
# Standard Secretary's Environmental Assessment Requirements (SEARs)

*FOR STATE SIGNIFICANT MINING DEVELOPMENTS*

*MAY 2015*



# 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. That Environmental Impact Statement must take into account the requirements of the *Environmental Planning and Assessment Regulation 2000* and any additional Environmental Assessment Requirements issued by the Secretary.

This document identifies the standard Secretary's Environmental Assessment Requirements (SEARs) for State significant mining applications. The SEARs cover those requirements that would be reasonably expected to apply to the majority of new mining applications in NSW. However, the Secretary may decide to issue Environmental Assessment Requirements for a specific project that deviates from the SEARs (this may include adding additional requirements or removing irrelevant requirements). This allows the Secretary to ensure an Environmental Impact Statement is appropriately targeted to enable Government assessment of the identified project, accounting for any special or region-specific environmental risks.

The 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.

By providing regulators with this information early in the assessment process, it enables the assessment of State Significant mining proposals to be integrated across regulatory agencies. This will lead to more efficient assessment processes and reduce duplication and uncertainty in regulatory responsibilities and activities.

## Definitions

For the purposes of this Guideline:

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|---|---|
| *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 group 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 will be included in Environmental Assessment Requirements to ensure a clear link between the requirements and a specific project proposal.

| **Secretary's Environmental Assessment Requirements**<br>**Section 78A(8A) of the *Environmental Planning and Assessment Act 1979***<br>**State Significant Development (Mining)** | |
|---|---|
| **Application Number** | SSD [####] |
| **Proposal** | The [Proposal name], which includes:<br>• [description]] |
| **Location** | [Location description, approximate only] |
| **Applicant** | [Applicant 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. |

## GENERAL REQUIREMENTS

The EIS for the development must:

- Address the environmental, social and economic issues that the consent authority should consider when assessing the application;
- 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;
- Contain the information required by Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*;
- Consider and respond to the NSW Mining & Petroleum Gateway Panel's Conditional Certificate (as applicable)[1];

[1] Where Gateway consideration is not applicable, the applicant should prepare an Agricultural Impact Statement (see Land and Soil section).



- Assess the likely impacts of the development on the environment, focusing on the specific issues identified below, including:
  - a description of the existing environment likely to be affected by the development, using sufficient baseline data; and
  - 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 (including Part 3 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*), guidelines, policies, plans and industry codes of practice.
- Describe the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of:
  - whether those measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented;
  - the likely effectiveness of those measures, including performance criteria where relevant;
  - whether contingency plans are necessary to manage any residual risks; and
  - a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved.

## PROJECT SUMMARY

The EIS must include a project summary consistent with the relevant requirements of the Mine Application Guideline.

## PROJECT DESCRIPTION

The EIS must include, consistent with the relevant requirements of the Mine Application Guideline, a full description of:

- the development;
- all activities that may be undertaken as part of the proposal;
- 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
- the timing of each key phase of the development.

### Management commitments

The EIS must include a full description of any management commitments consistent with the relevant requirements of the Mine Application Guideline, including:

- A consolidated summary of all the proposed environmental management and monitoring measures, identifying all relevant commitments in the EIS;



- A detailed assessment of any noise, air quality, water quality or waste monitoring required during the construction phase and on-going operation of the facility to prevent or minimise any adverse environmental impacts from the development;
- Appropriate data requirements are to be identified as part of the EIS, to form the basis for baseline and ongoing monitoring of environmental parameters;
- A demonstration that the proposed methods for baseline and subsequent monitoring are scientifically robust and statistically sound; and
- Details of monitoring programs, compliance assurance programs and reporting requirements and arrangements that demonstrate the effectiveness of proposed management measures in meeting specified environmental requirements. In addition to outlining proposed programs, 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. Include information on frequency and type of audits proposed to assure compliance with applicable requirements.

### Mapping requirements

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*.

These documents should be included as part of the EIS and should be provided in an electronic format that enables integration with mapping and other technical software.

## STRATEGIC CONTEXT

### Target resource

The EIS must fully describe the resource targeted by the development, including:

- a resource/reserve statement that has been prepared in accordance with the most recent Joint Ore Reserve Committee Code (JORC Code), 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 yields[2];
- Details of run-of-mine ore, low grade ore-mineralised waste and waste rock tonnage planned to be extracted for each year of the life of the project;
- An estimate of the saleable product planned to be produced for each year of the life of the project; and

[2] 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.



- 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.)[3].

### Regional context

The EIS must describe any local and regional sensitivities and constraints on the proposed development, consistent with the relevant requirements of the Mine Application Guideline. The EIS should consider the Government's *Voluntary Land Acquisition and Mitigation Policy* when considering local and regional impacts of proposed mining activity.

### Permissibility and strategic planning

The EIS must address the relevant requirements set out in the Mine Application Guideline.

### Other approval requirements

The EIS must identify any approvals that must be obtained before the development can commence, including:

- 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;
- 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
- Water access licences.

## REHABILITATION

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

*Post-mining land use*

- Identification and assessment of post-mining land use options;
- 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; and
- 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.

[3] 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 applicant should provide a best estimate of their market mix at the initial stages of the project.



*Rehabilitation objectives and domains*

- 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*

- Details regarding the rehabilitation methods for disturbed areas and expected time frames for each stage of the rehabilitation process; and
- 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*

- 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*

- Outlining the monitoring programs that will be implemented to assess how rehabilitation is trending towards the nominated land use objectives and completion criteria;
- Details of the process for triggering intervention and adaptive management measures to address potential adverse results as well as continuously improve rehabilitation practices; and
- 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*

- 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 closure objectives and completion criteria in a timely manner.

*Barriers or limitations to effective rehabilitation*

- Identification and description of those aspects of the site or operations that may present barriers or limitations to effective rehabilitation, including:
  - evaluation of current rehabilitation techniques and performance against existing rehabilitation objectives and completion criteria;
  - 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;



  - 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;
  - 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
  - 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.
- Where a void is proposed to remain as part of the final landform:
  - 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;
  - 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
  - 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;
- Consideration of the controls likely to be required to either prevent or mitigate against these risks as part of the closure plan for the site;
- 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);
- 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
- Consider any relevant government policies[4].

## PROJECT RATIONALE

The EIS must address the relevant requirements set out in the Mine Application Guideline.

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

- 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 IMPACT ASSESSMENT

## Land and soils

The EIS must:

- Characterise soils across the disturbance footprint, including a soil assessment undertaken in accordance with the NSW Government's BSAL verification protocol (or its latest version);
- Evaluate the current land and soil capability class and associated condition;
- Include an AIS;
- Assess the likely impact of the development on landforms (topography), including:
  - the potential subsidence impacts on cliffs, rock formations and steep slopes (if any); and
  - the feasibility and sustainability of any new landforms;
- 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*;
- 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 and any residual impacts after these measures are implemented;
- Describe the outcomes from consultation with relevant stakeholders, including key agencies (such as DPI and OEH), landholders and agricultural businesses in the locality; and
- Consider any relevant government policies[5].

## Water

The EIS must:

- Base the assessment of adequate baseline data to account for typical temporal and spatial variations;
- Describe relevant groundwater and surface water resources, with details of seasonal and historic annual variations in rainfall and evaporation;

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[5] The following government policies should also be considered when addressing land issues:

- Interim Protocol for Site Verification & Mapping of Biophysical Strategic Land (OEH);
- Landslide risk management guidelines presented in Australian Geomechanics Society (2007);
- 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) (DECC 2008).;
- Site Investigations for Urban Salinity (DLWC, 2002);
- Soil and Landscape Issues in Environmental Impact Assessment (NOW); and
- State Environmental Planning Policy No. 55 – Remediation of Land.



- Identify relevant 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;
- Identify and describe the application of any relevant Water Sharing Plan, or other management plan, to the proposal;
- 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;
  - sediment laden water from disturbed areas;
  - saline/contaminated water from underground workings;
  - beneficial use of aquifers and groundwater dependent ecosystems;
  - existing flow regime; and
  - ecosystem quality, quantity and function.
- Describe the proposed management and use of water by the development, including:
  - a detailed and consolidated site water balance;
  - control of clean water, including details of any clear water diversion structures;
  - management of stormwater and excess water;
  - details of water storage facilities, volume estimates and fit-for-purpose water reuse potential;
  - procedures for responding to incidents, including identification of trigger values; and
  - identification of discharge points, anticipated frequency, volume and characterisation of water discharged (including pollutants).
- Demonstrate that all practical options to avoid 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:
  - the impact on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm;
  - Water Quality Objectives, including Total Suspended Solids, demonstrating that ambient targets can be met;
  - any relevant Catchment Action Plan or Coastal Zone Management Plan;
  - salt balance, to be compliant with the requirements of any relevant Salinity Trading Scheme or the objective of "no new salt" being introduced into surface water systems;



  - if discharge includes a mixing zone, demonstrate National Water Quality Management Strategy criteria can be achieved at edge of mixing zone or that impacts are reversible; and
  - volume and timing, especially in relation to periods of low flow in receiving watercourses.
- Demonstrate how the proposal will:
  - protect Water Quality Objectives in receiving waters, where they are being achieved; and
  - contribute towards achievement of the Water Quality Objectives, where they are not being achieved.
- 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 pit lake quality and model contaminant enrichment/accumulation and salt stratification within any proposed final void lakes; and
- Consider any relevant government policies[6].

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

- NSW Aquifer Interference Policy 2012 (NOW)
- NSW State Groundwater Policy Framework Document (NOW)
- NSW State Groundwater Quality Protection Policy (NOW)
- National Environment Protection Measure Guideline on the Investigation Levels for Soil and Groundwater (EPHC, 1999)
- Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
- National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
- NSW Floodplain Development Manual 2005
- Floodplain Risk Management Guideline (OEH)
- Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
- Groundwater Sampling and Analysis: Field Guide (Geosciences Australia, 2009)
- Surface Water
- Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation (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 (DEC 2006)
- 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)
- Bunding and Spill Management (OEH - environment.nsw.gov.au/water/bundingspill.htm)
- Environmental Guidelines: Use of Effluent by Irrigation (EPA)
- A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)



## Flooding

The EIS must:

- Assess the likely upstream and downstream flood impacts of the development;
- Map features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
  - flood prone land;
  - flood planning area, the area below the flood planning level; and
  - hydraulic categorisation (floodways and flood storage areas).
- Describe flooding assessment and modelling used to determine the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event. The modelling must consider:
  - impacts of the proposal on existing flood behaviour for a full range of flood events, including up to the probable maximum flood;
  - impacts of the proposal on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories; and
  - impacts of the flood assessment on the proposed water management structures, such as sediment basins and stormwater runoff quality management systems.

## Biodiversity

The EIS must:

- Assess biodiversity values and the likely biodiversity impacts of the development in accordance with:
  - the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*, except where a strategic regional assessment is already in place; and
  - a comprehensive biodiversity offset strategy, in accordance with the NSW Biodiversity Offsets Policy for Major Projects.
- Consider potential impacts on aquatic biodiversity and assess any impacts in accordance with the Fisheries NSW policy and guidelines for fish habitat conservation and management (Update 2013).
- Consider any relevant government policies[7].

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- NSW Guidelines for Controlled Activities on Waterfront Land (NOW)
- Information Guidelines for Independent Expert Scientific Committee advice on coal seam gas and large coal mining development proposals (if IESC assessment requirement is necessary)

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

- BioBanking Assessment Methodology (OEH)



## Heritage

The EIS must assess the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development:

- 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;
- Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (OEH). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented;
- Demonstrate measures taken to avoid, minimise and mitigate any impacts on Aboriginal and historic heritage values;
- Identify any conservation outcomes; and
- Consider any relevant government policies[8].

## Blasting

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

The EIS must include a detailed Air Quality Impact Assessment prepared according to the requirements and guidelines contained in the 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW'. The Air Quality Impact Assessment must:

- 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*;
- 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;

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- Environmental Offsets Policy (Commonwealth DoE)
- NSW State Groundwater Dependent Ecosystem Policy (NOW)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)
- Upper Hunter Strategic Assessment – Interim Policy (DP&E)
- State Environmental Planning Policy No. 44 – Koala Habitat Protection

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

- The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH)
- 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 (DUAP)
- Statements of Heritage Impact 2002 (Heritage Office and DUAP).



- Justify the level of assessment undertaken on the basis of risk factors, including but not limited to:
  - proposal location;
  - characteristics of the receiving environment; and
  - type and quantity of pollutants emitted.
- 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:
  - meteorology and climate;
  - topography;
  - surrounding land-use;
  - receptors; and
  - ambient air quality.
- 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;
- 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;
- Include consideration and justification of reasonable 'worst case' emission scenarios. Consideration should be given to factors including, but not limited to:
  - emission quantity;
  - emission source locations;
  - level of production;
  - type and quantity of material(s) handled; and
  - cumulative influences from other existing, approved and proposed mines and from other industry.
- The EIS must 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;
- For all sources of fugitive TSP, $PM_{10}$ and $PM_{2.5}$ for key years throughout the life of the proposal, the impact assessment must include:
  - list of emission factors;
  - description and justification of all relevant parameters used in the emission estimation equations, including site specific measurements, proponent recommended values or published literature;
  - detailed emission estimates plus descriptive summary;



  - methodology used to produce time varying emissions from annual emissions;
  - 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
  - base case inventory with no control and a final inventory with all relevant proposed emission controls.
- 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 November 2011) www.environment.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf;
- Account for cumulative impacts associated with existing emission sources as well as any currently approved or proposed developments linked to the receiving environment;
- 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 (DEC 2005) www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf;
- This assessment should include the following pollutants, as a minimum:
  - dust deposition;
  - total suspended particles;
  - $PM_{10}$ particulate matter;
  - $PM_{2.5}$ particulate matter; and
  - Nitrogen dioxide ($NO_2$).
- 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);
  - 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
  - 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.



- 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:
  - link proposed emission controls to the site specific best practice determination assessment;
  - timeframes for implementation of all identified emission controls;
  - key performance indicators for emission controls;
  - monitoring methods (location, frequency, duration);
  - response mechanisms;
  - responsibilities for demonstrating and reporting achievement of KPIs;
  - record keeping and complaints response register; and
  - compliance reporting.
- Consider any relevant government policies[9].

## Noise and vibration

The EIS must:

- Assess the likely operational noise impacts of the development (including construction noise) under the NSW Industrial Noise Policy, including the 'Application Notes – Industrial Noise Policy' as published from time to time on EPA's website (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 Guideline;
- Assess the likely public road noise impacts of the development under the NSW Road Noise Policy (i.e. traffic generating development impacts); and
- Assess the likely rail noise impacts of the development for both public (NSW Rail Network) and private (non-network) rail lines under the Rail Infrastructure Noise Guideline;
- Assess vibration impacts associated with the proposed development (including construction and operation but excluding those associated with blasting activities) should be assessed using the Assessing Vibration: a technical guideline (DEC, 2006); and

[9] The following government policies should be considered when addressing air quality issues:

- 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)
- Assessment and Management of odour from stationary sources in NSW



- Assess likely operational overpressure and groundborne vibration impacts from blasting activities applying the Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC, 1990).

## Waste

The EIS must:

- 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;
- 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[10];
- 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 EPA's Waste Classification Guidelines, particularly with regards to the identification of contamination hotspots;
- 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;
  - Resource recovery including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources; and
  - Disposal including management of all disposal options in the most environmentally responsible manner.
- 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;
- 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;
- Provide details of how waste will be handled and managed during transport to a lawful facility. If the waste possesses hazardous characteristics, the Proponent

[10] All waste must be classified in accordance with the EPA's Waste Classification Guidelines.



must provide details of how the waste will be treated or immobilised to render it suitable for transport and disposal;

- 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).
  - 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; and
  - measures to be implemented to minimise erosion, leachate and sediment mobilisation.
- Provide details of how any leachate will be:
  - kept separate from stormwater runoff;
  - treated (if applicable); and
  - any proposed transport and disposal of leachate off-site.
- Waste rock emplacement areas with particular attention to:
  - quantity of waste rock likely to be generated;
  - geochemical assessment of the waste rock;
  - proposed strategies for the handling, reuse/recycling and disposal of waste rock, considering the outcomes of the geochemical assessment; and
  - designation of transport routes for the transport of waste rock.
- Identify the management and disposal methods for coal washery rejects (including tailings generated at the mine site), including:
  - quantity of coal washery rejects to be generated;
  - proposed strategies for the handling, storage, reuse/recycling and disposal of coal washery rejects; and
  - 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

The EIS must:

- 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
- Details of 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

The EIS must include an overview of the methods, and control programs and targets that will be used to control feral animals and weeds.

### Economic appraisal

The EIS must include:

- 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.
- A comprehensive economic appraisal, consistent with the NSW Government's *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*, which:
  - includes a quantitative analysis and assessment, where feasible and reasonable, of all issues considered in the EIS;
  - qualitatively describes impacts that cannot be quantified; and
  - is incorporated into the conclusions of the EIS as appropriate.

The EIS must also consider any other relevant government policies, including any guidance on the valuation of benefits and costs.

### Subsidence [Underground mines only]

The EIS must include an assessment of possible subsidence effects and consequential environmental, social and economic impacts on the natural and built environment. To justify the proposed underground mining projects, the EIS must demonstrate the feasibility of:

- the proposed mining operation (e.g. mining methods, layout and sequences); and
- 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.

Justification must be supported by the information provided by the proponent, including, but not limited to:

- description of the proposed mining operation (e.g. mining methods, layout and sequences);
- identification and general characteristics of surface and subsurface features that may be affected by subsidence caused by the proposed mining;
- 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;



- identification and general characteristics of any previously excavated or abandoned workings that may interact with the proposed or existing mine workings;
- results of preliminary prediction of the nature, magnitude, distribution, timing and duration of subsidence;
- 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; and
- 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.

In relation to the natural environment, the EIS must:

- describe the natural features (both surface and sub-surface) that could be affected by subsidence;
- describe the natural features likely to be affected by the development, using at least two years baseline data to describe background natural variation;
- describe the suite of threatened species, population and ecological communities likely to use these natural features as habitat;
- evaluate the importance of these features to the habitat and life cycle of the threatened entities identified;
- accurately predict likely subsidence effects, including a sensitivity analysis of these predictions.
- assess the potential direct and indirect geological, hydrological and ecological impacts of the predicted subsidence in the short, medium and long term
- 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
- 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.

Should offsets be required, the proponent should develop a Biodiversity Offsets Strategy in accordance with the draft '*Policy framework for biodiversity offsets for upland swamps and associated threatened species impacted by longwall mining'*.

### Transport

The EIS must:

- 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;



- 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; and
- Assess road impacts, including the capacity, condition, safety and efficiency of the local and State road network, with regard to council's requirements; and
- Consider any relevant government policies[11].

### Visual

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 (bunds, etc.), and minimising the lighting impacts of the development.

### Public Safety

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 goods[12].

### Social

The EIS must:

- assess the social impacts of the proposal, having regard to the local and regional impacts of the development; and
- set out proposed measures and strategies to avoid, manage, or mitigate the project's social impacts[13].

## CONSULTATION

The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed.

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[11] The following government policies should be considered when addressing transport issues:
- Guide to Traffic Generating Development (RTA)
- Road Design Guide (RMS)
- relevant Austroads Standards

[12] The following government policies should be considered when addressing transport issues:
- 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

[13] The NSW Government is currently considering guidance options, addressing the social impacts of mining developments. This section of the SEARs will be updated once that work is complete.