



Illawarra Coal



# Dendrobium Mine Waste Management Plan

DENMP0018





## DOCUMENT SIGN OFF SHEET AND REVISION LOG

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## VERSION HISTORY

DATE	VERSION	DESCRIPTION OF CHANGES
November 2004	1.0	Original Document
March 2008	2.0	Three yearly review as required by Development Consent
April 2009	3.0	Review as required by the revised Development Consent (issued 8 December 2008)
March 2012	4.0	Three yearly review as required by Development Consent and to reflect changes waste sorting process
June 2018	5.0	The following changes have been made: <ul style="list-style-type: none"> <li>• Updated roles and responsibilities</li> <li>• References to parent company changed</li> <li>• Update in accordance with Development Consent</li> </ul>
29 August 2018	5.1	Minor updates incorporating feedback from the Departments review

## PERSONS INVOLVED IN THE REVIEW OF THIS PLAN INCLUDE:

NAME	TITLE
Peter McMillan	Environment Supervisor
Michelle Grierson	Environmental Officer

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## 1 INTRODUCTION

### 1.1 Background

This Waste Management Plan (WMP) addresses the management of waste associated with the operation of the mine and associated infrastructure in accordance with conditions stipulated in the Dendrobium Development Consent. These activities include ROM coal production and handling, coal clearance and rail haulage activities.

### 1.2 Scope

The scope of this WMP includes the following sites and facilities:

**Dendrobium Pit Top** - consists of administration building, workshop, machinery and equipment storage areas, people and materials access to the underground workings via the Dendrobium Tunnel, a sedimentation pond and grey water treatment and Oil Water Separation facility.

**Kemira Valley Coal Loading Facility** – the KVCLF receives coal from underground via the Kemira Valley Tunnel. Coal is transported from underground to KVCLF via a conveyor network. The coal is then fed into a rill tower and deposited onto a 150,000 tonne stockpile from which it is loaded into trains via an enclosed rail-loading chute.

**Kemira Valley Rail Line** - used to transport the coal from KVCLF to the Dendrobium Coal Preparation Plant.

**Ventilation Shaft Number 1** - The No.1 ventilation shaft, located within the Metropolitan Special Area administered by Sydney Catchment Authority (SCA), operates as a downcast shaft (i.e. drawing fresh air into the underground workings). The No. 1 vent shaft is on land owned by Illawarra Coal.

**Ventilation Shafts Number 2 and 3** – Also located within the Metropolitan Special Area and within Mining Lease ML1566. Construction of the No.2 and 3 ventilation shafts was completed during 2008. The No.2 shaft operates as an additional downcast shaft whilst the No.3 shaft operates as an upcast shaft.

## 2 OBJECTIVES

The objectives of this Management Plan are to:

- Ensure sustained compliance with the Conditions of Consent, Environment Protection Licence and other applicable legislation;
- Ensure compliance with South32 environmental strategies and policies, as well as any other relevant Company strategies and policies;
- Minimise waste generation and disposal to landfill;
- Maximise waste reuse and recycling through identification and implementation of appropriate disposal routes;
- Create an environment where site personnel and contractors are involved and encouraged to adopt correct waste management practices through education and other programs; and
- Create a monitoring, auditing and reporting system to measure performance against the waste management objectives during the operation of the Dendrobium Mine.

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### 3 ROLES AND RESPONSIBILITIES

It is the responsibility of all employees and contractors to undertake practices to manage and minimise waste according to this Management Plan. Roles and responsibilities associated with environmental management at Dendrobium Mine are defined in the Dendrobium Mine Environmental Management Strategy. The roles and responsibilities specific to the development, implementation and review of this plan are outlined in Table 1.

**Table 1: Roles and Responsibilities**

Responsibilities	Role
Implementation and periodic review of this Management Plan.	Environmental Supervisor
Meeting the commitments contained within this management plan for the operational areas.	Environment Officer
Meeting the commitments contained within this management plan for stakeholder engagement.	Manager External Affairs & Communication

### 4 LEGISLATIVE AND OTHER REQUIREMENTS

#### 4.1 Legislative Requirements

Legislation relating to the handling of waste materials includes but may not be limited to:

- Protection of the Environment Operations (Waste) Regulation (2014);
- Waste Avoidance and Resource Recovery Act 2001;
- Mining Act, 1992; and
- Environmental Planning and Assessment Act 1979

#### 4.2 Environment Protection Licence Requirements

*Environmental Protection Licence 3241* applies to the Dendrobium Mine premises and associated activities, and contains conditions pertaining to waste.

#### 4.3 Development Consent Conditions

Schedule 4 of the *Dendrobium Mine Development Consent* contains several conditions relating to waste management. This management plan has been developed to address the requirements of the consent.

#### 4.4 South32 and Other Policies

The South32 Environment Standard, prescribes the mandatory environmental performance requirements for the management of land, biodiversity, water, air, greenhouse gases, and waste. This Standard is available via the South32 internal website.

Dendrobium Mine's environmental management system has been certified to ISO14001. This Waste Management Plan has been developed in accordance with the Environment Standard and ISO14001.

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## 5 MANAGEMENT STRATEGIES

### 5.1 Waste Management

#### 5.1.1 Classification of Waste Streams

Waste is classified into groups that pose similar risks to the environment and human health according to the Protection of Environment Operations (Waste) Regulation (20014). Six waste classes are used by the EPA to better facilitate management and appropriate disposal (DECCW, 2008), these are:

- General solid waste (putrescible)
- General solid waste (non-putrescible)
- Restricted solid waste
- Liquid waste
- Hazardous waste
- Special waste

These classes are accounted for when managing wastes. Suitably licensed waste transporters are utilised to transported and disposed of waste at licensed waste facilities.

#### 5.1.2 Waste Mitigation Measures-Sorting and Disposal

Waste sorting is limited on site with the majority of the general and recyclable waste being off site at an approved waste management facility. The waste streams generated by the Dendrobium operations are outlined in Table 2.

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**Table 2: Waste Streams**

Waste Stream	Treatment Method
Waste Oil	<ul style="list-style-type: none"> <li>- Stored and collected for recycling by a licensed contractor.</li> <li>- Used 20L containers are drained into 1000L bulk container.</li> <li>- Bunds that may contain waste oils are pumped out by a licensed waste contractor (as required).</li> </ul>
Used Particulate Filters	<ul style="list-style-type: none"> <li>- Placed inside a plastic bag and disposed in designated bins placed around the site.</li> <li>- Full bins are picked up and transported to a waste disposal facility by a licensed waste contractor.</li> </ul>
Used Oil Filters	<ul style="list-style-type: none"> <li>- Stored in appropriately labelled drums on site.</li> <li>- Drums are picked up and transported to a waste disposal facility by a licensed waste contractor.</li> </ul>
Paper/cardboard	<ul style="list-style-type: none"> <li>- Waste paper and cardboard is segregated and collected for recycling by a waste contractor.</li> </ul>
Metal	<ul style="list-style-type: none"> <li>- Waste metal, including metal drums, is treated as required and recycled by a waste contractor.</li> </ul>
Tyres	<ul style="list-style-type: none"> <li>- Used tyres, from the rubber tyre mining vehicles, are segregated and collected for either repairs (if possible) or disposal by a waste contractor.</li> </ul>
General Waste	<ul style="list-style-type: none"> <li>- General waste bins from underground are transported to the off-site waste handling facility where the waste is tipped onto a sorting pad and recyclable material is removed and placed into their relevant recycling stream.</li> <li>- The General waste in the 15m general bin is disposed by a waste contractor.</li> <li>- General waste disposal is minimised whenever possible.</li> </ul>
Bathroom Water	<ul style="list-style-type: none"> <li>- Onsite treatment through Pit Top Treatment Plant and reused as recycled water.</li> </ul>
Sewage effluent	<ul style="list-style-type: none"> <li>- Plumbed into town sewerage supply.</li> </ul>
Hazardous waste	<ul style="list-style-type: none"> <li>- Hazardous waste is stored in a designated area on site for disposal. Hazardous waste is removed from the site by licensed contractors and taken to licensed waste management facilities.</li> </ul>
Contaminated Waste (if identified)	<ul style="list-style-type: none"> <li>- Further assessment and advice sought from a suitably qualified consultant re: waste classification, handling, treatment, disposal and reporting requirements prior to appropriate disposal.</li> </ul>

All waste is disposed of by a licensed waste contractor in accordance with the relevant waste legislation as outlined in Section 4.1 of this management plan. Monthly waste reports are issued to site personnel.

No waste generated outside of Dendrobium premises will be permitted to be received for storage, treatment, processing, reprocessing or disposal, at the premises, unless permitted by a licence under the Protection of the Environment Act 1997.

As outlined in Table 2 waste segregation allows for sorting into recyclable and other reusable products which reduces the amount of waste requiring disposal to landfill.

Sorting of waste also provides the opportunity for recovery of items or equipment which may be cost effectively repaired, recovered or restored for reuse.

Waste minimisation investigations will be reported in the Annual Review.

### 5.1.3 Waste Transport and Tracking

Transportation of all waste generated at the Dendrobium operation is managed by a licensed waste contractor in accordance with the relevant waste legislation as outlined in Section 4.1 of this management plan.

Tracking of this waste will be carried out in accordance with requirements of the *Protection of the Environment Operations (Waste) Regulation (2014)*.

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## 5.2 Management Strategy Effectiveness

The management strategies discussed above have been implemented to minimise the volume of disposable waste generated at the Dendrobium operations. Dendrobium will ensure that its waste contractors employ the most appropriate technologies and procedures required to minimise waste production and treat it in the most suitable manner.

The effectiveness of the existing controls are reviewed through the 'Governance Review Process'. Dendrobium will continue to research and where relevant to do so, develop and implement, waste management practices to ensure the disposable waste is minimised.

## 6 MONITORING AND REVIEW PROGRAM

### 6.1 Existing Waste Monitoring Program

Waste generation and disposal associated with the Dendrobium operations will continue to be closely monitored to ensure that it is being managed as effectively as possible. The ways in which waste related issues are monitored at Dendrobium include:

- Record keeping
- Site Inspections

#### 6.1.1 Record Keeping

As specified under the NSW EPA *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Waste*, records of waste movements relating to generating, storage and disposal of industrial, hazardous and Class A wastes are retained for 3 years. Waste tracking is done on behalf of Dendrobium by licensed waste contractors.

A spreadsheet is maintained detailing the types and volumes of waste that have been removed from the Dendrobium site. This data is used in various reports as detailed in Section 7.2 of this management plan.

#### 6.1.2 Site Inspections

Regular site inspections are undertaken by site Dendrobium personnel on a weekly basis to ensure that the waste management practices on site are being carried out in accordance with the requirements of this management plan. These inspections identify issues regarding waste segregation and/or inappropriate waste disposal (i.e. overloading of bins etc) prior to the waste being removed from site. Waste management issues identified during these site inspections along with any follow-up actions are documented via the site reporting process (refer to Section 7.1).

### 6.2 Waste Management Plan Review

The Waste Management Plan will be reviewed on a triennial basis or when required.

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## 7 REPORTING

### 7.1 Monitoring Data and Non- Compliances

All non-conformances to this management plan are recorded in a computer based incident recording and reporting system. This system keeps track of non-compliances, corrective actions, responsibilities, planned and actual completion dates and details of reporting to Regulatory Agencies and the community where appropriate.

### 7.2 Internal and External Reporting

Reporting of waste related issues (including waste generation and minimization) occurs in a range of formats including:

- Internal (South32) Reporting;
- Reports to Regulatory Agencies (e.g. Annual Review); and
- Community Reports (e.g. South32 annual Sustainability Reports and presentations to the Dendrobium Community Consultative Committee (DCCC)).

The Environmental Management Strategy contains further details of these reporting mechanisms

## 8 REFERENCES

South32 Environment Standard

Environmental Protection Authority, Waste Avoidance and Resource Recovery Act 2001

Environmental Protection Authority, Waste Classification Guidelines 2009

Environmental Protection Authority, Protection of the Environment Operations (Waste) Regulation (2014);

Environmental Protection Authority, Environmental Protection Licence 3241

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