

Environmental Assessment Requirements

Section 75W of the *Environmental Planning and Assessment Act 1979*

Application No.	05_0117 Modification 14 and 08_0135 Modification 3
Proposal	Moolarben Open Cut Optimisation Modifications
Location	Ulan, 40 km northeast of Mudgee and 25 km east of Gulgong
Applicant	Moolarben Coal Operations Pty Ltd
Date of Issue	12 October 2017
General Requirements	The Environmental Assessment (EA) for the proposed modification must include: • a full description of the proposed modification, including: - the need for the modification; - details of the resource which would be extracted, demonstrating efficient resource recovery within environmental constraints; - changes to the existing mining operations, including the mine layout, mine sequencing and scheduling, minerals processing, reject and tailings management, overburden emplacement areas and transportation; - any additional infrastructure or other ancillary facilities; - a revised rehabilitation management strategy that describes how the changes to the existing operations would be integrated into the existing rehabilitation plans for the site; and - the likely interactions between the modified operations and any other existing, approved or proposed mining development in the vicinity of the site; • an assessment of the likely impacts of the proposed modification on the environment, focusing on the specific issues identified below, and including: - a description of the existing environment likely to be affected by the proposed modification, using sufficient baseline data; - an assessment of the cumulative impacts, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice; - a description of the measures that would be implemented to avoid, mitigate and/or offset the likely impacts of the proposed modification, and an assessment of: - o whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; - o the likely effectiveness of these measures, including performance measures where relevant; and - o whether contingency measures (including Trigger Action Response Plans) would be necessary to manage any residual risks; - a description of the measures that would be implemented to monitor and report on the environmental performance of the modified project; • a consolidated summary of all the proposed environmental management and monitoring measures associated with the modification, and how these measures would be integrated into the existing environmental management framework for the mine; and • the reasons why the proposed modification should be approved having regard to biophysical, social and economic considerations. While not exhaustive, Attachment 1 lists some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of the proposed modification. The EA must also address the requirements relating to the assessment of matters of national environmental significance (MNES) under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>, in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments (see Attachment 2).

Key Issues	The EA must address the following specific issues: • Water – including: - an assessment of the likely impacts of the proposed modification on the quantity and quality of surface and groundwater resources; - an assessment of the likely impacts of the proposed modification on aquifers, watercourses, riparian land, water supply infrastructure and systems and other water users; - a revised site water balance, including a description of additional site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply and transfer infrastructure and water storage structures; and - identification of any water licensing requirements or other approvals under the <i>Water Act 1912</i> and/or <i>Water Management Act 2000</i>; and - a detailed description of the proposed water management system, water monitoring program and measures to mitigate surface and groundwater impacts; • Biodiversity – including: - an assessment of the biodiversity values and the likely biodiversity impacts of the proposed modifications in accordance with the <i>Framework for Biodiversity Assessment</i> (OEH, 2014), unless otherwise agreed by the Office of Environment and Heritage (OEH); - an assessment of impacts on koalas or their habitat in accordance with the requirements in <i>State Environmental Planning Policy No. 44 – Koala Habitat Protection</i>; and - a revised offset strategy for the modified project that captures any residual biodiversity impacts of the proposed modification; • Noise – including: - an assessment of the likely operational noise impacts (including any construction noise) of the proposed modification under the <i>NSW Industrial Noise Policy</i>; - an assessment of the potential vibration and low frequency noise impacts of the proposed modification; and - an assessment of the likely rail noise impacts of the proposed modification under the <i>Rail Infrastructure Noise Guideline</i>; • Air Quality – including: - an assessment of the likely air quality impacts of the proposed modification in accordance with the <i>Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW</i>; and - an assessment of the likely greenhouse gas impacts of the proposed modification. • Transport – including an assessment of the likely impacts of the proposed modification on the capacity, condition, safety and efficiency of the road and rail network; • Heritage – including: - an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the proposed modification; and - adequate consultation with Aboriginal stakeholders having regard to the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (OEH, 2010); • Land – including: - an assessment of the likely impacts of the proposed modification on the soils and land capability, including any impacts on agriculture; - an assessment of the likely impacts of the proposed modification on existing landforms and topography, including: - o cliff lines, rock formations and steep slopes; and - o detailed consideration of the long term geotechnical stability of any new landforms; • Visual – including: - an assessment of the likely visual impacts of the proposed modification on private landowners in the vicinity of the project and key vantage points in the public domain, paying particular attention to any changes to existing landforms or the creation of any new landforms (high walls, overburden emplacement areas, etc.);
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	• Public Safety – including: - an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks, and the handling and use of any dangerous goods; and - the measures that would be put in place for managing and protecting public safety following the cessation of mining operations; • Social & Economic – including: - an assessment of the likely social economic impacts of the proposed modification, paying attention to: - o the significance of the resource; and - o the costs and benefits of the project for the State.
Consultation	During the preparation of the Environmental Assessment, you must consult with local government, relevant State and Commonwealth Government authorities, service providers, community groups, Registered Aboriginal Parties (RAPs) and affected landowners. The EA must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EA.

Attachment 1

Environmental Planning Instruments, Policies, Guidelines & Plans

Land	
	Soil and Landscape Issues in Environmental Impact Assessment (NOW)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
Water	
Water Sharing Plans	Hunter Unregulated and Alluvial Water Sources 2009
	North Coast Fractured and Porous Rock Groundwater Sources 2016
Groundwater	NSW State Groundwater Policy Framework Document (NOW)
	NSW State Groundwater Quality Protection Policy (NOW)
	NSW State Groundwater Quantity Management Policy (NOW)
	NSW Aquifer Interference Policy 2012 (NOW)
	Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
Surface Water	NSW State Rivers and Estuary Policy (NOW)
	NSW Government Water Quality and River Flow Objectives (EPA)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control (EPA)
	Technical Guidelines: Bunding & Spill Management (EPA)
	Environmental Guidelines: Use of Effluent by Irrigation (EPA)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	NSW Guidelines for Controlled Activities (NOW)
Biodiversity	
	Framework for Biodiversity Assessment (OEH)
	Threatened Species Assessment Guidelines (OEH)
	Policy and Guidelines for Aquatic Habitat Management and Fish Conservation (Fisheries NSW)
	NSW State Groundwater Dependent Ecosystem Policy (NOW)
	Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
Heritage	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DP&E)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (OEH)
	Code of Practice for Archaeological Investigations of Objects in NSW (OEH)
	Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH)
	NSW Heritage Manual (OEH)
	Statements of Heritage Impact (OEH)

Noise	
	NSW Industrial Noise Policy (EPA)
	Interim Construction Noise Guideline (EPA)
	NSW Road Noise Policy (EPA)
	Assessing Vibration: a Technical Guideline (EPA)
	Voluntary Land Acquisition and Mitigation Policy (DP&E)
Air	
	Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline (EPA)
	Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Voluntary Land Acquisition and Mitigation Policy (DP&E)
	National Greenhouse Accounts Factors (Commonwealth)
Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RMS) & relevant Austroads Standards
Public Safety	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Resource	
	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC)
Waste	
	Waste Classification Guidelines (EPA)
Rehabilitation	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)
Environmental Planning Instruments - General	
	<i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>
	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
	<i>Mid-Western Regional Local Environmental Plan 2012</i>

Attachment 2
Requirements of the Commonwealth Department of the Environment and Energy

**Assessment Requirements relevant to the
*Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)***

**Moolarben Optimisation Modifications
(EPBC 2017/7974) (05_0117 MOD 14 & 08_0135 MOD 3)**

Introduction

1. On 24 August 2017, it was determined that the Moolarben Optimisation Modifications would impact upon the following matters of national environmental significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*:
 - threatened species and communities; and
 - a water resource, in relation to coal seam gas development and large coal mining development.
2. Assessment documentation prepared for the purposes of approval under the EPBC Act must, in addition to providing sufficient information for a decision in accordance with the Agreement, address the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). Proponents are advised to check that requirements in Schedule 4 of the EPBC Regulations have been appropriately addressed. http://www.austlii.edu.au/au/legis/cth/consol_reg/epabcr2000697/.
3. The requirements are intended such that there is sufficient information in the assessment report relevant to MNES such that the Commonwealth decision-maker may make a determination on whether or not to approve the action. The proponent must undertake an assessment of all the protected matters that may be impacted by the development under the controlling provision identified in paragraph 1. A list of protected matters that are considered likely to be significantly impacted is provided at Attachment A to these Guidelines. Note that this may not be a complete list and it is the responsibility of the proponent to ensure any protected matters under this controlling provision, likely to be significantly impacted, are assessed for the Commonwealth decision-maker's consideration.

General Requirements

Project Description

4. The title of the action, background to the development and current status.
5. The precise location and description of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on matters of national environmental significance (MNES).
6. How the action relates to any other actions that have been, or are being taken, in the region affected by the action.
7. How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts on MNES.

Impacts

8. The Environmental Assessment (EA) must include an assessment of the relevant impacts of the action on (i) threatened species and communities and (ii) water resources; including:
 - a description and detailed assessment of the nature and extent of the likely direct, indirect and consequential impacts, including short term and long term relevant impacts;
 - a statement whether any relevant impacts are likely to be known, unpredictable or irreversible; analysis of the significance of the relevant impacts;
 - any technical data and other information used or needed to make a detailed assessment of the relevant impacts; and

- a comparative description of the impacts of alternatives, if any, on the threatened species and communities.

Avoidance, Mitigation and Offsetting

9. For each of the relevant matters protected that are likely to be significantly impacted by the proposals, the EA must provide information on proposed avoidance and mitigation measures to deal with the relevant impacts of the action, including:
 - a description and an assessment of the expected or predicted effectiveness of the mitigation measures;
 - any statutory policy basis for the mitigation measures;
 - the cost of the mitigation measures;
 - a description of the outcomes that the avoidance and mitigation measures will achieve;
 - an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action; and
 - a description of the offsets proposed to address the residual adverse significant impacts and how these offsets will be established.
10. Where a significant residual adverse impact to a relevant protected threatened species or community is considered likely, the EA must provide information on the proposed offset strategy, including discussion of the conservation benefit associated with the proposed offset strategy. Paragraphs 13 and 14 provide further requirements in relation to offsets.

Key Issues

Biodiversity

11. The EA must address the following issues in relation to Biodiversity including separate:
 - identification of each EPBC Act listed threatened species and community likely to be significantly impacted by the development. Provide evidence why other EPBC Act listed threatened species and communities likely to be located in the project area or in the vicinity will not be significantly impacted.
12. For each of the relevant EPBC Act listed threatened species and communities likely to be significantly impacted by the development the EA must provide a separate:
 - description of the habitat and habits (including identification and mapping of suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and reference to, any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans, threat abatement plans and wildlife conservation plans;
 - details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements; and
 - description of the impacts of the action having regard to the full national extent of the species or community's range.

[Note: the relevant guidelines and policy statements for each species and community are available from the Department of the Environment Species Profiles and Threats Database.<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>]

13. For each of the relevant EPBC Act listed threatened species and communities likely to be significantly impacted by the development the EA must provide:

- identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account.
- details of how the NSW Framework for Biodiversity Assessment (FBA) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts;
- details of the offset package to compensate for significant residual impacts including details of the credit profiles required to offset the development in accordance with the FBA and/or mapping and descriptions of the extent and condition of the relevant habitat and/or threatened communities occurring on proposed offset sites.

[Note: For the purposes of approval under the EPBC Act, it is a requirement that offsets directly contribute to the ongoing viability of the specific protected matter impacted by a proposed action i.e. 'like for like'. In applying the FBA, residual impacts on EPBC Act listed threatened ecological communities must be offset with Plant Community Type(s) (PCT) that are ascribed to the specific EPBC listed ecological community. PCTs from a different vegetation class will not generally be acceptable as offsets for EPBC listed communities.]

14. Any significant residual impacts not addressed by the FBA may need to be addressed in accordance with the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy. <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>. [Note if the EPBC Act Environmental Offset Policy is used to calculate proposed offsets for a threatened species or community you may wish to seek further advice from the Department of Planning and Environment.]

Water resource, in relation to coal seam gas development and large coal mining development

15. The EA should provide a description of the location, extent and ecological characteristics and values of the identified water resources potentially affected by the project.
16. The assessment of impacts should include information on:
- any substantial and measurable changes to the hydrological regime of the water resource, for example a substantial change to the volume, timing, duration or frequency of ground and surface water flows;
 - the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the water resource being seriously affected; and
 - substantial and measurable change in the water quality and quantity of the water resource—for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland; or water temperature that may adversely impact on biodiversity, ecological integrity, social amenity or human health.
17. The EA must provide adequate information to allow the project to be reviewed by the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, as outlined in the *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals (2015)*.

Environmental Record of person proposing to take the action

18. The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the person proposing to take the action; and for an action for which a person has applied for a permit, the person making the application.
19. If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

REFERENCES

1. *Environment Protect and Biodiversity Conservation Act 1999* - section 51-55, section 96A(3)(a)(b), 101A(3)(a)(b), section 136, section 527E
2. *NSW Assessment Bilateral Agreement (2015)* - Item 18.1, Item 18.5, Schedule 1
3. *Matters of National Environmental Significance - Significant impact guidelines 1.1* (2013) EPBC Act
4. *Environment Protect and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012)
5. *Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals* (IESC, October 2015)

Attachment A

The Department of the Environment's Environment Reporting Tool (ERT) identifies that 29 listed threatened species and 4 listed ecological communities may occur within 2 km of the proposed action. Based on the information in the referral documentation, the location of the action, species records and likely habitat present in the area, there are likely to be significant impacts on:

- Central Hunter Valley Eucalypt Forest and Woodland – Critically Endangered;
- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland – Critically Endangered;
- Regent Honeyeater (*Anthochaera phrygia*) – Critically Endangered;
- Swift Parrot (*Lathamus discolor*) – Critically Endangered;
- Large-eared Pied Bat (*Chalinolobus dwyeri*) – Vulnerable;
- Corben's Long-eared Bat (*Nyctophilus corbeni*) – Vulnerable; and
- Koala (*Phascolarctos cinereus*) – Vulnerable.

There is also likely to be significant impacts to water resources, including impacts on the following:

- the Upper Goulburn River Water Source - the proposed increase in discharge may result in a change to the hydrology and water quality of surface water such that it would affect its utility for downstream and environmental users, including ecosystems in the Goulburn River National Park and The Drip.

There is some risk that there may be significant impacts on the following matters and the levels of impact should be further investigated:

- Spotted-tailed Quoll (*Dasyurus maculatus maculatus*) (SE mainland population) – Endangered;
- Painted Honeyeater (*Grantiella picta*) – Vulnerable;