



DENDROBIUM MINE WASTE MANAGEMENT PLAN

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DOCUMENT REVISION LOG

Persons authorising this Plan

NAME	TITLE	DATE
Chris Schultz	Superintendent Environment	July 2023

Document Revisions

REVISION	DESCRIPTION OF CHANGES	DATE
1.0	Original Document	November 2004
2.0	Three yearly review as required by Development Consent	March 2008
3.0	Review as required by the revised Development Consent (issued 8 December 2008)	April 2009
4.0	Three yearly review as required by Development Consent and to reflect changes waste sorting process	March 2012
5.0	The following changes have been made: <ul style="list-style-type: none"> Updated roles and responsibilities References to parent company changed Update in accordance with Development Consent	June 2018
5.1	Minor updates incorporating feedback from the Departments review	29 August 2018
6.0	Update to new format. Inclusion of wastes from KVCLF, KVRL and DCPD	June 2021
7.0	Inclusion of Cordeaux Colliery. General update. Wastes classified according to EPA guidelines.	July 2023

Persons involved in the review of this Plan

NAME	TITLE	COMPANY	EXP (YRS)	DATE
Chris Schultz	Superintendent Environment	South32 IMC	26	July 2023
James Alchin	Specialist Environment	South32 IMC	6	July 2023
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1. INTRODUCTION

Dendrobium Mine is an underground mine which commenced construction in January 2002 following approval from the Minister of the then Department of Urban Affairs and Planning on 20 November 2001. Longwall mining commenced at Dendrobium in April 2005. The mine is owned and operated by Dendrobium Coal Pty Ltd, a subsidiary of Illawarra Coal Holdings Pty Ltd (ICHPL), which is a wholly owned subsidiary of South32 Limited. The mine operates on a continuous basis, 24 hours a day and 7 days a week.

The mining operations are located immediately adjacent to Mount Kembla, approximately 8 km west of Wollongong, NSW, on the Illawarra escarpment (refer to Plan 1). Mount Kembla village, located within 500 metres of the Pit Top site, has close historical links with coal mining.

Dendrobium produces predominantly metallurgical coal from the Wongawilli Seam (Areas 1, 2, 3) and is approved to produce up to 5.2 million tonnes of run of mine (RoM) coal per annum. The BlueScope Steel Port Kembla Steel Works (PKSW) and Liberty Primary Steel (Whyalla) are major customers. In addition to these Australian based customers, coal is exported via the Port Kembla Coal Terminal (PKCT) to international customers.

Approval for mining in Areas 1, 2 and 3 was granted under DA 60-03-2001, as modified (the Consent).

The Consent allows mining operations to take place in the mining area until 31 December 2030. Resources are available for mining to extend beyond this period and would be subject to further approvals.

Cordeaux Colliery is owned and operated by Endeavour Coal Pty Ltd, a subsidiary of ICHPL. Coal production ceased at the site in March 2001 and recovery of longwall mining equipment was completed on 12 April 2001. Following cessation of mining, the site was placed on care and maintenance, on which it remains. The Cordeaux Colliery Pit Top functions as office space and a storage facility for various South32 departments. The Pit Top is also used as a base for exploration activity across the Dendrobium and Appin mining leases and exploration tenements, and for access into the WaterNSW Catchment Special Area (Special Area).

Dendrobium Mine, Cordeaux Colliery and Appin Mine (and associated facilities) collectively operate as South32 Illawarra Metallurgical Coal (IMC).

This Waste Management Plan (WMP) has been prepared to detail the relevant waste impacts, compliance procedures, and controls relating to the mining operations and associated activities. This WMP has been prepared to satisfy Condition 30 of Schedule 4 of the Consent for the Waste Management Plan.

1.1 Objectives

The objectives of the WMP are to:

- outline processes to comply with the Consent conditions, Environment Protection Licence (EPL) 3241 and other applicable legislation;

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- identify opportunities to minimise waste generation and disposal to landfill and 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; and
- detail the monitoring, auditing and reporting system to measure performance against the waste management objectives.

1.2 Scope

The scope of the WMP applies to all existing and future activities related to Dendrobium Mine¹ including operational and construction waste impacts at:

- Dendrobium Pit Top - consists of administration buildings, workshop, machinery and equipment storage areas, personnel and materials access to the underground workings via the Dendrobium Tunnel, sediment pond and grey water treatment facility.
- Kemira Valley Coal Loading Facility (KVCLF) – receives coal from underground via the Kemira Valley Tunnel. RoM coal is transported from underground to KVCLF via a coal clearance system. The coal is then fed into a rill tower and deposited onto a 140,000-tonne stockpile from which it is loaded into trains via an enclosed rail-loading chute. Sediment ponds are in place.
- Dendrobium Coal Preparation Plant (DCPP) – located within the PKSW, the DCPP receives and washes RoM coal from the underground operations.
- Kemira Valley Rail Line (KVRL) – used to transport the coal from KVCLF to the DCPP.
- Ventilation Shaft (VS) 1 - located within the Special Area administered by WaterNSW, operates as a downcast shaft (i.e. drawing fresh air into the underground workings). VS1 is located on land owned by IMC.
- VS2 and VS3 – located within the Special Area and within Mining Lease (ML) 1566. VS2 operates as an additional downcast shaft whilst VS3 operates as an upcast shaft (i.e. drawing air out of the underground workings). The site includes gas drainage infrastructure for Area 3C.²
- Cordeaux Pit Top - consists of administration buildings, workshop, machinery and equipment storage areas, personnel and materials access to the underground workings via a shaft (no longer utilised), ventilation fans, coal storage bins, exploration core shed, sediment pond and stabilisation lagoons. Corrimal #3 shaft is located approximately 3.5 km from the pit top. Cordeaux Pit Top and Corrimal #3 shaft are on care and maintenance.

¹ For the purposes of this management plan, Dendrobium Mine refers to all sites included in the scope except where specifically listed in the document.

² Currently under construction as at July 2023.

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- Dendrobium Underground Operations – coal is extracted from the Wongawilli Seam. The underground operations consist of a longwall shearer, development units, coal clearance conveyor network and associated infrastructure.

Refer to Plan 1 for locations of the above.

1.3 Environmental Management System

IMC has a comprehensive Environmental Management System (EMS) in place to minimise the impact of its operations on the local environment and community. The WMP is a component of the EMS which is certified to ISO 14001.

1.4 Consultation

Consultation with external stakeholders is not required for the WMP. Any comments received from regulatory agencies will be incorporated into the WMP as required.

2. 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 and Cordeaux Colliery are defined in the 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

Role	Responsibilities
Superintendent Environment	<p>Implement and periodically review the WMP.</p> <p>Liaise with government regulators and IMC senior leadership team in relation to waste related issues, including reporting.</p> <p>Ongoing review of environmental performance and associated management/preventative actions.</p>
Specialist Environment	<p>Advise, coach and mentor IMC operations with respect to meeting the standards and requirements of the WMP.</p>
Coordinator Environment	<p>Monitor and review compliance against these requirements.</p> <p>Inspect site-based waste management facilities on a regular basis.</p> <p>Undertake periodic reviews of external waste facilities.</p> <p>Review contractor waste data monthly.</p>



	<p>Review data periodically to determine trends and review effectiveness of existing controls.</p> <p>Identify corrective actions to address deficiencies in controls.</p>
<p>Approvals Manager General Manager Dendrobium Mine Manager Exploration and Technical Support Superintendent Environment</p>	<p>Provide the necessary resources and systems to meet the requirements of the WMP.</p>
<p>Contract Service Provider Managers and supervisors Operations Personnel</p>	<p>Comply with South32 project delivery and operational requirements.</p>
<p>All personnel</p>	<p>Manage waste in a responsible manner.</p> <p>Segregate waste at source where possible.</p> <p>Place waste materials in the correct skip/bin/location.</p> <p>Report incidents regarding incorrect waste management.</p>
<p>Contract Service Providers</p>	<p>Transport and dispose of waste in accordance with legal requirements.</p> <p>Report on waste volumes removed from site.</p> <p>Report inappropriate waste disposal to IMC personnel.</p> <p>Identify and implement improvement opportunities.</p>

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3. LEGISLATION AND OTHER REQUIREMENTS

3.1 Consent Conditions

Potential waste impacts associated with Dendrobium Mine (in particular coal wash management³) were evaluated during the preparation of the Dendrobium Project EIS 2001. The EIS was assessed and approved under the *Environmental Planning and Assessment Act 1979 (EP&A Act)* and associated Regulations.

IMC will carry out the development generally in accordance with all of the necessary approvals, licences and other information described in Condition 2 of Schedule 2.

Waste management and related activities carried out at Dendrobium Mine will be undertaken in accordance with the conditions of Consent (Condition 2A of Schedule 2).

In accordance with Condition 4 of Schedule 2, IMC will comply with any reasonable and feasible requirements of the Secretary arising from the Department's assessment of:

- (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with the conditions of the Consent;
- (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with the conditions of the Consent; and
- (c) the implementation of any actions or measures contained in these documents.

Appendix 1 outlines the waste management requirements of the Consent and cross references where the requirements have been addressed within the WMP.

3.2 Wollongong City Council Consent

Cordeaux Colliery currently operates under Development Consent D74/134, issued by Wollongong City Council.⁴

3.3 Environment Protection Licence Requirements

Environment Protection Licence (EPL) 3241 applies to Dendrobium Mine and associated activities and EPL 611 applies to Cordeaux Colliery and associated activities. A copy of these licences can be accessed at the EPA website: <http://www.epa.nsw.gov.au/prpoeoapp/>.

Waste management requirements are specified in Condition O4.1 of EPL 3241, that states:

All liquid and non-liquid wastes resulting from activities and processes at the Dendrobium Coal Mine must be assessed, classified and managed in accordance with the EPA's Environmental Guidelines: Assessment, Classification and

³ Conditions 3 – 7 and Appendix 3 in the Consent relating to coal wash management ceased to have force and effect subsequent to the grant to the Bulli Seam Operations Project Approval (08_0150) in 2011. Coal wash emplacement is managed in accordance with the Coal Wash Emplacement Area Management Plan, required under Condition 17 of Schedule 4 of the Project Approval.

⁴ Options to incorporate Cordeaux Colliery in the Dendrobium Consent are currently being investigated.

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Management of Liquid and Non-Liquid Wastes (2008), or any other EPA document superseding this guideline.⁵

3.4 Mining Leases

Dendrobium Mine operates in accordance with the following mining leases:

- Consolidated Coal Lease (CCL) 768.
- Mining Lease (ML) 1510 (covers the KVCLF).
- ML 1566 (covers VS2 and 3).

3.5 Relevant Legislation

Key regulatory and WMP obligations applicable to Dendrobium Mine are managed via an obligations management database. The obligations are allocated to responsible personnel. This process is detailed in the Environmental Compliance/Conformance Assessment and Reporting Procedure.

Legislation that may be applicable to waste management includes but is not limited to:

- *Protection of the Environment Operations Act 1997 (POEO Act)*;
- *Protection of the Environment Operations (Waste) Regulation 2014*;
- *Waste Avoidance and Resource Recovery Act 2001*;
- *Mining Act, 1992*;
- *EP&A Act 1979*; and
- *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998*.

Access this link: <https://www.epa.nsw.gov.au/your-environment/waste/waste-overview/waste-regulations> for more details.

3.6 Guidelines and Standards

This WMP has been developed to be consistent with the principles of the following:

- ISO 14001:2015 Environmental Management Systems;
- South32 Sustainability Policy; and
- South32 Environment and Climate Change Standard.

Other relevant guidelines for waste management include:

- EPA 'Waste Management Guidelines' and relevant 'Fact Sheets'.

⁵ Document has been superseded by a series of documents. Link to EPA website and relevant documents is provided [here](#).

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- See <https://www.epa.nsw.gov.au/your-environment/waste/waste-overview> for more details of waste disposal, avoidance, resource recovery, classification and transportation.

4. WASTE MANAGEMENT AND MITIGATION

No waste generated outside of Dendrobium premises is permitted to be received for storage, treatment, processing, reprocessing or disposal at the premises, unless permitted by a licence under the *POEO Act 1997* and written permission has been provided by the Department Manager.

4.1 Waste Hierarchy

The waste hierarchy is a set of priorities for the efficient use of resources that underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste hierarchy is:

- avoidance including action to reduce the amount of waste generated by households, industry and all levels of government;
- resource recovery including re-use, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources; and
- disposal including management of all disposal options in the most environmentally responsible manner.

The EPA waste hierarchy is illustrated in Figure 1⁶ and South32 waste mitigation hierarchy is illustrated in Figure 2.

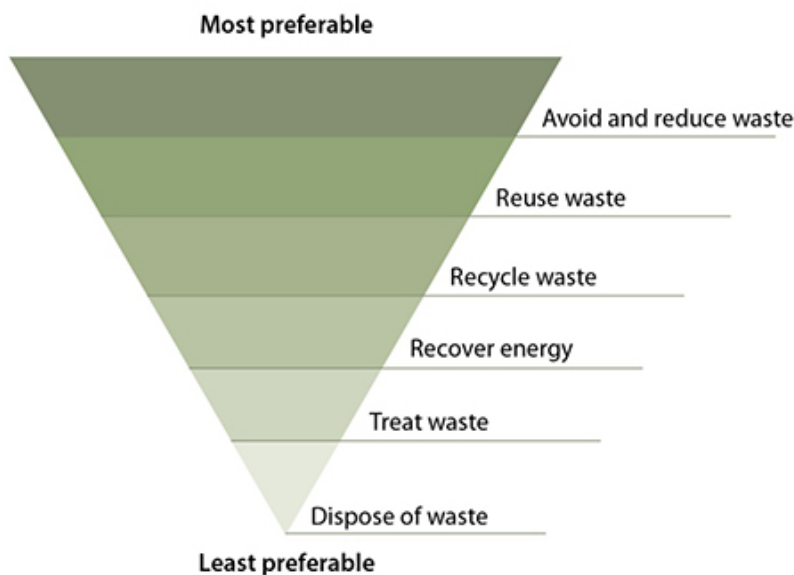


Figure 1: EPA Waste Hierarchy

⁶ Source: <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/the-waste-hierarchy>

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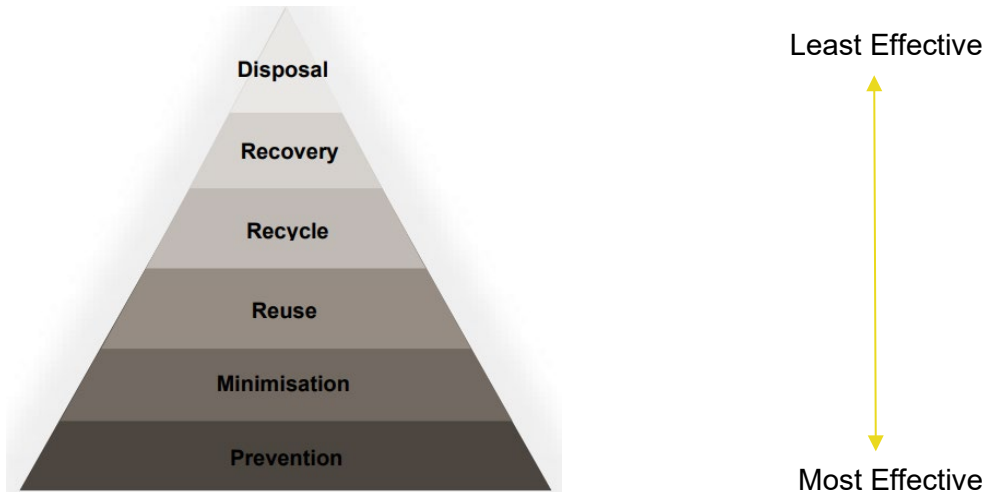


Figure 2: South32 Waste Mitigation Hierarchy

4.2 Waste Classification, Management and Tracking

Waste is classified in accordance with the EPA waste classification guidelines (<https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste>). Dependent on the nature of the waste, particular hazardous waste types may be stored in secure localities to mitigate the risk of a waste management incident.

4.2.1 Classification of Waste Streams

The six waste classes used by the EPA to better facilitate management and appropriate disposal include:

- 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 transport and dispose of waste at licenced waste facilities.

4.2.2 Waste Mitigation Measures – Sorting, Treatment and Disposal

Waste sorting is limited on site with the majority of the general and recyclable waste being sorted off site at an approved waste management facility.

Waste segregation allows for sorting into recyclable and other reusable products which reduces the amount of waste requiring disposal to landfill.

In FY19, the redirection of waste from landfill to a Resource Recovery Facility located at Wetherill Park commenced. The facility processes dry non-recyclable waste. Combustible materials are turned into processed engineered fuel (PEF).

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

Materials from sumps, bunds and oily water separators are managed as detailed in the Bund, Sump and Oily Water Separator Management Procedure.

Where wastes are not covered by the WMP, additional waste types may require specific waste management strategies to be developed.

All waste is disposed of by a licenced waste contractor in accordance with the relevant waste legislation as outlined in Section 3.5. Monthly waste reports are issued to site personnel.

4.2.2.1 Dendrobium Pit Top and Underground

The waste streams generated by the Dendrobium operations and treatment and disposal methods are outlined in Table 2.

Table 2: Waste Streams – Dendrobium Pit Top and Underground Operations

Waste	Treatment/Disposal
General Solid Waste (Non-Putrescible)	
Paper/cardboard	<ul style="list-style-type: none"> Waste paper and cardboard is segregated and collected for recycling by a waste contractor.
Scrap metal	<ul style="list-style-type: none"> Waste oil drums are drained, crushed and recycled. Scrap metal is recycled by a waste contractor.
Used particulate filters	<ul style="list-style-type: none"> Placed inside a plastic bag and disposed in designated bins placed around the site. Full bins are picked up and transported to a waste disposal facility by a licenced waste contractor.
Used oil filters	<ul style="list-style-type: none"> Stored in appropriately labelled drums on site. Drums are collected and transported to a waste disposal facility by a licenced waste contractor.
Sump and sediment pond materials	<ul style="list-style-type: none"> Licenced waste management contractor to remove and transfer liquid waste from sumps. Sediment pond water is processed through the onsite grey water treatment plant. Solids are transferred to the coal stockpile at the KVCLF.
Conveyor belt	<ul style="list-style-type: none"> Collected and removed from site by waste contractor as required.



General waste	<ul style="list-style-type: none"> General waste bins from underground are transported to the surface where they are emptied into a larger skip. These skips are transported to an off-site waste handling facility where the waste is tipped onto a sorting pad and recyclable material is removed and placed into the relevant recycling stream. General waste not suitable for treatment to PEF is disposed of by the waste contractor to landfill. General waste disposal is minimised wherever possible.
Construction waste	<ul style="list-style-type: none"> Construction waste is transported by and disposed of by a suitably licenced waste contractor. Where possible, any uncontaminated, construction waste e.g. concrete, bricks may be crushed and reused as a fill material.
Timber	<ul style="list-style-type: none"> Collected in skip on site and removed by a waste contractor for recycling.
Liquid Waste	
Waste oil/Oily water	<ul style="list-style-type: none"> Stored and collected for recycling/treatment by a licensed contractor. Used 20 L containers are drained into 1000 L bulk container, that is pumped out by a suitably licenced waste contractor for treatment/recycling. Bunds that may contain waste oils/oily water are pumped out by a licenced waste contractor (as required) and transported off site for treatment/recycling.
Bathroom Water	<ul style="list-style-type: none"> Onsite treatment through the Pit Top Grey Water Treatment Plant and reused as recycled water.⁷
Sewage effluent	<ul style="list-style-type: none"> Plumbed into town sewerage supply.
Hazardous Waste	
Hazardous waste	<ul style="list-style-type: none"> Stored in a designated area on site for pickup. Removed from the site by licenced contractors and taken to licenced waste management facilities for treatment, recycling or disposal.

⁷ Options to direct the bathroom water to the sewerage system are being investigated.

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	<ul style="list-style-type: none"> • May include, but is not limited to, expired self-rescuers and batteries.
Contaminated Waste (if identified)	<ul style="list-style-type: none"> • Further assessment and advice sought from a suitably qualified consultant re: waste classification, handling, treatment, disposal and reporting requirements prior to appropriate disposal.
Special Waste	
Tyres	<ul style="list-style-type: none"> • Used tyres, from rubber tyred surface mobile equipment, are segregated and collected for either repairs (if possible) or disposal by a waste contractor.
Asbestos	<ul style="list-style-type: none"> • Further assessment and advice sought from a suitably qualified consultant re: waste classification, handling, treatment, disposal and reporting requirements prior to appropriate disposal.

4.2.2.2 KVCLF

The waste streams generated by the KVCLF and treatment and disposal methods are outlined in Table 3.

Table 3: Waste Streams – KVCLF

Waste	Treatment/Disposal
General Solid Waste (Non-Putrescible)	
Used oil filters	<ul style="list-style-type: none"> • Stored in appropriately labelled drums on site. • Drums are collected and transported to a waste disposal facility by a licenced waste contractor.
Paper/cardboard	<ul style="list-style-type: none"> • Waste paper and cardboard is segregated and collected for recycling by a waste contractor.
Sump/sediment pond materials	<ul style="list-style-type: none"> • Transferred to the coal stockpile.
General waste/commingle	<ul style="list-style-type: none"> • Bins are provided which are taken off site by the waste contractor for PEF or disposal. • General waste disposal is minimised wherever possible.
Scrap metal	<ul style="list-style-type: none"> • Removed from site by a waste contractor for recycling.
Liquid Waste	
Sewage effluent	<ul style="list-style-type: none"> • Removed from site by a licenced contractor for disposal.



Waste oil/Oily water	<ul style="list-style-type: none"> • Stored and collected for recycling/treatment by a licensed contractor. • Bunds that may contain waste oils/oily water are pumped out by a licenced waste contractor (as required).
Hazardous Waste	
Contaminated waste (if identified)	<ul style="list-style-type: none"> • Further assessment and advice sought from a suitably qualified consultant re: waste classification, handling, treatment, disposal and reporting requirements prior to appropriate disposal.
Hazardous waste	<ul style="list-style-type: none"> • Stored in a designated area on site for pickup. • Removed from the site by licenced contractors and taken to licenced waste management facilities. • May include, but is not limited to, batteries.
Special Waste	
Tyres	<ul style="list-style-type: none"> • Used tyres, from the rubber tyred mining vehicles, are segregated and collected for either repairs (if possible) or disposal by a waste contractor.

4.2.2.3 KVRL

The waste streams generated by the KVRL and treatment and disposal methods are outlined in Table 4.

Table 4: Waste Streams – KVRL

Waste	Treatment/Disposal
General Solid Waste (Non-Putrescible)	
Scrap steel	<ul style="list-style-type: none"> • Recycled by licenced waste contractor.
Wooden sleepers	<ul style="list-style-type: none"> • Recycled.
Concrete sleepers	<ul style="list-style-type: none"> • Recycled.
Waste ballast	<ul style="list-style-type: none"> • Repurposed where possible • Removed from site by licenced waste contractor.

4.2.2.4 Ventilation Shafts

Any wastes generated at VS1 are brought back to the Dendrobium Pit Top for disposal.

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Wastes generated at VS2 and 3 during construction activities are collected in a skip bin on site and disposed of by a licenced waste contractor as outlined in Table 5. Waste generated from operations / maintenance is brought back to the Dendrobium Pit top for disposal.

Table 5: Waste Streams – Ventilation Shaft 2/3

Waste	Treatment/Disposal
General Solid Waste (Non-Putrescible)	
Scrap steel	<ul style="list-style-type: none"> Recycled by licenced waste contractor.
Construction waste	<ul style="list-style-type: none"> Construction waste is transported by and disposed of by a suitably licenced waste contractor. Where possible, any uncontaminated, construction waste e.g. concrete, bricks may be crushed and reused as a fill material.
Liquid Waste	
Sewage effluent	<ul style="list-style-type: none"> Removed from site by a licenced contractor for disposal.

4.2.2.5 DCPP

The waste streams generated by the DCPP and treatment and disposal methods are outlined in Table 6.

Table 6: Waste Streams – DCPP

Waste	Treatment/Disposal	Responsibility
General Solid Waste (Non-Putrescible)		
General waste	<ul style="list-style-type: none"> Approved landfill facility off-site 	PKSW
Waste paper, cardboard, timber and commingle	<ul style="list-style-type: none"> Recycled off-site 	PKSW
Oil filters	<ul style="list-style-type: none"> Off-site recycling, treatment or disposal 	IMC
Scrap steel and other metals	<ul style="list-style-type: none"> Recycled off site. 	IMC
Electronic waste	<ul style="list-style-type: none"> Recycled off-site 	IMC
Liquid Waste		

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Waste	Treatment/Disposal	Responsibility
Sewage effluent and bathhouse waste	<ul style="list-style-type: none"> Transferred via an approved line into the Sydney Water sewer system. 	PKSW
Waste oils	<ul style="list-style-type: none"> Recycled/disposed at an approved off-site facility. 	IMC
Hazardous Waste		
Batteries	<ul style="list-style-type: none"> Treated/recycled/disposed off-site 	IMC
Radioactive substances	<ul style="list-style-type: none"> Depleted or redundant radioactive substances from radiation gauges are disposed as per EPA protocols in accordance with legal requirements. 	IMC

4.2.2.6 Cordeaux

The waste streams generated by Cordeaux Colliery and treatment and disposal methods are outlined in Table 7.

Table 7: Waste Streams – Cordeaux Colliery

Waste	Treatment/Disposal
General Solid Waste (Non-Putrescible)	
Used oil filters	<ul style="list-style-type: none"> Stored in appropriately labelled drums in container bund on site. Drums are collected and transported to a waste disposal facility by a licenced waste contractor.
Paper/cardboard	<ul style="list-style-type: none"> Waste paper and cardboard is segregated and collected for recycling by a waste contractor.
Timber	<ul style="list-style-type: none"> Removed by a waste contractor for recycling. Timber pallets are kept for reuse.
General waste/commingle	<ul style="list-style-type: none"> Bins are provided which are taken off site by the waste contractor. General waste disposal is minimised wherever possible.
Scrap metal	<ul style="list-style-type: none"> Removed by a waste contractor for recycling.
Liquid Waste	

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Sewage effluent	<ul style="list-style-type: none"> Removed from site by a licenced contractor for disposal.
Waste oil/Oily water	<ul style="list-style-type: none"> Stored and collected for recycling/treatment by a licensed contractor. Bunds that may contain waste oils/oily water are pumped out by a licenced waste contractor (as required).
Hazardous Waste	
Contaminated waste (if identified)	<ul style="list-style-type: none"> Further assessment and advice sought from a suitably qualified consultant re: waste classification, handling, treatment, disposal and reporting requirements prior to appropriate disposal.
Hazardous waste	<ul style="list-style-type: none"> Stored in a designated area on site for pickup. Removed from the site by licenced contractors and taken to licenced waste management facilities. May include, but is not limited to, batteries.
Special Waste	
Tyres	<ul style="list-style-type: none"> Used tyres are segregated and collected for either repairs (if possible) or disposal by a waste contractor.

4.2.3 Waste Transport and Tracking

Transportation of all waste generated at the Dendrobium operation is managed by a licenced waste contractor in accordance with the relevant waste legislation as outlined in Section 3.

Waste is tracked in accordance with legal requirements. The types of waste that must be tracked are listed in the *POEO (Waste) Regulation 2014* and are based on the list in the *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998*.

All trackable waste is managed by contract service providers authorised and licenced to transport and dispose of the waste products.

4.3 Coal Wash Management

Coal wash is a non-hazardous mineral waste generated from the DCPD as a by-product of processing RoM coal. Coal wash is emplaced in a safe and stable manner at the Coal Wash Emplacement Area (CWEA), located at Appin North or, where possible, is beneficially reused.

Opportunities for beneficially reusing coal wash generated from the DCPD are actively pursued to reduce the amount of coal wash emplaced on site at the CWEA. Beneficial reuse opportunities include, but are not limited to:

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- engineered fill in housing developments and road infrastructure projects;
- development of arterial and agricultural roads; and
- projects approved under an operational purpose deduction (OPD).

4.4 Construction Waste Management

Waste management strategies will be developed for project construction activities which have the potential to generate waste products that require effective management to avoid potential harmful impacts. The waste management strategies will generally address:

- nature and type of waste generated;
- analysis of waste to determine appropriate treatment and disposal requirements (if required);
- emergency response protocols;
- treatment and disposal processes;
- waste transport arrangements and disposal destination;
- waste tracking in accordance with legal requirements; and
- records management.

Construction waste will be removed from site by a licenced contractor.

4.5 Potential Environmental Impacts of Waste and Incident Response

The potential environmental impacts of waste are assessed to enable the appropriate management of wastes to reduce the risk of adverse consequences. In principle, no wastes are permanently stored or disposed on site. All potentially harmful wastes are treated and/or disposed off-site at approved facilities.

Potential or actual pollution incidents involving wastes causing or with the potential to cause material environmental harm will be managed in accordance with the protocols detailed in the Pollution Incident Response Management Plan (PIRMP) for EPL 3241 or EPL 611 as appropriate. The PIRMP details the hazard assessments for particular substances at site.

If wastes are generated for which defined treatment or disposal pathways are not identified, they will be assessed on a case by case basis with the waste management contractor to determine the most suitable management option.

4.6 Adaptive Management

The management strategies detailed in the WMP have been implemented to minimise the volume of disposable waste generated at the Dendrobium operations. IMC will encourage its waste contractors to utilise the most appropriate technologies and procedures required to minimise waste production and treat it in the most suitable manner.

Dendrobium Mine will continue to investigate and, where reasonable and feasible to do so, develop and implement waste management practices to minimise disposable waste.

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5. WASTE MONITORING PROGRAM

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

- Record keeping.
- Site inspections.

5.1 Record Keeping

Records of waste tracking are maintained on behalf of Dendrobium Mine by licenced waste contractors. Records, including run sheets and tip dockets, are maintained for six (6) years, as required by the EPA.

Monthly waste management reports are provided by the contracted waste management service provider. These reports detail the types and volumes of wastes transported, disposed, or recycled and waste destinations. An annual summary is also provided.

Reports are reviewed by the Specialist Environment to identify any issues or trends. Feedback is provided to the contracted waste management service provider or relevant IMC Supervisor where appropriate.

This data is used in various reports as detailed in Section 7.

5.2 Site Inspections

On site waste management facilities, infrastructure, containers and storages are included in routine site inspections. Any matters identified requiring corrective action are managed through the event management system (see Section 6.2).

6. COMPLAINTS AND NON-COMPLIANCE MANAGEMENT

6.1 Complaints and Dispute Resolution

IMC has a 24-hour, free community call line (1800 102 210) and email address (illawarracommunity@south32.net) which is displayed at IMC Projects and Mine Sites, and included in newsletters, letters and other correspondence. The call line is for all complaints and general enquiries regarding environmental or community issues associated with IMC's operations.

Community complaints and enquiries may also be received in person by any employee of IMC, with details to be immediately shared with the External Affairs Team for investigation. All waste related complaints received in relation to Dendrobium Mine will be managed in accordance with the Handling Community Complaints, Enquiries and Disputes Procedure.

Upon receipt of a community complaint, preliminary investigations will commence as soon as practicable to determine the likely cause of the complaint. An initial response will be provided to the complainant within 24 hours of the complaint being made, with a follow up response being provided as soon as practicable once a more detailed investigation is complete.

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Where waste related issues are raised by an affected landowner or community member and the affected landowner or community member requests feedback in relation the issue raised, the landowner or community member will be provided with the investigation results and proposed course of corrective action.

A summary of all complaints received during the reporting year will be provided as part of the Annual Review. A log of complaints is also maintained on the IMC website [here](#).

6.2 Events, Non-Compliance, Corrective Action and Preventative Action

Events, non-compliances, corrective actions and preventative actions are managed in accordance with the Reporting and Investigation Standard and Environmental Compliance/Conformance Assessment and Reporting Procedure. These procedures, which relate to all IMC operations, detail the processes to be utilised with respect to event and hazard reporting, investigation and corrective action identification. The key elements of the process include:

- identification of events, non-conformances and/or non-compliances;
- recording of the event, non-conformance and/or non-compliance in the event management system (G360);
- investigation/evaluation of the event, non-conformance and/or non-compliance to determine specific corrective and preventative actions;
- assigning corrective and preventative actions to responsible persons in G360; and
- review of corrective actions to verify the status and effectiveness of the actions.

Incidents and non-compliances relating to waste management will be reported to all relevant stakeholders as detailed in Section 7.2.

7. REPORTING AND REVIEW

Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.

7.1 Reporting

7.1.1 Annual Review

IMC will report on the performance of the WMP in the Annual Review.

The Annual Review will include:

- complaints and management/mitigation measures undertaken;
- a summary of waste volumes generated;
- identification of trends associated with waste management; and

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- review of the performance of management/mitigation/minimisation measures and the monitoring program as applicable, including outcomes of investigations into waste reuse, recycle and minimisation.

The Annual Review is prepared in accordance with Condition 5 of Schedule 8 of the Consent and is submitted to relevant agencies in September each year. Annual Reviews are made available to the general public via the IMC website [here](#).

7.1.2 Internal Sustainability Reporting

Waste data is collated quarterly and reported to Head Office for aggregation.

7.2 Incident and Non-compliance Notifications

7.2.1 Notification of Incidents

In accordance with Condition 3 and 4 of Schedule 8 of the Consent, the Department and any other relevant agencies will be notified immediately⁸ by IMC after becoming aware of an incident⁹. The notification will be in writing and submitted to compliance@planning.nsw.gov.au and identify the development and set out the location and nature of the incident.

Where the incident has caused or has the potential to cause material environmental harm, the PIRMP will be activated, and notifications as listed in the PIRMP completed as required.

Within seven days of notifying the Department and other relevant agencies of such an incident, the Applicant must provide the Department and these agencies with a written report that:

- (a) describes the date, time, and nature of the incident;
- (b) identifies the cause (or likely cause) of the incident;
- (c) describes what action has been taken to date; and
- (d) describes the proposed measures to address the incident.

7.2.2 Notification of Incidents and Non-compliances – WaterNSW

Incidents in the Special Area must be reported to WaterNSW in accordance with Conditions 4.1 and 4.2 of Consent F2020/1545 by contacting the WaterNSW Incident Notification Number (1800 061 069). If a non-compliance with any of the conditions of Consent F2020/1545 are recorded, a comprehensive written report is required to be provided within 14 days of having become aware of the non-compliance. The incident report is to include the information required by Condition 4.2.1 of Consent F2020/1545.

⁸ Notification within 24 hours is required under the Consent. Notification is required immediately after the person becomes aware of the incident under EPL 3241 or EPL 611.

⁹ An incident is defined as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

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7.3 Review of WMP

In accordance with Condition 2A of Schedule 8 of the Consent, the WMP will be reviewed, and if necessary revised, within three months, of:

- a) the submission of an incident report;
- b) the submission of an Annual Review;
- c) the submission of an Independent Environmental Audit (IEA) report; or
- d) the approval of any modification of the conditions of Consent (unless the conditions require otherwise).

Outcomes from each review will be documented in the Management Plan Review Log. The WMP will only be revised where a material change to site operations or environmental management has occurred, or in accordance with the review period on the WMP. Administrative or descriptive changes do not constitute a material change.

Where a review triggers a revision of the WMP, the WMP will be revised¹⁰.

7.4 Audits

7.4.1 IEA

In accordance with Condition 6 of Schedule 8 of the Consent, an IEA shall be commissioned every three years, that will include a review of the WMP. The report is required to be submitted to the Planning Secretary and any other NSW agency that requests it, together with the response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations, within three (3) months of commencing¹¹ the IEA, in accordance with Condition 7 of Schedule 8.

The recommendations of the IEA must be implemented to the satisfaction of the Planning Secretary.

IEAs have been conducted every three years since 2008, with an IEA being conducted in 2023 and the next IEA to be conducted in 2026. Recommendations from the IEA will be incorporated into the WMP where appropriate.

7.4.2 ISO 14001

As part of the ISO 14001 certification, IMC maintains an environmental auditing and governance program across all of its operational sites. The program, which includes the use of competent internal and accredited external auditors, is an integral part of maintaining certification under the ISO 14001 standard.

External surveillance audits are undertaken on an annual basis, with recertification audits undertaken every three years.

¹⁰ There is no specific requirement in the Consent to seek approval of the WMP from the Planning Secretary and the WMP will only be submitted to DPE if requested.

¹¹ The date of commencing the IEA is defined as the first day of the site inspection.

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Internal Governance Reviews of the WMP are nominally undertaken every two (2) years.

7.4.3 Waste Facilities

Periodic reviews of waste management contractors will be conducted and a site inspection of off-site facilities may be undertaken as part of the audit as required. These reviews will be commensurate with the level of risk.

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8. SUMMARY OF COMMITMENTS

Commitment	Section in WMP
IMC will provide personnel and resources to implement the WMP.	Section 2
IMC will comply with the conditions of the approval and relevant legislation.	Section 3
IMC will manage waste to meet the waste hierarchy where possible.	Section 4.1
IMC will classify waste in accordance with the EPA waste classification guidelines and ensure waste is tracked in accordance with legal requirements.	Section 4.2
Waste will be disposed of, treated, recycled or reused as detailed in the WMP.	Section 4.2.2
Waste will be tracked to meet legislative requirements.	Section 4.2.3
Beneficial use opportunities for coal wash from the DCPD will be investigated and implemented where practicable.	Section 4.3
IMC will develop strategies for the management of construction wastes from projects where required.	Section 4.4
Pollution events causing or with the potential to cause material environmental harm will be managed in accordance with the PIRMP.	Section 4.5
The Specialist Environment will review monthly waste reports and the annual summary provided by the contracted waste management provider to identify any issues or trends.	Section 5.1
Regular site inspections will be undertaken to assess waste management facilities to identify issues and improvement opportunities.	Section 5.2
Periodic audits of waste management contractor processes and inspections of offsite receival facilities will be undertaken.	Section 7.4.3
IMC will report and investigate complaints and incidents as required, and identify and implement corrective actions.	Section 6
IMC will undertake reporting as required.	Section 7.1
IMC will review the WMP as required.	Section 7.3
IMC will undertake audits as required.	Section 7.4

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9. ACRONYMS

Term	Definition
CWEA	Coal Wash Emplacement Area
DCPP	Dendrobium Coal Preparation Plant
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environment Protection Authority
<i>EP&A Act</i>	<i>Environmental Planning and Assessment Act</i>
EPL	Environment Protection Licence
G360	IMC event reporting system
ICHPL	Illawarra Coal Holdings Pty Ltd
IEA	Independent Environmental Audit
IMC	Illawarra Metallurgical Coal
KVCLF	Kemira Valley Coal Loading Facility
KRVL	Kemira Valley Rail Line
OPD	Operational Purpose Deduction
PEF	Processed Engineered Fuel
PIRMP	Pollution Incident Response Management Plan
PKCT	Port Kembla Coal Terminal
PKSW	Port Kembla Steel Works
<i>POEO Act</i>	<i>Protection of the Environment Operations Act</i>
RoM	Run of Mine
VS	Ventilation Shaft
WMP	Waste Management Plan

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10. REFERENCES

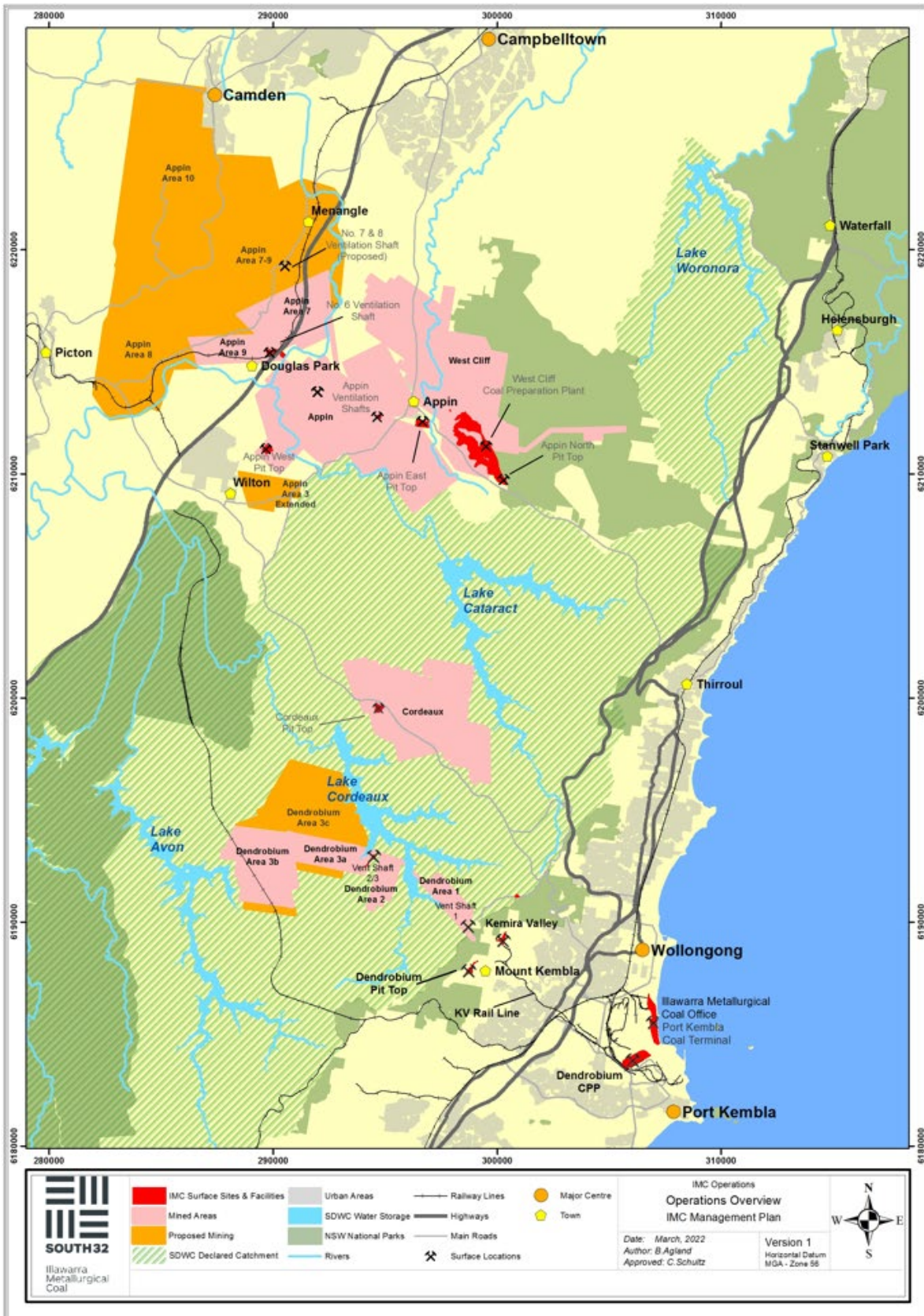
- Development Consent DA 60-03-2001, as modified
- EPL 3241
- EPL 611
- *Waste Avoidance and Resource Recovery Act 2001*
- Waste Classification Guidelines (EPA) 2014
- *POEO (Waste) Regulation (2014)*
- Handling Community Complaints, Enquiries and Disputes Procedure (IMCP0112)
- Reporting and Investigation Standard (IMCSTD0069)
- Environmental Compliance/Conformance Assessment and Reporting Procedure (IMCP0186)
- ISO 14001:2015 Environmental Management Systems Standard
- Bund, Sump and Oily Water Separator Management Procedure (IMCP0184)

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11. PLANS

Plan 1: Dendrobium Mine Locality Plan



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12. APPENDICES

Appendix 1: Consent Conditions: Waste Management

Condition	Requirement	Section		
Condition 30 of Schedule 4	<p>Waste</p> <p>The Applicant must:</p> <p>(a) monitor the amount of waste generated by the development;</p> <p>(b) investigate ways to reuse, recycle, or minimise this waste;</p> <p>(c) implement reasonable and feasible measures to minimise this waste; and</p> <p>(d) report on waste management and minimisation in the Annual Review,</p> <p>to the satisfaction of the Secretary.</p>	<p>Section 5</p> <p>Section 4.6</p> <p>Section 4.2.2</p> <p>Section 7.1.1</p>		
Condition 1 of Schedule 5	<p>Hot Gas Exhaust Stack Discharges</p> <p>1. The Applicant must:</p> <p>(a) ensure that the concentration of pollutants discharged from the coal dryer hot gas exhaust complies with discharge limits set for the development in any EPL;</p> <p>(b) regularly monitor the concentration of pollutants discharged from the coal dryer hot gas exhaust; and</p> <p>(c) report on waste management and minimisation in the Annual Review,</p> <p>to the satisfaction of the Secretary.</p>	<p>Coal dryer has been decommissioned.</p>		
Condition 2 of Schedule 8	<p>Management Plan Requirements</p> <p>Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <p>(a) a summary of relevant background or baseline data;</p> <p>(b) details of:</p> <p>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</p> <p>(ii) any relevant limits or performance measures and criteria; and</p> <p>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</p>	<p>Section 3.1</p> <p>Section 3</p> <p>Section 3</p> <p>Section 3</p>		
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	(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4
	(d) a program to monitor and report on the:	Section 7.1
	(i) impacts and environmental performance of the development; and	
	(ii) effectiveness of the management measures set out pursuant to condition 2(c);	
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 4.5
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 4.6
	(g) a protocol for managing and reporting any:	
	(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	Section 6.2 Section 6.1
	(ii) complaint;	
	(iii) failure to comply with statutory requirements; and	
(h) a protocol for periodic review of the plan.	Section 7.3	

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