



WAMBO COAL PTY LIMITED

SOUTH WAMBO
UNDERGROUND MINE MODIFICATION
ENVIRONMENTAL ASSESSMENT

ATTACHMENT 2
Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements

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

Application Number	DA 305-7-2003 MOD 12
Description of Modification	<p>The modification proposes:</p> <ul style="list-style-type: none"> • extending the life of the mine by seven years to 2032; • extending open cut mining operations by three years to 2020; • increasing the underground mining rate from 7.5 Mtpa to 9.75 Mtpa; • a new underground mining area known as the Woodlands Hill Underground Mine; • changing the alignment and extent of the longwall panels in the Arrowfield Underground Mine; and • a minor extension to the surface facilities area.
Location	Jerrys Plains Road, Warkworth
Applicant	Wambo Coal Pty Ltd
Date of Issue	3 March 2016
General Requirements	<p>The Environmental Assessment (EA) for the proposed modification must include:</p> <ul style="list-style-type: none"> • a full description of the proposed modification, including: <ul style="list-style-type: none"> – the need for the modification; – details of the resource to be extracted, demonstrating efficient resource recovery within environmental constraints; – the mine layout and scheduling; – minerals processing; – surface infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process); – a waste (overburden, rejects, tailings, etc.) management strategy having regard to the EPA's requirements (see Attachment 2); – a water management strategy, having regard to EPA's and DPI's requirements (see Attachment 2); – a rehabilitation strategy to apply during, and after completion of, mining operations and the proposed final use of the site, having regard to DRE's requirements (see Attachment 2); and – the likely interactions between the proposed modified development and any other existing, approved or proposed mining development in the vicinity of the site; • justification why the proposed development is preferred over other alternatives (such as alternatives locations for the surface infrastructure or different layouts of the longwall panels); • a list of any approvals that must be obtained before the development may commence; • a risk assessment of the potential environmental impacts of the project, identifying the key issues; • an assessment of the likely impacts of the development on the environment, focusing on the specific issues identified below, including: <ul style="list-style-type: none"> – a description of the existing environment likely to be affected by the development, using sufficient baseline data; – an assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments, guidelines, policies, plans and industry codes of practice; – a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: <ul style="list-style-type: none"> ○ whether these measures are consistent with industry best

	<ul style="list-style-type: none"> practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; o the likely effectiveness of these measures; and o whether contingency plans would be necessary to manage any residual risks; <p>- a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved;</p> <ul style="list-style-type: none"> • a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EA; • consideration of the development against all relevant environmental planning instruments (including Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>); and • a conclusion justifying why the development should be approved, taking into consideration: <ul style="list-style-type: none"> o alternatives; o the suitability of the site; o the economic, social, biophysical and environmental impacts of the project as a whole; and o whether the project is consistent with the objects of the Environmental Planning and Assessment Act 1979. <p>While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</p> <p>The modification application must be accompanied by a signed report from a suitably qualified and experienced person that includes an accurate estimate of the:</p> <ul style="list-style-type: none"> • capital investment value (as defined in Clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the development, including details of all the assumptions and components from which the capital investment value calculation is derived; and • jobs that would be created during each stage of the development.
<p>Key Issues</p>	<p>The EA must address the following specific issues:</p> <ul style="list-style-type: none"> • Subsidence – including an assessment of the likely conventional and non-conventional subsidence effects and impacts of the development, and the potential consequences of these effects and impacts on the natural and built environment, paying particular attention to those features that are considered to have significant economic, social, cultural or environmental value, and having regard to the DRE's requirements (see Attachment 2); • Land Resources – including: <ul style="list-style-type: none"> - An Agriculture Impact Statement to assess the potential impacts on soils and land capability of the site and surrounds, paying particular attention to any Biophysical Strategic Agricultural Land (BSAL) and DPI's requirements (see Attachment 2) - an assessment of the likely agricultural impacts of the development; - an assessment of the likely impact of the development on landforms (topography), including: <ul style="list-style-type: none"> o the potential subsidence impacts on cliffs, rock formations and steep slopes; and o the long term geotechnical stability of any new landforms; - an assessment of the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements of Clause 12 of <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>. • Water – including: <ul style="list-style-type: none"> - an assessment of the potential impacts of the development on the quantity and quality of the region's surface and groundwater resources, having regard to the requirements of the EPA and DPI

(see Attachment 2)

- an assessment of the likely impacts of the development on aquifers, watercourses, riparian land, water-related infrastructure, and other water users;
- a detailed site water balance and an assessment of any volumetric water licensing requirements, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures, having regard to the requirements of DPI (see Attachment 2);
- an assessment of the likely flooding impacts of the development, having regard to OEH's requirements (see Attachment 2);
- identification of any licensing requirements or other approvals under the *Water Act 1912* and/or *Water Management Act 2000*;
- demonstration that water for the construction and operation of the proposed modification can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP);
- a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant WSP or water source embargo;
- a framework for the avoidance, mitigation, management and monitoring of water quality impacts during construction and operation; and
- a detailed description of the proposed water management system (including sewerage), water monitoring program and measures to mitigate surface and groundwater impacts;
- **Biodiversity** – including:
 - an assessment of the likely biodiversity impacts of the development, in accordance with applicable NSW Government Policy and having regard to the OEH's requirements (see Attachment 2);
 - an offset strategy to ensure the development maintains or improves the biodiversity values of the region in the medium to long term;
- **Heritage** – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, having regard to the OEH's requirements (see Attachment 2);
- **Noise** – including:
 - an assessment of the likely operational noise impacts of the development (including construction noise) in accordance with the *NSW Industrial Noise Policy*, paying particular attention to the obligations in chapters 8 and 9 of the policy;
 - if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the *Interim Construction Noise Guideline*;
 - an assessment of the likely road noise impacts of the development under the *NSW Road Noise Policy*; and
 - an assessment of the likely rail noise impacts of the development under the *Rail Infrastructure Noise Guideline*;
- **Air** – including:
 - an assessment of the likely air quality impacts of the development in accordance with the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* and the EPA's additional requirements (see Attachment 2); and
 - an assessment of the likely greenhouse gas impacts of the development, having regard to the EPA's requirements (see Attachment 2);
- **Transport** – including an assessment of the likely transport impacts of the development on the capacity, condition, safety and efficiency of the local and State road and rail network;
- **Visual** – including a detailed assessment of the likely visual impacts of the development (including dust, blasting and night lighting) on surrounding private landowners and key vantage points in the public

	<p>domain, paying particular attention to impacts on, private residences, tourists and road users;</p> <ul style="list-style-type: none"> • Public Safety – including an assessment of the likely risks to public safety, paying particular attention to potential subsidence risks, bushfire risks, and the handling and use of any dangerous goods; • Social & Economic – including: <ul style="list-style-type: none"> - an assessment of the likely social impacts of the development; and - an assessment of the likely economic impacts of the development, paying particular attention to: <ul style="list-style-type: none"> ○ the significance of the resource; ○ the costs and benefits of the project for the State, the region and local communities; and ○ the demand for the provision of local infrastructure and services, (see Attachment 2).
<p>Consultation</p>	<p>During the preparation of the EA, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, landowners and Aboriginal groups.</p> <p>In particular, you must consult with the:</p> <ul style="list-style-type: none"> • Commonwealth Department of the Environment; • NSW Office of Environment and Heritage (including the Heritage Branch); • NSW Environment Protection Authority; • NSW Division of Resources and Energy within the Department of Industry; • NSW Department of Primary Industries (including DPI Water, Agriculture, and Land and Natural Resources); • NSW Health; • NSW Roads and Maritime Services; • Australian Rail Track Corporation, and Hunter Valley Coal Chain Co-ordinator; • NSW Dams Safety Committee; • Mine Subsidence Board; and • Singleton Shire Council. <p>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.</p>

ATTACHMENT 1

Environmental Planning Instruments, Policies, Guidelines & Plans

Land	
	Guideline for Agricultural Impact Statements (DP&E)
	Agricultural Impact Statement: Technical Notes (DPI)
	Agfact AC25: Agricultural Land Classification (NSW Agriculture)
	Interim Protocol for Site Verification & Mapping of Biophysical Strategic Land (OEH)
	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 Plan	Hunter Unregulated and Alluvial Water Sources 2009
	Hunter Regulated River Water Source 2003
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	Hunter River Salinity Trading Scheme (EPA)
	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)	
Flooding	Floodplain Development Manual (OEH)
	Floodplain Risk Management Guideline (OEH)
Biodiversity	
	Framework for Biodiversity Assessment (OEH)
	NSW Biodiversity Offset Policy for Major Projects (OEH)
	Threatened Species Assessment Guidelines (OEH)
	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)
Rail Infrastructure Noise Guideline (EPA)
Voluntary Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments (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)
National Greenhouse Accounts Factors (Commonwealth)
Voluntary Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments (DP&E)

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 (DECC)

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

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (Infrastructure) 2007
Singleton Local Environmental Plan 2013

ATTACHMENT 2

AGENCY CORRESPONDENCE



Department of Primary Industries

OUT12/25345

Mr David Mooney
Mining and Industry Projects
NSW Department of Planning and Infrastructure
e. david.mooney@planning.nsw.gov.au

10 OCT 2012

Dear Mr Mooney

Wambo Mine - Modification 12 - Longwall modifications DGRs

Thank you for your email of 18 September 2012 concerning input to the DGRs.

The Office of Agricultural Sustainability & Food Security (O AS&FS) has reviewed and supports the advice prepared by the NSW Office of Water.

The Environmental Impact Statement should include impacts of subsidence on agricultural infrastructure and water resources used for agriculture.

An Agricultural Impact Statement would suffice to cover:

- detailed assessment of potential impacts of the project on agricultural resources;
- detailed assessment of the potential impacts of the project on the local and regional community, paying particular attention to impacts on viticulture.

A suggested form of an agricultural impact statement is noted in Attachment 1.

If you wish to discuss the issue further please call Liz Rogers on telephone 02 6391 3642 or by email liz.rogers@dpi.nsw.gov.au.

Yours sincerely

Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security

Encl

Considerations for an Agriculture Impact Statement

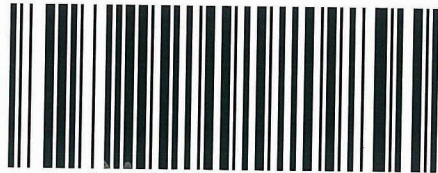
- 1.0 AIS Introduction
- 2.0 Detailed assessment of the agricultural resources and agricultural production of the project area.
 - 2.1 Soil information
 - 2.2 Slope and land characteristics
 - 2.3 History of agricultural enterprises within project areas
 - 2.4 Location and areas of land to be temporarily removed from agriculture
 - 2.5 Location and area of land to be returned to agricultural use post project
 - 2.6 Location and area of land that will not be returned to agriculture, including areas to be used for environmental plantings or biodiversity offsets
 - 2.7 Agricultural enterprises to be undertaken on any buffer and/or offset zone lands for the life of the project
- 3.0 Identification of the agricultural resources and current enterprises within the surrounding locality of the project
 - 3.1 Agricultural resources within the locality
 - 3.1.1 Soil characteristics including soil type and depth
 - 3.1.2 Topography – land capability tabulated
 - 3.1.3 Agricultural support infrastructure
 - 3.1.4 Water resources and extraction locations
 - 3.1.5 Location and type of agricultural industries
 - 3.1.6 Vegetation
 - 3.1.7 Climate conditions
 - 3.2 Current agricultural enterprises within the surrounding locality
- 4.0 Assessment of impacts
 - 4.1 Identification and assessment of the impacts of the project on agricultural resources or industries
 - 4.1.1 Effects on agricultural resources
 - 4.1.2 Consequential productivity effects on agricultural enterprises
 - 4.1.3 Uncertainty associated with the predicted impacts and mitigation measures
 - 4.1.4 Further risks
 - 4.2 Account for physical movement of water away from agriculture
 - 4.3 Assessment of socio-economic impacts
 - 4.3.1 Agricultural land values
 - 4.3.2 Local and regional agricultural enterprises
 - 4.3.3 Agricultural support services, local and regional employment
 - 4.3.4 Regional communities
 - 4.3.5 Visual amenity, landscape values and tourism infrastructure
 - 4.3.6 Economic analysis of project scenarios
- 5.0 Suggested references for methodologies
- 6.0 Mitigation measures
 - 6.1 Project alternatives
 - 6.2 Proposed monitoring programs to assess predicted versus actual impacts as the project progresses

- 6.3 Trigger response plans and trigger points at which operations will cease or be modified or remedial actions will occur to address impacts including a process to respond to unforeseen impacts.
- 6.4 The proposed remedial actions to be taken in response to a trigger event
- 6.5 The basis for assumptions made about the extent to which remedial actions will address and respond to impacts.
- 6.6 demonstrated capacity for the rehabilitation of disturbed lands to achieve the final land use and restore natural resources
- 6.7 demonstrated planning for progressive rehabilitation that minimises the extent of disturbance

7.0 Consultation

8.0 Further information

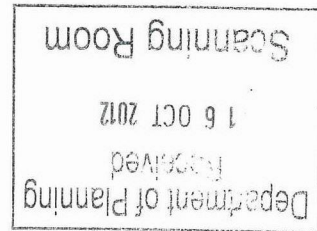
9.0 Appendix I checklist of maps and information



OUT12/25392

12 OCT 2012

Mr David Mooney
Mining and Industry Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001



Dear Mr Mooney

**Wambo Mine - Modification 12 - Longwall modifications (DA 305-7-2003 MOD 12)
Request for input into Director-General Requirements**

I refer to your email of 18 September 2012 to the Department of Primary Industries in respect to the above matter.

The Office of Water advises the environmental assessment should be required to address the following key issues, and the further detailed list of matters in Attachment A:

- The availability of adequate and secure water supply for all activities for the life of the mine.
- Compliance with the rules in any relevant Water Sharing Plan (WSP) and legislation.
- Baseline monitoring (minimum of fortnightly data sampling for at least 2 years prior to mine operations) of all surface water and groundwater sources and dependent ecosystems within and adjacent to the mining operation area for calibration of models and development of trigger criteria.
- Demonstration of adequate sensitivity analysis of surface water and groundwater responses to mining subsidence, including consideration of the limitations of subsidence impact predictions and proposed adaptive arrangements in response to impact risks to productive surface and ground waters.
- Predictive assessments of potential impacts to surface water and groundwater sources, basic landholder's rights to water, adjacent licensed water users and dependent ecosystems, and monitoring to enable comparison with ongoing monitoring.
- Mitigation strategies to address impacts on surface water and groundwater sources and dependent ecosystems for operational and post-mining phases of the proposal and final landform.

If you require further information please contact Fergus Hancock, Planning and Assessment Coordinator (Newcastle office) on 4904 2571 or at: Fergus.Hancock@water.nsw.gov.au.

It is noted that the proposal is within Viticultural Strategic Agricultural Land identified within the mapping for the Upper Hunter region in the Strategic Regional Land Use Policy, and that there have been previous issues in respect to effect of subsidence on water resources used in viticulture activity. The environmental assessment should make specific reference to this issue. In accordance with adopted procedures for mining projects that affect agricultural land and requiring consideration of an Agricultural Impact Statement, the Office of Agricultural Sustainability & Food Security will provide separate advice to the Department In this regard.

Fisheries NSW does not have any requirements in addition to those submitted above. For further information please contact Scott Carter, Senior Conservation Manager - Central Region (Nelson Bay office) on 4916 3931 or at: scott.carter@dpi.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Phil Anquetil', with a stylized flourish at the end.

Phil Anquetil
Executive Director Business Services

Attachment A

Wambo Mine - Modification 12 (Longwall modifications) (DA 305-7-2003 MOD 12) Request for Input into Director-General Requirements for Environmental Assessment (EA) Additional comments by NSW Office of Water

Legislation

Take into account the objects and regulatory requirements of the *Water Act 1912* and *Water Management Act 2000* (WMA 2000), as applicable.

Water Sharing Plans

The proposal is located within the plan area for the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009* (WSPHUAWS).

The EA must demonstrate how the proposal is consistent with the relevant rules in any relevant WSP including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection, water quality and surface-groundwater connectivity.

A description of the site water use (amount of water from each water source) and management including all sediment dams, clear water diversion structures and water use storages with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures) and calculation of the maximum harvestable right dam capacity.

Provide analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP. Refer:

<http://www.water.nsw.gov.au/Water-management/Water-sharing/default.aspx>.

Policies

Take into account the following policies (as applicable):

- NSW State Rivers and Estuary Policy (1993)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Aquifer Interference Policy (2012)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- Australian and New Zealand Guidelines for Water Quality Monitoring and Reporting (2000)
- Guidelines for the Assessment and Management of Groundwater Contamination (2007);
- Guidelines for Groundwater Protection in Australia (1995)
- Rehabilitation Manual for Australian Streams CRC Catchment Hydrology, 2000
- Office of Water Guidelines for Controlled Activities (2010/ 2011).

Refer:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx>

Licensing Considerations

Provide detail of all proposed surface water and groundwater extraction and all nominated water supply works used, or proposed to be used, to take water. Information is required on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water (pumps, dams, diversions, cuttings

and levees) and details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, a groundwater assessment within and adjacent to the mine area must include but is not limited to the following:

- Details of all groundwater sources and existing groundwater users within the area (including the environment) and details of any potential impacts on these users;
- Identification of potential Groundwater Dependent Ecosystems (GDEs);
- Baseline monitoring (minimum of fortnightly data sampling for at least 2 years prior to mine operations) for groundwater quantity and quality for all aquifers and GDEs;
- Description of aquifer hydraulic properties, chemical characteristics and connectivity (including to surface water sources);
- Assessment of GDEs for condition and water quantity and quality requirements for both terrestrial and aquatic systems (macroinvertebrate, macrophyte and stygofauna) and is to include diversity and abundance assessments;
- Details of the results of any models or predictive tools used to predict groundwater drawdown, inflows into the site and impacts on affected water sources and adjacent water users;
- Assessment of the potential effects of mining operations on the quality of groundwater both in the short and long term including any pollutants potentially infiltrating into the groundwater sources and proposed waste water disposal methods and approval from the relevant authority;
- Demonstration of how the groundwater extraction will be managed within defined limits, so that groundwater levels and quality which are critical for GDEs will not be disrupted and there is sufficient flow to sustain ecological processes and maintain biodiversity;
- Protective measures that will minimise any impacts on groundwater sources, users and GDEs; and
- Determination of critical thresholds for negligible impacts to groundwater sources and GDEs.

Surface Water Assessment

To ensure the sustainable and integrated management of surface water sources and protection of riparian areas and *waterfront land*, as defined in the WMA, an assessment of surface water sources within and adjacent to the mine area must include but is not limited to the following:

- Details of all watercourses and existing surface water users within the area (including the environment) and details of any potential impacts on these users;
- Baseline monitoring (minimum of fortnightly data sampling for at least 2 years prior to mine operations) for surface water quantity and quality for all watercourses;
- Geomorphic assessment of water courses including details of stream order (using the Strahler System), river style and energy regimes both in channel and on any adjacent floodplains;
- Detailed description of all potential environmental impacts in terms of vegetation, sediment movement, channel stability, water quality and hydraulic regime;
- Description of the design features and measures to be incorporated into the proposal to guard against long term actual and potential environmental disturbances, particularly in respect of maintaining the natural hydrological regime and sediment movement patterns and the identification of riparian buffers;

- Details of the impact on water quality and remedial measures proposed to address any possible adverse effects; and
- Determination of critical thresholds for negligible impacts to surface water sources and dependent ecosystems.

Water Management Plan (WMP)

The WMP is to include the following:

- Monitoring methodologies of all surface water and groundwater sources and dependent ecosystems within and adjacent to the mining operation area to enable verification of predictive modelling;
- Reporting procedures for any monitoring program including mechanism for transfer of information to the Office of Water;
- Site water balance for the proposal to confirm that water supplies for construction and operation of the mine and associated activities are sourced from an appropriately authorised and reliable supply in accordance with the rules of relevant WSP;
- Long term average extraction limits and available water determinations for the life of the mine and associated activities, then in to final landform and post mining hydrological configuration;
- Off site water transfers;
- Measures to minimise water use and maximise reuse of saline and contaminated waters.
- Develop a contingency plan based upon any potential exceedences in the identified threshold limits for potential impacts presented in the surface water and groundwater assessments (this includes surface water energy and water quality limits and thresholds, and any groundwater level triggers or a beneficial use category);
- A description of the remedial measures;
- A description of the adaptive management strategies which would be initiated if the predicted impacts detrimentally impacted or sterilised any surface water and ground water source as a consequence of the proposal;
- Any funding assurances covering the anticipated post development maintenance cost, for example, on-going groundwater monitoring for the nominated period and/or remediation.

**End Attachment A
3 October 2012**

Mr David Mooney
Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Mooney

**Wambo Mine – Modification 12 – Longwall Modifications
Request for input into Director General’s Requirements**

I refer to your email dated 18 September 2012 regarding Peabody Energy’s request for Director General Requirements (DGRs) for the Wambo Coal Mine to change the approved longwall layout in the Arrowfield and Bowfield seams.

NSW Trade & Investment, Regional Infrastructure & Services, Division of Resources & Energy (DRE) has reviewed the *South Wambo Underground Mine Modification Description and Preliminary Environmental Assessment* dated September 2012 and provides the following comments which are directed at specific areas of DRE’s responsibility for this proposal:

MINING TITLE

As coal is a prescribed mineral under the *Mining Act 1992*, the proponent is required to hold appropriate mining titles from DRE in order to mine this mineral. DRE understands that this proposal is within existing mining titles held by the proponent.

The Environmental Assessment (EA) should clearly identify existing coal titles within and adjacent to the project area and any new mining titles which will be required in order to undertake the project. The EA should include a plan showing current and proposed coal titles in relation to the project boundary.

MINING ACTIVITIES AND INFRASTRUCTURE

The EA should state the interaction between the proposed mining activities and the existing environment and so include a comprehensive description of the following activities and their impacts:

- Exploration Activities
- Underground mine entries, and the mine layouts and scheduling
- Coal crushing and coal handling activities
- Surface facilities and storage requirements
- Mine ventilation and any methane gas capture and use management
- Water management
- Mine closure and decommissioning activities.

REHABILITATION

The proponent should include a Rehabilitation section in the EA which addresses the following aspects:

- **Post Mining Land Use** – the proponent should identify and assess post mining land use options and provide a statement of the preferred post mining land use outcome in the EA. This should include a discussion of the benefits of the post mining land use to a subsequent landowner, the local community and the state of NSW.
- **Rehabilitation Objectives and Domains** – a set of project rehabilitation objectives should be included that clearly define the environmental outcomes required to achieve the final land use. Identify each rehabilitation domain and describe rehabilitation objectives for each domain (including for example, rehabilitation areas, watercourses, waste emplacements, final voids, and infrastructure areas.)
- **Rehabilitation Methodology** – outline general rehabilitation methods and procedures that will be employed by the project to ensure the rehabilitation objectives for each domain are met.
- **Strategic Rehabilitation Completion Criteria** – nominate strategic completion criteria for the five phases of the rehabilitation process for natural systems and passive land use, namely (1) Decommissioning; (2) Landform Establishment; (3) Growth Media Development; (4) Ecosystem Establishment; and (5) Ecosystem Development. If necessary, objective criteria may be presented as ranges rather than finite indicator levels. Subjective criteria may also apply where a gap in technical knowledge is experienced. It is expected that further refinement of completion criteria will be undertaken and included in the

Rehabilitation and Environmental Management Plan (REMP).

- **Conceptual Final Landform Design** – a drawing at an appropriate scale with final landform contours should be provided for directly impacted domain areas. This drawing should identify, but not be limited to, the following attributes of the final landform: vegetation types; habitat features; contaminated areas; final voids (if any); access and internal roads; fencing design; and other remaining infrastructure such as sheds, dams, bores and pipelines.

SUBSIDENCE

The proposed mine layout should be designed and management systems be developed, taking into consideration identified subsidence, existing surface structures and stakeholder and community issues.

The EA should provide assessment of subsidence levels associated with underground mining, using best available predictive formulae.

The EA should identify if the predicted subsidence will result in fracture connectivity to the surface, and the environmental consequence to the ground surface, groundwater aquifers and groundwater dependant ecosystems of the predicted subsidence. Baseline assessment of the surface features above the proposed mining areas must be sufficient to identify environmental features at risk, and appropriate setback or protection zones if necessary for sensitive features.

The following significant issues relating to subsidence impacts/management for the Wambo Mine Modification have been identified by DRE:

The EA should:

- adequately identify and characterise surface features that may be affected by subsidence due to the proposed mining.
- assess the feasibility to manage subsidence impacts in relation to the proposed mining methods, particularly in relation to Wollombi Brook.

Should you have any enquires regarding this matter please contact Sarah Jardine, A/Principal Adviser, Industry Coordination on (02) 4931 6691.

Yours sincerely



WILLIAM HUGHES
ACTING DIRECTOR
MINERALS OPERATIONS

Department of Trade & Investment, Regional Infrastructure & Services
Division of Resources and Energy
PO Box 344 Hunter Region Mail Centre NSW 2310
516 High St Maitland NSW 2323
Tel: 02 4931 6666 Fax: 02 4931 6776
ABN 72 189 919 072
www.industry.nsw.gov.au



ENVIRONMENT PROTECTION AUTHORITY

Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: David Mooney

Our reference: DOC12/39192; LIC08/239-04
Contact: Karen Marler
(02) 4908 6803

Dear Mr Mooney

**SOUTH WAMBO UNDERGROUND MINE MODIFICATION 12 - LONGWALL MODIFICATIONS
REQUEST FOR DIRECTOR-GENERAL'S REQUIREMENTS**

I refer to your email of 18 September 2012 to the Environment Protection Authority (EPA) requesting Director General's Requirements (DGR'S) for an Environmental Assessment (EA) regarding an application under s75W of the *Environment Planning and Assessment Act 1979* for a modification to the Wambo underground mining operation.

The EPA understands that the proposal includes the following:

- Realignment and extension/relocation of the approved Arrowfield and Bowfield Underground Mine longwall panels and which includes areas previously no approved for underground mining;
- A minor relocation of the approved Arrowfield and Bowfield underground mine box cut and drift to reflect the modification;
- Development of a modified mine layout to meet existing subsidence management commitments;
- An extension of the Wambo Mine life from 2025 to 2031 (an additional 6 years mine life);
- Construction and operation of additional surface infrastructure (ventilation shafts and gas drainage wells); and
- Construction of a portion of the surface facilities outside of the approved surface development area.

The EPA has considered the details of the proposal as provided by the NSW Department of Planning and Infrastructure (DP&I) and has identified the information it requires to assess the proposal (see **Attachment 1**). The proponent should ensure that the EA is sufficiently comprehensive to enable the EPA to determine the extent of the impact(s) of the proposal.

In carrying out the assessment, the proponent should refer to the relevant guidelines as listed in **Attachment 2**, and any relevant industry codes of practice and best practice management guidelines.

The EPA requests that 2 hard copies and 2 electronic (CD) copies of the EA be submitted for assessment. These documents should be addressed to:

Regional Manager, Hunter
Environment Protection Authority
PO Box 488G NEWCASTLE 2300.

If you wish to discuss this matter, please contact Steve Clair on (02) 4908 6850.

Yours sincerely

KAREN MARLER
Head Regional Operations Unit – Hunter
Environment Protection Authority

Attachment 1

Environment Protection Authority Recommended Director General's Requirements for South Wambo Underground Mine Modification - Environmental Assessment

ENVIRONMENTAL IMPACTS OF THE PROJECT

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Air quality
- Noise and vibration
- Waste including hazardous materials and radiation
 - General waste – any proposal
 - Hazardous materials and radiation
- Water and Soils
 - Acid sulfate soils
 - Contaminated sites
 - Soils - general
 - Water quality and discharges

Environmental Assessments (EA's) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at **Attachment 2**.

LICENSING REQUIREMENTS

1. Wambo Coal Pty Limited Company Pty Limited holds Environment Protection Licence (EPL) 529 for the Wambo Coal Mine. The EA should address the requirements of Section 45 of the *Protection of the Environment Operations Act 1997* (POEO Act) by determining the extent of any impacts, and provide sufficient information to enable the EPA to determine if any variation of the current EPL would be required.
2. Should project approval be granted, the proponent may need to make a separate application to the EPA for a variation of the EPL. Additional information is available through the EPA *Guide to Licensing* document (www.environment.nsw.gov.au/licensing/licenceguide.htm).

SPECIFIC ISSUES

AIR ISSUES

Air Quality

The EA should include a detailed air quality impact assessment (AQIA). The AQIA should:

1. Assess the risk associated with potential discharges of fugitive and point source emissions for all stages of the proposal. Assessment of risk relates to environmental harm, risk to human health and amenity.
2. Justify the level of assessment undertaken on the basis of risk factors, including but not limited to:
 - a. proposal location;
 - b. characteristics of the receiving environment; and
 - c. type and quantity of pollutants emitted.

3. Describe the receiving environment in detail. The proposal must be contextualised within the receiving environment (local, regional and inter-regional as appropriate). The description must include but need not be limited to:
 - a. meteorology and climate;
 - b. topography;
 - c. surrounding land-use; receptors; and
 - d. ambient air quality.
4. Include a detailed description of the proposal. All processes that could result in air emissions (including blasting) must be identified and described. Sufficient detail to accurately communicate the characteristics and quantity of all emissions must be provided.
5. Include a consideration of 'worst case' emission scenarios and impacts at proposed emission limits.
6. Account for cumulative impacts associated with existing emission sources as well as any currently approved developments linked to the receiving environment. This must include an assessment of 24-hour cumulative PM₁₀ impacts.
7. Include air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (2005) <http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf>.
8. Demonstrate the proposal's ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations (POEO) Act 1997* and the *POEO (Clean Air) Regulation 2010*.
9. Provide an assessment of the project in terms of the priorities and targets adopted under the NSW State Plan 2010.
10. Detail emission control techniques/practices that will be employed by the proposal and demonstrate that these are best management practice, by using the procedure outlined in *Coal Mine Particulate Matter Control Best Practice - Site-specific determination guideline* (November 2011). <http://www.environment.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf>

NOISE AND VIBRATION

In relation to noise, the following matters should be addressed (where relevant) as part of the EA.

General

1. Construction noise associated with the proposed development should be assessed using the *Interim Construction Noise Guideline* (OEH, 2009). Note that in general the construction noise guideline does not apply to coal mining developments. <http://www.environment.nsw.gov.au/noise/constructnoise.htm>.
2. Vibration from all activities (including construction and operation) to be undertaken on the premises should be assessed using the guidelines contained in the *Assessing Vibration: a technical guideline* (EPA, 2006). <http://www.environment.nsw.gov.au/noise/vibrationguide.htm>
3. If blasting is required for any reasons during the construction or operational stage of the proposed development, blast impacts should be demonstrated to be capable of complying with the guidelines contained in *Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration* (ANZECC, 1990). <http://www.environment.nsw.gov.au/noise/blasting.htm>

Industry

- Operational noise from all industrial activities (including private haul roads and private railway lines) to be undertaken on the premises should be assessed using the guidelines contained in the *NSW Industrial Noise Policy* (EPA, 2000) and *Industrial Noise Policy Application Notes*. <http://www.environment.nsw.gov.au/noise/industrial.htm>

Road

- Noise on public roads from increased road traffic generated by land use developments should be assessed using the guidelines contained in the *Environmental Criteria for Road Traffic Noise* (EPA, 1999). <http://www.environment.nsw.gov.au/noise/traffic.htm>
- Noise from new or upgraded public roads should be assessed using the *Environmental Criteria for Road Traffic Noise* (EPA, 1999). <http://www.environment.nsw.gov.au/noise/traffic.htm>

Railway

- Noise from increased rail traffic on the NSW Rail Network resulting from rail traffic generating development (e.g. an extractive industry) should be assessed using the environmental assessment requirements for rail traffic-generating developments available at <http://www.environment.nsw.gov.au/noise/railnoise.htm>

WASTE, CHEMICALS, HAZARDOUS MATERIALS AND RADIATION

General Waste

The EA should:

- Include a detailed plan for in-situ classification of waste material, including the sampling locations and sampling regime that will be employed to classify the waste, particularly with regards to the identification of contamination hotspots.
- Identify, characterise and classify all waste that will be generated onsite through excavation, demolition or construction activities, including proposed quantities of the waste.
Note: All waste must be classified in accordance with the EPA's *Waste Classification Guidelines*.
- Identify, characterise and classify all waste that is proposed to be disposed of to an offsite location, including proposed quantities of the waste and the disposal locations for the waste. This includes waste that is intended for re-use or recycling.
Note: All waste must be classified in accordance with the EPA's *Waste Classification Guidelines*.
- Include a commitment to retaining all sampling and classification results for the life of the project to demonstrate compliance with the EPA's *Waste Classification Guidelines*.
- Provide details of how waste will be handled and managed onsite to minimise pollution, including:
 - Stockpile location and management
 - Labelling of stockpiles for identification, ensuring that all waste is clearly identified and stockpiled separately from other types of material (especially the separation of any contaminated and non-contaminated waste).
 - Proposed height limits for all waste to reduce the potential for dust and odour.
 - Procedures for minimising the movement of waste around the site and double handling.
 - Measures to minimise leaching from stockpiles into the surrounding environment, such as sediment fencing, geofabric liners etc.

b) Erosion, sediment and leachate control including measures to be implemented to minimise erosion, leachate and sediment mobilisation at the site during works. The EA should show the location of each measure to be implemented. The Proponent should consider measures such as:

- Sediment traps
- Diversion banks
- Sediment fences
- Bunds (earth, hay, mulch)
- Geofabric liners
- Other control measures as appropriate

The Proponent should also provide details of:

- how leachate from stockpiled waste material will be kept separate from stormwater runoff;
- treatment of leachate through a wastewater treatment plant (if applicable); and
- any proposed transport and disposal of leachate off-site.

6. Provide details of how the waste will be handled and managed during transport to a lawful facility. If the waste possesses hazardous characteristics, the Proponent must provide details of how the waste will be treated or immobilised to render it suitable for transport and disposal.
7. Include details of all procedures and protocols to be implemented to ensure that any waste leaving the site is transported and disposed of lawfully and does not pose a risk to human health or the environment.
8. Include a statement demonstrating that the Proponent is aware of the EPA's requirements with respect to notification and tracking of waste.
9. Include a statement demonstrating that the Proponent is aware of the relevant legislative requirements for disposal of the waste, including any relevant Resource Recovery Exemptions, as gazetted by the EPA from time to time.
10. Outline contingency plans for any event that affects operations at the site that may result in environmental harm, including: excessive stockpiling of waste, volume of leachate generated exceeds the storage capacity available on-site etc.

WATER AND SOILS

Acid Sulfate Soils

1. The potential impacts of the development on acid sulfate soils must be assessed in accordance with the relevant guidelines in the *Acid Sulfate Soils Manual* (Stone *et al.* 1998) and the *Acid Sulfate Soils Laboratory Methods Guidelines* (Ahern *et al.* 2004).
2. Describe mitigation and management options that will be used to prevent, control, abate or minimise potential impacts from the disturbance of acid sulfate soils associated with the project and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Contaminated Sites Assessment and Remediation

1. The EA should include an assessment of the contaminated site that is conducted in accordance with the guidelines made or approved under section 105 of the *Contaminated Land Management Act 1997*, for example: *Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)*, *Guidelines for the NSW Site Auditor Scheme - 2nd edition (EPA, 2006)*, *Sampling Design Guidelines (EPA, 1995)*, *National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)*.
2. The EA should provide the details on how the site contamination will be remediated and/or managed so that the site is, or can be, made suitable for the proposed use.
3. All reports should be prepared in accordance with the *Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)*.
4. The EA should specify whether or not a site auditor, accredited under the *Contaminated Land Management Act 1997*, has been or will be engaged to issue a site audit statement to certify on the suitability of the current or proposed uses.

Soil Issues - General

The EA should include:

1. An assessment of potential impacts on soil and land resources should be undertaken, being guided by *Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000)*. The nature and extent of any significant impacts should be identified. Particular attention should be given to:
 - a. Soil erosion and sediment transport - in accordance with *Managing urban stormwater: soils and construction*, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (OEH 2008).
 - b. Mass movement (landslides) – in accordance with *Landslide risk management guidelines* presented in Australian Geomechanics Society (2007).
 - c. Urban and regional salinity – guidance given in the Local Government Salinity Initiative booklets which includes *Site Investigations for Urban Salinity (DLWC, 2002)*.
2. A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified soil and land resource impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
3. Where required, add any specific assessment requirements relevant to the project.

Water

Describe Proposal

1. Describe the proposal including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.
2. Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary.
3. Where relevant include a water balance for the development including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Background Conditions

4. Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal.

Proponents are generally only expected to source available data and information. However, proponents of relatively large and/or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could also include, for example:

- water chemistry
- a description of receiving water processes, circulation and mixing characteristics and hydrodynamic regimes
- lake or estuary flushing characteristics
- sensitive ecosystems or species conservation values
- specific human uses (e.g. fishing, proximity to recreation areas)
- a description of any impacts from existing industry or activities on water quality
- a description of the condition of the local catchment e.g. erosion, soils, vegetation cover, etc.
- an outline of baseline groundwater information, including, for example, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
- historic river flow data
- State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (<http://www.environment.nsw.gov.au/ieo/index.htm>). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC (2000) Guidelines for Fresh and Marine Water Quality ([http://www.mincos.gov.au/publications/australian and new zealand guidelines for fresh and marine water quality](http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality)).
- State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.

Impact Assessment

5. Describe the nature and degree of impact that any proposed discharges will have on the receiving environment.
6. Assess impacts against the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:
 - protect the Water Quality Objectives for receiving waters where they are currently being achieved; and
 - contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.
7. Where a discharge is proposed that includes a mixing zone, the proposal should demonstrate how wastewater discharged to waterways will ensure the ANZECC (2000) water quality criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge, and that any impacts in the initial mixing zone are demonstrated to be reversible.

8. Assess impacts on groundwater and groundwater dependent ecosystems.
9. Describe how stormwater will be managed both during and after construction.

Monitoring

10. Describe how predicted impacts will be monitored and assessed over time. For relatively large and/or high risk developments, proponents should develop a water quality and aquatic ecosystem monitoring program to monitor the responses for each component or process that affects the Water Quality Objectives that includes, for example:
 - o adequate data for evaluating compliance with water quality standards and/or Water Quality Objectives
 - o measurement of pollutants identified or expected to be present in any discharge
11. Water quality monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutant in NSW* (2004) (<http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf>).

Attachment 2

Environment Protection Authority South Wambo Underground Mine Modification - Environmental Assessment

GUIDANCE MATERIAL

Title	Web address
<u>Relevant Legislation</u>	
<i>Contaminated Land Management Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+140+1997+cd+0+N
<i>Environmentally Hazardous Chemicals Act 1985</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N
<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>Protection of the Environment Operations Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
<u>Licensing</u>	
EPA Guide to Licensing	www.environment.nsw.gov.au/licensing/licenceguide.htm
<u>Air Issues</u>	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+642+2002+cd+0+N
<u>Noise and Vibration</u>	
Interim Construction Noise Guideline (OEH, 2009)	http://www.environment.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (OEH, 2006)	http://www.environment.nsw.gov.au/noise/vibrationguide.htm
Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990)	http://www.environment.nsw.gov.au/noise/blasting.htm
NSW Industrial Noise Policy (EPA 2000)	http://www.environment.nsw.gov.au/noise/industrial.htm
Industrial Noise Policy Application Notes	http://www.environment.nsw.gov.au/noise/applicnotesindustnoise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.environment.nsw.gov.au/noise/traffic.htm
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (OEH, 2007)	http://www.environment.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.environment.nsw.gov.au/noise/railnoise.htm

Title	Web address
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Waste, Chemicals and Hazardous Materials and Radiation

Waste

Waste Classification Guidelines (OEH, 2008)	http://www.environment.nsw.gov.au/waste/envguidlns/index.htm
OEH Resource recovery exemption	http://www.environment.nsw.gov.au/waste/RRecoveryExemptions.htm
POEO (Waste) Regulations 2005	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+497+2005+cd+0+N

Water and Soils

Acid sulphate soils

Acid Sulfate Soils Planning Maps	http://canri.nsw.gov.au/download/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.

Contaminated Sites Assessment and Remediation

Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/DevelopmentAssessments/RegistrofDevelopmentAssessmentGuidelines/tabid/207/language/en-US/Default.aspx
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.environment.nsw.gov.au/resources/clm/97104consultantsguidelines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (OEH, 2006)	http://www.environment.nsw.gov.au/resources/clm/auditorlines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from OEH's Environment Line
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.ephc.gov.au/taxonomy/term/44

Soils – general

Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000)	http://www.dnr.nsw.gov.au/care/soil/soil_pubs/pdfs/tech_rep_34_new.pdf
Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B. Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (OEH 2008)	Vol 1 - Available for purchase at http://www.landcom.com.au/whats-new/publications-reports/the-blue-book.aspx Vol 2 - http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm

Water

Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality
Applying Goals for Ambient Water Quality Guidance for Operations Officers	http://OEHnet/water/resources/AWQGuidance7.pdf

Title

Web address

– Mixing Zones

Approved Methods for the Sampling and
Analysis of Water Pollutant in NSW
(2004)

<http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf>



Mr David Mooney
Mining and Industry Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Mooney

**RE: DIRECTOR GENERAL'S REQUIREMENTS FOR SOUTH WAMBO UNDERGROUND MINE
LONGWALL MODIFICATIONS (DA 305-7-2003 MOD12)**

Reference is made to your email to the Office of Environment and Heritage (OEH) on 18 September. In your email you provided OEH with a copy of the request for Director General's Requirements (DGRs) from Peabody Energy for a modification to an existing consent for underground coal mines on the Wambo mining leases. OEH notes that the proposed modifications include the realignment and extension of the Arrowfield and Bowfield Seam Underground Mines (which are collectively referred to as the 'South Wambo Underground Mine'); the extension of the mine life by six years (from 2025 to 2031), minor relocation of the box cut for the South Wambo Mine, construction of additional surface infrastructure and construction of some of the surface facilities outside the approved development surface.

The attached DGR's (**Attachment 1**), are based on the information provided in the Preliminary Environmental Assessment report titled South Wambo Underground Mine Modification: Modification Description and Preliminary Environmental Assessment. The proponent should ensure that the Environmental Impact Statement (EIS) is sufficiently comprehensive to enable OEH to determine the extent of the impact(s) of the proposal. In carrying out the assessment, the proponent should refer to the relevant guidelines as listed in **Attachments 2 and 3** and relevant best practice management guidelines.

OEH requests two hard and four electronic (CD) copies of the EIS for assessment. These documents should be sent to the Office of Environment and Heritage; Manager, Planning and Aboriginal Heritage – Hunter, PO Box 488G, Newcastle, 2300.

If you require any further information regarding this matter please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4908 6851.

Yours sincerely

25 SEP 2012

RICHARD BATH
Head – Hunter Planning Unit
Conservation and Regulation, North East

Enclosure: Attachments 1, 2 and 3

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1 Environmental impacts of the project

1. Impacts related to the following environmental issues need to be assessed, quantified and reported on:
 - Aboriginal cultural heritage
 - biodiversity
 - greenhouse gasses

Environmental Impact Statements (EISs) should address the specific requirements outlined below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is in **Attachment 2**.

2 The Proposal

The objectives of the proposal should be clearly stated and refer to:

- the size, scale and type of the activity / development;
- all anticipated environment impacts, both direct and indirect, including level of vegetation / habitat clearing, and mine subsidence;
- threatened species, populations, ecological communities and / or habitats impacted upon;
- the staging and timing of the proposal; and
- the proposal's relationship to any other proposal and/or developments.

SPECIFIC ISSUES

3 Greenhouse gas

1. The EIS should include a comprehensive assessment of, and report on, the project's predicted greenhouse gas emissions (tCO₂e). Emissions should be reported broken down by:
 - a. direct emissions (scope 1 as defined by the Greenhouse Gas Protocol – see reference in Attachment 2),
 - b. indirect emissions from electricity (scope 2), and
 - c. upstream and downstream emissions (scope 3)before and after implementation of the project, including annual emissions for each part of the project (construction, operation and decommissioning).
2. The EIS should include an estimate of the greenhouse emissions intensity (per unit of production). Emissions intensity should be compared with best practice if possible.
3. The emissions should be estimated using an appropriate methodology, in accordance with NSW, Australian and international guidelines (see Attachment 2).
4. The proponent should also evaluate and report on the feasibility of measures to reduce greenhouse gas emissions associated with the project. This could include a consideration of energy efficiency opportunities or undertaking an energy use audit for the site.

4 Flooding

The EIS should include an assessment of the following (where applicable) referring to the guidelines in Attachment 2:

1. Whether the proposal is consistent with any floodplain risk management plans.
2. Whether the proposal is compatible with the flood hazard of the land.

3. Whether the proposal will significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties.
4. Whether the proposal will significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
5. Whether the proposal incorporates appropriate measures to manage risk to life from flood.
6. Whether the proposal is likely to result in unsustainable social and economic costs to the community as a consequence of flooding.
7. The EIS needs to provide full details of the flood assessment and modelling undertaken in determining any design flood levels (if applicable), including the 1 in 100 year flood levels.
8. In addition, the assessment should include a sensitivity assessment of the potential impacts of an increase in rainfall intensity and runoff (10%, 20% and 30%) due to climate change on the flood behaviour for the 1 in 100 year design flood.

5 Aboriginal Cultural Heritage

OEH recommends that the following Aboriginal cultural heritage issues are addressed by the proponent in preparing the EA.

Existing Aboriginal cultural heritage values

OEH acknowledges the existence of numerous registered Aboriginal sites in the regional locality. These include culturally modified trees, isolated finds, grinding grooves, camp sites, ceremonial sites and artefact scatters and potential artefact scatters (PADS). It is recommended that the proponent consider any potential impacts of the proposal on these known Aboriginal sites/objects, the sensitivity and significance of these sites to the traditional Aboriginal knowledge holders and any relationship that may exist between these sites and any Aboriginal cultural heritage values of the project area.

Impacts of the project on Aboriginal cultural heritage values

Standard requirements:

1. The EIS must address and document the information requirements set out in the draft '*Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*' (Department of Environment and Conservation 2005). This document is available from DP&I upon request.
2. The EIS must include surveys by suitably qualified archaeological consultants in consultation with all of the local Aboriginal knowledge holders.
3. The EIS should identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area and clearly articulate strategies proposed to avoid/minimise these impacts. If impacts are proposed as part of the final development, clear justification for such impacts should be provided.
4. The EIS must assess and document the archaeological and Aboriginal significance of the site's Aboriginal cultural heritage values.
5. Describe the actions that will be taken to avoid or mitigate impacts of the project on Aboriginal cultural heritage values. This must include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented. Any proposed methodology for Aboriginal cultural heritage investigation should reflect best practice standards recommended by OEH in the '*Code of Practice for Archaeological Investigations of Objects in New South Wales (2010)*'.

6. The EIS must provide documentary evidence to demonstrate that effective community consultation with Aboriginal communities has been undertaken in assessing impacts, developing protection and mitigation options and making final recommendations. OEH supports broad-based Aboriginal community consultation and as a guide OEH's '*Aboriginal cultural heritage consultation requirements for proponents 2010*' provides a useful model to follow. This requirement is available on OEH's website at:
www.environment.nsw.gov.au/licences/consultation.htm.
7. If impacts on Aboriginal cultural heritage values are proposed as part of the final development, an assessment of the proposed impacts in the context of '*inter generational equity*' and cumulative impact must be undertaken. This assessment must examine both cultural and archaeological perspectives equally at both the local and regional levels, with consideration given to the site level and broader landscape level.

Note: If the EIS is relying on past surveys it is critical to confirm that the surveys are consistent with the requirements of the above Major Project application guidelines. Further, whilst there may be no requirement for obtaining an Aboriginal Heritage Impact Permit (AHIP) under Part 6 of the *National Parks and Wildlife Act 1974* (NPW Act) for projects approved under the provisions of Part 4 of the *Environmental Planning and Assessment Act 1979*, there are other sections of the NPW Act which remain valid. This includes the requirement to obtain a Care Agreement for salvaged objects (Section 85) and reporting to OEH on the status of new or impacted Aboriginal sites (Section 89A).

6 Biodiversity

Biodiversity impacts can be assessed using **either** the BioBanking Assessment Methodology (scenario 1) or a detailed biodiversity assessment (scenario 2). The requirements for each of these approaches are detailed below.

The BioBanking Assessment Methodology can be used **either** to obtain a BioBanking statement, or to assess impacts of a proposal and to determine required offsets without obtaining a statement. In the latter instances, if the required credits are not available for offsetting, appropriate alternative options may be developed in consultation with OEH and in accordance with OEH policy.

Scenario 1 - Where a proposal is assessed using the BioBanking Assessment Methodology (BBAM DECC 2008):

1. Where a BioBanking Statement is being sought under Part 7A of the TSC Act, the assessment must be undertaken by an accredited BioBanking assessor (as specified under Section 142B (1)(c) of the TSC Act) and done in accordance with the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECC 2009a). To qualify for a BioBanking Statement a proposal must meet the improve or maintain standard.
 - 1a. The EIS should include a specific Statement of Commitments that reflects all requirements of the BioBanking Statement including the number of credits required and any DG approved variations to impact on Red Flags.
 2. Where the BioBanking Assessment Methodology is being used to assess impacts of a proposal and to determine required offsets, and a BioBanking Statement is not being obtained, the EIS should contain a detailed biodiversity assessment and all components of the assessment must be undertaken in accordance with the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECC 2009a).
 - 2a. The EIS should include a specific 'Statement of Commitments' which:
 - is informed by the outcomes of the proposed BioBanking assessment offset package;
 - sets out the ecosystem and species credits required by the BioBanking Assessment Methodology and how these ecosystem and/or species credits will be secured and obtained;

- if the ecosystem or species credits cannot be obtained, provides appropriate alternative options to offset expected impacts, noting that an appropriate alternative option may be developed in consultation with OEH officers and in accordance with OEH policy;
 - demonstrates how all options have been explored to avoid red flag areas;
 - includes all relevant 'BioBanking files, data sheets, underlying assumptions (particularly in the selection of vegetation types from the vegetation types database), and documentation (including maps, aerial photographs, GIS shape files, other remote sensing imagery etc. [as per Attachment 3]) to ensure that OEH can conduct an appropriate review of the assessment.
3. Where the *NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects* (OEH 2011) is being used then the proponent must stipulate which level(s) of offset is being offered. In accordance with the interim policy, justification must be provided as to why it is appropriate to apply the Tier 2 ('no net loss') or Tier 3 ('mitigated net loss') outcomes. In considering whether the mitigated net loss standard is appropriate, justification must be provided on: (i) whether the credits required by the calculator are available on the market; (ii) whether alternative offset sites (other than credits) are available on the market; and (iii) the overall cost of the offsets and whether these costs are reasonable given the circumstances'. This must be to satisfaction of and in consultation with OEH. Tier 2 and Tier 3 offset proposals will likely require a larger area of remnant vegetation to be offered in the offset package than if Tier 1 ('improve or maintain') had been met.
 4. Where appropriate, likely impacts (both direct and indirect) on any adjoining and/or nearby OEH estate reserved under the NPW Act or any marine and estuarine protected areas under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997* should be considered. Please refer to the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW 2010).
 5. With regard to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the assessment should identify and assess any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

Scenario 2 - Where a proposal is assessed outside the BioBanking Assessment Methodology:

1. The EIS should include a detailed biodiversity assessment, including assessment of impacts on threatened biodiversity, native vegetation and habitat. This assessment should address the matters included in the following sections.
2. A field survey of the site should be conducted and documented in accordance with relevant guidelines, including:
 - the *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians* (DECCW, 2009b)
 - *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004), and
 - Threatened species survey and assessment guideline information on www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm.

If a proposed survey methodology is likely to vary significantly from the above methods, the proponent should discuss the proposed methodology with OEH prior to undertaking the EIS, to determine whether OEH considers that it is appropriate.

Recent (less than five years old) surveys and assessments may be used. However, previous surveys should not be used if they have:

- been undertaken in seasons, weather conditions or following extensive disturbance events when the subject species are unlikely to be detected or present, or
- utilised methodologies, survey sampling intensities, timeframes or baits that are not the most appropriate for detecting the target subject species,

unless these differences can be clearly demonstrated to have had an insignificant impact upon the outcomes of the surveys. If a previous survey is used, any additional species listed under the TSC Act since the previous survey took place, must be surveyed for.

Determining the list of potential threatened species for the site must be done in accordance with the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004) and the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005). The OEH Threatened Species website www.environment.nsw.gov.au/threatenedspecies/ and the *Atlas of NSW Wildlife* database must be the primary information sources for the list of threatened species present. The BioBanking Threatened Species Database, the Vegetation Types databases (available on DECCW website at www.environment.nsw.gov.au/biobanking/biobankingtspd.htm and www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm, respectively) and other data sources (e.g. PlantNET, Online Zoological Collections of Australian Museums (www.ozcam.org/), previous or nearby surveys etc.) may also be used to compile the list.

OEH notes that the area subject to the proposed modification contains a mixture of vegetation communities. As such OEH would expect all communities to be adequately sampled and assessed, including the application of an appropriate offset strategy that compensates for the loss of all impacted habitats.

3. OEH notes the following known and/or predicted threatened species, populations and ecological communities (based on OEH *Atlas of NSW Wildlife* database, vegetation mapping and potential habitat) which have broad habitat matches to that of the site occur on or areas nearby (approx. 10-20 km radius) to the proposal. These should be targeted during surveying (but not be limited to just these):

FLORA

Ancistrachne maidenii – a summer-flowering grass of soils derived from sandstone (Harden 1993).

Small Snake orchid (*Diuris pedunculata*) * - a small winter-growing orchid that typically flowers between August and September (Harden, 1992).

Slaty Red Gum (*Eucalyptus glaucina*) * – flowers from September to November (Brooke & Kleinig 1999); although locally frequent it is restricted to these areas, where it is known to hybridise with the closely allied red gum – *Eucalyptus tereticornis*.

Illawarra Greenhood (*Pterostylis gibbosa*) * - a tuberous-rooted winter-growing orchid that flowers between August and November (Harden 1993).

FAUNA

Amphibians:

Giant Burrowing Frog (*Heleioporus australiacus*) *

Birds:

Gang-gang Cockatoo (*Callocephalon fimbriatum*)

Glossy Black Cockatoo (*Calyptorhynchus lathamii*)

Spotted Harrier (*Circus assimilis*)

Brown Treecreeper (*Climacteris picumnus* subsp. *victoriae*)

Varied Sittella (*Daphoenositta chrysoptera*)

Black-necked Stork (*Ephippiorhynchus asiaticus*)

Grey Falcon (*Falco hypoleucos*)

Little Lorikeet (*Glossopsitta pusilla*)

Painted Honeyeater (*Grantiella picta*)

Black-breasted Buzzard (*Hamirostra melanosternon*)

Little Eagle (*Hieraaetus morphnoides*)

Swift Parrot (*Lathamus discolor*) *

Square-tailed Kite (*Lophoictinia isura*)

Turquoise Parrot (*Neophema pulchella*)

Barking Owl (*Ninox connivens*)
 Powerful Owl (*Ninox strenua*)
 Hooded Robin (*Melanodryas cucullata*)
 Oliver Whistler (*Pachycephala olivacea*)
 Scarlet Robin (*Petroica boodang*)
 Flame Robin (*Petroica phoenicea*)
 Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis* subsp. *temporalis*)
 Speckled Warbler (*Pyrrholaemus sagittatus*)
 Diamond Firetail (*Stagonopleura guttata*)
 Regent Honeyeater (*Xanthomyza phrygia*) *

Mammals:

Large-eared Pied Bat (*Chalinolobus dwyeri*) *
 Spotted-tailed Quoll (*Dasyurus maculatus*) *
 Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)
 Eastern Bent-wing Bat (*Miniopterus schreibersii* subsp. *oceanensis*)
 Eastern Freetail bat (*Mormopterus norfolkensis*)
 Yellow-bellied Glider (*Petaurus australis*)
 Brush-tailed Rock Wallaby (*Petrogale penicillata*) *
 Koala (*Phascolarctos cinereus*) *
 Brush-tailed Phascogale (*Phascogale tapoatafa*)
 Grey-headed Flying-fox (*Pteropus poliocephalus*) *
 Little Bentwing-bat (*Miniopterus australis*)
 Large-footed Myotis (*Myotis adversus*)
 Squirrel Glider (*Petaurus norfolcensis*)
 Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*)
 Eastern Cave Bat (*Vespadelus troughtoni*)

* EPBC Act listed species.

Endangered Populations

- *Acacia pendula* population in the Hunter Catchment.
- *Cymbidium canaliculatum* in the Hunter Catchment.
- *Eucalyptus camaldulensis* population in the Hunter Catchment.

Endangered Ecological Communities

- Central Hunter Grey Box-Ironbark Woodland in the NSW North Coast and Sydney Basin Bioregions.
- Central Hunter Ironbark-Spotted Gum-Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions.
- Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions.
- Hunter Lowland Red Gum forest in the Sydney Basin and NSW North Coast bioregions.
- Hunter Valley Weeping Myall Woodland of the Sydney Basin Bioregion.
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.
- Warkworth Sands Woodland in the Sydney Basin Bioregion.
- White Box Yellow Box Blakely's Red Gum woodland.

Vulnerable Ecological Communities

- Hunter Valley Foothills Slaty Gum Woodland in the Sydney Basin Bioregion.

4. The EIS should contain the following information as a minimum:
 - a. The requirements set out in the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005).
 - b. Description and geo-referenced mapping of study area (and spatial data files), e.g. overlays on topographic maps, satellite images and /or aerial photos, including details of map datum, projection and zone, all survey locations, all vegetation communities, key habitat features and

reported locations of threatened species, populations and ecological communities present in the subject site and study area.

- c. Description of survey methodologies used, including timing, location and weather conditions.
 - d. Details, including qualifications and experience of all staff undertaking the surveys, mapping and assessment of impacts as part of the EIS.
 - e. Detailed description of all vegetation communities (both forested and non-woody [e.g. derived grasslands], including classification and methodology used to classify) and including all plot data. Plot data should be supplied to the OEH in electronic format (e.g. MS-Excel) and organised by vegetation community;
 - f. Identification of national and state listed threatened biota known or likely to occur in the study area and their conservation status.
 - g. Description of the likely impacts of the proposal on biodiversity and wildlife corridors, including direct and indirect and construction and operation impacts. Wherever possible, quantify these impacts such as the amount of each vegetation community or species habitat to be cleared or impacted, or any fragmentation of a wildlife corridor. The proposal should provide an assessment of the cumulative impacts of the proposal in relation to other nearby developments, such as (but not limited to) Mount Thorley Warkworth and Coal Operations, the Bulga Complex and Hunter Valley South Operations.
 - h. Identification of the avoidance, mitigation and management measures that will be put in place as part of the proposal to avoid or minimise impacts, including details about alternative options considered and how long term management arrangements will be guaranteed.
 - i. Description of the residual impacts of the proposal. If the proposal cannot adequately avoid or mitigate impacts on biodiversity, then a biodiversity offset package is expected (see the requirements for this at point 6 below).
 - j. Provision of specific Statement of Commitments relating to biodiversity.
5. An assessment of the significance of direct and indirect impacts of the proposal must be undertaken for threatened biodiversity known or considered likely to occur in the study area based on the presence of suitable habitat. This assessment must take into account:
- a. the factors identified in s.5A of the *Environmental Planning and Assessment Act 1979*, and
 - b. the guidance provided by *The Threatened Species Assessment Guideline – The Assessment of Significance* (DECC 2007) which is available at:
www.environment.nsw.gov.au/resources/threatenedspecies/tsaguide07393.pdf
6. Where an offsets package is proposed by a proponent for impacts to biodiversity (and a BioBanking Statement has not been sought) this package should:
- a. Meet OEH's *Principles for the use of biodiversity offsets in NSW*, which are available at:
www.environment.nsw.gov.au/biocertification/offsets.htm.
 - b. Identify the conservation mechanisms to be used to ensure the long term protection and management of the offset sites.
 - c. Include an appropriate Management Plan (such as vegetation or habitat) that has been developed as a key amelioration measure to ensure any proposed compensatory offsets, retained habitat enhancement features within the development footprint and/or impact mitigation measures (including proposed rehabilitation and/or monitoring programs) are appropriately managed and funded.

With respect to managing and conserving a proposed offset in perpetuity, OEH considers and supports the following as appropriate conservation mechanisms:

- The establishment of biobanking sites with biobanking agreements under the TSC Act;
- The dedication of land under the NPW Act;
- A Conservation Agreement under the NPW Act;
- A Trust Agreement under the *Nature Conservation Trust Act 2001*; or
- A Planning Agreement under s. 93F of the *Environmental Planning and Assessment Act 1979*.

Note: OEH no longer supports public positive covenant under s88E of the *Conveyancing Act 1919* as an appropriate conservation mechanism to secure and/or manage biodiversity offsets.

7. Where appropriate, likely impacts (both direct and indirect) on any adjoining and/or nearby National Parks and Wildlife Service estate reserved under the NPW Act or any marine and estuarine protected areas under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997* should be considered. Refer to the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW 2010). OEH notes Wollemi National Park in western vicinity of the proposal, and as such any direct or indirect impacts need to be documented and assessed.
8. With regard to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the assessment should identify any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

References

- Brooker, M.I.H. and Kleinig, D.A. (1999) *Field Guide to Eucalypts: Volume 1 – South-eastern Australia*. Blooming Books, Australia.
- DEC (2004) Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Draft, Department of Environment and Conservation, Hurstville; available at: www3.environment.nsw.gov.au/pdfs/tbsa_guidelines_draft.pdf.
- DECC (2007) Threatened Species Assessment Guidelines: The Assessment of Significance. August 2007. Department of Environment and Climate Change (NSW).
- DECC (2008) *BioBanking Assessment Methodology*. Department of Environment and Climate Change NSW.
- DECC (2009a) *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians*. April 2009. Department of Environment and Climate Change (NSW), Goulburn Street, Sydney.
- DECC (2009b) *BioBanking Assessment Methodology and Credit Calculator Operational Manual*. Department of Environment and Climate Change NSW, Sydney; available at: www.environment.nsw.gov.au/resources/biobanking/09181bioopsman.pdf.
- DECCW (2010) *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water*. DECCW, Sydney.
- DoP (2005) *Guidelines for Threatened Species Assessment*. Department of Planning, Sydney, July 2005.
- Harden, G.J. (ed.) (1990-2002) *Flora of New South Wales: Volumes 1 - 4*. New South Wales University Press, Kensington.
- OEH (2011) NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects. NSW Office of Environment and Heritage, Sydney, June 2011.

ATTACHMENT 2 – GUIDANCE MATERIAL

Title	Web address
<u>Relevant Legislation</u>	
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
<i>Environmental Planning and Assessment Act 1979</i>	www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>National Parks and Wildlife Act 1974</i>	www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
<i>Threatened Species Conservation Act 1995</i>	www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
<u>Greenhouse Gas</u>	
The Greenhouse Gas Protocol: Corporate Standard, World Council for Sustainable Business Development & World Resources Institute	www.ghgprotocol.org/standards/corporate-standard
National Greenhouse Accounts (NGA) Factors, Australian Department of Climate Change (Latest relEISse),	www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-factors.aspx
National Greenhouse and Energy Reporting System, Technical Guidelines (latest relEISse)	www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/tools-resources.aspx
National Carbon Accounting Toolbox	www.climatechange.gov.au/government/initiatives/ncat.aspx
Australian Greenhouse Emissions Information System (AGEIS)	http://ageis.climatechange.gov.au/
<u>Aboriginal Cultural Heritage</u>	
Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (2005)	Available from DoP.
Aboriginal Cultural Heritage Consultation Requirements for Proponents (EPA, 2010)	www.environment.nsw.gov.au/licences/consultation.htm
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (EPA, 2010)	www.environment.nsw.gov.au/licences/archinvestigations.htm
Aboriginal Site Impact Recording Form	www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm
Aboriginal Heritage Information Management System (AHIMS) Registrar	www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
<u>Biodiversity</u>	
BioBanking Assessment Methodology (DECC, 2008)	www.environment.nsw.gov.au/resources/biobanking/08385bbasessmethod.pdf
BioBanking Assessment Methodology	www.environment.nsw.gov.au/biobanking/operationalmanual.htm

Title	Web address
and Credit Calculator Operational Manual (EPA, 2008)	
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (EPA, 2009)	www.environment.nsw.gov.au/resources/Threatenedspecies/09213amphibians.pdf
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (DEC, 2004)	www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf
Guidelines for Threatened Species Assessment (Department of Planning, July 2005)	Draft available from DoP
EPA Threatened Species website	www.environment.nsw.gov.au/Threatenedspecies/
Atlas of NSW Wildlife	http://wildlifeAtlas.nationalparks.nsw.gov.au/wildlifeAtlas/watlas.jsp
BioBanking Threatened Species Database	www.environment.nsw.gov.au/biobanking/biobankingtspd.htm
Vegetation Types databases	www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm
PlantNET	http://plantnet.rbgsyd.nsw.gov.au/
Online Zoological Collections of Australian Museums	www.ozcam.org/
Threatened Species Assessment Guideline - The Assessment of Significance (EPA, 2007)	www.environment.nsw.gov.au/resources/Threatenedspecies/tsaguide07393.pdf
Principles for the use of biodiversity offsets in NSW	www.environment.nsw.gov.au/biocertification/offsets.htm
<u>OEH Estate</u>	
Land reserved or acquired under the NPW Act	
List of national parks	www.environment.nsw.gov.au/NationalParks/parksEISchatoz.aspx
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (EPA, 2010)	www.environment.nsw.gov.au/resources/protectedareas/10509devadjEPA.pdf

ATTACHMENT 3: CHECKLIST OF INFORMATION REQUIRED WHEN UTILISING THE BIOBANKING ASSESSMENT METHODOLOGY (DRAFT)

A hard copy and soft copy of all requirements:

- BioBanking Assessment Report. The Biobanking Assessment Report should include:
 - a description of the proposed development,
 - measures to avoid and mitigate the impacts of development,
 - an assessment of indirect impacts,
 - a statement of onsite measures,
 - a description of the application of the biobanking assessment methodology, including details on and assumptions made in utilising the methodology, such as (but not limited to) placement of assessment circles, remnant value, connectivity and reasoning behind selection of vegetation types in the BVT database,
 - plot and transect values including a list of the indigenous plant species identified in each of the plots,
 - a description of targeted threatened flora and fauna surveys, and any general baseline surveys (incl. vegetation specific surveys). These should be also be provided schematically, and
 - the Biobanking Credit Report.
- Where required, the BioBanking Assessment Report should also include:
 - expert reports,
 - an application for a determination on red flag areas,
 - more appropriate use of local data for vegetation types, benchmarks or threatened species,
 - environmental contributions accompanied by a BioBanking Agreement Credit Report (if applicable), and
 - application for deferred retirement arrangements (if applicable).
- Copies of completed field data sheets, and updated with correct plant taxonomy in instances where field names have been used.
- Maps (soft copy as A4 or as jpgs), preferably named:
 - property boundary
 - development footprint
 - vegetation zones
 - asset protection zones or other management zones
- Separate shape files should be supplied for all the maps mentioned above plus:
 - plots and transects
 - assessment circles
 - species polygons

NOTE:

- (i) All maps must include:
 - a title (as per the names above),
 - the site's name, location and lot/DP numbers,
 - the scale and grid,
 - the date it was prepared, and
 - a legend.
- (ii) Boundaries and zones must be confirmed on the site using a GPS. This information should be digitised onto an ortho-rectified aerial photo or SPOT-5 image. Maps must be easily readable and submitted to DECCW as a Geographic Information System (GIS) file that is ESRI compatible.
- (iii) Shapefiles must use the GDA94 datum. Name each shapefile as: 'development site name_descriptor', for example, 'Hill Farm_vegetation zones'.

ATTACHMENT 3
Commonwealth Department of Environment assessment requirements

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

United and Wambo Open Cut Coal Mine Project (EPBC 2016/7636) (DA 305-7-2003 MOD 12)

1. On 29 February 2016 it was determined that the South Wambo Underground Coal Mine Extension, 15km west of Singleton, NSW will 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
 - a water resource, in relation to coal seam gas development and large coal mining development
2. The project will be assessed in accordance with the NSW Assessment Bilateral Agreement (2015) and as such is required to be assessed in the manner specified in Schedule 1 to that Agreement including, addressing the matters outlined in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000 (Cth)*. These assessment requirements do not stand alone but are a supplement to the Secretary's Environmental Assessment Requirements issued on 23 October 2015 and must be addressed in conjunction with those requirements. The assessment requirements are intended to ensure 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.
3. The proponent must undertake an assessment of all the protected matters that may be impacted by the development under the controlling provisions identified in paragraph 1. A list of protected matters that the Department of the Environment considered likely to be significantly impacted is provided at Attachment A to these requirements. 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

The EIS must address the following issues:

4. 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);
5. 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;
6. 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.
7. Information on proposed avoidance and mitigation measures to manage the relevant impacts of the action including:
 - a description of the proposed avoidance and mitigation measures to deal with the relevant impacts of the action;

- assessment of the expected or predicted effectiveness of the mitigation measures;
- the cost of the mitigation measures;
- a description of the outcomes that the avoidance and mitigation measures will achieve; and
- a description of the offsets proposed to address the residual adverse significant impacts and how these offsets will be established.

Key Issues – Biodiversity

8. The EIS 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 in accordance with the *Matters of National Environmental Significance - Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999* (Significant Impact Guidelines).

9. For each of the relevant EPBC Act listed threatened species and communities likely to be significantly impacted by the development the EIS 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>]

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

- details of how the current published NSW Framework for Biodiversity Assessment (FBA) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts;
- identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account; and
- 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.]

11. 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.]

Key Issues – water resources

12. The EIS should provide a description of the location, extent and ecological characteristics and values of the identified water resources potentially affected by the project.
13. 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.
14. The EIS 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

15. 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.
16. 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)*
6. *Approved Conservation Advice (including listing advice) for the Central Hunter Valley Eucalypt Forest and Woodland ecological community (Threatened Species Scientific Committee, 2015)*
7. *Approved Conservation Advice for Anthochaera phrygia (Regent Honeyeater) (Threatened Species Scientific Committee, 2015)*.

Attachment A

The Department of the Environment's Environment Reporting Tool (ERT) identifies that 32 threatened species and communities may occur within 5 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, the Department of the Environment considers that there are likely to be significant *impacts to*:

- Central Hunter Valley Eucalypt Forest and Woodland Ecological Community – critically endangered
- Regent Honeyeater (*Anthochaera phrygia*) – critically endangered