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Indicative Secretary's Environmental Assessment Requirements (SEARs)



Contents

Int	roduction	1
De	finitions	2
Se	cretary's environmental assessment requirements	3
Α. (General requirements	4
	Project summary	
	Project description	
0.	Management commitments	
	Mapping requirements	
D.	Strategic context	
	Target resource	
	Regional and local context	
	Permissibility and strategic planning	7
	Other approval requirements	8
E.	Rehabilitation	9
F.	Project rationale	11
G.	-	
	Land and soils	
	Water	
	Flooding	14
	Biodiversity	15
	Heritage	15
	Blasting	16
	Air quality	
	Greenhouse gases	
	Noise and vibration	
	Waste	
	Chemicals, hazardous substances and dangerous goods	
	Feral animals and weeds	_
	Economic assessment framework	
	Transport	
	Visual	
	Public Safety	
	Social	
	Matters of national environmental significance	
Н.	Consultation	23

Introduction

State significant development is regulated under the *Environmental Planning and Assessment Act* 1979, which requires a proponent to apply to the Department of Planning and Environment for development consent, supported by an Environmental Impact Statement (EIS). The EIS must take into account all State and Commonwealth legislative requirements and any additional environmental assessment requirements issued by the Secretary.

This document identifies common Secretary's Environmental Assessment Requirements (SEARs) that could reasonably be expected to apply to the majority of new mining applications in NSW¹. For a specific project, the Secretary may issue SEARs that deviate from this document, which may include adding additional requirements or removing unnecessary requirements. This allows the Secretary to ensure an EIS is appropriately targeted to enable adequate assessment of a project, accounting for any specific environmental risks.

For clarity, the indicative SEARs provided in this document are **not** 'standard SEARs' in the context of the statutory processes outlined in clauses 3(9) and 7(3) of Schedule 2 of the *Environmental Planning* and Assessment Regulation 2000.

These indicative SEARs incorporate and consolidate the assessment requirements of the:

- Department of Planning and Environment for Development Consent applications;
- Environment Protection Authority for Environment Protection Licence applications; and
- Division of Resources and Energy for Mining Lease applications.

They also incorporate the advice of non-assessment agencies on regulatory issues, such as the Department of Primary Industries (including DPI Water) and the Office of Environment and Heritage.

Commonwealth Department of Environment assessment requirements for actions that are likely to have a significant impact on matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* will be incorporated into the SEARs as supplementary requirements on a project-specific basis².

In developing an EIS, it is the responsibility of the proponent to ensure that:

- all environmental assessment requirements are met³; and
- the latest version of each government guideline, referred to by the SEARs, were acquired and considered.

These indicative SEARs focus on new coal mining projects. They may also be used as a basis for projects on previously developed land, or non-coal mines. The application of these SEARs to a project modification will depend on what is proposed and will be subject to case-by-case consideration.

As per the Assessment Bilateral Agreement between the Commonwealth and NSW (February 2015).

In the event that the proponent considers that a requirement is not applicable to their specific project, that requirement should still be addressed in the EIS, with an explanation of why it is deemed to not be relevant. In the first instance, however, the proponent should contact the Department of Planning and Environment, as amended SEARs may need to be issued.

Definitions

For the purposes of this document:

Approval (instrument) relates to a relevant regulatory approval instrument, for example: a

Development Consent (DC), Environment Protection Licence (EPL), or Mining

Lease (ML)

AIS means an Agricultural Impact Statement, prepared in accordance with the

Strategic Regional Land Use Policy Guideline for Agricultural Impact

Statements (DPE, 2012)

BSAL means Biophysical Strategic Agricultural Land

DPE means the Department of Planning and Environment

DPI means the Department of Primary Industries

DRE means the Division of Resources & Energy

EIS Environmental Impact Statement

EPA means the Environment Protection Authority

Mining operation means a development which is the subject of an authorisation under the

Mining Act 1992 and a consent or approval under the Environmental Planning

and Assessment Act 1979

OEH means the Office of Environment and Heritage

Proponent the person, company or other party applying for an approval

Regulatory agencies means DPE, EPA or DRE, or their successor agencies

Secretary's environmental assessment requirements

The information outlined in the box below should be included in the Secretary's Environmental Assessment Requirements (SEARs) to ensure a clear link between the requirements and a specific project proposal.

Secretary's Environmental Assessment Requirements			
Section 78A(8A) of the Environmental Planning and Assessment Act 1979			
State Significant Development (Mining)			
Application Number	SSD [####]		
Proposal	The [Proposal name], which includes:		
	[description]		
Location	[Location description, approximate only]		
Proponent	[Proponent name]		
Date of Issue	[day] [month] [year]		
Further consultation after 2 years	If you do not lodge a DA and an EIS for the development within 2 years of the issue date of these SEARs, you must consult further with the Secretary in relation to the requirements for lodgement.		

A. General requirements

- (1) The EIS for the development must:
 - (a) Address the environmental, social and economic issues that the consent authority should consider when assessing the application;
 - (b) Be informed by stakeholder consultation, including with relevant local, State and Commonwealth Government authorities, infrastructure and service providers, community groups and affected landowners, as well as the local community;
 - (c) Contain the information required by Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (including the information required by clauses 6 and 7 of the Schedule);
 - (d) Consider and respond to the NSW Mining & Petroleum Gateway Panel's Conditional Certificate (as applicable)⁴;
 - (e) Consider the consistency of the development with the principles of ecologically sustainable development, as required by the objects of the *Environmental Planning and Assessment Act* 1979;
 - (f) Assess the likely impacts of the development (including environmental, social and economic factors), including:
 - a description of the existing environment likely to be affected by the development, using sufficient and appropriate baseline data; and
 - (ii) an assessment of the likely impacts of all stages (life cycle) of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments (including Part 3 of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007), guidelines, policies, plans and industry codes of practice.
 - (g) Describe the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of:
 - (i) whether those measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented;
 - (ii) the likely effectiveness of those measures, including performance criteria where relevant;
 - (iii) whether contingency plans are necessary to manage any residual risks;
 - (iv) a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved.
 - (h) Be accompanied by a declaration signed by the proponent and person by whom the EIS is prepared stating that the material provided in the EIS is not false or misleading in any material particular⁵.

Where Gateway consideration is not applicable, the proponent should prepare an Agricultural Impact Statement (see Land and Soils section).

It is an offence under section 148B of the *Environmental Planning and Assessment Act 1979* to provide information in an environmental impact statement that the person knows, or ought reasonably to know, is false or misleading in a material particular (the maximum penalty for a corporation is \$1 million and the maximum penalty for an individual is \$250,000). The *Crimes Act 1900* contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).

B. Project summary

(1) The EIS must include a project summary consistent with the relevant requirements of the Mine Application Guideline (NSW Government, 2015).

C. Project description

- (1) The EIS must include, consistent with the relevant requirements of the Mine Application Guideline (NSW Government, 2015), a full description of:
 - (a) The development;
 - (b) All activities that are intended to be undertaken as part of the proposal;
 - (c) Any ancillary developments (that is, any related developments that are NOT being proposed as part of the subject development application but are necessary to support that development); and
 - (d) The timing of each key phase of the development.

Management commitments

- (2) The EIS must include a full description of any management commitments consistent with the relevant requirements of the Mine Application Guideline (NSW Government, 2015), including:
 - (a) A consolidated summary of all the proposed environmental management and monitoring measures, identifying all relevant commitments in the EIS;
 - (b) A detailed assessment of any noise, air quality, water quality or waste monitoring required during the construction phase and on-going operation of the development to prevent or minimise any adverse environmental impacts from the development;
 - (c) Identification of appropriate data requirements, to form the basis for baseline and ongoing monitoring of environmental parameters;
 - (d) A demonstration that the proposed methods for baseline and subsequent monitoring are appropriate to the development and scientifically robust; and
 - (e) Details of monitoring programs, compliance assurance programs and reporting mechanisms that will be used to demonstrate the effectiveness of proposed management measures in meeting specified environmental commitments. In addition to outlining proposed programs, the EIS must clearly identify what is to be monitored and audited and why. This must include identification of monitoring locations, parameters to be monitored, sample analysis methods, the level of reporting proposed and information on the frequency and type of audits proposed to ensure compliance with applicable requirements.

Mapping requirements

- (3) The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*:
 - (a) At an appropriate scale/resolution; and
 - (b) In an appropriate electronic format that enables integration with mapping and other technical software.

D. Strategic context

Target resource

- (1) The EIS must fully describe the resource targeted by the development, including:
 - (a) A resource/reserve statement that has been prepared in accordance with the most recent <u>Joint Ore Reserves Committee Code</u>, including resource and reserve estimates for each coal seam/ore body proposed to be mined. The statement must include the coal quality parameters/ore grades for each seam/ore body, product specifications and yields⁶;
 - (b) Details of run-of-mine coal/ore, low grade coal/ore-mineralised waste and waste rock tonnage planned to be extracted for each year of the life of the project;
 - (c) An estimate of the saleable product planned to be produced for each year of the life of the project; and
 - (d) Identification of those market segment(s) product tonnes would be sold into (e.g. export/domestic thermal/metallurgical coal, export/domestic mineral product, Sydney construction materials, local/NSW or interstate etc.)⁷.
- (2) The EIS must detail the significance of the resource targeted, comprising⁸:
 - (a) The size, quality and availability of the resource;
 - (b) The proximity and access to existing or proposed infrastructure;
 - (c) Any relationship of the resource to other existing mines;
 - (d) Whether other industries or projects are dependent on the development of the resource; and
 - (e) Estimates of employment generation, expenditure (including capital investment) and the payment of royalties to the State.

Regional and local context

- (3) The EIS must:
 - (a) Describe any local and regional sensitivities and constraints on the proposed development, consistent with the relevant requirements of the Mine Application Guideline (NSW Government, 2015); and
 - (b) Comply (where relevant) with the Government's <u>Voluntary Land Acquisition and Mitigation Policy</u> (NSW Government, 2014) when considering local impacts of the proposed development.

Permissibility and strategic planning

(4) The EIS must address the relevant requirements set out in the <u>Mine Application Guideline</u> (NSW Government, 2015).

⁶ The proponent needs to demonstrate that sufficient resources exist at an Indicated level of confidence (or higher) in order to cover the majority of the initial life of mine production schedule. Any contribution from Inferred resource(s) to the schedule needs to be justified.

It is understood that an estimate of product tonnes split into a particular market segment is difficult to estimate at a particular point in time and is dependent on market conditions as the life of the mine progresses, however the proponent should provide a best estimate of their market mix at the initial stages of the project.

This information is also required separately by the SEARs. However, a summary is required to ensure these issues can be considered in context.

Other approval requirements

- (5) The EIS must identify any approvals that need to be obtained before the development can commence, including:
 - (a) Identification of existing mineral titles, mineral title applications and the final proposed mining lease area(s) for the project site and areas surrounding the proposed project area;
 - (b) If the proposal includes Crown Land, demonstrate compliance with the Commonwealth *Native Title Act 1993* and the right to negotiate process for those Crown Lands; and
 - (c) Water access licences.

E. Rehabilitation

(1) The EIS must include a detailed description of progressive rehabilitation timeframes and commitments for each rehabilitation domain, having regard to the following:

Post-mining land use

- (a) Identification and assessment of post-mining land use options;
- (b) Identification and justification of the preferred post-mining land use outcome(s), including a discussion of how the final land use(s) are aligned with relevant local and regional strategic land use objectives;
- (c) Identification of how the rehabilitation of the project will relate to the rehabilitation strategies of neighbouring mines within the region, with a particular emphasis on the coordination of rehabilitation activities along common boundary areas;

Rehabilitation objectives and domains

(d) Inclusion of a set of project rehabilitation objectives and completion criteria that clearly define the outcomes required to achieve the post-mining land use for each domain. Completion criteria should be specific, measurable, achievable, realistic and time-bound. If necessary, objective criteria may be presented as ranges;

Rehabilitation Methodology

- (e) Details regarding the rehabilitation methods for disturbed areas and expected time frames for each stage of the rehabilitation process;
- (f) Mine layout and scheduling, including maximising opportunities for progressive final rehabilitation. The final rehabilitation schedule should be mapped against key production milestones (i.e. ROM tonnes) of the mine layout sequence before being translated to indicative timeframes throughout the mine life. The mine plan should maximise opportunities for progressive rehabilitation;

Conceptual Final Landform Design

(g) Inclusion of a drawing at an appropriate scale identifying key attributes of the final landform, including final landform contours and the location of the proposed final land use(s);

Monitoring and Research

- (h) Outlining the monitoring programs that will be implemented to assess how rehabilitation is trending towards the nominated land use objectives and completion criteria;
- (i) Details of the process for triggering intervention and adaptive management measures to address potential adverse results as well as continuously improve rehabilitation practices;
- (j) Outlining any proposed rehabilitation research programs and trials, including their objectives. This should include details of how the outcomes of research are considered as part of the ongoing review and improvement of rehabilitation practices;

Post-closure maintenance

(k) Description of how post-rehabilitation areas will be actively managed and maintained in accordance with the intended land use(s) in order to demonstrate progress towards meeting the rehabilitation objectives and completion criteria in a timely manner;

Barriers or limitations to effective rehabilitation

- (I) Identification and description of those aspects of the site or operations that may present barriers or limitations to effective rehabilitation, including:
 - (i) evaluation of the likely effectiveness of the proposed rehabilitation techniques against the rehabilitation objectives and completion criteria;
 - (ii) an assessment and life of mine management strategy of the potential for geochemical constraints to rehabilitation (e.g. acid rock drainage, spontaneous combustion etc.), particularly associated with the management of overburden/interburden and reject material;
 - (iii) the processes that will be implemented throughout the mine life to identify and appropriately manage geochemical risks that may affect the ability to achieve sustainable rehabilitation outcomes;
 - (iv) a life of mine tailings management strategy, which details measures to be implemented to avoid the exposure of tailings material that may cause environmental risk, as well as promote geotechnical stability of the rehabilitated landform; and
 - (v) existing and surrounding landforms (showing contours and slopes) and how similar characteristics can be incorporated into the post-mining final landform design. This should include an evaluation of how key geomorphological characteristics evident in stable landforms within the natural landscape can be adapted to the materials and other constraints associated with the site.
- (m) Where a void is proposed to remain as part of the final landform, include:
 - a constraints and opportunities analysis of final void options, including backfilling, to justify that the proposed design is the most feasible and environmentally sustainable option to minimise the sterilisation of land post-mining;
 - (ii) a preliminary geotechnical assessment to identify the likely long term stability risks associated with the proposed remaining high wall(s) and low wall(s) along with associated measures that will be required to minimise potential risks to public safety; and
 - (iii) outcomes of the surface and groundwater assessments in relation to the likely final water level in the void. This should include an assessment of the potential for fill and spill along with measures required be implemented to minimise associated impacts to the environment and downstream water users.
- (n) Where the mine includes underground workings:
 - determine (with reference to the groundwater assessment) the likelihood and associated impacts of groundwater accumulating and subsequently discharging (e.g. acid or neutral mine drainage) from the underground workings post cessation of mining; and
 - (ii) consideration of the likely controls required to either prevent or mitigate against these risks as part of the closure plan for the site.
- (o) Consideration of the controls likely to be required to either prevent or mitigate against rehabilitation risks as part of the closure plan for the site;
- (p) Where an ecological land use is proposed, demonstrate how the revegetation strategy (e.g. seed mix, habitat features, corridor width etc.) has been developed in consideration of the target vegetation community(s);
- (q) Where the intended land use is agriculture, demonstrate that the landscape, vegetation and soil will be returned to a condition capable of supporting this; and
- (r) Consider any relevant government policies9.

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The following government policies should be considered when addressing rehabilitation issues:

Mine Rehabilitation (Leading Practice Sustainable Development Program for the Mining Industry, 2006)

[•] Mine Closure and Completion (Leading Practice Sustainable Development Program for the Mining Industry, 2006)

Strategic Framework for Mine Closure (ANZMEC-MCA, 2000)

F. Project rationale

(1) The EIS must address the relevant requirements set out in the Mine Application Guideline (NSW Government, 2015).

G. Environmental impact assessment

Land and soils

- (1) The EIS must:
 - (a) Comprehensively characterise soils across the disturbance footprint using recognised soil survey and assessment techniques;
 - (b) Evaluate the current land and soil capability class and associated condition;
 - (c) Include an Agricultural Impact Statement (AIS)¹⁰ if the project has the potential to affect agricultural resources and/or industries;
 - (d) Assess the likely impact of the development on landforms (topography), including:
 - (i) the potential subsidence impacts on cliffs, rock formations and steep slopes (if any); and
 - (ii) the feasibility and sustainability of any new landforms and their designated post-mining land uses (if relevant).
 - (e) Assess the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements of clause 12 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*;
 - (f) Describe 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 proposed and any residual impacts after these measures are implemented;
 - (g) Describe the outcomes from consultation with relevant stakeholders, including key agencies (such as DPI and OEH), the NSW Dam Safety Committee, landholders and agricultural businesses in the locality; and
 - (h) Consider any relevant government policies¹¹.

Prepared in accordance with the Strategic Regional Land Use Policy <u>Guideline for Agricultural Impact Statements</u> (DPE, 2012)

The following should also be considered when addressing land issues:

Interim Protocol for Site Verification & Mapping of Biophysical Strategic Land (OEH, 2013);

[•] Practice Note Guidelines for Landslide Risk Management (Australian Geomechanics Society, 2007);

Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (A. Installation of services;
 B. Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC, 2008);

Site Investigations for Urban Salinity (DLWC, 2002);

Soil and Landscape Issues in Environmental Impact Assessment (DLWC, 2000); and

 <u>State Environmental Planning Policy No. 55 – Remediation of Land</u> (NSW Government).

Water

- (2) The EIS must:
 - (a) Describe relevant groundwater and surface water resources, with details of seasonal and historic annual variations in rainfall and evaporation;
 - (b) Identify relevant NSW Water Quality Objectives for surface and groundwater, including indicators and associated trigger values or criteria, in accordance with National Water Quality Management Strategy Guidelines for fresh and marine water quality, drinking water, groundwater protection and water quality monitoring and reporting;
 - (c) Identify and describe the application of any relevant Water Sharing Plan, or other management plan, to the proposal;
 - (d) Assess the impacts of the development on the quantity and quality of the region's ground and surface water resources, connectivity between water sources, water-dependent assets, water-related infrastructure, connectivity with sea water and other water users, including but not limited to consideration of:
 - (i) sediment laden water from disturbed areas:
 - (ii) saline/contaminated water from underground workings;
 - (iii) aquifers and groundwater dependent ecosystems;
 - (iv) existing flow regimes; and
 - (v) ecosystem quality, quantity and function.
 - (e) Describe the proposed management and use of water by the development, including:
 - (i) a detailed and consolidated site water balance;
 - (ii) control of clean water, including details of any clean water diversion structures;
 - (iii) management of stormwater and any water which is excess to the consumptive requirements of the development;
 - (iv) details of water storage facilities, volume estimates and fit-for-purpose water reuse potential;
 - (v) procedures for responding to incidents, including identification of trigger values; and
 - (vi) identification of discharge points, anticipated frequency, volume and characterisation of water discharged (including pollutants).
 - (f) Demonstrate that all practical options to avoid water discharge have been implemented and outline any measures taken to reduce the pollutant load, where a discharge is necessary. Where a discharge is proposed, analyse expected discharges in terms of:
 - (i) the impact on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm;
 - (ii) NSW Water Quality Objectives, including Total Suspended Solids, demonstrating that ambient targets can be met;
 - (iii) any relevant Catchment Action Plan or Coastal Zone Management Plan;
 - (iv) salt balance, compliant with the requirements of any relevant Salinity Trading Scheme or the objective of "no new salt" being introduced into surface water systems;
 - (v) if discharge includes a mixing zone, demonstrate that National Water Quality
 Management Strategy criteria can be achieved at the edge of the mixing zone and that
 any impacts within the mixing zone are reversible; and
 - (vi) volume and timing, especially in relation to periods of low flow in receiving watercourses.
 - (g) Demonstrate how the proposal will:
 - (i) protect NSW Water Quality Objectives in receiving waters, where they are being achieved; and
 - (ii) contribute towards achievement of the NSW Water Quality Objectives, where they are not being achieved.
 - (h) Model long term impacts of any final landform on the surface and groundwater regime, including impacts due to contaminant throughflow, spillage and transport through the final

- landform, and an assessment of final void water quality and model contaminant enrichment/accumulation and salt stratification within any proposed final void;
- (i) Base the assessment of (a)-(h) on adequate baseline data to account for typical temporal and spatial variations: and
- Consider any relevant government policies¹².

Flooding

- (3) The EIS must:
 - (a) Describe flood conditions (water levels and velocities) for the 1 in 10 year Annual Exceedance Probability (AEP), 1 in 100 year AEP and the probable maximum flood;
 - (b) Map features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
 - (i) flood prone land;
 - (ii) flood planning area, the area below the flood planning level; and
 - (iii) hydraulic categorisation (floodways and flood storage areas).
 - (c) Assess the likely upstream and downstream flood impacts of the development) for the 1 in 10 year AEP, 1 in 100 year AEP and the probable maximum flood;
 - (d) Describe the flood assessment and modelling methodology used. The modelling must consider:
 - impacts of the proposal on existing flood behaviour for the 1 in 10 year AEP, 1 in 100 year AEP and the probable maximum flood;

- NSW Aquifer Interference Policy (NSW Office of Water, 2012)
- The NSW State Groundwater Policy Framework Document (DLWC, 1997)
 The NSW State Groundwater Quality Protection Policy (DLWC, 1998)
- National Environment Protection Measure Guideline on the Investigation Levels for Soil and Groundwater (EPHC, 1999)
- Australian Groundwater Modelling Guidelines (Commonwealth, 2012)
- National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC, 1995)
- Floodplain Development Manual (NSW Government, 2005)
- Floodplain Risk Management Guideline (DECC, 2007)
- Guidelines for the Assessment & Management of Groundwater Contamination (DEC, 2007)
- Groundwater Sampling and Analysis: Field Guide (Geoscience Australia, 2009)
- Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 (NSW Government)
- NSW State Rivers and Estuary Policy (NSW Water Resources Council, 1993)
- NSW Water Quality and River Flow Objectives (DEC, 2006)
- Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC, 2006)
- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000)
- National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000)
- National Water Quality Management Strategy: Australian Guidelines for Sewerage Systems Effluent Management (ARMCANZ/ANZECC, 1997)
- National Water Quality Management Strategy: Guidelines for Sewerage Systems Use of Reclaimed Water (ARMCANZ/ANZECC/NHMRC, 2000)
- Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC/EPA, 2004)
- Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom) and Volume 2E: Mines and Quarries (DECC,
- Storing and Handling Liquids: Environmental Protection Participant's Manual (DECC, 2007)
- Environmental Compliance Report Liquid Chemical Storage, Handling and Spill Management Part B Review of Best Practice and Regulation (DEC, 2005)
- Environmental Guidelines: Use of Effluent by Irrigation (DEC, 2003)
- A Rehabilitation Manual for Australian Streams (LWRRDC/CRCCH, 1999)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NSW Office of Water, 2012)
- NSW Guidelines for Controlled Activities on Waterfront Land Guidelines for instream works on waterfront land; Guidelines for laying pipes and cables in watercourses on waterfront land; Guidelines for outlet structures on waterfront land; Guidelines for riparian corridors on waterfront land; Guidelines for vegetation management plans on waterfront land; and Guidelines for watercourse crossings on waterfront land (NSW Office of Water, 2012).
- Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals (IESC, 2015) (only applicable if IESC assessment is required).

¹² The following government policies should be considered when addressing water issues (see also next page):

- (ii) impacts of the proposal on flood behaviour resulting in detrimental changes in potential flood impacts on other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories; and
- (iii) implications of the flood assessment on the proposed water management structures, such as sediment basins and stormwater runoff quality management systems.

Biodiversity

- (4) The EIS must:
 - (a) Assess biodiversity values and the likely biodiversity impacts of the development in accordance with:
 - (i) the <u>Framework for Biodiversity Assessment</u> (OEH, 2014), by a person accredited in accordance with section 142B(1)(c) of the *Threatened Species Conservation Act 1995* unless otherwise agreed by OEH, or where a strategic regional assessment is already in place; and
 - (ii) a comprehensive biodiversity offset strategy, in accordance with the <u>NSW Biodiversity</u> Offsets Policy for Major Projects (OEH, 2014).
 - (b) Take into account the provisions of section 5A (1) of the *Environmental Planning and Assessment Act 1979*, in determining the likelihood of the development having a significant impact on threatened species, populations or ecological communities or their habitats;
 - (c) Consider potential impacts (including subsidence) on aquatic biodiversity and assess any impacts in accordance with the <u>Policy and guidelines for fish habitat conservation and management (update 2013)</u> (DPI, 2013); and
 - (d) Consider any relevant government policies 13.

Heritage

- (5) The EIS must assess the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development:
 - (a) Identify and describe the Aboriginal and historic heritage values that exist across the whole area that will be affected by the proposal. This may require surface survey and test excavation:
 - (b) Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the <u>Aboriginal Cultural Heritage</u> <u>Consultation Requirements for Proponents 2010</u> (DECCW, 2010). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented;
 - (c) Demonstrate measures taken to avoid, minimise and mitigate any impacts on Aboriginal and historic heritage values;
 - (d) Identify any conservation outcomes; and
 - (e) Consider any relevant government policies 14.

¹³ The following government policies should be considered when addressing biodiversity issues:

BioBanking Assessment Methodology (OEH, 2014)

Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (Australian Government DSEWPC, 2012)

[•] The NSW State Groundwater Dependent Ecosystem Policy (DLWC, 2002)

Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NSW Office of Water, 2012)

[•] State Environmental Planning Policy No. 44 - Koala Habitat Protection (NSW Government)

The following government policies should be considered when addressing heritage issues:

The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS, 2013)

[•] Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011)

Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)

Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)

 <u>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</u> (DECCW, 2010)

NSW Heritage Manual (DUAP, 1996)

Statements of Heritage Impact (Heritage Office and DUAP, 2002).

Blasting

(6) The EIS should consider blasting impacts in the context of air quality, and noise and vibration issues, as outlined in the relevant sections below.

Air quality

- (7) The EIS must include a detailed Air Quality Impact Assessment prepared according to the requirements and guidelines contained in <u>Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales</u> (DEC, 2005). The Air Quality Impact Assessment must:
 - (a) Demonstrate the proposal's ability to comply with the relevant regulatory framework, specifically the Protection of the Environment Operations Act 1997 and the Protection of the Environment Operations (Clean Air) Regulation 2010;
 - (b) 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, human health, and amenity;
 - (c) Justify the level of assessment undertaken on the basis of risk factors, including but not limited to:
 - (i) proposal location;
 - (ii) characteristics of the receiving environment; and
 - (iii) type and quantity of pollutants emitted.
 - (d) Describe the receiving environment in detail. The proposal must be contextualised within the receiving environment (local, regional and inter-regional as appropriate¹⁵). The description must include but need not be limited to:
 - (i) meteorology and climate;
 - (ii) topography;
 - (iii) surrounding land-use;
 - (iv) receptors; and
 - (v) ambient air quality.
 - (e) Include a detailed description of the proposal. All processes that could result in air emissions must be identified and described. Sufficient detail to accurately communicate the characteristics and quantity of all relevant emissions must be provided;
 - (f) Identify the location and extent of all relevant fixed and mobile sources of emissions to the air from the development, including rehabilitation and exposed areas. The location of all relevant emission sources should be clearly marked on a plan for key years of the mine development;
 - (g) Include consideration and justification of reasonable 'worst case' emission scenarios. Consideration should be given to factors including, but not limited to:
 - (i) emission quantity;
 - (ii) emission source locations;
 - (iii) level of production;
 - (iv) type and quantity of material(s) handled; and
 - (v) cumulative influences from other existing, approved and proposed mines and from other industries.
 - (h) Identify all relevant pollutants of concern and estimate emissions by quantity, particle size, source(s), and discharge point(s). Include all mechanically generated, combustion, and transport related emissions;

Precise definitions for these terms may vary depending on the project proposal, location and potential impacts. In general, however, 'local' may be interpreted as the directly impacted area surrounding the proposed operation, 'region' is the geographical locale of the proposed operation and 'inter-regional' is both the physical and built environment that links regions.

- (i) For all sources of fugitive TSP, PM₁₀ and PM_{2.5} for key years throughout the life of the proposal:
 - (i) list of emission factors;
 - (ii) description and justification of all relevant parameters used in the emission estimation equations, including site specific measurements, proponent recommended values or published literature;
 - (iii) detailed emission estimates plus descriptive summary;
 - (iv) methodology used to produce time varying emissions from annual emissions;
 - (v) list of control factors and their justification, including methods used to achieve best management practice that are directly linked to control factors (e.g. speed limits on vehicles, watering rates, use of chemical suppressants etc.); and
 - (vi) base case inventory with no control and a final inventory with all relevant proposed emission controls.
- (j) Detail emission control techniques/practices that will be employed by the proposal. All relevant emission controls must be benchmarked against best practice process design and emission control. Nominated controls must be explicitly linked to calculated emission reductions adopted in the air quality impact assessment emissions inventory, with all assumptions documented and justified. Reference should be made to procedures outlined in Coal Mine Particulate Matter Control Best Practice - Site-specific determination guideline (OEH, 2011);
- (k) Account for cumulative impacts associated with existing emission sources as well as any currently approved or proposed developments linked to the receiving environment;
- (I) 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 <u>Approved Methods for the</u> <u>Modelling and Assessment of Air Pollutants in New South Wales</u> (DEC, 2005) and include the following pollutants, as a minimum:
 - (i) dust deposition;
 - (ii) total suspended particles;
 - (iii) PM₁₀ particulate matter;
 - (iv) PM_{2.5} particulate matter; and
 - (v) nitrogen dioxide (NO₂).
- (m) Results of dispersion modelling should be presented, at a minimum, as follows:
 - isopleth plots showing the geographic extent of maximum pollutant concentrations (incremental and cumulative);
 - (ii) tables presenting the maximum predicted pollutant concentrations (increment and cumulative) and the frequency of any predicted exceedances at each surrounding privately-owned properties, mine-owned properties and other sensitive receptors (as applicable); and
 - (iii) time series and frequency distribution plots of pollutant concentrations at each private receptor location at which an exceedance is predicted to occur.

Where no exceedances are predicted, the analysis must be performed for the most impacted off site sensitive receptor;

- (n) Provide a detailed discussion of all relevant proposed emission control measures in the form of a project Air Quality Management Plan. The plan must including details of a proactive and reactive management system. The information provided must include measurable and auditable measures:
 - (i) link proposed emission controls to the site specific best practice determination assessment;
 - (ii) timeframes for implementation of all identified emission controls;
 - (iii) key performance indicators for emission controls;
 - (iv) monitoring methods (location, frequency, duration);

- (v) response mechanisms;
- (vi) responsibilities for demonstrating and reporting achievement of KPIs;
- (vii) record keeping and complaints response register; and
- (viii)compliance reporting.
- (o) Consider any relevant government policies 16.

Greenhouse gases

- (8) The EIS must include:
 - (a) A comprehensive assessment of, and report on, the project's predicted greenhouse gas emissions (tCO₂e). Emissions should be reported broken down by:
 - (i) direct emissions (Scope 1 as defined by the Greenhouse Gas Protocol see reference below);
 - (ii) indirect emissions from electricity (Scope 2); and
 - (iii) upstream and downstream emissions (Scope 3). before and after implementation of the project, including annual emissions for each year of the project (construction, operation and decommissioning);
 - (b) An estimate of the greenhouse emissions intensity (per unit of production). Emissions intensity should be compared with best practice if possible;
 - (c) The emissions should be estimated using an appropriate methodology, in accordance with NSW, Australian and international guidelines¹⁷; and
 - (d) The proponent should also evaluate and report on the feasibility of measures to reduce greenhouse gas emissions associated with the project. This should include consideration of energy efficiency opportunities (e.g. high efficiency vehicles, ventilation, lighting, or control systems), onsite low emissions electricity generation (e.g. gas turbines, solar photovoltaic systems) and capture and reuse of fugitive methane (e.g. pre-drainage, post drainage, ventilation air methane).

Noise and vibration

- (9) The EIS must:
 - (a) Assess the likely operational noise impacts of the development (including construction noise) under the NSW Industrial Noise Policy (EPA, 2000), including the 'Application Notes Industrial Noise Policy' as published from time to time on www.epa.nsw.gov.au, as amended and/or superseded by current NSW Government policies or guidelines specific to industrial noise impact assessment. 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.cuideline (DECC, 2009);
 - (b) Assess the likely public road noise impacts of the development under the <u>NSW Road Noise</u> <u>Policy</u> (DECCW, 2011) (i.e. traffic generating development impacts);

¹⁶ The following government policies should be considered when addressing air quality issues:

Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2005)

 <u>Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline</u> (OEH, 2011)

Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia' (OEH, 2011)

Technical Framework - Assessment and management of odour from stationary sources in NSW (DEC, 2006)

The following guidelines should be considered when addressing greenhouse gas issues:

 <u>The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard - Revised Edition</u> (World Resources Institute and World Business Council for Sustainable Development, 2004)

[•] National Greenhouse Accounts Factors (Australian Government Department of the Environment (latest release))

 <u>Technical Guidelines for the Estimation of Greenhouse Gas Emissions by Facilities in Australia</u> (Australian Government Department of the Environment (latest release))

Australian Greenhouse Emissions Information System (AGEIS) (Australian Government Department of the Environment) ageis.climatechange.gov.au

- (c) Assess the likely rail noise impacts of the development for both public (NSW Rail Network) and private (non-network) rail lines under the <u>Rail Infrastructure Noise Guideline</u> (EPA, 2013);
- (d) Assess vibration impacts associated with the proposed development (including construction and operation but excluding those associated with blasting activities) should be assessed using Assessing Vibration: a technical guideline (DEC, 2006); and
- (e) Assess likely operational overpressure and groundborne vibration impacts from blasting activities applying the <u>Australian and New Zealand Environment Council Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC, 1990).</u>

Waste

(10)The EIS must:

- (a) Identify all wastes to be generated by all aspects of the project and identify procedures for the handling and management of all wastes produced. The handling of rejects, tailings, overburden material and tyres are important aspects for consideration;
- (b) Identify, characterise and classify all waste (including liquid waste) that will be generated onsite through excavation, demolition or construction activities, including proposed quantities of the waste ¹⁸:
- (c) Include a detailed plan for the classification of waste material generated onsite (including liquid waste), including the sampling locations and sampling regime that will be employed to classify the waste in accordance with the Waste Classification Guidelines (EPA, 2014), particularly with regards to the identification of contamination hotspots;
- (d) Demonstrate how waste will be managed in accordance with the waste hierarchy, established under the *Waste Avoidance and Resource Recovery Act 2001*, which aims to ensure that resource management options are considered against the following priorities:
 - avoidance including action to reduce the amount of waste generated by households, industry and all levels of government;
 - (ii) resource recovery including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources; and
 - (iii) disposal including management of all disposal options in the most environmentally responsible manner.
- (e) Identify, characterise and classify all waste (including liquid waste) that is proposed to be removed to an offsite location for either recycling, reprocessing or disposal. Each waste stream should be quantified and an appropriate management option identified for each stream:
- (f) Identify, characterise and classify all waste (including liquid waste) that is proposed to be disposed of onsite. The disposal location and type of waste for each stream should be described, including information on the waste disposal infrastructure proposed to be constructed to contain that waste (i.e. monocell construction and specifications, tyre disposal pits, etc.). The disposal method should include an assessment of the risks to the surrounding environment (groundwater, air, surface water, etc.) or a justification that there is no risk;
- (g) Provide details of how 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;
- (h) Where appropriate given the nature of the proposal, provide details of how stockpiles of waste will be located and managed onsite to minimise pollution, including:
 - 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);
 - (ii) proposed height limits for all waste to reduce the potential for dust and odour;

¹⁸ All waste must be classified in accordance with the Waste Classification Guidelines (EPA, 2014).

- (iii) procedures for minimising the movement of waste around the site and double handling;and
- (iv) measures to be implemented to minimise erosion, leachate and sediment mobilisation.
- (i) Provide details of how any leachate will be:
 - (i) kept separate from stormwater runoff;
 - (ii) treated (if applicable); and
 - (iii) any proposed transport and disposal of leachate off-site.
- (j) Provide details of waste rock emplacement areas with particular attention to:
 - (i) quantity of waste rock likely to be generated;
 - (ii) geochemical assessment of the waste rock;
 - (iii) proposed strategies for the handling, reuse/recycling and disposal of waste rock, considering the outcomes of the geochemical assessment; and
 - (iv) designation of transport routes for the transport of waste rock.
- (k) Identify the management and disposal methods for coal washery rejects (including tailings generated at the mine site), including:
 - (i) quantity of coal washery rejects to be generated;
 - (ii) proposed strategies for the handling, storage, reuse/recycling and disposal of coal washery rejects; and
 - (iii) details of actions to prevent potential impacts to groundwater, surface water or any other environmental aspect which may occur as a result of the management technique utilised.

Chemicals, hazardous substances and dangerous goods

(11)The EIS must:

- (a) Detail the types and quantity of all chemical and hazardous substances and/or dangerous goods, including but not necessarily limited to: hydrocarbons (oils and fuels), hazardous or dangerous materials (e.g. explosives etc.) to be used or stored onsite; and
- (b) Detail procedures for the handling, storage, transport and disposal of all chemical substances, hazardous or dangerous goods used, stored, processed or requiring offsite disposal, in addition to the requirements for liquid and non-liquid wastes.

Feral animals and weeds

(12)The EIS must:

- (a) Include an overview of the methods, and control programs and targets that will be used to control feral animals and weeds; and
- (b) Describe how these relate to the <u>NSW Biosecurity Strategy 2013-2021</u> (DPI, 2013) and any relevant catchment or regional policies and plans.

Economic assessment framework

(13) The EIS must include:

- (a) A detailed calculation of the capital investment value (as defined in clause 3 of the *Environmental Planning and Assessment Regulation 2000*) of the development, including a description of all the assumptions and components from which that calculation is derived; and
- (b) A comprehensive economic appraisal, consistent with the NSW Government's <u>Guidelines for</u> the Economic Assessment of Mining and Coal Seam Gas Proposals, which:
 - (i) includes a quantitative analysis and assessment, where feasible and reasonable, of all issues considered in the EIS;
 - (ii) qualitatively describes impacts that cannot be quantified; and

- (iii) provides the framework by which environmental, social and economic impacts identified in the EIS are compared on a common basis and the results are incorporated into the conclusions of the EIS as appropriate.
- (14)The EIS must also consider any other relevant government policies, including any guidance on the valuation of benefits and costs.

Subsidence (underground mines only)

- (15)The EIS must include an assessment of possible subsidence effects and consequential environmental, social and economic impacts on the natural and built environment and demonstrate the feasibility of:
 - (a) The proposed mining operation (e.g. mining methods, layout and sequences); and
 - (b) The proposed strategies to manage subsidence risks to surface or sub-surface features that are considered to have significant economic, social, cultural or environmental value.
- (16) The information required in the EIS must include, but is not limited to:
 - (a) Description of the proposed mining operation (e.g. mining methods, layout and sequences);
 - (b) Identification and general characteristics of surface and subsurface features that may be affected by subsidence caused by the proposed mining;
 - (c) General and relevant site conditions including depths of cover, geological, hydrogeological, hydrological, geotechnical, topographic and climatic conditions, as well as any conditions that may cause elevated or abnormal subsidence;
 - (d) Identification and general characteristics of any previously excavated or abandoned workings that may interact with the proposed or existing mine workings;
 - (e) Predictions of the nature, magnitude, distribution, timing and duration of subsidence;
 - (f) Results of a risk assessment in relation to subsidence of surface or sub-surface features that are considered to have significant economic, social, cultural or environmental value, taking into consideration the points above;
 - (g) Results of feasibility studies in relation to the proposed mining operation and proposed strategies to manage subsidence risks to surface or sub-surface features that are considered to have significant economic, social, cultural or environmental value; and
 - (h) The nature and estimated severity of impacts of subsidence on activities carried about above ground (including infrastructure such as dams).
- (17)In relation to the natural environment, the EIS must:
 - (a) Describe the natural features (both surface and sub-surface) that could be affected by subsidence:
 - (b) Describe the natural features likely to be affected by subsidence, using at least two years baseline data to describe background variation of relevant parameters (such as groundwater or ecosystem condition);
 - (c) Describe the suite of threatened species, population and ecological communities likely to use these natural features as habitat;
 - (d) Evaluate the importance of these features to the habitat and life cycle of the threatened entities identified:
 - (e) Accurately predict likely subsidence effects, including a sensitivity analysis of these predictions;
 - (f) Assess the potential direct and indirect geological, hydrological and ecological impacts of the predicted subsidence in the short, medium and long term;
 - (g) Outline a detailed monitoring program that enables measurement of the actual geological, hydrological and ecological performance of the development in the short, medium and long term, if it is approved; and
 - (h) Outline measures proposed to avoid, minimise, manage and offset the direct and indirect impacts, including an evaluation of the effectiveness and reliability of the proposed measures.

(18) Should offsets be required, the proponent should develop a Biodiversity Offsets Strategy in accordance with the Policy framework for biodiversity offsets for upland swamps and associated threatened species impacted by longwall mining (NSW Government).

Transport

(19)The EIS must:

- (a) Identify transport modes and routes for key inputs/outputs to the development;
- (b) Detail the options or arrangements for securing access to the NSW rail network, including the potential to share infrastructure with other mines in the region;
- (c) Assess the likely impacts of the development on the capacity, condition, safety and efficiency of the local and State network, with regard for local council requirements;
- (d) Assess road impacts, including the capacity, condition, safety and efficiency of the local and State road network, with regard to council's requirements; and
- (e) Consider any relevant government policies¹⁹.

Visual

(20) The EIS must include an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to the creation of any new landforms and minimising the lighting impacts of the development.

Public Safety

(21) The EIS must include an assessment of the likely risks of the development to public safety, paying particular attention to potential subsidence risks, bushfire risks, flood risks, and the handling and use of any dangerous goods²⁰.

Social

(22)The EIS must:

- (a) Assess the social impacts of the proposal, having regard to the local and regional impacts of the development; and
- (b) Set out proposed measures and strategies to avoid, manage, or mitigate the project's social impacts²

Matters of national environmental significance

(23)The EIS must:

Requirements relating to assessment of impacts on matters of national environmental significance under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 are to be inserted as relevant to the particular development.²²

- The following government policies should be considered when addressing transport issues:
- Guide to Traffic Generating Developments (RTA, 2002)
- Guide to Road Design (Austroads)
- relevant Austroads and RMS Standards
- The following government policies should be considered when addressing transport issues:
- State Environmental Planning Policy No. 33 Hazardous and Offensive Development (NSW Government)
- Hazardous and Offensive Development Application Guidelines Applying SEPP 33 (DoP, 2011)
- Hazardous Industry Planning Advisory Paper No. 6 Hazard Analysis (DoP, 2011)
- The NSW Government is currently considering guidance options to address the social impacts of mining developments. This section of the SEARs will be updated once that work is complete.
- Actions that are likely to have a significant impact on a matter of national environmental significance require approval under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This approval is in addition to any approvals required under NSW legislation.
 - It is the proponent's responsibility to contact the Commonwealth Department of the Environment to determine if an approval under the EPBC Act is required (contact (02) 6274 1111 or www.environment.gov.au). This referral to the Commonwealth

H. Consultation

- (1) The EIS must:
 - (a) Describe the consultation that has been carried out in association with the proposed development and preparation of the EIS;
 - (b) Identify the issues raised during this consultation; and
 - (c) Explain how these issues have been addressed.

should be made as early as possible to ensure that assessment requirements relevant to matters of national environmental significance can be incorporated into the SEARs.

The Commonwealth Government has accredited the NSW environmental assessment process as set out in the Assessment Bilateral Agreement between the Commonwealth and NSW (February 2015) in relation to impacts on matters of national environmental significance. As a result, if it is determined that an approval is required under the EPBC Act, supplementary environmental assessment requirements may need to be issued.