

9 September 2013

### Update of Mining Operations Plan (MOP) Guidelines, September 2013

The Mining Operations Plan (MOP) is a tool used by the Department to monitor the progress of mining and rehabilitation activities across the life of a mine. On 9 September 2013, the Department released *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* (ESG3) which details a new process for monitoring and managing progression towards successful rehabilitation outcomes. The Guideline requires industry to identify and provide measurable data and demonstrate that proposed rehabilitation outcomes are achievable and realistic within a given timeframe.

The ESG3 Guideline replaces:

- *EDG03 Guidelines to the mining, rehabilitation and environmental management process (January, 2006); and*
- *EDG11 Format and guideline for the preparation of a Mining Operation Plan (MOP): Small mine version (February 2002).*

### Transitional Period

The Department recognises that the new Guidelines represent a significant shift in thinking from earlier Guidelines and it will take time for industry to understand the new requirements and achieve compliance. Whilst Industry is encouraged to transition to the new Guidelines as soon as possible, a transition period applies as outlined below:

1. New Mining Titles – MOPs must be prepared in accordance with *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013*.
2. Title Renewals – MOPs must be prepared in accordance with *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* in accordance with the requirements of point 4.
3. Where Mining Titles are not the subject of a renewal over the coming months, the Conditions of Title will be varied, using s239(2) of the *Mining Act 1992*, to include a new condition to prepare a MOP in accordance with ESG3. Transitional provisions will apply in accordance with the requirements of point 4. Until such time as the Conditions of Title are varied, MOPs may be prepared in accordance with the requirements of the Conditions of Title applicable at the time of preparing the MOP.
4. For Title Renewals, and Titles subject to a title variation under s239(2) of the *Mining Act 1992* the requirement to comply with ESG3 will apply as follows:
  - i. activities declared to be State Significant Development for the purposes of the Environmental Planning and Assessment Act 1979 (EP&A Act) will not be required to comply with the 2013 Guidelines until 1 July 2014. Until that time, any new MOP or amendment to an existing approved MOP must be in accordance with either EDG03 Guidelines to the Mining, Rehabilitation and Environmental Management Process January 2006 (“the 2006 Guidelines”) or the 2013 Guidelines. However where a new MOP or amendment to a MOP is prepared in accordance with the 2006 Guidelines, the term of the approval will be a maximum of 2 years.
  - ii. activities authorised under this mining lease which are not State Significant Development for the purposes of the EP&A Act will not be required to comply with the 2013 Guidelines until 1 July 2015. Until that time, any new MOP or amendment

to an existing approved MOP must be in accordance with either the 2006 Guidelines or the 2013 Guidelines. However where a MOP or amendment to a MOP is prepared in accordance with the 2006 Guidelines, the term of the approval will be a maximum of 2 years.

### **Questions?**

The Department recognises that there will be many questions from Industry regarding the requirements of ESG3. You are encouraged to contact your local Inspector, Environment to discuss any issues you may have in preparing a MOP. Questions may also be emailed to [minres.environment@industry.nsw.gov.au](mailto:minres.environment@industry.nsw.gov.au) with **MOP Question** in the subject line. Questions and answers may be published anonymously on the Department's website where relevant.

### **Feedback**

Industry is encouraged to provide feedback on the new Guidelines. Feedback and/or questions can be emailed to [minres.environment@industry.nsw.gov.au](mailto:minres.environment@industry.nsw.gov.au) with **MOP Comments** in the subject line.

Feedback may be incorporated into subsequent updates of ESG3 and may be published anonymously on the Department's website.

Your personal information is protected under the *Privacy and Personal Information Protection Act 1998* (PPIP Act). The Department collects personal information in submissions for the purposes set out in the Department's Privacy Statement. The Trade and Investments Privacy statement is located at <http://www.trade.nsw.gov.au/legal/privacy>



## EDG03

# GUIDELINES TO THE MINING, REHABILITATION AND ENVIRONMENTAL MANAGEMENT PROCESS

*This guideline describes the mining, rehabilitation and environmental management process to ensure the satisfactory environmental and rehabilitation performance of mines in New South Wales. It provides an acceptable format for the preparation of Mining Operations Plans and Annual Environmental Management Reports for mines.*

*It replaces*

*Guidelines to The Mining, Rehabilitation And Environmental Management Process: DOC: 080600001.gui Issue 2 Revision 5 dated February 1998*

*Guidelines for the preparation of Mining Operations Plans (MOP): DOC: 080600002.gui Issue 2 Revision 4 dated February 1998*

*Guidelines for the Preparation of Annual Environmental Management Reports (AEMR) DOC: 080600003.gui Issue 2 Revision 5 dated February 1998*

*Annual Rehabilitation Report Form Open Cut Mines DOC: 080600003.rec1 Issue 2 Revision 2 dated March 1998*

*Annual Rehabilitation Report Form Underground Mines DOC: 080600003.rec2 Issue 2 Revision 1 dated December 1996*

*Statutory Declaration DOC: 080600003. Rec2 Issue 1 Revision 2 dated May 1997*

**9 September 2013**

**These Guidelines have been superseded by ESG3: Mining Operations Plan (MOP) Guidelines, September 2013.**

**MOPs prepared in accordance with these Guidelines will be accepted subject to the transitional arrangements published above.**

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# AN OVERVIEW OF MINING, REHABILITATION AND ENVIRONMENTAL MANAGEMENT

## 1. INTRODUCTION

Under the Mining Act 1992, environmental protection and rehabilitation are regulated by conditions included in all mining leases, including requirements for the submission of a Mining Operations Plan (MOP) prior to the commencement of operations, and subsequent Annual Environmental Management Reports (AEMR).

Collectively, the MOP and AEMR constitute the Mining, Rehabilitation and Environmental Management Process (MREMP) which has been developed by the Department of Primary Industries - Mineral Resources. The MREMP aims to facilitate the development of mining in New South Wales and to ensure that all mining operations are safe, the resources are efficiently extracted, the environment is protected and rehabilitation achieves a stable, satisfactory outcome.

## 2. SCOPE

This guideline introduces the Mining, Rehabilitation and Environmental Management Process of the NSW Department of Primary Industries - Mineral Resources. It describes:

- the approval process which enables mining in NSW;
- the role of the leaseholder in preparing and lodging Mining Operations Plans and Annual Environmental Management Reports;
- the manner in which the Department responds to the documents lodged.

## 3. MINE APPROVAL PROCESSES

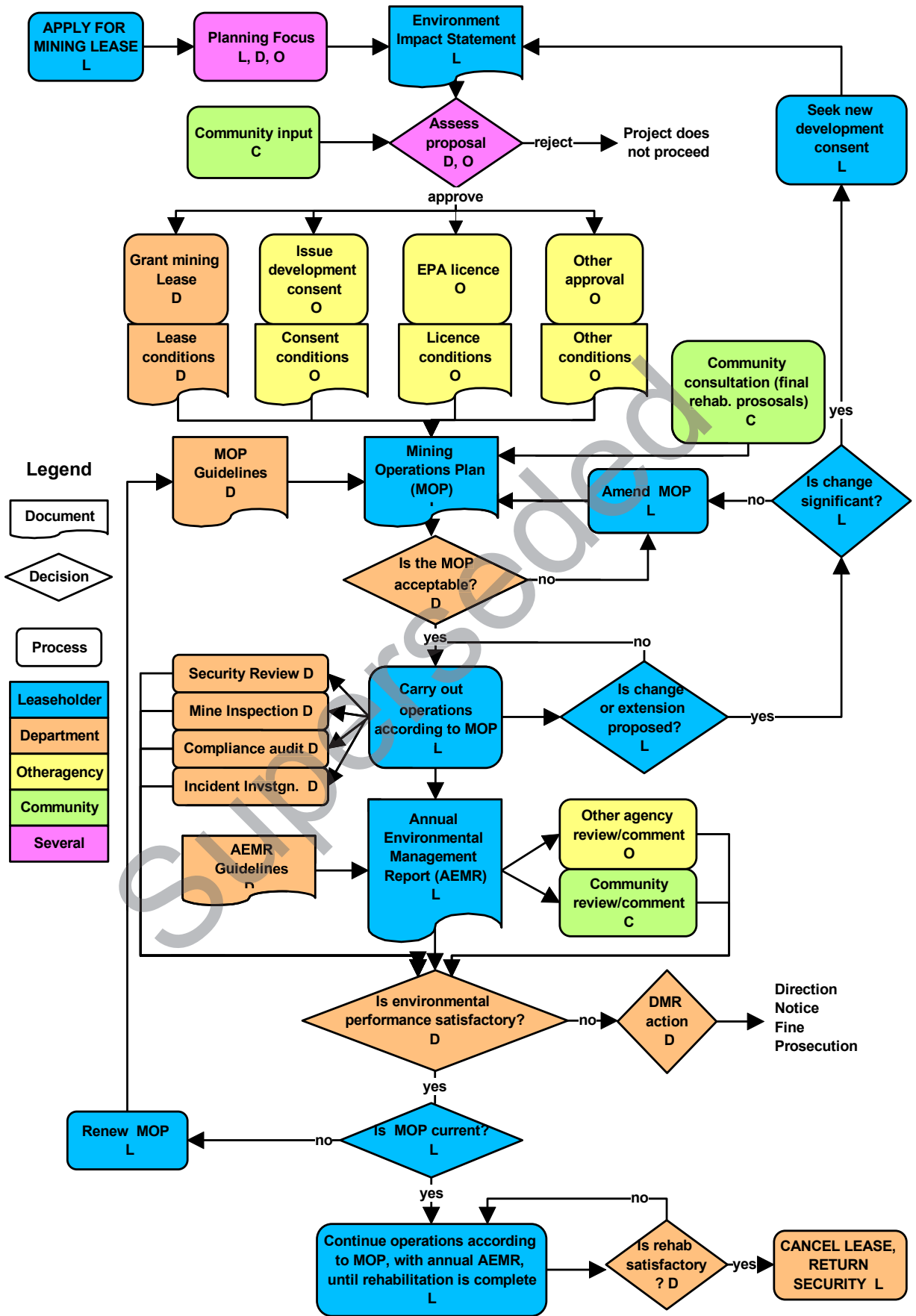
In New South Wales, a title must be obtained from the Department under the Mining Act 1992 before anyone can prospect, explore for or mine publicly owned minerals, whether on Crown or private land. Before a mining title can be granted by the Department, development consent must be obtained under the Environmental, Planning & Assessment Act and its regulations. The approval authority will generally be the local council, or for large mines and "projects of state significance", the Minister for Urban Affairs and Planning.

Development consent may be given and a mining lease granted for mines and major expansions to existing mines following consideration of an Environmental Impact Statement (EIS) written by or on behalf of the proponent. The EIS is based on a plan for the whole of the expected life of the mine. Before the commencement of any mining activity, a number of other approvals and licences may also be required. These approvals or licences and the agencies involved may include:

- an environment protection licence from the Environment Protection Authority;
- dam design and management practices acceptable to the Dams Safety Committee;
- a water licence from the Department of Land and Water Conservation;
- a threatened species management plan endorsed by the National Parks and Wildlife Service;
- for coal mining, there are also subsequent approvals issued by the Department for open cut mining, waste emplacements, and second workings (pillar extraction and long wall mining) for underground mines.

Figure 1 shows these processes as a flow sheet.

FIGURE 1. CONCEPTUAL FLOWSHEET: ENVIRONMENTAL MANAGEMENT OF OPERATING MINES



## 4. THE DEPARTMENT'S MINING, REHABILITATION AND ENVIRONMENTAL MANAGEMENT PROCESS (MREMP)

The Department's MREMP is based on conditions of mining leases which require the leaseholder to prepare documents *"in accordance with the Director General's guidelines current at the time of lodgement"*. Documents required are:

- a Mining Operations Plan (MOP) which describes the manner in which the leaseholder proposes to conduct mining, processing and rehabilitation consistent with development consent, and the conditions imposed by the Department and other agencies;
- an Annual Environmental Management Report (AEMR) which reports on the performance of the leaseholder and "fine tunes" the MOP.

These documents provide:

- a management tool for all operations within the mine;
- a means of identifying and managing the significant mining, rehabilitation and environmental aspects of the mining operation;
- a means of assessing environmental and rehabilitation performance
- a basis for estimating rehabilitation requirements and the amount of security required by the Department;
- an efficient and systematic framework for interaction between government agencies

If activities are proposed which are not consistent with the current MOP, activity descriptions, with revised plans and supporting documents as necessary, should be provided to the Department. The descriptions and plans should be consistent with the MOP format and guidelines and will be treated as a variation to the MOP. Changes in proposed activities may be dealt with as part of the AEMR and annual review process

The MREMP process facilitates a flexible response to changing circumstances. It can accommodate variations to schedules and processes proposed in the MOP, ongoing development and refinement of final rehabilitation plans, changes imposed by regulatory authorities and boards, and opportunities to improve environmental and operational management strategies. It cannot, however, override the scope and conditions of development consent, the mining lease, or any other statutory approvals or licences.

The Department of Primary Industries - Mineral Resources is responsible for overseeing MOPs and AEMRs, for coordinating the involvement of other relevant government authorities, and for ensuring that mining operations and rehabilitation are carried out in accordance with the lease conditions and MOP objectives. Other management tools which may be used by the Department are:

- inspections, including annual inspections coinciding with AEMR review;
- inspections and responses to complaints and incidents;
- establishment of committees, sometimes including stakeholder representations, to review environmental performance and the AEMR;
- environmental performance and compliance audits of selected mines;
- security bonds at all mines sufficient to meet the costs of outstanding rehabilitation.

## 5. THE MINING OPERATIONS PLAN (MOP)

Mining operations must not be undertaken other than in accordance with a MOP that has been accepted by the Department. The MOP must address the mining, processing, and rehabilitation operations necessary to comply with the Department's statutory responsibilities. These responsibilities are expressed in the Mining Act (1992), the Department's published policies, and specific conditions attached to each mining title. Proposed operations must be consistent with development consent, all other government agency approvals and licences, as well as with mine safety regulations and mine safety plans. The MOP must apply best available practice and technology to all aspects of mine operations and include strategies to control identified environmental risks.

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The period of a MOP may be for a maximum of seven years or, if convenient to both the Department and the Leaseholder, an agreed lesser period.

The MOP describes all mining and mining related activities, rehabilitation plans and land use outcomes over the MOP period. The MOP must be in a format endorsed by the Department, and must contain plans and text which identify and define:

- area(s) proposed to be disturbed;
- mining and rehabilitation method(s) to be used and their sequence;
- existing and proposed surface infrastructure;
- progressive rehabilitation schedules;
- areas of particular environmental sensitivity;
- land and water management systems;
- proposed resource recovery.

Premature cessation of mining will require either a “care and maintenance plan” or a “mine rehabilitation and closure plan” prior to Ministerial approval of suspension of mining. This plan should be prepared using the MOP format with additional information where needed for consistency with the “*Strategic Framework for Mine Closure*” published by the *Australian and New Zealand Minerals and Energy Council*, and the *Minerals Council of Australia*.

The MOP is to be prepared using the format described in this guideline. Copies of the format are also available from the Department’s web site, or the Department’s Environmental Officers. An abbreviated form based format may be used for small mines with low environmental risks. MOPs prepared under the previous guidelines will remain in place for the term of that MOP and will not need re-writing.

The MOP must be accompanied by a statutory declaration confirming the rights of the leaseholder to carry out the operations proposed, verifying they are consistent with all consents and conditions.

To be acceptable, a MOP must:

- meet the Department’s content and format guidelines for MOP documents:

propose operations which:

- are consistent with the Environmental Impact Assessment, and any other document, on which approval and grant/renewal of the lease was based;
- are consistent with conditions imposed through approvals, mine leases and licences issued by the Department and other agencies;
- are consistent with the mine safety management plan;
- include progressive rehabilitation to the greatest practical extent;

propose rehabilitation which at least meets the Department’s generic rehabilitation criteria:

- provides stable and permanent landforms;
- is suitable for an agreed subsequent land use;
- is sustainable in terms of the proposed use,
- does not have maintenance needs greater than the surrounding land;
- has no adverse environmental effects outside the lease area;

and:

- is based on plans and outcomes developed with stakeholder involvement;
  - has outcomes consistent with commitments made in the EIS and any other document on which approval and grant of lease was based ;
  - provides objective criteria to establish whether rehabilitation objectives have been met;
  - has outcomes which are demonstrably achievable through experience in comparable situations or through site trials/research;
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- is consistent with the “*Strategic Framework for Mine Closure*” published by the *Australian and New Zealand Minerals and Energy Council*, and the *Minerals Council of Australia*.

Details of operations and rehabilitation in the plan should also;

- identify risks associated with each activity;
- propose environmental control strategies to satisfactorily manage identified risks;
- include environmental monitoring to verify effectiveness of control strategies;
- follow recognised industry and government agency best practice guidelines and best available technology.

For MOPs which do not include the final rehabilitation and closure phase of a mine, rehabilitation beyond the scope of the presented MOP may be dealt with as concepts rather than in detail. It must describe the consultation and trial/research pathways through which final closure outcomes will be developed and achieved.

The Department will review the MOP as presented and respond within 2 months of lodgement. Review may involve sending parts of the MOP to other agencies for comment and advice. If not considered satisfactory, the MOP may be returned to the leaseholder for amendment.

A copy of the MOP will be made available for viewing by members of the public in the Department’s offices. Commercially sensitive information should be clearly identified and will be withheld from public view.

## **6. THE ANNUAL ENVIRONMENTAL MANAGEMENT REPORT (AEMR)**

The AEMR consolidates Government reporting requirements relating to environmental management and rehabilitation of mines by addressing:

- a) The current status of:
  - approvals;
  - leases;
  - licences;
  - environmental risk management and control strategies;
- b) For the previous 12 month period:
  - mining, mine development, and rehabilitation in relation to the MOP;
  - environmental performance in relation to the collective conditions of approvals, leases and licences;
  - community relations and liaison.
- c) It also looks to the next 12 months by:
  - proposing improvements in environmental performance and management systems;
  - specifying environmental and rehabilitation targets to be achieved.

The AEMR is to be prepared using the format described in this guideline. Copies of the format are also available from the Department’s web site, or the Department’s Environmental Officers. An abbreviated form based format may be used for small mines with low environmental risks.

All mines are to submit an AEMR report every year regardless of the level of activity. For a mine which has been inactive during the AEMR period, reporting requirements may, in most circumstances, be met by submission of the tables of the AEMR with a covering letter stating there have been no site activities.

The reporting period for an AEMR will have been set either as part of the Department’s letter of response to a MOP or its response to the previous AEMR. Generally the AEMR must be submitted within 28 days of the end of the reporting period.

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The Department's response will depend upon the degree of other agency involvement, the environmental sensitivity of the site, the most recent site visit or inspection, and the previous performance of the mine operator. The Department may:

- organise a site inspection and integrated review of the AEMR involving other government agencies. Agencies may include the Environment Protection Authority, Department of Land and Water Conservation, local council, National Parks and Wildlife Service, and any other agencies with a statutory interest in the site;
- review the AEMR in conjunction with a site visit, from officer(s) of the Department without the involvement of other agencies;
- undertake desk review relying on a recent previous site visit for site specific information.

Following the review, the Department will provide a written response which may:

- comment on the adequacy or otherwise of the report as provided;
- address the adequacy of environmental and rehabilitation performance over the reporting period;
- comment or make recommendations on quality improvement and application of best practice;
- issue a direction to undertake specific operations, remedial actions, or supplementary studies;
- issue a direction to address non-compliances with conditions of the mining lease which have been identified in the AEMR or subsequent review and inspection.

To be acceptable, an AEMR must meet the Department's content and format guidelines for AEMR documents

Environmental performance, as documented by an AEMR will be evaluated using the following criteria:

- **For mining operations** disturbance of land as proposed in the accepted MOP, progressive rehabilitation of land according to the MOP rehabilitation schedule, conduct of operations using methods proposed in the MOP, and compliance with environmental conditions of all consents leases and licences, including reporting requirements;
- **At final rehabilitation and mine closure**; demonstrably meeting all mine closure and rehabilitation commitments.

The AEMR may be made available for viewing by members of the public at the Department's offices.

For further information and contact details see [www.dtiris.nsw.gov.au](http://www.dtiris.nsw.gov.au)  
Telephone (02) 4931 6605 Email [minres.environment@industry.nsw.gov.au](mailto:minres.environment@industry.nsw.gov.au)

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## Guidelines and Format for Preparation of a Mining Operation Plan

Documents should be completed using the headings and tables of this guide. As this guide applies regardless of the stage in the mine life cycle and the nature of operations, there may be some sections which are not relevant to a specific mine site. These should be noted as not applicable. Copies of the format are available from the Department's web site, or the Department's Environmental Officers. At the discretion of the Department, these guidelines may be adapted to suit the specific circumstances of a mine site or mine operator. An abbreviated form based format may be used for small mines with low environmental risks. Unless otherwise advised, three copies of the MOP should be lodged with the Department. One will be stamped for verification and returned to the leaseholder

### 1 TITLE BLOCK

|   |  |
|---|--|
| <b>Name of mine</b>                         |  |
| <b>Mining Titles/Leases</b>                 |  |
| <b>MOP Commencement Date</b>                | / / <b>MOP Completion date (nominal)</b> / / |
| <b>Name of leaseholder</b>                  |  |
| <b>Name of mine operator (if different)</b> |  |
| <b>Reporting Officer</b>                    |  |
| <b>Title</b>                                |  |
| <b>Signature</b>                            | .....  |
| <b>Date</b>                                 | / /  |

### 2 EXAMPLE CONTENTS PAGE

#### PLANS

- 1 Mine and Context
- 2 Pre MOP Environment
- 3 Land Preparation
- 4 Mining Activities
- 5 Rehabilitation
- 6 Final Rehabilitation
- 7 Vertical Sections

#### SUPPORTING TEXT

- 1 Introduction
- 2 Pre MOP Environment
- 3 Mining Activities
- 4 Rehabilitation
- 4 Final Rehabilitation
- 6 Environmental and Rehabilitation Risk Identification
- 7 Environmental Management Controls

Page

#### TABLES

- 1 Provisional Production and Waste Schedule
- 2 Summary of Proposed Rehabilitation
- 3 Environmental Risk Identification Matrix
- 4 Environmental Management Controls

#### ATTACHMENTS

- Statutory Declaration
- Management plans required by condition of mining lease, licences or development consent (name and list individually)
- Aerial photograph of site (if available)
- Other attachments as appropriate

## 3 PLAN GUIDELINES

### Base Plans and Scale

Plan sets may be based on survey or rectified aerial photographs or orthophoto maps. Except for *Mine Site and Context (Plan 1)* all plans must be of same scale to enable ready comparison. Plans 1 to 5 may be combined provided that information remains clear.

Mine lease holders without access to surveyed plans, and less than 10 hectares total disturbance may derive plans from a convenient base map/plan with activity areas and features drawn by hand provided there is sufficient accuracy and detail to adequately describe activities and their impact. If contours are not shown, slopes and drainage lines must be clearly marked.

All plans must show

- the name of the mine
- a graphical scale
- grid lines
- surface contours (not required for Plan 1A or for small mines)
- a title block showing the date of preparation of the plan, title and number and the name, and
- vertical sections must include the vertical exaggeration
- signature of the surveyor or person responsible for the plan

### Colour Coding And Symbols

*(hand shading is acceptable where document preparation facilities are limited)*

- Mine lease boundaries..... firm black line
- *(Coal mines only)* leasehold boundary: .....dash-dot(\_\_\_\_ . \_\_\_\_ ) black line.
- *(Coal mines only)* colliery holding boundary..... firm black line.
- Sublease boundaries .....dash-dash-dot-dot“(\_\_\_\_ \_\_\_\_ ) black line
- Areas disturbed by mining, (prior to this MOP)...purple shading or edging
- Areas disturbed by infrastructure.....yellow shading.
- including mine wastes (prior to this MOP)
- Ore/coal extraction areas ( this MOP) .....Red shading or edging.
- Other areas to be disturbed (this MOP).....dark blue shading or edging.
- Areas to be rehabilitated (this MOP).....dark green shading or edging
- Emplacement areas to be shaped .....light brown shading.
- Emplacement area not to be shaped.....orange shading.
- Water Management Structures
  - .... Clean water .....dotted light blue line/shading
  - .... Dirty water (sediment).....broken dash light blue line/shading
  - .... Controlled discharge water .....dot dash light blue line/shading
  - .... Contaminated water.....solid light blue line/ shading

### Scale

The scale should be sufficient to show relevant detail. For a typical large open cut strip mine, suitable scales may be: plan 1A, 1:25,000; other plans, 1:4,000. Contour intervals for open cut coal mines may be 5 metres. In some circumstances, contour intervals of 1 metre or less may be necessary to show an appropriate level of detail. For a mine site with separated areas of activity, separate plans of each activity area may be suitable provided that the *Mine Site and Context (Plan 1A)* shows the relationship of all separate areas.

## 4 PLANS REQUIRED

### Plan 1: Mine and Context

Show the context and surrounding features of the mine site:

- boundaries of leases, holdings and subleases;
- cadastral information (land ownership boundaries);
- natural features including swamps, rivers, creeks, streams or watercourses;
- proposed extraction areas (this MOP);
- other disturbed areas (this MOP);
- boundaries of other plans of this MOP (if of different scale);
- site access and relationship to the nearest main road and town;
- neighbouring residences, within and adjacent to the mine holding/lease area;
- areas disturbed or rehabilitated prior to this MOP.

### Plan 2: Pre MOP Environment

Show the status of the site at the commencement of the MOP term:

- proposed extraction areas and other areas to be disturbed during this MOP and the mine life
- vegetation community boundaries;
- land use boundaries; e.g. cropping, pasture, forest, undisturbed flora/fauna habitat;
- rural land capability classification (RCC), obtained from maps published by the Department of Land and Water conservation or agricultural capability;
- natural features including swamps, rivers, creeks, streams or watercourses;
- flood prone land (1:100 year event);
- existing developments including roads, fences, transmission lines, derelict mines/mined land;
- buildings, dams, pipelines, water management structures and other substantial improvements;
- areas containing threatened flora and fauna habitat;
- Aboriginal, heritage and archaeological sites;
- any other areas of particular environmental sensitivity.

### Plan 3: Proposed Land Preparation

For all areas to be disturbed during the MOP term show the proposed:

- outline of areas to be stripped of topsoil, including surface mining, waste emplacements, and any other infrastructure areas to be stripped;
- soil test pit sites;
- soil type boundaries and depths of areas to be stripped;
- vegetation stacking or disposal areas;
- topsoil stockpiling areas.

### Plan 4: Proposed Mining Activities

As at the commencement of the MOP term, show:

- the extent of all mining, mineral processing, waste emplacement, ore/product stockpile, water management structures, other infrastructure features and rehabilitation.

For the end of the MOP term, show the proposed:

- annual sequence of mining development over the term of the MOP;
  - mineral processing plant;
  - waste emplacements;
  - ore/product stockpiles;
  - water management structures;
  - clean, dirty (sediment laden) and contaminated water containments and pathways;
  - hazardous material storage areas;
-

- location and extent of disturbance from exploration activities;
- all feature relevant to other agency licences or approvals;
- all other infrastructure features;
- any disturbed areas not described above
- water monitoring sites.

### **Plan 5: Proposed Rehabilitation**

For the end of the MOP term, show proposed:

- sequence of rehabilitation activities per year of MOP term
- active mining areas, active waste emplacements, active tailings emplacements, infrastructure, land under rehabilitation and its status as one of “shaped and covered”, “rehabilitated and under maintenance”, “rehabilitation complete”;
- water management containment and control structures for rehabilitated land;
- soil covered rehabilitated areas identified according to slopes; 10 degrees to 18 degrees, >18 degrees.

### **Plan 6: Final Rehabilitation for Lease Relinquishment**

Show anticipated final

- natural features including swamps, rivers, creeks, streams or watercourses;
- areas affected by mining or mining purposes by nature of disturbance during the mine life;
- soil covered rehabilitated areas identified according to slopes; 10 degrees to 18 degrees, >18 degrees;
- remaining voids/pits;
- vegetation type, fauna habitat, land use, and rural land capability classification boundaries and status of all disturbed and undisturbed areas;
- re-created areas containing threatened species and fauna habitat;
- integrated landscape features, which show how or whether rehabilitated areas of native vegetation link with undisturbed native vegetation to provide larger areas and wildlife corridors;
- rural land capability classification (RCC), or agricultural capability;
- constructed drainage lines, water control structures, and water supply dams;
- infrastructure to remain on site after mine closure;
- features pertinent to other agency licences, approvals of other government agencies or their relinquishment;
- fences, bunds and other public, fauna/ and stock safety features.

### **Sections**

Vertical and longitudinal sections should be selected to support and clarify plans and supporting text. They should describe the mine sections, the vertical extent of mining, emplacement shapes and sections - including:

- emplaced materials
- cover layers, including topsoil, over emplacements and other disturbed areas;
- environment control features;
- water management structures;
- features to protect rehabilitated areas and areas under rehabilitation.

For coal mines, sections at right angles to the direction of mining at intervals of 1000 m would be appropriate. Unless highly irregular in shape, two sections at right angles should be sufficient for most other mines, waste emplacements and infrastructure features.

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## 5 HEADINGS, SUPPORTING TEXT, AND TABLES

### 1. INTRODUCTION

#### 1.1 History of Operations:

Give a brief history of previous mining operations, previous MOPs submitted. Provide only sufficient information to give a context to the MOP.

#### 1.2 Proposed and Future Operations:

Outline the objectives, scope, and benefit of operations proposed in the MOP.

Briefly outline possible operations and mine life beyond the MOP period within the mining lease according to the current development consent.

#### 1.3 Consents Leases and Licences

List, and show the date of grant and duration of, all mining leases, sub-leases, Development Consents, and all other approvals and licences issued by Government Agencies, including for approval to operate, environmental protection, hazardous materials, water use, threatened species, and dam safety. If not previously supplied, copies of conditions should be forwarded to the Department. Where development consent is not held, a copy of the document which establishes that it is not required should be forwarded to the Department.

#### 1.4 Mine Contacts

Supply name and contact details of the Mine Manager and Environmental Manager.

#### 1.5 Mine Geology

Briefly describe known mine geology, proven and indicated reserves, constraints affecting mine design, and provisional ore cut off grade. This is not required for a mine in its post mining rehabilitation phase or where further mining is unlikely.

#### 1.6 Land Ownership

Provide a schedule of land ownership, occupancy, and title over the lease area consistent with Plan 1.

#### 1.7 Consultation

Outline the results of consultations undertaken with stakeholders in developing this MOP. Stakeholders may include other government agencies, the community, landowners, and Aboriginal groups.

### 2. PRE MOP ENVIRONMENT

Describe significant features shown on *Pre-Mining Environment (Plan 3)*. List threatened flora, and fauna, archaeological sites.

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### 3.8 Water Management

Classify water containment or control/diversion structures shown on *Mining Activities (Plan 4)* as “clean”, “dirty”, “controlled discharge”, or “contaminated” (see definitions).

Describe structures shown on *Mining Activities (Plan 4)*. Provide dimensions, storage capacity, characteristics of water to be contained. Also list annual volumes used or produced, and the extent to which volumes depend upon climate, production or other factors.

*In combination, plan 4 and the supporting text should make it clear how water flows, is collected/retained, and is distributed/released for the whole of the mine site.*

Descriptions of water management structures and their use which form part of a licence or approval from the EPA, DLWC or Dam Safety Committee, need not be repeated in this MOP. Such licences should be referenced and attached.

### 3.9 Hazardous Materials

Describe and note the capacity of hazardous material storages. Provide a reference to safety data sheets and where stored. List permits obtained for hazardous material storage.

### 3.10 Other Infrastructure

Describe features, shown on *Mining Activities (Plan 4)* for all other infrastructure.

## 4 PROPOSED REHABILITATION ACTIVITIES DURING THE MOP TERM

Rehabilitation aspects of a MOP should be progressively developed and implemented from the commencement of mine life according to the “Strategic Framework for Mine Closure” developed by the Australia and New Zealand Minerals and Energy Council. Extracts from the “Framework” outlining stakeholder involvement and closure planning are appended to this guideline. Copies are available from the Department. Key aspects are:

- Identifying and involving stakeholders in rehabilitation planning through a proactive approach described in the MOP;
- Inclusion of a closure plan in the initial MOP, and its ongoing revision to reflect changing circumstances;
- Closure criteria for agreed land use and environmental outcomes consistent with the EIS which formed the basis for consent and grant of lease, and subsequent stakeholder consultation.

**When mining is predicted to cease in the MOP term, this section must describe in detail how closure and final rehabilitation outcomes will be achieved.**

### 4.1 Stakeholder Consultation

Identify documents, such as the EIS, and consultations with stakeholders (landowners, community, other agencies) which have led to the proposed rehabilitation outcomes.

### 4.2 Rehabilitation Status at MOP Commencement

Describe the nature of disturbance, state or rehabilitated outcome, area (ha), and other features of each area of disturbed land and land under rehabilitation at the commencement of the MOP, as shown on *Rehabilitation (Plan 5)*.

### 4.3 Proposed Rehabilitation Status at MOP Finish

Describe the nature of disturbance, status of rehabilitated land, and other features of disturbed land and land under rehabilitation at the end of the MOP, as shown on *Rehabilitation (Plan 5)*.

### 4.4 Buildings

Describe buildings to be renovated or removed including their:

- nature, construction, heritage status and condition;
  - health and safety issues related to renovation or removal (eg asbestos);
  - contamination issues during and subsequent to renovation or removal;
  - future use agreements or options;
  - ongoing maintenance requirements.
-

#### 4.5 Rehabilitation of Disturbed Land

For each area to be rehabilitated, describe, where relevant:

- physical & chemical characteristics of mining and processing waste of emplaced material relevant to rehabilitation;
- method of land shaping;
- characteristics of all cover material including sealing/drainage layers, subsoil/topsoil;
- thicknesses of cover layers and methods of laying and compaction;
- drainage and erosion control consistent with material characteristics or erosion risk;
- final landform profile and slopes;
- soil treatment;
- vegetation species and methods of their establishment;
- the extent to which agreed rehabilitation outcomes and land use have been met;
- maintenance activities/requirements.

**TABLE 2: Summary Of Proposed Rehabilitation**

|  | Area Affected/Rehabilitated (hectares) |                        |                               |
|--|--|------------------------|-------------------------------|
|  | Total Area, start of MOP               | Total Area, end of MOP | At mine closure (anticipated) |
| <b>A: MINE LEASE AREA</b>  |  |                        |                               |
| <b>A1 Mine lease(s) Area</b>   |  |                        |                               |
| <b>B: DISTURBED AREAS</b>  |  |                        |                               |
| <b>B1 Infrastructure area</b> (other disturbed areas to be rehabilitated at closure including facilities, roads) |  |                        |                               |
| <b>B2: Active Mining Area</b> (excluding items B3 - B5 below)  |  |                        |                               |
| <b>B3 Waste emplacements,</b> (active/unshaped/in or out-of-pit )  |  |                        |                               |
| <b>B4 Tailings emplacements,</b> (active/unshaped/uncapped)  |  |                        |                               |
| <b>B5 Shaped waste emplacement</b> (awaits final vegetation)   |  |                        |                               |
| <b>ALL DISTURBED AREAS</b>   |  |                        |                               |
| <b>C REHABILITATION</b>  |  |                        |                               |
| <b>C1 Total Rehabilitated area</b> (except for maintenance)  |  |                        |                               |
| <b>D: REHABILITATION ON SLOPES</b>   |  |                        |                               |
| <b>D1 10 to 18 degrees</b>   |  |                        |                               |
| <b>D2 Greater than 18 degrees</b>  |  |                        |                               |
| <b>E: SURFACE OF REHABILITATED LAND</b>  |  |                        |                               |
| <b>E1 Pasture and grasses</b>  |  |                        |                               |
| <b>E2 Native forest/ecosystems</b>   |  |                        |                               |
| <b>E3 Plantations and crops</b>  |  |                        |                               |
| <b>E4 Other</b> (include nonvegetative outcomes)   |  |                        |                               |

#### 4.6 Water Management (rehabilitated land)

Describe water containment, control and distribution structures proposed for rehabilitated land.

#### 4.7 Other Infrastructure

Describe other rehabilitation proposed including of exploration activities, infrastructure, shafts, adits, dams, and the installation or maintenance of fences, bunds, and any other works.

## 4.8 Rehabilitation Trials and Research

Outline trials, research projects, and other reports which demonstrate the likely success of rehabilitation outcomes, and secure containment control and/or treatment of mining wastes. Reports must be made available on request.

## 5: FINAL REHABILITATION

### 5.1 Rehabilitated Areas and Features

Describe anticipated outcomes for mined areas, emplacement areas, dams, stockpile areas, roads and tracks, buildings, laydown areas, shafts and adits, and any other areas disturbed and to be rehabilitated during the life of the project in terms of the Department's rehabilitation criteria:

#### Outcomes

- agreed post rehabilitation landuse for each rehabilitated area;
- land use constraints which may have resulted from mining;
- closure criteria for land, buildings and infrastructure
- objective methods of assessing closure criteria;
- post mining rural land capability classification;
- pollution risks with strategies for managing and mitigating them;
- safety risks with strategies for managing and mitigating them;

#### Achievement of Outcomes

- landscape planning and landform design principles to achieve stable landforms including slopes, erosion controls, and drainage lines;
- integrated landscape features, which are compatible with surrounding landforms, and show how or whether rehabilitated areas of native vegetation link with undisturbed native vegetation to provide larger areas and wildlife corridors;
- the provisional source, thickness and compaction of cover materials to achieve the proposed rehabilitation outcomes;
- flora and vegetation to be established, including if relevant, threatened species;
- habitat for native and, if relevant, threatened fauna;
- post rehabilitation maintenance needs.

Supporting sections/plans/diagrams should be used to supplement text descriptions.

### 5.2 Remaining Features

Describe features shown on the *Final Rehabilitation (Plan 6)*, including infrastructure, buildings, access and roads to remain after closure.

Describe structures and methods to stabilise landforms and minimise erosion, prevent water pollution, prevent access to open pits or other hazardous locations, enhance visual amenity, preserve heritage features, and address public, stock and fauna safety.

### 5.3 Rehabilitation Planning Criteria

The attached extracts from the "*Strategic Framework for Mine Closure*" published by the *Australian and New Zealand Minerals and Energy Council*, and the *Minerals Council of Australia*; should be used to guide the closure planning process and ensure that all relevant aspects of closure have been dealt with.

All mine sites must be rehabilitated according to the following criteria:

- Rehabilitation and rehabilitation outcomes consistent with the Environmental Impact Statement which formed the basis of approval;
  - based on mine closure criteria and rehabilitation outcomes developed through stakeholder consultation;
  - integrates rehabilitated native vegetation with undisturbed native vegetation to provide larger areas and wildlife corridors;
  - suitable for an agreed subsequent land use as far as possible compatible with the surrounding land fabric and land use requirements;
  - addresses limitations on the use of rehabilitated land;
  - sustainable in terms of that land use;
-

- stable and permanent landforms, with soils, hydrology, and ecosystems with maintenance needs no greater than those of surrounding land. (may include waste emplacements, voids, pits and water-bodies providing that they are part of the accepted final outcome).
- securely and safely contain waste substances that have the potential to affect land use or result in pollution;
- not present a hazard to persons, stock or native fauna;
- addresses threatened species issues;
- addresses heritage issues;
- clean and tidy, and free of rubbish, metal and derelict equipment/structures, except for heritage and other agreed features;
- freedom from unacceptable air and water pollution, and other environmental effect outside the disturbed area;

## 6 ENVIRONMENTAL AND REHABILITATION RISK IDENTIFICATION

Table 3, “*Environmental Risk Identification Matrix*” is used to identify mine activities, processes and facilities which require control strategies to ensure environmental protection and compliance with conditions of lease, licence and development consent. NSW environmental legislation gives particular meanings to the terms “pollution” “threatened flora/fauna” and “contaminated land” (see *definitions p19*).

The Department’s publication “Risk Management Handbook for the Mining Industry” MDG 1010 1997 provides an acceptable alternate methodology to table 3. A risk assessment which has previously been prepared as part of the EIS or the approval process may also be acceptable and referred to rather than included.

To identify risk, consideration should be given to circumstances which may trigger or exacerbate risks from: intense rain or storm events; prolonged above average rain; drought, flood and inundation, wind, earthquake, fire, equipment breakdown, human error, and accidents.

### **TABLE 3. Environmental Risk Identification Matrix**

*Available from [www.minerals.gov.nsw.au](http://www.minerals.gov.nsw.au) as an excel file. May be pasted as an excel object in the MOP.*

**Mining Activity, Process or Facility**

| <b>Issue</b>                  | Exploration | Land preparation, vegetation & topsoil stripping | All construction activities including earth moving | Mine development and mining, surface & u ground | Use/maintenance of roads, track and equipment | Waste rock emplacement management | Mineral processing facilities and infrastructure | Ore/product stockpiling and handling | Tailings impoundment management | water management including storage contingencies | Hazardous materials & fuel, handling/spills management | Sewerage | Rubbish disposal | Rehabilitation activities | Rehabilitated land and remaining features |
|-------------------------------|-------------|--|--|---|---|-----------------------------------|--|--------------------------------------|---------------------------------|--|--|----------|------------------|---------------------------|---|
| air pollution, dust/other     |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| erosion/sediment minimisation |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| surface water pollution       |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| ground water pollution        |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| contaminated or polluted land |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| threatened flora protection   |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| threatened fauna protection   |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| weed control & management     |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| operational noise             |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| vibration and air blast,      |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| visual amenity, stray light   |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| Aboriginal heritage           |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| natural heritage conservation |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| spontaneous combustion        |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| bushfire                      |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| mine subsidence               |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| hydrocarbon contamination     |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| methane drainage/venting      |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |
| public safety                 |             |  |  |   |   |                                   |  |                                      |                                 |  |  |          |                  |                           |   |

Superseded

## 7 ENVIRONMENTAL MANAGEMENT CONTROLS

Document environmental management and performance in terms of control strategies or Environmental Management Plans (EMP) for identified risks.

|                                |                             |                                   |
|--------------------------------|-----------------------------|-----------------------------------|
| 7.1 Air pollution              | 7.8 Weeds                   | 7.15 Bushfire                     |
| 7.2 Erosion and sediment       | 7.9 Blasting                | 7.16 Mine subsidence              |
| 7.3 Surface water pollution    | 7.10 Operational noise      | 7.17 Hydrocarbon contamination    |
| 7.4 Ground water pollution     | 7.11 Visual, stray light    | 7.18 Methane drainage/ventilation |
| 7.5 Contaminated polluted land | 7.12 Aboriginal heritage    | 7.19 Public safety                |
| 7.6 Threatened flora           | 7.13 Natural heritage       | 7.20 Other issues and risks       |
| 7.7 Threatened fauna           | 7.14 Spontaneous combustion |                                   |

Matters which should be taken into account in developing a control strategy include the likelihood of trigger or exacerbating circumstances, and the nature, severity and duration of the consequences. Description, either below or provided in a separate EMP, should include:

- detail of the proposed control strategy, or if it has been described in Section 4 *Proposed Mining Activities* of this MOP, a reference to that section;
- performance expectations acceptability criteria and outcomes, referenced where applicable to statute, conditions of consent or title, or commitment made in an EIS;
- a monitoring program which will establish whether or not acceptability criteria and outcomes have been met, and can evaluate performance in the context of meteorological and other circumstances;
- trigger levels for mandatory reporting to the Department or other government agencies

## 6 DEFINITION OF TERMS USED

**Colliery Holding:** A colliery holding registered under the Mining Act, 1992 for coal mining operations.

**Contamination of Land** is defined in the Contaminated Land Management Act (1997) as meaning “the presence in or under the land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.

**Disturbed Area:** The surface area disturbed during mining or any mining purpose. It includes all infrastructure facilities, emplacement area, residue disposal area, road and rail access, soil stockpile area, product stockpile area, water diversion and storage structures.

**Extraction Area:** The area proposed to be mined during the MOP period, including batters and pre-strip areas.

**Flood prone land:** Land within 1 in 100 year flood boundaries as shown on regional maps. Where maps are not available other means may be required to assess flood potential.

**Inspector of Mines:** Means an officer of the Department authorised as an Inspector under the Mining Act, 1992. This includes Environmental Officers

**Landscape Planning:** The sympathetic integration of the MOP’s rehabilitated landforms, drainages and revegetation strategies with the environment surrounding the mine to achieve predetermined environmental outcomes and including landuse (flora and fauna habitat and visual amenity

**Limits to Extraction:** The boundary of an area of land from which mineral can not be extracted due to a provision, restriction or condition imposed by a government instrument:-

**Mine Life:** The expected extent and scope of the mine as approved in the “Development Consent”. In most circumstances this will be as described in the Environmental Impact Assessment on which approval and grant of lease were based.

**Mining Leases:** Leases granted under the Mining Act 1992 or any previous mining legislation.

**Mining Purposes:** The construction, maintenance or use in or in connection with mining operations of buildings, plant, road, emplacement, stock pile and other infrastructure

**Pollution:** The Protection of the Environment Operations Act (1997) comprehensively defines water, air and noise pollution. In essence:

**Water pollution** means introducing anything which makes or is likely to make the water detrimental, undrinkable, poisonous, harmful or unsuitable for use, or changing the condition of the water.

**Noise pollution** means the emission of an offensive noise

**Air pollution** means the emission into the air of any impurity including smoke, dust, gases, mists odours or radioactive substances.

**Land pollution** :means the degradation of land because of the disposal of waste.

**Processing Wastes:** Tailings from ore beneficiation and processing

**Rural Land Capability Classification:** A method of land classification as described in "Glossary of Terms used in Soil Conservation" published by the Soil Conservation Service of the Department of Land and Water Conservation.

**Shaped Emplacement Areas:** Mine and processing waste emplacements shaped to the final design contours.

**Soil Stripping Depth:** The depth from the surface to which soil material which is to be removed in the preparation of land for mining or mining [purposes

**Sublease:** An interest registered under Section 161 of the Mining Act, 1992.

**Threatened flora/fauna:** Species defined as threatened in the schedules of the Threatened Species Conservation Act (1995). Since 1995, threatened species will have been identified through the Development Consent process. Threatened species include fauna subject to a pre-1995 "take and kill" licence issued under section 120 of the National Parks and Wildlife Act (1974)

**Unshaped Emplacement Areas:** Active mine and processing waste emplacements not shaped to the final design contours.

**Water - Clean water:** Water from undisturbed vegetated parts of the site. Fit for diversion or direct discharge to receiving streams.

**Water - Dirty water::** Water from disturbed but otherwise uncontaminated parts of the site. Fit for discharge, except for suspended solids which may require settling.

**Water - Controlled Discharge:** Typically water, saline but otherwise uncontaminated, collected within open cuts or underground mine workings as a result of groundwater seepage. Able to be discharged under certain conditions. For example, saline water which may be discharged under high flow conditions as part of the Hunter River Salinity Trading Scheme.

**Water - Contaminated Water:** Water containing potential contaminants or pollutants and not fit for discharge.

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# STATUTORY DECLARATION

*New South Wales*

## STATUTORY DECLARATION

*OATHS ACT, 1900*

### EIGHTH SCHEDULE

I, ....., of .....  
in the State of New South Wales, solemnly and sincerely declare as follows:

1. I am the duly appointed .....(management position)  
for .....(mine name)

2. I am authorised to make this Declaration on behalf of the Lease Holder,  
.....(name of leaseholder),  
A.C.N.....

3. All works and activities described in the Mining Operations Plan to which this declaration is attached comply with the conditions of the title of the mining lease (or mining leases) shown in the Mining Operations Plan, and with the conditions of Development Consent and all other relevant Government Agency approvals and licences granted in respect of them.

4. I confirm that all of the works and activities referred to in the previous paragraph lie wholly within the area shown in the Mining Operations Plan and that the tenements (mining leases, colliery holdings, land ownership) details of those tenements are correct.

**And I make** this solemn Declaration, conscientiously believing the same to be true and by virtue of the provisions of the *Oaths Act, 1900*.

**Declared at** ..... in the State of New South Wales  
on ..... day of..... in the year .....

(sgd) .....

in the presence of an authorised witness, who states:

I, ....., a .....,  
[name of authorised witness] [qualification of authorised witness]

certify the following matters concerning the making of this statutory declaration by the person who made it: [\* please cross out any text that does not apply]



1. \*I saw the face of the person OR \*I did not see the face of the person because the person was wearing a face covering, but I am satisfied that the person had a special justification for not removing the covering, and
2. \*I have known the person for at least 12 months OR \*I have not known the person for at least 12 months, but I have confirmed the person's identity using an identification document and the document I relied on was

.....  
[ describe identification document relied on]

..... [signature of authorised witness] [ date]

Superseded

## Guidelines and Format for Preparation of an Annual Environmental Management Report:

Documents should be completed using the headings and tables of this guide. As this guide applies regardless of the stage in the mine life cycle and the nature of operations, there may be some sections which are not relevant to a specific mine site. These should be noted as not applicable. Copies of the format are available from the Department's web site, or the Department's Environmental Officers.

At the discretion of the Department, these guidelines may be adapted to suit the specific circumstances of a mine site or mine operator. An abbreviated form based format may be used for small mines with low environmental risks.

To minimise repetition of reports required by various agencies, any matter (plans and rehabilitation detail excepted) that is required by a report to another agency may be referenced in the MOP rather than repeated. One copy of the report is to be submitted to the Department, and copies distributed directly to nominated Government agencies.

### 1 TITLE BLOCK

|   |     |                            |     |
|---|-----|----------------------------|-----|
| <b>Name of mine</b>                         |     |                            |     |
| <b>Titles/Mining Leases</b>                 |     |                            |     |
| <b>MOP Commencement Date</b>                | / / | <b>MOP Completion date</b> | / / |
| <b>AEMR Commencement Date</b>               | / / | <b>AEMR End date</b>       | / / |
| <b>Name of leaseholder</b>                  |     |                            |     |
| <b>Name of mine operator (if different)</b> |     |                            |     |
| <b>Reporting Officer</b>                    |     |                            |     |
| <b>Title</b>                                |     |                            |     |
| <b>Signature</b> .....                      |     |                            |     |
| <b>Date</b>                                 |     |                            |     |

### 2 EXAMPLE CONTENTS PAGE

#### PLANS

- Land Preparation
- Mining Activities
- Rehabilitation
- Vertical Sections

#### SUPPORTING TEXT

- 1 Introduction
- 2 Summary of Operations
- 3 Environmental Management
- 4 Community Relations
- 5 Rehabilitation
- 6 Activities proposed for next AEMR period

**Page**

#### TABLES

- 1 Production and Waste Schedule
- 2 Stored Water
- 3 Environmental Controls
- 4 Rehabilitation Summary
- 5 Maintenance Activities

#### ATTACHMENTS

- Aerial photograph if available
- (List attachments)

### 3 PLANS REQUIRED

Plans, current at the end date of the reporting period of the same scale and with equivalent information to **Plan 3 Land Preparation**, **Plan 4 Proposed Mining Activities** and **Plan 5 Proposed Rehabilitation** of the current MOP must be provided together with appropriate sections. These plans are also to include activities proposed for the next AEMR period. If available, provide a recent aerial photograph and other photographs to illustrate operations and environmental performance.

Where final rehabilitation outcomes have been further developed since the MOP was submitted or since the previous AEMR, an amended version of **Plan 6 Final Rehabilitation for Lease Relinquishment** should be included with the AEMR.

Mine lease holders without access to surveyed plans, and less than 10 hectares total disturbance, may derive plans from a convenient base map/plan with activity areas and features drawn by hand provided there is sufficient accuracy and detail to adequately describe activities and their impact. If contours are not shown, slopes and drainage lines must be clearly marked.

## 4 HEADINGS, SUPPORTING TEXT, AND TABLES

### 1. INTRODUCTION

#### 1.1 Consents, Lease and Licences

Provide a current list with date of grant (and if time limited duration) of leases, subleases, consents, approval or licenses. Also include the date of acceptance of the current MOP and details of any MOP amendments since the previous AEMR.

#### 1.2 Mine Contacts

Provide contact details for the current mine manager and environmental manager.

#### 1.3 Actions Required at Previous AEMR Review

Tabulate actions arising from the AEMR and annual inspection of the previous year or any other directions given by the Department's environmental officers.

**TABLE 1. Actions Required**

| Action Required | Where dealt with in this AEMR |
|-----------------|-------------------------------|
|                 |                               |
|                 |                               |

### 2 OPERATIONS DURING THE REPORTING PERIOD

|                        |                                      |
|------------------------|--------------------------------------|
| 2.1 Exploration        | 2.6 Waste Management                 |
| 2.2 Land Preparation   | 2.7 Ore and Product Stockpiles       |
| 2.3 Construction       | 2.8 Water Management                 |
| 2.4 Mining             | 2.9 Hazardous Material Management    |
| 2.5 Mineral Processing | 2.10 Other Infrastructure Management |

For each of section, where relevant, describe:

- activities during the reporting period, focussing on variations to the proposed MOP;
- the reasons for any variations, and whether or not the Department was notified;
- the extent of activities should be shown on plans.

**TABLE 2 Production and Waste Summary**

|                     | Cumulative Production ( cubic metres) |                            |                                   |
|---------------------|---------------------------------------|----------------------------|-----------------------------------|
|                     | Start of Reporting Period             | At end of Reporting Period | End of next reporting (estimated) |
| Topsoil stripped    |                                       |                            |                                   |
| Topsoil used/spread |                                       |                            |                                   |
| Waste Rock          |                                       |                            |                                   |
| Ore                 |                                       |                            |                                   |
| Processing Waste    |                                       |                            |                                   |
| Product (units )    |                                       |                            |                                   |

**TABLE 3: STORED WATER**

| (if more than one storage of each type, list separately) | Volumes held (cubic metres) |                            |                  |
|--|-----------------------------|----------------------------|------------------|
|  | Start of Reporting Period   | At end of Reporting Period | Storage Capacity |
| Clean water  |                             |                            |                  |
| Dirty water  |                             |                            |                  |
| Controlled discharge water<br>(salinity trading schemes) |                             |                            |                  |
| Contaminated water                                       |                             |                            |                  |

### 3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

If risks have not been previously been identified, **Table 3 Environmental Risk Identification** of the MOP format (page 17 of this guide) should be included at this point of the AEMR.

Document the implementation and effectiveness of control strategies for environmental risks identified in the MOP, previous AEMR or environmental management plan (EMP).

|                                |                             |                                   |
|--------------------------------|-----------------------------|-----------------------------------|
| 3.1 Air pollution              | 3.8 Weeds                   | 3.15 Bushfire                     |
| 3.2 Erosion and sediment       | 3.9 Blasting                | 3.16 Mine subsidence              |
| 3.3 Surface water pollution    | 3.10 Operational noise      | 3.17 Hydrocarbon contamination    |
| 3.4 Ground water pollution     | 3.11 Visual, stray light    | 3.18 Methane drainage/ventilation |
| 3.5 Contaminated polluted land | 3.12 Aboriginal heritage    | 3.19 Public safety                |
| 3.6 Threatened flora           | 3.13 Natural heritage       | 3.20 Other issues and risks       |
| 3.7 Threatened fauna           | 3.14 Spontaneous combustion |                                   |

Matters which should be described for each identified issue or risk. Include:

#### Environmental Management

- whether the proposed control strategy was adequate to manage risks associated with operations during the reporting period;
- variations from proposed control strategies implemented during the reporting period, the reasons for them, and whether or not the Department was notified (include initiatives to improve or further assure acceptable performance, or to deal with new risks identified during the reporting period).

#### Environmental Performance

- summarise monitored data, including relevant meteorological data. Data need not be included but must be available on request;
- list, monitoring and performance reports required by any other licence or agency;
- review performance outcomes;
- if useful, append photographs;

**Reportable incidents**

- summarise incident reporting required by conditions of lease, licence or risk management and monitoring strategies;
- review all incidents which led to non-compliance with conditions of a mining lease, development consent or other licence;
- reference incident report documents previously provided to the Department or another agency;

**Further Improvements**

- describe initiatives proposed for the next reporting period to improve or further assure acceptable performance.

**4 COMMUNITY RELATIONS****4.1 Environmental Complaints**

List complaints, dates, and company responses to them.

**4.2 Community Liaison**

List and describe meetings, inspections, and other community involvement. Copies of minutes or meeting notes must be made available on request.

**5 REHABILITATION (this AEMR period)****5.1 Buildings**

Describe buildings renovated or removed including:

- the nature, construction, heritage status and condition;
- health and safety issues related to renovation or removal (eg asbestos);
- contamination issues during and subsequent to renovation or removal;
- future use agreements or options;
- ongoing maintenance requirements;
- variations from the MOP, the reasons for them, and whether or not the Department was notified;
- the extent of activities should be shown on plans.

**5.2 Rehabilitation of Disturbed Land**

Describe for each area rehabilitated or subject to rehabilitation during the AEMR period:

- variations in activities undertaken to those proposed in the MOP, the reasons for them, and whether or not the Department was notified;
  - agreed post rehabilitation landuse and whether that land use has been achieved at this point of time;
  - post mining rural land capability classification and whether that land use has been achieved at this point of time;
  - landform details including slopes, erosion controls, and drainage lines;
  - the physical, relevant chemical characteristics, acid forming and contaminating potential, spontaneous combustion potential, and thickness of emplaced waste materials;
  - characteristics of cover material including sealing/drainage layers, subsoil/topsoil, their thicknesses and methods of laying and compaction
  - vegetation species and their density, distribution, and state/maturity including of any threatened species;
  - the anticipated progression of vegetation to maturity, and its dependencies and risks;
  - present and future habitat for native and, if identified, threatened fauna;
  - weeds or other unwanted vegetation;
  - details of any erosion present;
-

- erosion, pollution and contamination risks with passive strategies in place for managing and mitigating them;
- if there are pollution risks, either monitoring data which establishes that water leaving, or likely to leave the rehabilitated area, is of acceptable quality, or a description of proposals to obtain that data.
- safety risks with passive strategies in place for managing and mitigating them;
- fences and other barriers;
- further works necessary to meet completion criteria;
- the rehabilitation targets and outcomes achieved compared to commitments made through conditioning, stakeholder negotiations, and those described in Mining Operations Plans;
- ensure each area is located on the appropriate plan with rehabilitation extent, cross-sections, drainage patterns/pathways, slopes, and vegetation communities shown;
- photographs and sketches to support text descriptions should be included.

### **5.3 Other Infrastructure**

Describe other rehabilitation undertaken including of exploration activities, infrastructure, shafts, adits, dams, and the installation or maintenance of fences, bunds, and any other works.

### **5.4 Rehabilitation Trials and Research**

Outline the outcomes of trials, research projects, and other initiatives undertaken during the reporting period to enhance or assure rehabilitation outcomes. Reports must be made available on request.

### **5.5 Further Development of the Final Rehabilitation Plan**

Where final rehabilitation outcomes and the strategies to achieve them have not yet been agreed between stakeholders, describe the steps that will be undertaken to progress agreement during the next reporting period.

Outline proposed rehabilitation trials, research projects, and other initiatives to be undertaken during the next reporting period.

Where final rehabilitation outcomes have been further developed since the MOP was submitted or since the previous AEMR, the outcomes should be described as required for **MOP Section 5: Final Rehabilitation** (page 16).

## **6 ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD**

Any fundamental change in activity to that proposed in the MOP may require submission of a new MOP. However if changes are of a minor nature, at the discretion of the Department's environmental officer, this section may be used to propose an amended MOP. If that is the case, information presented is to be in the format and detail required for a MOP.

If activities proposed are consistent with the MOP, descriptions do not need to be repeated, however, the extent of proposed activities should be referenced to the current MOP and shown on plans.

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**TABLE 4: Rehabilitation Summary**

|  | Area Affected/Rehabilitated (hectares) |             |                         |    |
|--|--|-------------|-------------------------|----|
|  | To date                                | Last report | Next Report (estimated) |    |
| <b>A: MINE LEASE AREA</b>  |  |             |                         |    |
| <b>A1 Mine Lease(s) Area</b>   |  |             |                         |    |
| <b>B: DISTURBED AREAS</b>  |  |             |                         |    |
| <b>B1 Infrastructure area</b> (other disturbed areas to be rehabilitated at closure including facilities, roads) |  |             |                         |    |
| <b>B2: Active Mining Area</b> (excluding items B3 - B5 below)  |  |             |                         |    |
| <b>B3 Waste emplacements,</b> (active/unshaped/in or out-of-pit)   |  |             |                         |    |
| <b>B4 Tailings emplacements,</b> (active/unshaped/uncapped)  |  |             |                         |    |
| <b>B5 Shaped waste emplacement</b> (awaits final vegetation)   |  |             |                         |    |
| <b>ALL DISTURBED AREAS</b>   |  |             |                         | F1 |
| <b>C REHABILITATION PROGRESS</b>   |  |             |                         |    |
| <b>C1 Total Rehabilitated area</b> (except for maintenance)  |  |             |                         | F2 |
| <b>D: REHABILITATION ON SLOPES</b>   |  |             |                         |    |
| <b>D1 10 to 18 degrees</b>   |  |             |                         |    |
| <b>D2 Greater than 18 degrees</b>  |  |             |                         |    |
| <b>E: SURFACE OF REHABILITATED LAND</b>  |  |             |                         |    |
| <b>E1 Pasture and grasses</b>  |  |             |                         |    |
| <b>E2 Native forest/ecosystems</b>   |  |             |                         |    |
| <b>E3 Plantations and crops</b>  |  |             |                         |    |
| <b>E4 Other</b> (include nonvegetative outcomes)   |  |             |                         |    |

**TABLE 5: Maintenance Activities On Rehabilitated Land**

(This period's activities and activities proposed in the next reporting period)

| NATURE OF TREATMENT  | Area Treated (ha) |             | Comment/control strategies/<br>treatment detail |
|--|-------------------|-------------|---|
|  | Report period     | Next period |   |
| <b>Additional erosion control works</b> (drains re-contouring, rock protection)  |                   |             |   |
| <b>Re-covering</b> (detail - further topsoil, subsoil sealing etc)               |                   |             |   |
| <b>Soil treatment</b> (detail - fertiliser, lime, gypsum etc)                    |                   |             |   |
| <b>Treatment/Management</b> (detail - grazing, cropping, slashing etc)           |                   |             |   |
| <b>Re-seeding/Replanting</b> (detail - species density, season etc)              |                   |             |   |
| <b>Adversely Affected by Weeds</b> (detail - type and treatment)                 |                   |             |   |
| <b>Feral animal control</b> (detail - additional fencing, trapping, baiting etc) |                   |             |   |

## Extracts from “The Strategic Framework For Mine Closure”

The “Strategic Framework” is a document prepared by the Australian and New Zealand Minerals and Energy Council and the Minerals Council of Australia. The Department expects that mine closure plans incorporated in Mining Operations Plans will be consistent with the “Strategic Framework”.

The extracts below may be used as a checklist to ensure that all relevant aspects of closure are dealt with in the /MOP.

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### Stakeholder Groups

Stakeholders fall into three broad categories, the company, the community and the State. Outlined below are some of the key sub-groups within these broad stakeholder categories, however, the list is not exhaustive and will vary with individual circumstances.

#### ***The Company***

Key company stakeholders include:

- *Employees*: employees facing job loss have an obvious and immediate stake in mine closure.
- *Management*: in order to promote continuity of corporate knowledge and consistency of approach to the post-mine rehabilitation and closure process, it is important that selected managers and company environmental personnel be encouraged to continue their involvement beyond the cessation of production.
- *Shareholders*: shareholders need to be fully informed of their company's obligations for closure.

#### ***The Community***

The impacts of closure on the community will vary with the degree of community dependence on, or interest in, the mining project and its environmental issues. In some cases, the community will not survive the loss of the mine. At a community level, consultation is also important to avoid building up false expectations about the outcomes of closure. Significant community stakeholders include:

- *Local business and service providers*: the economic effects of mine closure on local business and service providers may be severe, and consultation is important to assist them in their own planning for the transition.
- *Landholders, neighbours and nearby residents*: this group may be physically affected by the closure and may have particular needs and desires that can be incorporated into rehabilitation planning.
- *Local government*: in addition to their direct involvement with the mining operation, local government provide a vital link with the community. Early consultation and planning is essential to minimise disruption to community services.
- *NGO's and Community Groups*: these groups often represent different points of view to those elements in the community which are physically and/or financially affected by mine closure.

#### ***The State***

The requirements of government agencies must be satisfied if relinquishment is to be achieved. Consultation with these agencies is essential to ensure that rehabilitation and closure plans satisfy regulatory requirements. Important government stakeholders include:

- *The Responsible Authority (and other regulators)*: a key role of the Responsible Authority is to coordinate the functions and needs of other government agencies with accountabilities in the area.
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- *The land management agency:* where the land management agency (current or future) differs from the Responsible Authority, there is a need to ensure that their requirements are an integral component of the closure process.
- *Other government agencies:* the potential effects of closure on the community and individuals may necessitate consultation with government agencies, such as community welfare and employment, that have not previously impacted on the mine management.

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### Typical Contents of a Closure Plan

The development of a Closure Plan needs to take into account both the legal requirements and the unique environmental, economic and social properties of the operation. Outlined below are the typical contents of a Closure Plan, which will vary depending on individual circumstances. In developing the Closure Plan, the following four key objectives should be kept in mind:

- ⇒ to protect the environment and public health and safety by using safe and responsible closure practices;
- ⇒ to reduce or eliminate environmental effects once the mine ceases operations
- ⇒ to establish conditions which are consistent with the pre-determined end land use objectives; and
- ⇒ to reduce the need for long-term monitoring and maintenance by establishing effective physical and chemical stability of disturbed areas.

**Closure Plan:** typical contents of a Closure Plan (not a minimum requirement or template):

- Introduction & Project Description
  - ⇒ Land tenure
- Objectives of Closure
- Baseline Environmental Data
- Legal & Other Obligations
  - ⇒ Key statutes & regulations
  - ⇒ Responsible Authority
  - ⇒ Regulatory instruments
- Stakeholder Involvement
  - ⇒ Stakeholder identification
  - ⇒ Community consultation
- Risk Assessment
  - ⇒ Existing legacies
  - ⇒ Future risks
  - ⇒ Cost/benefit analysis
- Closure Criteria
- Closure Costs
  - ⇒ Provisions
  - ⇒ Securities
- Closure Action Plan
  - ⇒ Human resources/responsibilities
  - ⇒ Progressive rehabilitation
  - ⇒ Decommissioning
  - ⇒ Remediation
  - ⇒ Geotechnical assessment
  - ⇒ Landform establishment
  - ⇒ Revegetation
  - ⇒ Aesthetics
  - ⇒ Heritage
  - ⇒ Health and Safety
  - ⇒ Post-closure maintenance and monitoring
  - ⇒ Survey (remaining structures & areas of contamination)
  - ⇒ Documentation/reporting/records
  - ⇒ Tenement Relinquishment