrated expertise in at least four of the following areas:
 - investigation, design or construction of dams;
 - operation and maintenance of dams;
 - geomechanics with particular emphasis stability, geology and geochemistry;
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
 - hydraulics with particular reference to sediment transport and deposition, and erosion control;
 - hydrogeology with particular reference to seepage, groundwater, solute transport processes and monitoring thereof; or
 - dam safety.

- high flow channel of Oaky Creek;
- b) the design level of the levee crest to be determined by the predicted 1-in-100-year flood level; and
 - c) the outside face of the levee must be geotechnically stable and erosion resistant to flood events up to the 1-in-100-year flood level.
- 9) It is recommended that the EA include a condition requiring the holder of the environmental authority to maintain the levee bank during the life of the mining operation to the approved design standards certified in recommendation eight above.

3.2.3 Groundwater

The requirements of the TOR have been adequately addressed by the submitted EIS. Furthermore, groundwater monitoring over the life of the mine to monitor changes in groundwater levels and impacts on surrounding groundwater users has been proposed in the EM Plan.

A cross-section of the geology of the Lake Lindsay site indicates that the project occurs within the Permian Rangal coal measures formation. Permian groundwater quality in the Rangal coal measures formation was found to be highly saline with total dissolved solids and electrical conductivity as high as 19,000mg/L and 28,000 μ S/cm respectively, making this water an unsuitable resource for human consumption, irrigation or livestock watering. Permian Rangal groundwater will be most affected in terms of groundwater drawdown associated with groundwater flow into the mining pits. However, given the unsuitable nature of this water as a resource NRM will not be licensing the take of water from this groundwater aquifer.

Three groundwater users have bores within 5km of the proposed mining activities within the Permian Burngrove formation, all located on the southern side of Oaky Creek. Groundwater inflows into the pit will occur during mining operations, particularly in the southern part of the pit near Oaky Creek. Capcoal have committed in the EM Plan to monitor groundwater quality and quantity over the life of the project.

3.2.4 Water Management System

The TOR (section 4.3.2.1) required information on water management storage and treatment facilities, including their capacity and location and management strategies to demonstrate best practice management and that environmental values of receiving waters will be protected.

The EIS proposes a water management system (WMS) involving a network of dams and reservoirs providing both on-site storage around the Lake Lindsay site and off-site storage within the existing German Creek East final voids. Lake Lindsay site mine water is proposed to be pumped to and from the project site as demand for dust suppression requires. The main objective of the WMS design is to achieve nil mine water discharge from the site.

Adequacy of this section of the EIS and EM Plan

The requirements of the TOR with regard to site water management to ensure the maintenance of environmental values of receiving waters have been adequately addressed by the submitted EIS. However, the commitment in the EIS to maintain nil mine water discharge during operations has not been transposed as a commitment in the EM Plan. This deficiency should be rectified.

Recommendation:

- 10) It is recommended that the EA include a condition requiring that the mine water storage component (turkeys nest, highwall dams and associated diversion drains) of the Lake Lindsay WMS be designed to contain all mine water run-off from the 1-in-100-year average recurrence interval, 24-hour storm, without off-site discharge from any component of the mine water storage component of the WMS.

3.3 Air

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS. However, the air quality goals stated in the EM Plan are less stringent than the EPA's streamlined level one condition requirements. The streamlined conditions for air set the minimum requirements for acceptable air quality from the project site. Therefore, these air quality goals will be applied to the Lake Lindsay Project.

The primary air contaminant from the Lake Lindsay Project will be dust from general mining excavations on MLA 70336 and coal handling on German Creek ML1831. The nearest sensitive receptor to the mine excavations will be approximately 7km. The nearest sensitive receptor to the new CPP within the German Creek MIA will be 3km. No air quality issues have been identified to date with regards to air quality at the sensitive receptors due to the existing German Creek CPP operations. The nearest town is Middlemount which is located approximately 21km from the proposed mine. The measures for avoiding nuisance from dust at nearby sensitive receptors proposed in the submitted EIS are adequate.

Adequacy of this section of the EM Plan

The requirements of the TOR have not been addressed by the submitted EM Plan as the streamlined level one conditions have not been included as recommended conditions in the EM Plan. The EPA's streamlined conditions for air set the minimum requirements for acceptable air emissions from the project site over the life of the project, as well as provide a mechanism to investigate complaints and demonstrate compliance with air quality requirements. Therefore, the streamlined level one conditions for air should be applied to the Lake Lindsay Project.

Recommendation:

11) It is recommended that the EA contain the streamlined level 1 conditions (B1-1) to (B1-4) and (B2-1) to (B2-3) requiring the company to maintain acceptable air quality.

3.4 Nature conservation

3.4.1 Terrestrial flora

The TOR (section 4.7.1.1) required the terrestrial vegetation communities within the affected areas to be described and for sensitive or important vegetation types to be highlighted, including their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types. Furthermore, section 4.7.2 of the TOR required information on all likely direct and indirect environmental harm on flora, particularly sensitive areas and species.

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS and appropriate management measures to mitigate impacts on flora have been included in the EM Plan. The EPA has also included recommended conditions for the EA regarding the management of impacts on regional ecosystem communities and sensitive communities along Oaky Creek in sections 3.1.1 and 3.2.2 respectively.

The draft EIS presented information on flora species and communities gathered from a number of sources including:

- a desk top analysis of existing information, including a literature review of previous flora assessments undertaken on the project site,
- a preliminary flora field survey to identify the ecological values of the study area; and
- a new comprehensive flora field survey conducted specifically for the project site following current best practice survey methodologies.

This information was used to identify and record all flora species and communities either existing or likely to exist on the project site. Additional information was provided on the significance of these species and communities under both State and Commonwealth legislation. The forested remnant vegetation in the north-west of the project site, wetlands on the northern and southern floodplain of Oaky Creek and the riparian vegetation of Oaky Creek were identified as sensitive and important vegetation communities with value as habitat for rare and threatened fauna species. The mine plan and pit layout has been significantly altered to avoid diverting Oaky Creek and avoid mining the southern floodplain of Oaky Creek. However, the mine pit and

mining infrastructure will encroach slightly in the north-west of the project site on 43ha of remnant vegetation identified as potential habitat for rare or threatened fauna species. This habitat forms a small portion of a larger corridor and will be rehabilitated post-mining. Capcoal has committed to decommissioning this infrastructure post-mining and rehabilitating these areas with the pre-mining communities (refer to section 3.1.1 for further details). Some areas of ephemeral wetland and riparian vegetation on the northern floodplain of Oaky Creek forming habitat for rare and threatened species will be disturbed by construction of the levee bank and excavation of the southern portion of the mine pit. The remainder of the Oaky Creek riparian zone and wetland areas on the southern floodplain will not be directly disturbed by mining activities. Capcoal has committed to undertaking a water quality monitoring program for Oaky Creek to monitor potential impacts of the Lake Lindsay Project on these sensitive locations (refer to section 3.2.2 for further details).

3.4.2 Terrestrial fauna

The TOR (section 4.7.1.2) required the terrestrial fauna occurring in the areas affected by the project proposal to be described including species diversity, habitat requirements and sensitivity to changes. Furthermore, section 4.7.2 of the TOR required information on all likely direct and indirect environmental harm on flora and fauna, particularly sensitive species.

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS and appropriate management measures for fauna have been included in the EM Plan. The EPA has also included recommended conditions of the EA to rehabilitate regional ecosystems disturbed by mining infrastructure and monitor water quality in Oaky Creek that serves as habitat for protected species in sections 3.1.1 and 3.2.2 respectively.

The draft EIS presented information on fauna species gathered from a number of sources including:

- a desk top analysis of existing information, including a literature review of previous fauna field surveys undertaken on the project site;
- a preliminary fauna field survey to identify the ecological values of the study area using opportunistic observation and spotlighting techniques; and
- a new comprehensive fauna field survey conducted specifically for the project site following current best practice survey methodologies.

This information was used to identify and record all fauna species either existing or likely to exist on the project site as well as identify areas of potential habitat for rare and threatened fauna species. Information was also provided on the significance of the fauna species identified under both State and Commonwealth legislation. A number of birds, mammals, reptiles and amphibian species, some listed under the *Nature Conservation (Wildlife) Regulation 1994* were identified on the project site. The potential impact on the habitat of these fauna species and the proposed mitigation measures are discussed in section 3.6.1.

3.4.3 Aquatic Biology

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS and appropriate management measures to protect aquatic biology have been included in the EM Plan. Capcoal proposes to conduct a water quality monitoring program over the life of the project to monitor potential impacts of changes to water quality on aquatic biology.

The draft EIS identified the aquatic biological components of the site including those in Oaky Creek and the temporary wetlands on the northern and southern floodplains of Oaky Creek. Oaky Creek is ephemeral and has experienced minimal flows during the past three years. The likely existence of macrophytes, fishes, macroinvertebrates and fisheries values were assessed from a catchment perspective based on previous studies conducted in the Fitzroy catchment. The main impact of the mining operations on the aquatic biology of Oaky Creek will be the result of constructing the levee bank, which will effectively isolate a section of the sub catchment and active floodplain area. Development of the southern part of the pit and levee bank construction will also remove some of the temporary wetlands on the northern floodplain of Oaky Creek.

Capcoal made a commitment in the EM Plan to develop and implement a monitoring/research program by March 2006 primarily targeted at collecting contextual information and outlining methodologies for monitoring the impacts of the project on Oaky Creek. The proposed methodology for a water quality monitoring program is discussed in greater detail in section 3.2.2 above.

3.4.4 Pest Management

The TOR (section 4.7.2) required weed control strategies aimed at containing existing weed species and ensuring no new invasive weeds are introduced to the area to be developed for each stage of construction and operation of the project.

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS.

The draft EIS provided details of declared weed species found within the proposed ML areas. It was specifically noted that a number of declared weed species listed under the *Land Protection (Pest and Stock Route Management) Act 2002* (Land Protection Act) were identified on the Lake Lindsay Project site. These included category P2 weeds *Parthenium hysterophorus* and *Parkinsonia aculeate*) and category P3 weed *Xanthium pungens* (Noogoora burr) identified within the riparian vegetation along Oaky Creek and the Isaac River. However, under the Broadsound Shire Pest Management Plan *Parthenium hysterophorus* is a category P3 weed west of the Broadsound Range relevant to this project area. Individuals of the category P3 weed *Opuntia* sp. (prickly pear) were identified both within the riparian vegetation of Oaky Creek and the Isaac River and the poplar box communities in the ML areas. Under the Land Protection Act, category P2 plants are to be destroyed throughout the State and category P3 plants are to have their distribution reduced throughout the State. The objectives of a pest management plan for the project should incorporate these requirements.

Capcoal have committed in the EM Plan to provide vehicle wash-down bays on-site to clean all equipment before entering and leaving the ML area. Capcoal have also committed in the EM Plan to conduct ongoing monitoring to identify any new outbreaks of introduced weeds and implement control strategies to limit weeds from spreading. The draft EIS also included a commitment to develop a weed management plan consistent with the Broadsound and Peak Downs local government pest management strategies. However, a “pest” management plan is the recognised term used in the Land Protection Act to define the management of introduced flora as well as fauna species and this term should be applied to the Lake Lindsay Project.

Disturbances on site (including construction and utilisation of mine access and haul roads, coal conveyor and the MIA) have the potential to transport the weed species outlined above around the Lake Lindsay Project site and also offsite. Consequently, a pest management plan should be developed and implemented prior to any disturbances associated with the Lake Lindsay Project.

Adequacy of this section of the EM Plan

The EM Plan does not incorporate the commitment made in the draft EIS to develop a pest management plan and this deficiency should be rectified.

Recommendation:

- 12) It is recommended that the EA contain a condition requiring a pest management plan to be developed (consistent with the requirements of the Broadsound Shire Pest Management Plan) and implemented prior to the commencement of any clearing and construction activities.**

3.5 Noise environment

The requirements of the TOR have been adequately addressed by the submitted EIS.

The primary noise source of the Lake Lindsay Project will be from machinery operating on-site and transporting coal off-site for processing at German Creek. The EIS identified the location of the nearest sensitive receptors relevant to noise impacts from the project site. The nearest sensitive receptor to the mining operation will be approximately 7km. The nearest sensitive receptor to the new CPP at the German Creek MIA will be 3km. Noise modelling predicted that noise levels from mining, transportation and coal processing will comply with the legislative requirements at all sensitive receptors. Modelling of airblast overpressure and ground vibration levels

from blasting predicted that these levels will be within the legislative requirements at the nearest sensitive receptor.

Adequacy of this section of the EM Plan

The requirements of the TOR have not been addressed by the submitted EM Plan because the streamlined level one conditions have not been included as recommended conditions in the EM Plan. The EPA's streamlined conditions for noise set the minimum requirements for acceptable noise emissions from the project site over the life of the project, as well as provide a mechanism to investigate complaints and demonstrate compliance with noise requirements. Therefore, the streamlined level one conditions for noise should be applied to the Lake Lindsay Project.

Recommendation:

13) It is recommended that the EA contain the streamlined level 1 conditions (D1-1) to (D1-5) and (D2-1) to (D2-4) requiring Capcoal to maintain acceptable noise and vibration limits.

3.6 Cultural heritage

Cultural heritage surveys were undertaken in 1993 and in 2004 to examine both the Indigenous and non-indigenous values of the Lake Lindsay Project area. The initial study was undertaken by Hatte and Lauer (1993) on behalf of Arco Coal Australia and covered the entire Girrah property, which includes all of Lake Lindsay MLA70336. Another study over the proposed MIA area within MDL170 was undertaken by Hatte (2004), with assistance from a team representing the Barada, Barna, Kabelbara and Yetimala (BBKY) traditional owners. The remainder of the Lake Lindsay Project study area was surveyed in August 2004. A further study was undertaken by Bonhomme Craib (2004) to further examine non-indigenous cultural heritage values for the Lake Lindsay Project site.

The TOR (section 4.8.1) required a cultural heritage management plan (CHMP) to be developed specifically for the project to address any environmental harm to cultural heritage values near the project.

Adequacy of this section of the EIS

The requirements of the TOR for Indigenous and non-indigenous cultural heritage have been adequately addressed by the submitted EIS, subject to the implementation of the CHMA between Capcoal and BBKY Traditional Owners.

Results of the Indigenous heritage surveys identified several high and low density artefact scatters, a silcrete extraction site, a number of isolated artefacts and three possible cultural scars on old E. populnea trees within this area. The present mine plan layout indicates that most of the sites and items located during the surveys will be avoided as they lie close to Oaky Creek and nearby swamps that will not be impacted by the Lake Lindsay Project. However, there is likely to be impacts to a sparse artefact scatter near Gilgai among cleared brigalow to the north of Oaky Creek. BBKY traditional owner representatives have given clear indication that the proposed development will impact on landscapes that are culturally significant and have requested that cultural heritage sites recorded in the study area be protected as far as possible from developmental impacts.

The current Cultural Heritage Management Agreement (CHMA) between Capcoal and BBKY Traditional Owners for the nearby German Creek and Oak Park mines also applies to the Lake Lindsay Project. Capcoal has committed to incorporating the recommendations of the indigenous heritage surveys for the Lake Lindsay Project into the CHMA. The CHMA will be used to manage Indigenous cultural heritage matters at the Lake Lindsay Project site.

The non-indigenous cultural heritage surveys, conducted by Hatte and Lauer (1993) (including an interview with the current Girrah property owners) and by Hatte (2004) and Bonhomme Craib (2004) did not identify any known historical items that will be impacted by the Lake Lindsay Project. However, should any future mining activity be likely to impact on houses or their associated infrastructure, Capcoal has committed to conducting an historical assessment and developing a conservation plan if any of the buildings are determined to be significant.

3.7 Road Infrastructure

The majority of the 130-150 person operational workforce will be based in Middlemount with access to the mine site from Dysart-Middlemount Road. It is expected that the majority of the workforce will travel from Middlemount to the project site using a bus service provided by Capcoal. The remainder of the workforce would travel to the project site using private vehicles. It is expected that car pooling will occur, with an average of 2 persons per vehicle. It is expected that approximately 30 private vehicles and 6 buses will arrive or depart over a 3 hour period at both the start and the end of each shift.

The TOR (section 3.8.5) required the submitted EIS to provide an assessment of traffic generated by the mine and the need for new transportation facilities and/or the improvement and maintenance of existing facilities such as intersections of access roads from the project proposal to existing roads.

Adequacy of this section of the EIS

The Department of Main Roads (Main Roads) raised concerns about worker and other motorist's road safety, given the 24 hour operation of the mine site. Main Roads identified the need for flag lighting to be installed at the project access road (shared with Foxleigh mine) to help draw attention of the motorists to the presence of an intersection at this isolated location. Flag lighting will be required to be installed in accordance with the requirements of Section 17 of the Main Roads Planning and Design Manual.

Main Roads also raised concerns about long-term road safety of the workforce who choose to live further abroad, for example in Mackay or Rockhampton and commute longer distances which could equate to several hours driving time after shifts. It is understood that Capcoal has a fatigue management policy that will be adopted for the Lake Lindsay Project. As part of the fatigue management policy, it is recommended that workers be required to rest at the end of each shift before travelling long distances such as to Mackay or Rockhampton.

Adequacy of this section of the EM Plan

The EM Plan does not incorporate a commitment to incorporate flag lighting at the mine access road and this deficiency should be rectified

Recommendations:

- 14) It is recommended that the EA contain a condition requiring Capcoal, in consultation with Main Roads, to provide flag lighting at the mine access road in accordance with Section 17 of the Main Roads' Road Planning and Design Manual; and**
- 15) It is recommended that prior to project commissioning Capcoal, in consultation with Queensland Transport and Main Roads, prepare or update any existing Fatigue Management Plan to incorporate fatigue management strategies for the Lake Lindsay Project.**

3.8 Health and safety

3.8.1 Emergency response

Capcoal has a Safety Health Environment and Community Management System (SHECMS) currently in place at the German Creek open cut and underground mining operations to protect the health and safety of mine personnel, contractors and visitors. Capcoal proposes to implement the SHECMS at the Lake Lindsay site to meet all legislative and corporate safety and health requirements.

A risk assessment has been undertaken for the hazards and risks associated with the proposed operations.

The TOR (section 4.10.1) required information relating to on-site first aid and emergency capability and disaster preparedness and details on fire safety features, fire-fighting facilities and emergency evacuation areas proposed at the project site.

Adequacy of this section of the EIS

The requirements of the TOR have been adequately addressed by the submitted EIS.

The draft EIS included a commitment to install fire-fighting facilities at the MIA based on approval by the local Queensland Rural Fire Brigade Service. Department of Emergency Services (Emergency Services) indicated in

their response to the draft EIS that plans for the proposed fire-fighting infrastructure and its location at the MIA site should be referred to the Queensland Fire and Rescue Service (QFRS) and approval sought from Emergency Services through the Manager of Community and Safety, Central Region in Rockhampton with initial enquiries directed to the Area Director in Emerald. Capcoal have committed in the Supplementary EIS to follow the protocol of approval for fire-fighting infrastructure as recommended by Emergency Services. The requirements for fire-fighting infrastructure will be addressed under the *Coal Mining Safety and Health Act 1999* (Safety and Health Act).

Emergency Services also requested in their response to the draft EIS that details of emergency response plans for hazardous material incidents be provided to the QFRS in Middlemount. Capcoal has committed in the Supplementary EIS to follow the protocol of approval for hazardous material incidents as recommended by Emergency Services. Emergency response plans for hazardous material incidents are also covered under the Safety and Health Act.

Emergency Services also requested that details of the level of fire and rescue training proposed to be implemented be provided to the Manager of Community Safety, Central Region in Rockhampton. Capcoal indicated in the Supplementary EIS that emergency fire-fighting capability for the Lake Lindsay Project will utilise the existing Capcoal open cut systems. Furthermore, an inventory of specialised emergency service capability (i.e. fire suppression water cannon's on water trucks) is being accumulated and once completed can be provided to QFRS on request. This request is not specifically required under the Safety and Health Act and should be undertaken during future negotiations between Capcoal and Emergency Services.

Recommendation:

- 16) It is recommended that prior to project commissioning Capcoal provide the QFRS of Emergency Services with a list of fire and rescue team personnel (including their training backgrounds) and an inventory of specialised emergency service capability.**

4. Adequacy of the EM Plan for the project

A draft EM Plan was included with the draft EIS that was released for public notification. A number of submissions on the draft EIS raised issues that required amendments to the draft EM Plan and many of these amendments were agreed to by Capcoal in the Supplementary Report. The EPA has reviewed the amendments to the draft EM Plan agreed to by Capcoal but considers that the recommendations outlined in this EIS assessment report should also be fully integrated into the EM Plan before the document would be acceptable. In its present form the EM Plan is not considered to be adequate.

5. Suitability of the project

Project issues and recommendations were outlined in Section 3 above. The EPA has considered the final TOR, the submitted EIS, all submissions on the submitted EIS, and the standard criteria. Despite the few areas where the TOR were inadequately addressed, the submitted EIS and supplementary information have not identified impacts of sufficient magnitude to prevent the project from proceeding. However, the recommendations of this EIS assessment report should be fully implemented.

Disclaimer:

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

6. Approved by

Signature

Dean Ellwood
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