Assessment Report under the

Environmental Protection Act 1994

on the

Environmental Impact Statement

for the

Norwich Park East Pit Project

proposed by

Central Queensland Coal Associates Joint Venture

managed by

BM Alliance Coal Operations Pty Ltd

25 January 2008

Environmental Protection Agency
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Table of Contents

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 Norwich Park East Pit Project proposed by the Central Queensland Coal Associates Joint Venture between BHP Coal Pty Ltd, QCT Mining Pty Ltd, Mitsubishi Development Pty Ltd, QCT Investment Pty Ltd, BHP Queensland Coal Investments Ltd, QCT Resources Pty Ltd, and Umal Consolidated Pty Ltd. The Environmental Protection Agency (EPA), as the administering authority of the EP Act, coordinated the EIS process. This assessment report has been prepared pursuant to Sections 58 and 59 of the EP Act.

The objective of this assessment report is to:

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

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

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

(d) address the matters prescribed in section 3F of the *Environmental Protection Regulation 1998.*

Section 58 of the EP Act lists the criteria that the EPA must consider when preparing an EIS assessment report, while section 59 of the Act states what the content must be. Furthermore, the Norwich Park East Pit Project is a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Consequently, matters prescribed in Part 1A of the Queensland *Environmental Protection Regulation 1998* (EP Reg) apply to the project, including matters for this EIS assessment report prescribed in section 3F of the EP Reg.

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

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

The giving of this EIS assessment report to the proponent completes the EIS process under the EP Act. The Commonwealth's assessment stage under Part 8 of the EPBC Act ends when the Commonwealth Environment Minister has received a copy of this EIS assessment report.

1.1 Project details

BHP Coal Pty Ltd, QCT Mining Pty Ltd, Mitsubishi Development Pty Ltd, QCT Investment Pty Ltd, BHP Queensland Coal Investments Ltd, QCT Resources Pty Ltd, and Umal Consolidated Pty Ltd are the proponents for the Norwich Park Mine expansion project known as the Norwich Park East Pit Project. The EIS assessed in this report was required for amendment of the existing environmental authority (number MIM800230504) to allow the proposed mining activities.

The proposed Norwich Park East Pit Project would be located approximately 24km south of Dysart and 250km south-west of Mackay, within Broadsound Shire, in central Queensland. The Project is located on the Norwich Park Mining Lease Application (MLA) 70350. The Project is a satellite deposit located to the west of the current Norwich Park mining operation.

The project will use some infrastructure and facilities located at the Norwich Park coal mine, thereby minimising the disturbance footprint. Additional labour is not required for the operation of East Pit, as staff shall be redistributed from the existing mining workforce at Norwich Park mine. The workforce at East Pit is expected to peak at approximately 30 personnel during the peak operation phase.

BM Alliance Coal Operations Pty Ltd proposes to operate the Norwich Park East Pit Project as a contractor-operated open cut mine producing up to 0.7 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal for a nominal annual average of 0.5Mtpa product coal over a 16 year mine life.

The target coal seams in the Project area are the H33 seam and the H35 seam. It is proposed to use a combination of dragline, excavators, trucks and dozers to produce low ash, high yield coal with good coking properties for the export market and for blending with lower quality coal reserves in the existing Norwich Park Mine.

The proposed final void for the East Pit remaining at the end of the mine life will be up to 70m deep, over an area of 20ha.

Approximately 3km of an unnamed tributary of Rolf Creek (a tributary of the Isaac River) immediately to the north of the proposed pit is to be diverted. The headwaters of the ephemeral Rolf Creek are proposed to be dammed, inundating approximately 70ha of vegetation. The Department of Natural Resources and Water proposes to redefine the location of the headwater of Rolf Creek by declaring the upstream limit of Rolf Creek at a point downstream of the proposed mine pit.

Groundwater inflow to the pit has been estimated to be minimal due to the low storativity and yield of aquifers in the area.

The trigger for the project EIS of particular relevance for this EIS assessment report was the clearing of remnant vegetation in a Category B Environmentally Sensitive Area. This same matter is one of the controlling provisions for which the project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999*.

1.2 Approvals

The following approvals are required for the Norwich Park East Pit Project:

Approval	Legislation (Administering Authority)
Environmental authority (mining activities)	*Environmental Protection Act 1994* (EPA)
Surface rights are required over an area of approximately 1297 ha on MLA 70350	*Mineral Resources Act 1989* (Department of Natural Resources and Mines)
Approval to undertake action (a "*controlled action*") that may impact on a matter of national environmental significance (Nationally listed threatened species and ecological communities)	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth Department of Environment, Water, Heritage and the Arts)
One or the other of the following is needed for the project: either (a) a water licence to interfere with the flow of water in a watercourse and an allocation to take water; or (b) declaration of an upstream limit for Rolf Creek at a point downstream of the proposed East Pit.	*Water Act 2000* (Department of Natural Resources and Water)
Waterway barrier works approval	*Fisheries Act 1994* (Department of Primary Industries & Fisheries)

1.3 Impact assessment process

1.3.1 The EIS process

The environmental impact statement (EIS) for the Norwich Park East Pit Project was conducted under Chapter 3 of the EP Act. The EIS process was initiated by BHP Coal Pty Ltd, on behalf of the project proponents by application to the EPA to amend the existing environmental authority for the Norwich Park Mine to allow expansion of the mine to include the East Pit area. An assessment level decision was made on 18 October 2005 that an EIS was required for the proposed expansion.

The EPA approved the draft TOR and issued a notice of publication of draft TOR to the proponent on 9 September 2005. The comment period was set at 30 business days. The draft TOR were available for public comment from 19 September 2005 to 28 October 2005 with the EPA placing a public notice on the EPA's website on 9 September 2005 and in The Courier-Mail and Mackay Daily Mercury on 17 September 2005. The proponent issued copies of the public notice to affected and interested persons.

Fifteen (15) submissions were received by the EPA on the draft TOR within the public comment period. Submissions were received from one Commonwealth department, twelve State government departments and agencies, one local government council and one non-government organisation. These submissions, together with one from the EPA, were forwarded to the proponent on 9 November 2005. BHP Billiton Mitsubishi Alliance, on behalf of the proponents, responded to the comments on 17 November 2005. The EPA considered all submissions received on the draft TOR and the proponent's response prior to issuing the final TOR to BM Alliance Coal Operations Pty Ltd on 14 December 2005.

Sinclair Knight Merz, on behalf of the proponents, submitted the draft EIS on 3 July 2006 to the EPA for review prior to public notification. The EPA compared the draft EIS to the final TOR and advised the proponents on 16 October 2006 that the EPA considered that the draft EIS sufficiently addressed the TOR to proceed to public notification. The submission period was set at 30 business days.

The draft EIS was available for public submissions from 6 November 2006 to 15 December 2006. The proponent placed a public notice in The Courier-Mail and Mackay Daily Mercury on 4 November 2006, and the

EPA placed a public notice on the Agency website. The proponent also issued copies of the public notice to affected and interested persons.

Thirteen (13) submissions were received by the EPA on the draft EIS within the submission period. Submissions were received from one Commonwealth department, ten State government departments and agencies, and one non-government organisations. These submissions, together with one from the EPA, were forwarded to BM Alliance Coal Operations Pty Ltd on 17 January 2006 for consideration and response. The proponent submitted a response to submissions (hereafter called the supplementary report) to the EPA on 30 March 2007.

On 3 April 2007, copies of the supplementary report were issued to those members of the advisory body who had previously requested additional information. These advisory body members were requested to consider the supplementary report, in context with the EIS, and provide comments by 16 April 2007.

Seven (7) submissions were received on the supplementary report. Five (5) submissions were received from State government agencies, one submission from the Commonwealth government and one from non-government organisations.

On 15 May 2007 the proponent was notified that the administering authority had decided not to allow the submitted EIS to proceed under Chapter 3, Divisions 5 and 6 of the EP Act. The reason given for the decision was that the response to submissions on the submitted EIS was not adequate and that all appropriate amendments to the submitted EIS had not been made. The administering authority advised the proponent that once the inadequacies and amendments had been satisfactorily addressed the decision to allow the EIS to proceed would be reconsidered.

An Addendum to the supplementary report was received on 29 August 2007. Copies of the Addendum were issued to those members of the advisory body whose concerns had not been adequately addressed in the supplementary report.

Two submissions were received on the Addendum to the Supplementary EIS. One submission was received from a State Government agency and another from the Commonwealth Department of Environment, Water, Heritage and the Arts.

In response to queries on the Addendum, the proponent provided additional information dated 5 November 2007 and 15 January 2008 that constitutes part of the EIS.

The EPA decided under s56A of the EP Act on 25 January 2008 that the submitted EIS should proceed under Division 5 (EIS assessment report) and Division 6 (Completion of process). A notice of the decision to allow the submitted EIS to proceed was issued on 25 January 2008.

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

1.3.2 Consultation program

Public consultation

In addition to the statutory requirements for public notification of the TOR and draft EIS and identification of interested and affected parties, the proponent undertook community consultation with affected landowners and government agencies prior to the submission of the draft EIS. The proponent also circulated information on the East Pit proposal and the EIS process to the community via a newsletter in a November 2006.

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 Norwich Park East Pit Project:

- Commonwealth Department of Environment, Water, Heritage and the Arts;
- Barada Barna Kabalbara & Yetimarla People;
- Mackay Conservation Group;
- Fitzroy Basin Association;
- Gurang Land Council Aboriginal Corporation;

- Broadsound Shire Council;
- Capricorn Conservation Council;
- Queensland Department of Communities;
- Queensland Department of Emergency Services;
- Queensland Department of Housing;
- Queensland Department of Local Government, Sport and Recreation;
- Queensland Department of Main Roads;
- Queensland Department of Mines and Energy;
- Queensland Department of Natural Resources and Water;
- Queensland Department of Primary Industries and Fisheries;
- Queensland Transport;
- Queensland Department of Education and the Arts;
- Queensland Health;
- Queensland Police;
- Queensland Treasury; and
- Office of the Coordinator-General (now Department of Infrastructure and Planning).

Advisory body briefings were held at the project site during the draft TOR stage of the EIS process, and in both Emerald and Brisbane during the draft EIS stage of the EIS process.

Public notification

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

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

- EPA Website (draft TOR and IAS only);
- EPA Customer Services Centre, EPA Central Office, Brisbane;
- EPA Central West District Office, Emerald;
- Broadsound Shire Council Library;
- BHP Mitsubishi Alliance, Norwich Park Mine Reception, Dysart; and
- Sinclair Knight Merz, Brisbane (copies of the draft EIS could also be purchased from the proponent).

Site visit

A site visit for the advisory body took place on 11 July 2005. The proponent escorted members of the advisory body around key features of the project site.

1.3.3 Environment Protection and Biodiversity Conservation Act 1999

The proposal to construct and operate the East Pit open cut coal mine was referred (EPBC referral 2004/1447) under section 68 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the then Commonwealth Department of the Environment and Heritage (now known as the Commonwealth Department of the Environment and Water Resources) on 31 March 2004, and was declared a controlled action under section 75 of the EPBC Act on 15 April 2004. The controlling provisions for the action are sections 18 and 18A (Listed threatened species and ecological communities) of the EPBC Act. The two threatened ecological communities are Brigalow woodland communities, identified as *Acacia harpophylla* open forest (Regional Ecosystem 11.4.9[1]) and *Acacia harpophylla – Eucalyptus cambageana* woodland on Cainozoic clay plains (Regional Ecosystem 11.4.8[2]). *Acacia harpophylla* dominant and co-dominant communities are listed as endangered ecological communities under the EPBC Act. The decision on assessment approach under section 87 of the EPBC Act

[1] *Described in Sattler, P.S and Wiliams, R.D. (eds) 1999*, The Conservation Status of Queensland's Bioregional Ecosystems, *Environmental Protection Agency, Brisbane.*

[2] *Described in Sattler, P.S and Wiliams, R.D. (eds) 1999*, The Conservation Status of Queensland's Bioregional Ecosystems, *Environmental Protection Agency, Brisbane.*

was made on 14 September 2005 and the Commonwealth determined that assessment would be by accreditation of the State EIS process under the Bilateral Agreement between the Queensland and Australian governments. The Commonwealth Department of the Environment and Water Resources was included as an advisory body for the Norwich Park East Pit Project and commented on the draft TOR and draft EIS.

The following EPBC Act listed species (i.e. species of National Environmental Significance) have been identified during the EIS process as possibly present on the Project area: ornamental snake (*Denisonia maculata*, vulnerable) and southern subspecies of squatter pigeon (*Geophaps scripta scripta*, vulnerable). In addition, a total of eleven (11) listed migratory species were recorded on the East Pit project area and Norwich Park Mine during field surveys in 2004.

This EIS assessment report is required to contain enough information about the relevant impacts of the action and the proposed mitigation measures to let the Commonwealth Environment Minister make an informed decision on whether or not to approve the taking of the action pursuant to provisions of the EPBC Act.

A copy of this EIS Assessment Report will be given to the Commonwealth Environment Minister for consideration when deciding, under section 133 of the EPBC Act, whether to approve the taking of the action. Matters of national environmental significance are discussed in section 4.3 of this EIS assessment report. The State's assessment of proposed management and mitigation measures to protect species and communities of conservation significance (including the ornamental snake and southern subspecies of squatter pigeon, Brigalow woodland communities and listed migratory species) is provided in that section.

2 Matters considered in the EIS assessment report

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

These matters are addressed in the following subsections.

2.1 The final TOR

The final TOR document, issued on 9 September 2005, was considered when preparing this EIS assessment report. While the TOR were written to include all the major issues associated with the project that were required to be addressed in the EIS, they were not exhaustive, nor were they to be interpreted as excluding all other matters from consideration.

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

2.2 The submitted EIS

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

(i) draft EIS that was publicly released on 6 November 2006;

(ii) the submissions response report (Supplementary Report) received by the EPA on 30 March 2007 that was provided to relevant advisory body members;

(iii) the Addendum to the Supplementary Report received by the EPA on 29 August 2007 that was provided to relevant advisory body members;

(iv) additional information on the East Pit Dam dated 5 November 2007; and

(v) additional information submitted 15 January 2008.

2.3 Properly made submissions

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

2.4 The standard criteria

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

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

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

3 Recommendations for conditions for any approval

There is an existing environmental authority, EA MIM800230504, for the Norwich Park mine. It is recommended that the conditions in the existing environmental authority should apply to the Norwich Park East Pit Project except as detailed below and where recommendations are made in the following sections of this report to amend or add to those conditions.

Recommendations for amended conditions:

Condition E3-1 will be amended to include the following:

(E3-1) A waste management plan, in accordance with the Environmental Protection (Waste Management) Policy 2000, must:

a) identify characterisations of wastes generated from the project and general volume trends over the past 5 years;

b) cover a program for safe recycling or disposal of all wastes- reusing and recycling where possible;

c) waste commitments should include auditable targets to reduce, reuse and recycle;

d) *identify the potential adverse and beneficial impacts of the wastes generated;*

e) *detail the hazardous characteristics of the waste generated (if any);*

f) *describe how Norwich Park recognise and apply the waste management hierarchy;*

g) *outline the system to be implemented to allow for continuous improvement of the waste management systems;*

h) *detail the waste management practices that will ensure that recyclables are diverted from landfill;*

i) *The control strategies needs to consider:*

- *The type of wastes;*
- *segregation of the wastes;*
- *storage of the wastes;*
- *transport of the wastes;*
- *monitoring and reporting matters concerning the waste;*
- *emergency response planning;*
- *disposal, reused and recycling options;*

j) *cover a disposal procedure for hazardous wastes;*

k) *identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and*

l) *cover a staff awareness and induction program that encourages re-use and recycling.*

Schedule C-Table 2 will be amended to include monitoring of release water from discharge locations to include suspended solids/ turbidity for each discharge location on a weekly basis when releasing. The requirement for obtaining metal sulfate sampling will be determined on review of existing site monitoring qualities.

Recommendations for new conditions:

A new condition will be applied to Schedule C-Water to authorising when release into receiving environments can occur.

(CX-X) Authorised releases of process water and storm water contaminated by mining activities to the Discharge locations in accordance with conditions (XX) and (XX) must be only during periods of natural flow events in compliance with Schedule C – Table 4 (Natural Flow Events). The duration of a natural flow event shall not be extended as a consequence of the mine water release.

Schedule C – Table X (Natural Flow Events)

Monitoring Point	***Latitude (GDA94)***	***Longitude (GDA94)***	***Velocity***	***Minimum***
Monitoring Point 5 (Natural Flow Monitoring Point at XXX)	*XXXX*	*XXXXXX*	*M^3/sec*	*> or = 5*

A new condition will be placed in *Schedule C- Water* to develop an approved receiving environment monitoring program (REMP) to identify the impacts of the receiving environment. The REMP should be specifically designed to measure the impact of the releases or other mine activities.

(XX-1) ***Receiving Environment Monitoring Program (REMP)***

The holder of this development approval must implement an ongoing Receiving Environment Monitoring Program (REMP) to monitor the effects of the release of contaminants on the "receiving environment" as specified in Schedule C-Table 1 to effectively determine whether environmental values are being protected as a result of dam releases or any other mine activities.

(XX-4) The REMP developed under Condition XX-1 must take into account the following requirements:

- *Monitoring which relates to both times when releases are occurring and when releases are not occurring.*
- *Monitoring of physicochemical parameters including but not limited to turbidity, pH, EC, total dissolved solids, dissolved oxygen saturation, temperature, and suspended solids;*
- *Monitoring of toxicants, incorporated into the REMP if measurement of the release exceed ANZECC trigger values for toxicants.*
- *The locations of monitoring points including monitoring transects away from the outfall of the designated release point as well as control/reference site locations;*
- *The frequency or scheduling of sampling and analysis;*
- *Any historical monitoring or datasets to be relied upon;*
- *Description of the statistical basis on which conclusions are drawn, and*
- *Reporting and investigation trigger values that will be used for comparison against measured indicators.*

Note: The administrative authority acknowledges the outcomes of previous monitoring carried out by the holder of the development approval and the findings and data can be used to support future REMP required to be carried out by this condition.

*(XX-5) The REMP developed under Condition XX-1 shall be developed and submitted in writing to the administrative authority for by **30 November 2008.***

(XX-6) The holder of this development approval must ensure that the results of all monitoring performed in accordance with this approval are submitted with each annual return. Each annual return must include details of the results of monitoring performed during the 12 months preceding that annual return.

An additional condition will be placed in Schedule-C Water to address the site water management practices.

*(XX-1) A water management plan must be developed by **30 November 2008** requiring, but not limiting the following details:*

- *identify on a site plan which dams will contain raw, clean, mine, potable and hazardous water;*
- *specify the storage capacity of the facility and the likely standing water volume during normal operation;*
- *specify the freeboard and maximum depth limits of the dams,*
- *detail the maintenance program for the dam and monitoring programs to detect triggers for maintenance;*
- *detail the water quality monitoring regime of each containment facility;*
- *identify on-site and off-site stormwater flow directions; and*
- *identify stormwater diversions to prevent water entering the mine;*
- *detail the design and monitoring of sediment detention structures;*
- *identify diversions and drains on site, and distinguish types of water being redirected;*
- *clearly demonstrate how clean water generated on site is kept separate from contaminated water;*
- *identify the drains that contribute to the discharge of water from the site, and the quality and quantity of water discharging from the site;*
- *detail how management of off site water releases will be conducted to minimise sediment and salinity releases and minimize the potential for soil and spoil erosion, soil contamination and acid rock drainage, particularly with regard to first flush flows following rainfall events;*
- *divide the site into individual catchments based on the identified drains and catchment facilities;*
- *identify discharge scenarios during nominal events (such as 1 in 10, 20 and 50 ARI events) in order to calculate discharge volumes at each catchment and consequence on the receiving environment of these events to ensure protection of the environmental values of the receiving waters downstream as it relates to the activity;*
- *diversions and drains directing stormwater and process water into these storage facilities;*
- *identify which storage facilities pump into other storages or mine pits;*

- *details of pumping facilities;*
- *maintenance of dams, including desilting programs;*
- *incorporate a risk management approach to how changing weather patterns will effect frequency of floods, drought; and*
- *incorporate review and monitoring of the water management system and hydrological processes performance indicators.*

4 Adequacy of the EIS in addressing the TOR

The submitted EIS adequately addressed the TOR. This section of the EIS assessment report discusses aspects of the proposal that require special mention due to unusual circumstances or the need to address the assessment of matters of national environmental significance.

4.1 Water resources and management

Rolf Creek

The East Pit would excavate a cross section of the valley of Rolf Creek and an unnamed tributary to Rolf Creek.

BMA propose to divert the unnamed tributary around the north and east of the pit to rejoin Rolf Creek below the extent of the pit. This proposal has been adequately addressed in the EIS and is considered suitable.

BMA also proposed in the draft EIS, the supplementary report and its addendum to dam Rolf Creek above East Pit and to use the impounded water on-site. A 5.3km^2 section of the Rolf Creek catchment would be stranded without an outlet between the proposed East Pit Dam and the existing Roper Pit void, which lies approximately 2km upstream of the proposed dam and has previously truncated the catchment of Rolf Creek. BMA further proposed to place an out-of-pit spoil dump against the outside wall or the dam and leave the dam after mining ceases for use by the subsequent landholder. The proposed height of the dam would be such that at full capacity water would spill from the upstream end of the water body back into the Roper Pit residual void rather than over the dam wall.

The EPA is not in favour of leaving such dams upstream of completed mine workings because of the risk that at some time in the future the dam will erode and fail, and water would then flow onto or into the mine spoil and/or residual void with the potential for unforeseen adverse impacts.

Consequently, the proponent was requested to examine measures to stop the dam impounding water when mining ceases and to provide a stable landform.

In response, the proponent provided additional information as part of the EIS about the following options:

1) The feasibility of cutting a diversion around the proposed mine workings and out-of-pit spoil dumps.
2) The feasibility of modifying the placement of out-of-pit spoil dumps to provide a channel for water from the stranded part of the Rolf Creek catchment upstream of East Pit to drain around or over the pit and rejoin Rolf Creek downstream of the workings.
3) Removal of the dam at closure with diversion of the stranded catchment into the East Pit residual void.
4) Removal of the dam at closure with backfilling of the valley so that the catchment is diverted by low-gradient overland flow into the Roper Pit residual void.

The EPA considers that the submitted EIS, including the additional information, adequately addressed the issue of damming Rolf Creek. The following discussion addresses the options considered in the EIS and recommends a preferred option.

The EIS found that cutting a diversion would involve excavations up to 15m deep and greater than 130m wide, and disturb an area of approximately 40ha. The EPA concurs with the proponent's view that such a disturbance would result in unacceptable impacts and that this option is not feasible.

East Pit will be worked by dragline rather than by truck and shovel, which will limit the opportunities for selective placement of spoil. The EPA accepts that because of the limitations on selective placement it is not feasible for the shape or locations of out-of-pit spoil dumps to be modified so that Rolf Creek could be satisfactorily diverted around or over the workings.

A report submitted on 15 January 2008, concerning the hydrological consequences of Options 3 and 4, concluded that they performed equally well and that neither option would result in discharge from a residual void under likely conditions. The report concluded that a final choice between the two options would need to "consider other factors such as economic cost and feasibility". The EPA considers that the risk of environmental harm could also be added to those factors.

In that regard, Option 3 would result in a channelled flow into the East Pit void with a significantly steeper gradient than exists across the present land surface. Consequently, Option 3 contains an increased risk that erosion could occur in the channel that could propagate upstream into areas of the stranded catchment that would otherwise remain undisturbed.

Option 4 would involve backfilling the valley so that gradients on disturbed land would be less than 1% and directed the overland flow from the catchment upstream from its present course towards the Roper Pit void. However, there would be nothing gained by removing the East Pit dam, which could be left in place in this option with spoil placed on either side of it.

While Option 4 would involve double handling of some spoil material, the long-term risks of environmental harm appear significantly less than those associated with the other options. Consequently, considering the information provided in the submitted EIS, the EPA concludes that a slightly modified Option 4 (i.e. backfilling the valley while leaving the dam in place) is the preferred method for rehabilitating the East Pit Dam on closure of the mine.

The Department of Natural Resources and Water (DNRW) has stated that its preferred option for dealing with issues regulated under the *Water Act 2000* is for the proponent to seek the declaration of an upstream limit for Rolf Creek below the proposed works associated with the East Pit. This would have the effect of changing the status of watercourses on site to overland flow. The East Pit Dam and the East Pit would in that case be considered to interfere with overland flow rather than be interfering with flow in a watercourse, and under the current provisions of the Water Resources (Fitzroy Basin) Plan 1999 any overland flow developments for works authorised under a mining tenement are exempt as outlined in section 28H(f) of the Plan. Consequently, if an upstream limit on Rolf Creek is declared below East Pit the proponent will not need to obtain a water licence for the works nor will they need a water allocation.

However, DNRW is unable at this stage to say whether an application for the declaration of an upstream limit would be granted. Furthermore, DNRW has stated that if an upstream limit is not declared, Rolf Creek would remain a watercourse and the proponent would need to reconsider the diversion of Rolf Creek around the mine workings.

Due to this uncertainty, the EM plan and draft environmental authority will need to address both possibilities. This EIS assessment report concludes that the preferred option is for the documents to assume that an upstream limit will be declared below the East Pit workings while stipulating that amendment will be necessary if an upstream limit is not declared. That will allow the proponent to reconsider, should an upstream limit not be declared, whether to seek amendment of the EM plan and environmental authority or whether the need to construct a diversion would adversely affect the viability of the project.

Regulated dams

It is a general requirement that dams that could, or do, contain contaminants will be required to have design storage allowance available on 1 November each year the purpose of which is to control the probability of discharge to a level commensurate with the hazard created by the contaminants. Release criteria for discharges off the site must be based on the Queensland Water Quality Guidelines 2006 (or any more recent version at the time they are applied).

4.2 Nature conservation

Development of the Norwich Park East Pit would require the removal of 491ha of vegetation including 41ha of remnant Brigalow. This constituted a trigger for the EIS in that it would be clearing of remnant vegetation in a Category B Environmentally Sensitive Area.

The issues related to the removal of this vegetation are also covered by the controlling provision for this project under the EPBC Act as well as by State legislation. Consequently, and to avoid duplication, the reader should refer to the following section on Matters of National Environmental Significance for this EIS assessment report's response to nature conservation issues, including the proposal made in the EIS to provide an offset area covered by a conservation agreement for nature refuge.

4.3 Matters of National Environmental Significance

The controlling provisions for the Norwich Park East Pit project are sections 18 and 18A (Listed threatened species and communities). The relevant listed threatened ecological community is Brigalow (*Acacia harpophylla* dominant and co-dominant) and the relevant listed species are the Squatter pigeon (*Geophaps scripta scripta*) and the Ornamental snake (*Denisonia maculata*).

The project would result in the removal of 491ha of vegetation, comprising 317ha of remnant vegetation and 174ha of regrowth. The regional ecosystems within the 491ha to be cleared are detailed in Table 1.

Table 1 Regional ecosystems represented in vegetation at the Norwich Park East Pit site

Community	Status	Description	Proposed area to be cleared (ha)*	Area of this RE remaining (ha)†	Proportional loss
RE11.4.9	Endangered	*Acacia harpophylla* open forest	40.8	100,831	0.0004
RE11.4.8	Endangered	*Eucalyptus cambageana* woodland on Cainozoic clay plains	3.4	74,015	0.00005
RE11.3.2	Of concern	*Eucalyptus populnea* woodland on alluvial plains	140.4	546,471	0.0003
RE11.4.2	Of concern	*Eucalyptus populnea* woodland on Cainozoic clay plains	7.3	35,489	0.0002
RE11.3.25	Not of concern	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	17.0	488,414	0.00003
RE11.5.3	Not of concern	*Eucalyptus populnea* woodland on Cainozoic sand plains	107.2	405,941	0.0003
Regrowth	N/A	Regrowth of Brigalow, Dawson gum and poplar box woodland	155.2	—	—
Regrowth	N/A	Other regrowth	15.8	—	—
Cleared land	N/A	Previously cleared with no substantial regrowth	3.7	—	—

*Source: Norwich Park East Pit EIS, p7-26

†Source: Accad, A., et al, 2006, *Remnant vegetation in Queensland. Analysis of remnant vegetation 1997–1999–2000–2001–2003, including regional ecosystem information.* Brisbane: Queensland Herbarium, Environmental Protection Agency.

The Squatter pigeon potentially uses the whole East Pit site, while the Ornamental snake is likely to be limited in its extent by its preference for habitat within Brigalow shrub lands and associated gilgai country.

Consequently, the proposed removal of 491ha of all types of vegetation at the East Pit site indicates the potential loss of habitat for the Squatter pigeon, while the proposed removal of 41ha of Brigalow indicates the potential loss of habitat for the Ornamental snake and the loss of the listed threatened ecological community covered by the controlling provisions.

The loss of this habitat by development of the East Pit project cannot be avoided or directly mitigated because the coal resource is, of course, in a fixed location and no viable options exist for mining it without removing the vegetation.

The Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) has indicated that where possible the proponent should use avoidance strategies plus impact mitigation on site. Where this is impossible, offsets that deliver a long-term conservation benefit are acceptable.

To offset the loss of vegetation, the proponent has proposed to provide an 'offset bank' on land owned by the proponent to the north of the East Pit site. The proponent proposes that the offset bank will comprise two parcels of land, 710ha and an adjoining 400ha, that include both remnant and regrowth vegetation dominated by Brigalow. The offset bank is intended to provide and conserve a variety of regional ecosystems including Brigalow on clay pans (RE11.4.9), *Eucalyptus orgadophila* on clay pans (RE11.4.13), and Mixed Eucalypt/Corymbia grassy woodland on clay pans (RE 11.4.2), all of which would provide habitat for the Squatter pigeon while the Brigalow would provide habitat for the Ornamental snake.

The proposal is that 80ha of the 710ha parcel of the offset bank will account for the loss of 41ha of Brigalow due to the East Pit project while the rest will be managed to provide a reserve to offset future actions by the proponent.

However, the 400ha parcel is already covered by a mining lease, and the proponent has stated that the land will be managed 'until it is required for mining'. Consequently, that land cannot be considered as a viable, long-term offset for any present or future actions.

Furthermore, the EIS stated that the other 710ha parcel is mostly covered by an exploration permit for coal (EPC) held by another company. Even though the land is owned by BHP Coal, any negotiation for a conservation agreement for a nature refuge on the land would, of necessity, have to recognise the pre-existing activity related to mining. Therefore, it is unlikely that a conservation agreement for a nature refuge could protect the land from mining in the long-term should there prove to be economically viable resources under the site. Consequently, it appears little of the land proposed as an offset bank can be considered as a secure, long-term offset for any presently proposed or future actions by the proponent.

It must be concluded that the East Pit project will result in the loss without the certain security of a long-term offset of 491ha of vegetation that is potentially the habitat of the Squatter pigeon including 41ha of Brigalow, a listed threatened ecological community, which is also habitat for the Ornamental snake.

By far the greatest loss of Brigalow woodlands has been due to clearing for grazing rather than mining. Broadscale clearing in Queensland is now regulated by the *Vegetation Management Act 1999* (VMA) and has been phased out. The VMA also regulates the conservation of remnant endangered regional ecosystems, such as RE11.4.9 which is found at the East Pit site. However, the Queensland Parliament has explicitly excluded mining activities from requiring approval for vegetation clearing under the VMA; which may provide some indication of the importance that may be placed on the balance between beneficial economic impacts and the relative scale of adverse impacts on vegetation when comparing the mining and grazing industries.

East Pit would produce approximately 8 million tonnes of coal over its life. Assuming a value of $100 per tonne and a royalty rate of 7%, East Pit would return approximately $56,000,000 directly to the State and have additional indirect economic benefits through local employment and engagement of service industries and, as the coal is intended for export, it would benefit the balance of trade.

The purpose of the EIS process, as stated in the EP Act, is to assess both the beneficial as well as the adverse impacts of the proposal. It is also a requirement of the EP Act that the EPA consider the standard criteria when preparing this EIS assessment report, and the standard criteria require (among other things) a consideration of the public interest. While the loss of the vegetation at the East Pit site would be regrettable, the Brigalow that would be lost is proportionally small (0.0004) compared to the remaining areas of the same regional ecosystems

elsewhere in the bioregion (see Table 1 above). Similarly, large areas of the same habitat for the Squatter pigeon remain in the bioregion and the loss would again be proportionally small (<0.0002). Furthermore, while there is no certainty, there is a possibility that the losses may be offset.

This EIS assessment report must also address impacts directly on the listed species, Squatter pigeon and the Ornamental snake, not just impacts on their habitat. A single Squatter pigeon was observed at the East Pit site during field surveys for the EIS, while the presence at the site of the Ornamental snake is only inferred from observation close by. It is understood that clearing would be undertaken progressively over a relatively long period of time and that individual animals would in probability be able to relocate to other nearby habitat. The EIS concluded that impacts on the listed threatened species would be negligible. This EIS assessment report concurs, and recommends no special mitigation measures other than those commonly used when clearing land to attempt to drive animals to safer ground and physically relocated any individual animals that are unwilling to move and which can be caught.

The EIS noted the observation of eleven listed migratory species on and around the East Pit site. However, the EIS also found that the vegetation to be cleared did not constitute important habitat for the species; neither would development of the East Pit result in invasive species, nor disrupt the lifecycle of an ecologically significant proportion of the population of a listed species.

Consequently, and whether or not the offset is achievable, this EIS assessment report concludes that the balance between beneficial and adverse impacts is such that it would be in the public interest to allow the clearing to occur.

Recommended conditions

Despite the uncertainty regarding the long-term security of the proposed offset, any actions that mitigate the impacts of mining, even in the short or medium term, should be undertaken. It is suitable that the proponent manage the 700ha and 410ha parcels of land to provide enhanced habitat values until such time as mining is proposed, when assessment of the impacts of any new proposal will be undertaken in the regulatory regime applying at that time.

It is recommended that the draft environmental authority include a condition or conditions requiring the proponent to manage some or all of the 700ha and 410ha parcels of land to exclude grazing and encourage regeneration and regrowth of native vegetation until such time, if it should occur, as mining is approved on that land. If only some of that land is managed for conservation as a requirement of the environmental authority, it should be the minimum 80ha of Brigalow regrowth proposed in the EIS. While it is desirable that a conservation agreement for a nature refuge be obtained over the land, it is not recommended that it be made a condition of approval because the prior existence of an exploration permit for coal over the land creates uncertainty about what could be negotiated as permitted activities in the agreement.

DEWHA has not at this stage recommended conditions for any approval that may be granted under the EPBC Act for the Norwich Park East Pit. Consequently, no conditions for the management of matters of national environmental significance other than that related to the offset of Brigalow are recommended in this EIS assessment report. The proponent should engage in discussions with DEWHA regarding the possibilities for alternative, less direct ways of offsetting the impacts of vegetation clearing that those proposed in the EIS.

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

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

5 Adequacy of the EM plan for the project

A draft EM plan was included with the draft EIS that was released for public notification. The draft EM plan was subsequently amended in the Supplementary Report and again in the Addendum to the Supplementary Report.

The last version of the EM plan was produced before the latest amendments to the EIS were made in the additional information provided on 5 November 2007 and 15 January 2008. Consequently, it does not yet contain the environmental protection commitments made in the additional information and for the purposes of the statutory requirements cannot be considered adequate. The recommendations outlined in this EIS assessment report should be fully integrated into the EM plan and include the auditable commitments covered in the conditions recommended in this EIS assessment report. 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 Suitability of the project

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

Approved by

S. D. Cameron

Signature

25/1/08

Date

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