

ULN SD PLN 0016



Waste Management Plan

Environmental Management System

Ulan Coal Mines Limited

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1 COMMITMENT AND POLICY

1.1 Introduction

Ulan Coal Mines Limited (UCML) is situated in the central west of New South Wales. It is located in the Mid Western Regional Council (MWRC) Local Government Area (LGA) near the village of Ulan; approximately 38 kilometres north-northeast of Mudgee and 19 kilometres northeast of Gulgong (see **Figure 1.1**).

UCML is a joint venture between Xstrata Coal Pty Limited (90%) and Mitsubishi Development (10%), Xstrata Coal NSW (XCN) maintains management responsibility for UCML. The mining operations at UCML are one of a number of mining assets owned and/or managed by Xstrata Coal NSW (XCN).

UCML is a major landholder in the Ulan region. UCML owns or has long term leases over the majority of land within the project area that will be subject to mining activities and required for surface facilities. UCML is situated in a rural area, primarily surrounded by rural landholdings, native bushland and primary industries including agriculture, forestry, mining (including other coal mining operations) and extractive industries. The UCML landholdings comprise 17,959 hectares which are located within the headwaters of the Goulburn and Talbragar River catchment areas.

UCML has recently received Project Approval (PA 08_0184) from the NSW Department of Planning and Infrastructure (DoPI, formerly the NSW Department of Planning (DoP)) on the 15 November 2010 for continued operations. This Project Approval covers current and proposed mining of the Ulan Mine Complex for the next 21 years, and production of up to 20 Mtpa (million tonnes per annum) of product coal. This approval incorporates both underground and open cut mining operations undertaken twenty-four hours a day, 7 days per week. The existing and proposed underground and open cut mining activities and land holdings, including the Bobadeen Irrigation Scheme and Bobadeen Basalt Quarry, as a collective, are referred to within as the Ulan Mine Complex (see **Figure 1.2**).

To satisfy Condition 54, Schedule 3 of PA 08_0184, UCML are required to prepare and implement a Waste Management Plan for the project. Implementation of the Waste Management Plan also satisfies the requirements of Development Approval (DA) 113-12-98 whilst mining at Ulan No.3 Underground is still occurring within the current Subsidence Management Plan (SMP) approved areas of LW 23 – 26, W1 and W2 – W3. If there is any inconsistency between the above development consents, then the conditions of PA 08_0184 shall prevail to the extent of the inconsistency. The plan also ensures that UCML addresses the waste management requirements within the Statement of Commitments, as detailed in the Ulan Coal - Continued Operations Environmental Assessment (EA) (Umwelt, 2009).

1.2 Purpose

This Waste Management Plan has been developed to facilitate compliance with the conditions of PA 08_0184, DA 113-12-98 and the EA. The purpose of this Waste Management Plan is to:

- Provide employees and contractors with a clear and concise description of their responsibilities in relation to Waste Management during the operation of the mine;
- Address the relevant conditions of the PA 08-0184 and DA 113-12-98; and
- Address the relevant commitments made within the EA.

1.3 Scope

The scope of the Waste Management Plan applies to all activities undertaken by UCML regarding existing and future operations and projects within the Colliery Holding boundary and within land owned or under the control of UCML (see **Figure 1.2**).

The objectives of this Management Plan are to ensure that appropriate procedures and programs of work are in place to:

- Identify sources of waste at the Ulan Mine Complex;
- Establish a framework for minimising waste generation at the Ulan Mine Complex;
- Detail control measures to mitigate the impacts associated with waste at UCML;
- Outline the disposal protocols for waste;
- Detail the review and reporting protocols; and
- Establish responsibilities for the management of waste at UCML.

Figure 1.1: Location of the Ulan Mine Complex

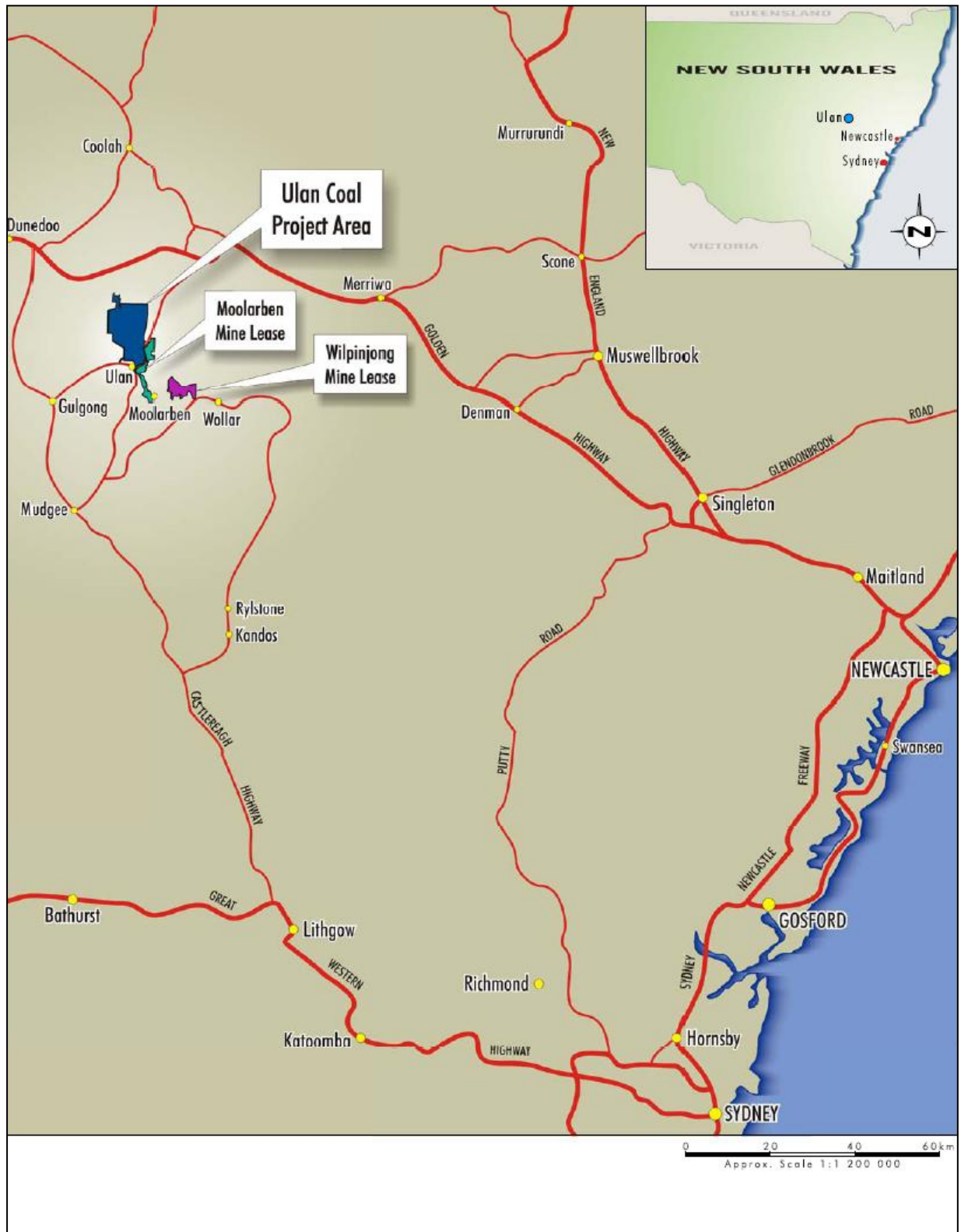
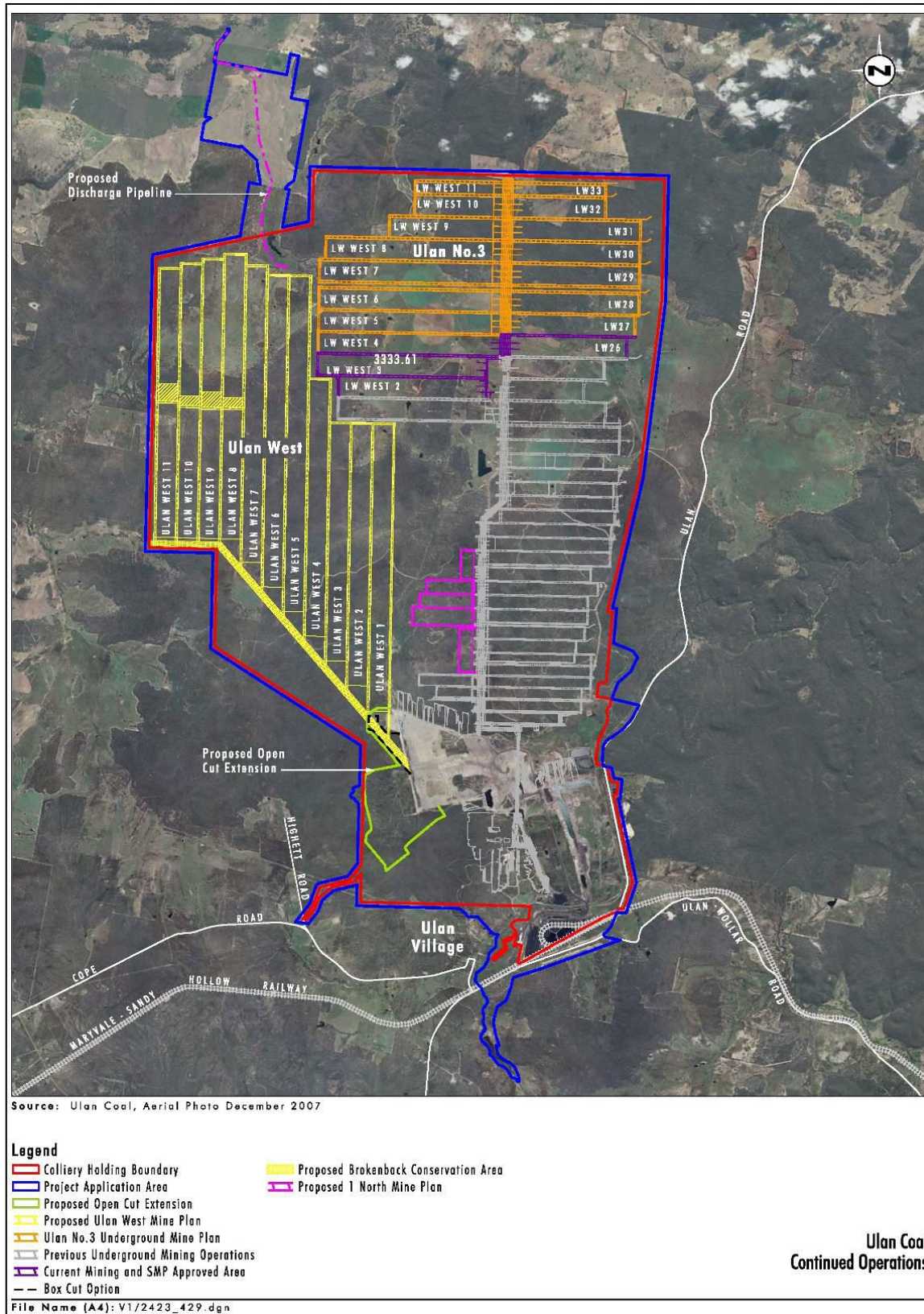


Figure 1.2: Ulan Coal Continued Operations



2 PLANNING

2.1 Project Approval Requirements

The Project Approval for UCML was assessed under Part 3A of the EP&A Act 1979. Conditions of the Project Approval relevant to surface water monitoring and an indication of where they are addressed within this plan, are provided in **Table 2.1**.

Table 2.1: Compliance Table for Project Approval 08_0184

Condition	Requirement	Section
Schedule 3, condition 53	The Proponent shall: (a) minimise the waste (including coal reject) generated by the project; and (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of, to the satisfaction of the Director-General.	Section 3
Schedule 3, condition 54	The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must be submitted to the Director-General by the end of March 2011.	This Document

2.2 Development Approval Requirements

Table 2.2 summarises the requirements of DA 113-12-98 and the section of the plan where the requirement has been addressed.

Table 2.2: Compliance Table for Development Approval 113-12-98

Condition	Requirement	Section
Schedule 2, condition 4.2	Except as expressly permitted in a licence, waste must not be received at the premises for storage, treatment, processing, reprocessing or disposal to the satisfaction of the Director-General.	Section 3
Schedule 2, condition 4.3	The applicant must ensure that any hazardous or industrial waste is stored and disposed of in a manner to minimise its impact on the environment including appropriate segregation for storage and separate disposal via a licensed transporter.	Section 3

2.3 Statement of Commitments

Table 2.3 summarises the requirements of the Statement of Commitments in the EA relevant to surface water monitoring and the section of the plan where the commitment has been addressed.

Table 2.3: Ulan Coal - Continued Operations EA Statement of Commitments

Commitment	Section
The management of waste materials generated by the construction and operation of the Project will be managed through the design, procurement of construction materials and purchasing, identification and segregation of reusable and recyclable materials, processing materials for recycling, and considering environmental impacts for waste removal processes.	Sections 2 & 3

2.4 Legislative Requirements

2.4.1 Legislation and Guidelines

UCML will undertake the management of waste in accordance with the policies, principles, regulations and guidelines contained within:

- *Protection of the Environment Operations Act, 1997*, administered by the NSW Office of Environment and Heritage (OEH, formerly the NSW Department of Environment, Climate Change and Water (DECCW));
- *Waste Avoidance and Resource Recovery Act, 2001*, administered by OEH;
- *Protection of the Environment Operations (Waste) Regulation, 2005*, administered by OEH; and
- NSW OEH Waste Classification Guidelines (December 2009 revision).

This Waste Management Plan has also been developed in accordance with the relevant Xstrata Coal NSW (XCN) policies and standards including:

- *Hydrocarbon Management (XCN SD ANN 0041 10.4)*;
- *Waste Management (XCN SD ANN 0042 10.5)*;
- *Behaviour, Awareness and Competency (XCN SD GDL 3.0)*;
- *Legal Compliance and Document Control (XCN SD GDL 7.0)*;
- *Product Stewardship (XCN SD GDL 14.0)*; and
- *Monitoring and Review (XCN SD GDL 16.0)*.

An overview of the Hydrocarbon Management and Waste Management standards is provided in Sections 2.4.1.1 and 2.4.1.2 below. Further information on the other referenced policies and standards is available in UCML's Environmental Management Strategy (EMS) (ULN SD PLN 0050) as follows:

- *Behaviour, Awareness and Competency (XCN SD GDL 3.0) - Section 3 of EMS;*
- *Legal Compliance and Document Control (XCN SD GDL 7.0) - Section 2 of EMS;*
- *Product Stewardship (XCN SD GDL 14.0) - Section 3 of EMS; and*
- *Monitoring and Review (XCN SD GDL 16.0) - Section 4 of EMS.*

2.4.1.1 Hydrocarbon Management Standard (XCN SD ANN 0041 10.4)

This standard is an annexure to XCN SD GDL 10.0 Environment, Biodiversity and Landscape Functions (see Section 3 of EMS for more information on this guideline). The standard outlines the requirements for XCN sites for the design, installation, operation and maintenance of hydrocarbon storage facilities as well as handling practices to:

- Minimise the risk of hydrocarbon spillages or leakages, which may lead to subsequent contamination and environmental harm; and
- Provide that contingencies for containment and remediation are in place to minimise environmental impacts if spillages or leakage occurs.

The standard outlines specific requirements in relation to the following:

- Design and construction of bulk hydrocarbon storage facilities;
- Design and construction of package (e.g. drums/containers) hydrocarbon storage facilities;
- Management of existing buried hydrocarbon storage tanks/containers;
- In-pit/portable hydrocarbon storage facilities;
- Remote storage of hydrocarbon products/wastes – minor storages;
- Treatment systems for hydrocarbon contaminated runoff;
- Operation and maintenance of hydrocarbon facilities;
- Monitoring of hydrocarbon usage;
- Spill control and response;
- Hydrocarbon waste management;
- Bioremediation areas;
- Hydrocarbon inspection regimes;
- Management of potential contamination; and
- Training.

The standard also provides a guide to best practice hydrocarbon management across XCN sites.

2.4.1.2 Waste Management Standard (XCN SD ANN 0042 10.5)

This standard is an annexure to XCN SD GDL 10.0 Environment, Biodiversity and Landscape Functions (see Section 3 of EMS for more information on this guideline). The document sets the standard for waste management at all XCN sites. All sites are required to implement a system for waste management, which includes (as appropriate):

- Methods, schedules and procedures for the management and responsible disposal of each major waste stream;
- Methods for monitoring performance against procedures and targets;
- Documentation on waste disposal methods, locations and quantities, etc;
- Accountabilities for development, monitoring, control and auditing;
- Methods to consider the re-use and recycling of products.

Systems must include making provision for separate waste bins, containers or designated storage areas as appropriate for various waste streams, including General waste, Liquid waste, Flammable materials, Ferrous scrap metal, Recyclable material such as paper, cardboard, timber and aluminium, Hazardous waste, Wet filters, Sharps and medical wastes, etc. These bins must be clearly labelled – colour coding is also recommended for some bins e.g. green paint for general waste bins.

The standard also requires that all sites must integrate the inspections and auditing of their waste management systems into their existing processes for workplace inspection, internal and external audits, monitoring and reporting (see Appendix 4 of the EMS). A sample waste management matrix is provided, similar to the one that has been developed for this plan (see **Appendix 1**).

2.5 Stakeholder Consultation

A draft Waste Management Plan was submitted to DoPI on 31 March 2011, in accordance with Condition 54 of Schedule 3 of PA 08_0184. Comments received from DoPI in May 2011 have been addressed in this version of the plan, as shown in **Table 2.4** below.

Table 2.4: Draft Waste Management Plan feedback from DoPI

Department Issue	Where addressed
Details of disposal of brine should be included in the Waste Management Plan.	Section 2.7.4 and Appendix 1
The WMP does not contain information on the quantity of waste either being or estimated to be generated during the life of the project. This is required in order to assess the effectiveness of the waste reduction plan.	Section 3.5 and Appendix 2
The Department would like to discuss the disposal of waste tyres, conveyor belts etc in "approved areas".	Sections 2.5 and 2.7.3 and Appendix 1

During June 2011, UCML consulted with OEH on the disposal of large tyres and conveyor belt in the former open cut voids. OEH advised that a variation to UCML's Environment Protection Licence (EPL) 394 was required to allow for onsite disposal of large tyres and conveyor belt. UCML will seek a variation to the EPL and update this plan once the variation is received from OEH.

Correspondence from stakeholder consultation is included in **Appendix 2**.

2.6 Waste Streams by Classification

Waste classification at Ulan Coal Mine has been undertaken in accordance with the OEH Waste Classification Guidelines (revised in December 2009). Under the guidelines (Part 1) waste is classified into six (6) waste classes:

- special waste
- liquid waste
- general solid waste (putrescible)
- general solid waste (non-putrescible)
- hazardous waste
- restricted solid waste

2.6.1 Special Waste

Special waste is a class of waste that has unique regulatory requirements. The potential environmental impacts of special waste need to be managed to minimise the risk of harm to the environment and human health.

Special waste means any of the following:

- clinical and related waste
- asbestos waste
- waste tyres (and conveyor belt).

2.6.2 Liquid Waste

Liquid waste means any waste that:

- has an angle of repose of less than 5 degrees above horizontal, or
- becomes free-flowing at or below 60 degrees Celsius or when it is transported, or
- is generally not capable of being picked up by a spade or shovel.

2.6.3 General Solid Waste (putrescible)

The following wastes have been pre-classified by the Environment Protection Agency (EPA) as 'general solid waste (putrescible)':

- household waste that contains putrescible organics
- waste from litter bins collected by or on behalf of local councils
- manure and night soil
- disposable nappies, incontinence pads or sanitary napkins
- food waste
- animal waste
- grit or screenings from sewage treatment systems that have been dewatered so that the grit or screenings do not contain free liquids
- any mixture of the wastes referred to above.

2.6.4 General Solid Waste (non-putrescible)

The following wastes have been pre-classified as 'general solid waste (non-putrescible)':

- glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal
- paper or cardboard
- household waste from municipal clean-up that does not contain food waste
- waste collected by, or on behalf of, local councils from street sweepings
- grit, sediment, litter and gross pollutants collected in, and removed from, stormwater treatment devices and/or stormwater management systems that have been dewatered so that they do not contain free liquids
- grit and screenings from potable water and water reticulation plants that have been dewatered so that they do not contain free liquids
- garden waste
- wood waste
- waste contaminated with lead (including lead paint waste) from residential premises or educational or child care institutions
- containers, previously containing dangerous goods, from which residues have been removed by washing or vacuuming
- drained oil filters (mechanically crushed), rags and oil-absorbent materials that only contain non-volatile petroleum hydrocarbons and do not contain free liquids
- drained motor oil containers that do not contain free liquids
- non-putrescible vegetative waste from agriculture, silviculture or horticulture
- building cavity dust waste removed from residential premises or educational or child care institutions, being waste that is packaged securely to prevent dust emissions and direct contact
- synthetic fibre waste (from materials such as fibreglass, polyesters and other plastics) being waste that is packaged securely to prevent dust emissions, but excluding asbestos waste
- virgin excavated natural material
- building and demolition waste
- asphalt waste (including asphalt resulting from road construction and waterproofing works)
- biosolids categorised as unrestricted use, or restricted use 1, 2 or 3, in accordance with the criteria set out in the Biosolids Guidelines (EPA 2000)
- cured concrete waste from a batch plant
- fully cured and set thermosetting polymers and fibre-reinforcing resins
- fully cured and dried residues of resins, glues, paints, coatings and inks
- any mixture of the wastes referred to above.

2.6.5 Hazardous Waste

The following wastes have been pre-classified by the EPA as 'hazardous waste':

- containers, having previously contained a substance of Class 1, 3, 4, 5 or 8 within the meaning of the Transport of Dangerous Goods Code, or a substance to which Division 6.1 of the Transport of Dangerous Goods Code applies, from which residues have not been removed by washing or vacuuming
- coal tar or coal tar pitch waste (being the tarry residue from the heating, processing or burning of coal or coke) comprising of more than 1% (by weight) of coal tar or coal tar pitch waste
- lead-acid or nickel-cadmium batteries (being waste generated or separately collected by activities carried out for business, commercial or community services purposes)
- lead paint waste arising otherwise than from residential premises or educational or child care institutions
- any mixture of the wastes referred to above.

2.6.6 Restricted Solid Waste

Currently, no wastes have been pre-classified by the EPA as 'restricted solid waste'.

Table 2.5, below, details the waste streams which exist at UCML for each of the waste classifications. The legislative requirements on how to manage this waste has been identified based on the waste classification defined by the *Protection of the Environment Operations (POEO) Act 1997*.

Wastes classified as Hazardous Waste, Restricted Solid Waste and Liquid Waste are subject to specific monitoring and reporting requirements under the *POEO Act 1997* (known as waste tracking and record keeping) and in accordance with the OEH Waste Classification guidelines. **Appendix 1** details the specific management of these waste streams as per the UCML Waste Management Matrix.

Table 2.5: Waste Stream Identification

Waste Classification	Ulan Coal Mine Waste Streams
Special waste	Asbestos Waste Waste Tyres (and conveyor belt) Clinical Waste
Liquid Waste	Sewage/effluent Oily water Waste oil Parts washers liquid waste Degreaser Engine coolant Water treatment plant waste water
General Solid Waste (putrescible)	Animal Waste (dead animals) Food Waste
General Solid Waste (non-putrescible)	Municipal Waste Paper and cardboard Silt, sediment, litter & gross pollutants Garden Waste Wood Waste Concrete Waste Virgin excavated material Building and demolition waste Coal washery coarse reject and tailings and stowage Scrap metal Air filters Plastic drums
Hazardous Waste	Batteries Chemical Anchors Oily rags Oil absorbent material Aerosols Oil filters Empty oil drums Waste grease Hydrocarbon contaminated sludge/soil Hydrocarbon contaminated pallecons (1000L plastic containers)

Note: Disposal of radioactive substances is included in *USO-SD-PLN 0021 Radiation Safety Management Plan*.

2.7 Waste Sources

2.7.1 Construction Activities

The construction and modification of the supporting infrastructure facilities will involve predominately modular/prefabricated components, which are assembled offsite and transported to the site for installation. These construction activities are therefore not expected to generate a significant amount of waste material. The excavated material generated during the earthworks phase of construction will be re-used onsite. Inert waste such as concrete will be disposed of in approved areas onsite.

Other waste that may be generated during the construction phase of the project will include office, domestic, ablution waste and a small amount of maintenance/workshop waste. Ablution waste from temporary construction facilities will be pumped out and transported to an offsite sewerage treatment plant by a licensed waste contractor.

2.7.2 Administration buildings, crib rooms and bathhouse facilities

The main type of office waste is waste paper, comprising general office paper, photocopy paper, office stationary and paper from other sources. Other office waste includes cardboard/packaging, and toner/printer cartridges from printers, photocopiers and facsimile machines. The quantity of waste generated will be minimal and the majority of this waste stream will be recycled.

Domestic waste includes food scrapes, aluminium cans, glass bottles, plastic and paper containers and putrescibles waste. Domestic waste will be generated by employees and contractors while onsite. Domestic waste will be recycled where practical or otherwise disposed of offsite by a licensed contractor.

Ablution waste will include waste from toilets, bathhouses, kitchen sinks and basins. All sewage wastewater will be managed on site using existing and proposed treatment facilities. Ablution waste will be generated from the current and future surface facilities across the complex.

2.7.3 Workshop and general operational waste

Workshop and maintenance activities associated with the operation of the complex will generate wastes such as rags, gloves, general packaging material, empty drums, material off cuts, machinery parts, oils and oily water, lubricants, paints and waste tyres. These wastes will be segregated and recycled where possible or otherwise disposed of to a licensed facility by a licensed contractor. The management of hydrocarbon waste, including waste oil and oily water will be managed in accordance with *XCN SD ANN 0041 10.4 Hydrocarbon Management*.

General operational waste may include a variety of waste materials including unused or out of date chemicals, scrap steel, timber, plastics, rubber, hoses, drill bits and steels and vent tubes. In the instance of waste conveyer belt and tyres that cannot be recycled i.e. large tyres, UCML will seek a variation to EPL 394 to allow for the disposal of these items onsite. This management plan will be updated once the EPL variation is received from OEH.

Other operational waste such as timber, scrap steel, plastics and cardboard will be recycled where possible.

2.7.4 Water Treatment Facility Waste

The water treatment facilities at the Ulan Mine Complex include reverse osmosis (RO) plants. RO plants produce a brine concentrate that must be disposed of, or managed by UCML. Current wastewater (i.e. brine) volumes are in the order of 6 per cent of the total water discharged from the water treatment facilities (i.e. the combined blend of treated RO water and mine water) and has a typical water quality in the order of 6000 $\mu\text{S}/\text{cm}$ to 6,500 $\mu\text{S}/\text{cm}$ and a pH of 7.5.

Based on the predicted water balance (refer to Section 3 of the *Water Management Plan (ULN SD PLN 0017)*) and current mine water qualities and RO plant efficiencies, the volume of wastewater generated in the water treatment facilities will range between approximately 50 ML per year and approximately 360 ML per year.

UCML has commenced investigations into how to manage brine to achieve an optimum "whole of life cycle" solution on a sustainable basis. UCML propose to establish a brine management strategy that is aligned with the current approved mine plan to meet the long-term brine management requirements of the Ulan Mine Complex.

UCML has undertaken a high level review of the brine management options for the Ulan Mine Complex. The options considered for brine minimisation/brine disposal include:

- Remove a portion of the brine from site via coal product;
- On-site solar evaporation ponds (with or without evaporation enhancement technologies) with on-site disposal;
- If there is insufficient land available consideration could be given to off-site solar evaporation ponds (with or without evaporation enhancement technologies) with on-site disposal or off-site disposal;
- Sacrificial RO (i.e. operating at highest possible realistic recovery and possibly with lower than normally acceptable industry RO membrane life) combined with mechanical evaporation and solar evaporation ponds for on-site or off-site disposal;
- Mechanical evaporation combined with solar evaporation ponds for on-site disposal; and
- Mechanical evaporation, crystallisation, trucking of salt off site for sale.

Based on the initial studies, UCML are undertaking further investigations into increasing the recovery rates of the RO systems (for example, by adopting a sacrificial RO approach). This approach aims to reduce the RO brine concentrate and achieve the lowest quantity of brine for further treatment. UCML are also further investigating methods for interim storage of brine on-site and future export of brine off-site (for example, via product coal).

UCML aims to finalise the long-term brine management strategy within six months of approval of the Water Management Plan. Upon finalisation of the strategy UCML will undertake consultation with relevant government agencies. Part of this consultation will include the future program of works to implement the long-term brine management strategy.

As an interim solution, whilst the long-term brine management strategy is being developed and implemented, UCML are re-using the brine currently produced in the RO plants within the mine water management system. Investigations by UCML into the current water qualities on site within the mine water management system indicate that re-use of the brine as an interim measure will have minimum affect on water qualities within the mine water Management system. During the interim period UCML will recirculate the brine through the

East Pit storage and as such maintain a degree of separation of the interim brine management system from other water storages on site.

2.7.5 Coal Handling and Preparation Plant Waste

The processing of run of mine (ROM) coal results in two waste products, being coarse and fine rejects (tailings). Coarse and fine rejects are segregated and emplaced in-pit, within final voids left by open cut mining. The emplacement of both coarse and fine reject material occurs in areas approved under Section 100 of the *Coal Mines Health and Safety Act 2002* and in accordance with the Mining Operations Plan (MOP). In-void emplacement forms part of the progressive rehabilitation process across the site. After emplacement has been completed, the reject areas are capped with available overburden to achieve final landform, and the soil is ameliorated and revegetated.

A life of mine reject emplacement strategy has been developed for the emplacement of both coarse rejects and tailings. This strategy is reviewed in line with changes to any mine plans to ensure that the document remains current. The emplacement areas will continue to be located within the available void space left from open cut mining.

The three voids currently available for reject emplacement are the; east pit central ramp, west pit central ramp and barrier pit.

2.7.6 Underground Stowage

Carbonaceous waste from the underground is generally referred to as stowage, as it is collected and stowed temporarily in cut throughs prior to transportation to the surface. Stowage is generated through road building and maintenance and other underground development works. Stowage is transported to the surface and disposed of in approved reject emplacement areas.

3 WASTE MITIGATION MEASURES

Waste Management at UCML is based around the hierarchy of waste management as shown in **Figure 3.1**.

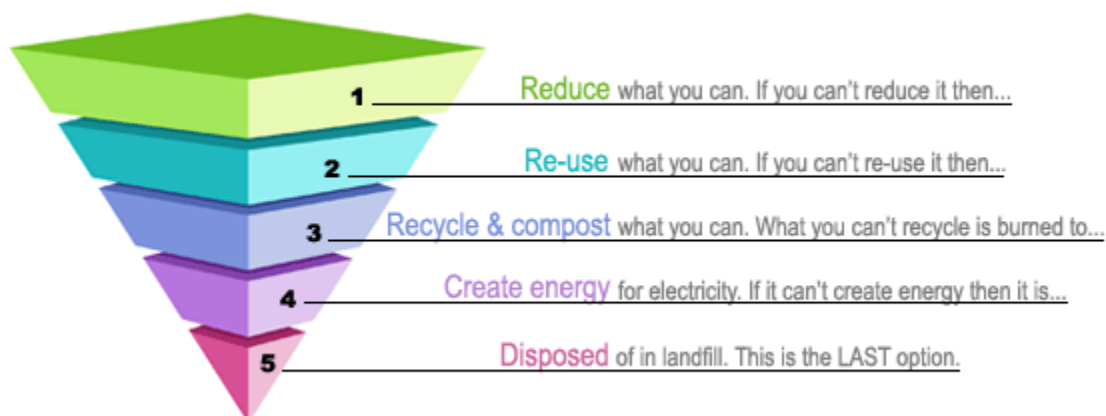


Figure 3.1: Waste Management Hierarchy

Specific controls utilised by UCML are detailed in the sections below, however the underpinning strategy for waste management is minimisation and segregation at the source. The benefits for minimising and separating waste streams include:

- reducing the potential for contamination of general waste streams;
- improving the ease of waste storage, handling, disposal and tracking;
- educating employees of the importance of waste stream segregation and recycling;
- potentially generating an income from recyclable waste streams; and
- reducing the potential disposal costs for some items.

Further to the mitigation measures outlined above, UCML maintains a number of other measures that are utilised in order to reduce the impacts of waste on the environment. These measures are described below:

3.1.1 Reduce

Where possible, opportunities for waste avoidance must be considered during equipment procurement and material purchasing from suppliers. This is in accordance with *XCN SD GDL 14.0 Product Stewardship*. Purchasing roles and processes for elimination and reduction include:

- All personnel/contractors to consider opportunities for waste avoidance when purchasing resources from suppliers;
- The Contracts Manager to consider opportunities for waste avoidance when establishing contracts;
- All relevant personnel to consider opportunities for waste avoidance during equipment procurement; and
- The Environment & Community Officer (ECO) is to identify and implement waste minimisation opportunities for waste generated on the site as part of the environmental inspection process.

3.1.2 Re-use

Where possible, opportunities to reuse materials should be undertaken to ensure maximum utilisation of the resource is achieved. This can be achieved by:

- All employees/ contractors to consider opportunities for material reuse when purchasing resources from suppliers;
- The Contracts Manager to consider opportunities for material reuse when establishing contracts; and
- All relevant personnel to consider opportunities for material reuse during equipment procurement.

3.1.3 Recycle

Where possible, waste material is reused in other applications or recycled. To assist in recycling designated bins are placed at appropriate locations across the entire complex. The bins are labelled and colour coded as follows:

- Green Bins (General Waste)
- Yellow Bins (Hazardous Waste e.g. Empty Oil Drums, Oily Rags, Oil Filters and Chemical Anchors)
- Aqua Blue (Scrap Metal)
- Lilac Bins (Paper & Cardboard)
- Orange Bins (Co-mingled Recyclables)
- Brown Drums (Waste Grease)

In addition to the bins mentioned above, UCML also segregate/recycle:

- drill bits and steels;
- timber/pallets;
- batteries;
- plastics;
- water hoses;
- waste oil and oily water;
- waste coolant;
- toner cartridges;
- conveyor belt; and
- waste tyres.

Appendix 1 details the specific management of these waste streams as per the UCML Waste Management Matrix.

A Magnetite Recovery System in the Coal Handling Preparation Plant recovers 50-60% of magnetite for reuse. Wastewater for reuse and recycling is managed in accordance with *ULN-SD-PLN 0017 Water Management Plan*. This includes waste water from the operation of the Reverse Osmosis Water Treatments.

Further reuse and recycling opportunities will continue to be explored in relation to the activities at Ulan Coal Mine in accordance with targets set in *XCN SD GDL 14.0 Product Stewardship*.

3.1.4 Storage and Disposal

Where recycling options are not available, waste classified as General Solid Waste (putrescible or non-putrescible) is transported by a licensed contractor for disposal at a licensed solid waste landfill or, in the case of washery rejects/stowage, at approved emplacement areas under the *Coal Mines Health and Safety Act 2002*.

Washery rejects and stowage are disposed of in approved areas (in accordance with the Mining Operations Plan) within the former open cut voids. Tailings are pumped to an approved tailings dam, while coarse rejects are placed into various approved reject emplacement areas. In accordance with Schedule 1 of the *POEO Act*, disposal of washery rejects does not require an environmental protection licence. The disposal of this material is regulated by the *Coal Mines Health and Safety Act 2002*. Disposal of waste rock (overburden) is detailed in the Mining Operations Plan.

UCML's EPL 394 will be varied to include disposal of large tyres and conveyor belt onsite. This management plan will be updated once the EPL variation is received.

Hazardous waste will be segregated from other waste streams and stored in an appropriately bunded area prior to transportation offsite. Transportation of hazardous waste is undertaken by a licensed waste transporter for disposal at a suitably licensed facility, where necessary. The management of hydrocarbon waste, including waste oil and oily water will be managed in accordance with *XCN SD ANN 0041 10.4 Hydrocarbon Management*.

Under no circumstances will waste be received at the mine for storage, treatment, processing, reprocessing or disposal.

3.2 General Waste Management

The following actions/strategies will be implemented across site to maximise efficient waste management:

- All personnel working onsite will undergo a site induction. The induction will include a section on waste management practises on site;
- Clear instructions detailing recycling procedures and waste segregation procedures are to be maintained at various locations across site;
- All waste receptacles and storage areas are to be clearly identifiable; and
- With the exception of mined waste rock, there is to be no long term storage of waste materials on site.

3.3 Total Waste Management System

To meet the objectives of the Waste Management Plan and all other relevant regulatory requirements, UCML have engaged an appropriately licensed waste management contractor to perform the following activities in relation to waste management at UCML;

- on-site waste management;
- off-site waste disposal;
- increase recycling opportunities; and
- reporting

The waste management contractor is required to interact and liaise regularly with UCML's Environment and Community Coordinator (ECC). To meet UCML expectations and achieve the outcomes in this Plan, they must carry out:

- Weekly site inspections of all waste bins, waste oil tanks, grease drums etc and complete a Weekly Site Inspection Checklist;
- Liaise with operational personnel, as required, to achieve the objectives of the Waste Management Plan;
- Assist the Environmental Coordinator, as required, to develop Key Performance Indicators (KPI's) and targets in relation to;
 - reducing waste volumes to landfill;
 - identifying re-use opportunities;
 - identifying recycling opportunities;
 - identifying opportunities to reduce waste management costs;
- Prepare Monthly Waste Management Reports;
- Provide all required waste tracking documentation;
- Provide waste segregation service at the proposed waste segregation area (Underground pit top area);

- Crush 20 litre and 205 litre steel drums and maintain drum crushing equipment;
- Organise offsite waste disposal and recycling, as required; and
- Provide and maintain the necessary equipment.

3.4 Waste Segregation and Collection

To manage the segregation of expected wastes identified in **Table 2.5**, it is a requirement that all waste receptacles are easily identifiable, including clear signage and colour coding. The colour codes for waste receptacles are in accordance with **Section 3.1.3** of UCML's Waste Management Plan, which is aligned with *XCN SD ANN 0042 10.5 Waste Management*. This includes the provision of a sufficient number of appropriately sized bins to maximise recycling opportunities by separating waste at its source.

The final capacity and placement of these waste receptacles will take into consideration all workplace activities, traffic flow, impact on the environment and occupational health and safety factors. The main aim of waste segregation at source is to minimise landfill disposal, increase rebates, prevent double handling and reduce waste stored onsite.

3.5 Waste Reduction Plan

UCML are required to develop an annual Waste Reduction Plan in accordance with the requirements of Xstrata Coal NSW (XCN). **Appendix 3** includes UCML's current Waste Reduction Plan. This plan will be updated annually to ensure continual improvement in the area of waste management. Achievement of this plan is also a KPI for the waste management contractor.

It is noted that Life of Mine waste volumes are difficult to predict and therefore waste management targets have been established to achieve continual improvements on the previous year's volumes. Waste volumes can be influenced by significant operational changes e.g. changing geological conditions in the underground.

3.6 Training and Awareness

In accordance with *XCN SD GDL 3.0 Behaviour, Awareness and Competency*, all relevant contractors and staff engaged at the Ulan Mine Complex who are undertaking tasks on-site related to waste management will receive relevant training in waste management.. Training will initially be undertaken for all new employees and contractors as part of the site induction process. Additional training is also undertaken with specific people involved in waste management on the surface. Tool box talks and refresher training is undertaken with employees and contractors as required.

UCML recognises that training and awareness is an integral part to the implementation of this Waste Management Plan. UCML's environmental training and awareness program is detailed within Appendix 3 of UCML's EMS (*ULN-SD-PLN-0050*) and includes clear responsibilities for Waste Management Training.

Additionally specific sustainable development information will be passed on to employees and contractors in accordance with the *ULN-SD-PLN-0015 Social Involvement Plan* and *ULN-SD-PRO-0016 Communication and Consultation Procedure*.

All bins are colour coded and clearly labelled and signage is available to assist people to use the waste management system correctly. Notices may also be posted on the notice boards

in the lamp room, crib rooms and elsewhere around the site to advise of changes or announcements.

In addition to the UCML training and awareness initiatives, UCML's waste management contractor may also provide education and training packages for waste management to compliment the training provided by UCML.

For more information on training please refer to Section 3 of the EMS.

4 MEASUREMENT AND EVALUATION

4.1 Inspections

To ensure that this plan is working 'on the ground' regular inspections will be undertaken by the waste management contractor to monitor the implementation of the waste management system at UCML. The aim of the site inspections is to look for reuse, recycling and minimisation initiatives which will also include the following checks:

- Housekeeping;
- Cross contamination; and
- Regulated and liquid waste volumes and storage.

These inspections will be documented using site specific inspection sheets. Completed inspection sheets will be given to the Environment and Community Coordinator/Officer. The inspections will highlight any areas of concern and assist in the programming of collection and waste tracking. Where non-conformances are observed, the person responsible for the area is notified immediately and the issue is rectified.

UCML will also conduct regular inspections of work areas in accordance with the UCML *EMS (ULN SD PLN 0050)*. Any improvements made as a result of the inspections process will be reported in the Annual Review report (Condition 3, Schedule 5 of PA 08_0184), formerly the Annual Environmental Management Report (AEMR). Further information on the Annual Review can be found in Section 4 of the EMS.

4.2 Audits

Audits are undertaken by Xstrata Coal NSW at a corporate level (i.e. EMS, Compliance, etc). The various regulatory agencies (e.g. DoPI and OEH) also undertake statutory inspections when required. Actions from audits will be entered and tracked in UCML's Xstrasafe database.

4.3 Key Performance Indicators

Key Performance Indicators (KPI's) for waste management have been included in the Site Service Agreement for the waste management contractor. These KPIs include targets for safety and environmental performance, work performance and administration compliance.

Achievement of the Waste Reduction Plan (**Appendix 3**) is also a KPI for the waste management contractor. Progress against the plan will be reviewed at quarterly contractor meetings.

4.4 Reporting Requirements

The following section of the Management Plan includes the reporting requirements of both UCML and the nominated contractor relating to the management of waste issues at Ulan Coal Mine.

UCML Reporting

- All external and internal reporting is undertaken in accordance with the reporting requirements detailed within UCML's *EMS (ULN-SD-PLN-0050)*;
- A summary of any waste management issues and actions arising throughout the year will generally be presented in the Annual Review report. In addition, UCML are required to report all community complaints in the Annual Return for EPL 394;
- All records associated with this Management Plan are to be kept in accordance with the UCML's *EMS (ULN-SD-PLN-0050)*;
- All records will be kept as electronic and hard copies within the UCML Environmental Department and archived within the Technical Services Archive Room; and
- All approved versions of the Management Plan will be available on the UCML Intranet System. Any printed version of this management plan will be deemed as an uncontrolled document.

Contractor Reporting

Monthly Waste Management Reports must be prepared and submitted by UCML's Waste Management Contractor by the 2nd working day of each new month. These reports must provide;

- Volumes of wastes disposed, treated and/or recycled;
- Reclaimed stock returned to the UCML Store as Stock Inventory; and
- Diesel and oil/grease/lubricant quantities consumed for the waste management service at Ulan Complex (to meet UCML's sustainability reporting requirements).

The format for these reports will be agreed with the Environment and Community Coordinator.

UCML's waste management contractor is responsible for the provision of all waste tracking and reporting requirements, regarding regulated waste materials, to UCML.

4.5 Complaints Management

All community complaints received by the Ulan Mine Complex are managed in accordance with *ULN SD PLN 0015 Social Involvement Plan (SIP)*. UCML have developed *ULN SD PRO 0001 Complaints Procedure* to assist in recording complaints, complaint investigation and follow up actions. This procedure has been established to record all complaints received by UCML and provides the company with an important measure, which assists in the overall assessment of sustainable development (SD) performance. The Environment and Community Manager is responsible for complaints management.

UCML maintain a 24 hour, 7 day a week community and employee information telephone line **1800 647630** and email address ulancomplaints@xstratacoal.com.au to:

- manage complaints received by UCML that may be a result of mining and/or associated activities conducted within land owned or managed by UCML.
- provide access to open cut blasting information for interested stakeholders; and
- provide access and incident information to employees during emergency situations.

In accordance with Condition 10, Schedule 5 of PA 08_0184, access to the Ulan Mine Complex's Community Complaints Register is via the UCML internet site at <http://www.ulancoal.com.au> for the purposes of external review and transparency. Further information on complaints management can be found in Section 3 of the EMS.

4.6 Environmental Incidents

Environmental incidents relating to waste management will be managed in accordance with *ULN SD PRO 0018 Hazard & Incident Management* procedure. This procedure has been developed to;

- Manage sustainable development hazards and incidents to minimise damage to people, environment, community and other assets; and
- Identify factors that contributed to incidents through an investigation process and to learn from those events and prevent reoccurrence.

The details and final investigation results from all environmental incidents must be recorded on the *ULN SD FRM 0008 Ulan Coal Incident Report & Investigation Form* and provided to Environment and Community Manager for review. All environmental incidents are to be recorded in XstraSafe and reported annually in the Annual Review report and EPL Return.

As per the requirements of EPL 394, the Environment and Community Manager (or delegate) must notify the OEHL of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

Notifications must be made by telephoning the Environment Line service on **131 555**. UCML must provide written details of the notification to the OEHL within 7 days of the date on which the incident occurred.

Further information on incident management can be found in Section 3 of the EMS.

5 REVIEW AND IMPROVEMENT

5.1 Review

Ongoing monitoring and review on the performance and implementation of the Waste Management Plan will be undertaken in accordance with *XCN SD GDL 16.0 Monitoring and Review* and Section 5 of the EMS. This includes a review of waste disposal volumes to establish targets related to volume reductions and drive waste management improvement.

The Environment and Community Manager (or delegate) will review the Waste Management Plan at least every three years, or earlier if required. The Waste Reduction Plan (**Appendix 3**) will be reviewed and updated annually. The review will include an assessment of the effectiveness of the established controls and their performance against the Plan's objectives.

Progressive amendments will be made to the Management Plan as a result of UCML's continuous improvement process. A copy of the revised document will be supplied to the Director-General of the DoPI for approval.

In addition, the performance of the Waste Management Plan, and particularly the Waste Reduction Plan (**Appendix 3**), in achieving the objectives and targets shall be reviewed at least quarterly. The review will be completed by the Environment and Community Manager and reported to the Operations Manager. This review shall enable the identification of non-conformances and the formulation corrective action where targets are not being met in accordance with *XCN SD GDL 16.0 - Monitoring and Review*.

A copy of the Waste Management Plan is also located on UCML's Internet Site at <http://www.ulancoal.com.au/>. Document Management will be undertaken in accordance with the *XCN SD GDL 7.0 Legal Compliance and Document Control*.

6 DEFINITIONS

Term	Definition
AEMR	Annual Environmental Management Report
AS	Australian Standard
DA	Development Approval
DoPI	NSW Department of Planning and Infrastructure (formerly the Department of Planning (DoP)
EA	Environmental Assessment
ECC/O	Environment and Community Coordinator/Officer
ECM	Environment and Community Manager
EMS	Environmental Management Strategy
EPA	Environment Protection Authority (now part of OEH)
EPL	Environment Protection Licence 394
I&I	Industry and Investment NSW
KPI	Key Performance Indicator
LGA	Local Government Area
MOP	Mining Operations Plan
Mtpa	Million tonnes per annum
MWRC	Mid Western Regional Council
OEH	NSW Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water (DECCW)
PA	Project Approval 08_0184
POEO	Protection of the Environment Operations Act 1997
RO	Reverse Osmosis
SD	Sustainable Development
SIP	Social Involvement Plan
SMP	Subsidence Management Plan
UCML	Ulan Coal Mines Limited
XCN	Xstrata Coal NSW

7 ACCOUNTABILITIES

Section 7 of the UCML EMS (ULN SD PLN 0050) details the Sustainable Development (SD) roles and accountabilities for all employees, contractors and suppliers. Specific roles and accountabilities for employees and contractors in relation to the Waste Management Plan are outlined below.

Role	Accountabilities for this document
Operations Manager	<ul style="list-style-type: none"> • Approve appropriate resources for the implementation of this Plan. • Ensure the effective implementation of strategies designed to reduce waste from the operation. • Ensure any potential or actual waste issue is reported in accordance with legal requirements and the corporate standard. • Authorise internal and external reporting requirements of this plan. • Approve subsequent revisions of this plan.
Environment and Community Manager	<ul style="list-style-type: none"> • Provide that sufficient resources are allocated for the implementation of this Plan. • Ensure appropriate resources are budgeted for to enable appropriate monitoring and management of waste. • Ensure that waste considerations are undertaken in the installation of all new infrastructure for the operation. • Identify waste management risks and impacts to the environment and assess resources required to mitigate identified risks and impacts within the site. • Ensure that waste management controls are implemented in accordance with this Plan. • Ensure that the results of monitoring are evaluated and reported to senior management and to relevant personnel for consideration as part of ongoing mine planning. • Ensure any potential or actual waste issue is reported in accordance with legal requirements and the corporate standard. • Provide visible and proactive leadership in relation to the waste management. • Ensure that operational changes consider the potential impacts of waste on the surrounding environment and adjacent private landowners. • Ensure all internal and external reporting requirements are met, including incident reporting in accordance with EMS. • Ensure all reporting complies with internal and external monitoring standards, protocols and regulations. • Proactively engage government and community as required • Review and approve external reports e.g. Annual Review Report, prior to final approval by the Operations Manager.
Environment and Community Coordinator/ Officer	<ul style="list-style-type: none"> • Oversee the implementation and maintenance of the Waste Management System for the Ulan Mine Complex, including management of the Waste Management Contract and implementation of the annual Waste Reduction Plan. • Ensure that all monitoring records are effectively maintained on site in accordance with the EMS. • Coordinate the collation and evaluation of monitoring data.

	<ul style="list-style-type: none"> • Regularly report environmental performance to ECM. • Prepare internal and external reports for review by ECM. • Conduct periodic environmental inspections in accordance with the EMS. • Ensure any potential or actual waste management issue, including incidents and non conformances is reported to the ECM • Coordinate incident investigation processes including associated reporting requirements, in accordance with the EMS. • Coordinate the implementation of any corrective actions and evaluate their effectiveness. • Provide visible and proactive leadership in relation to waste management. • Participate in the ongoing review of this Plan.
<p>Community, Land and Property Coordinator</p>	<ul style="list-style-type: none"> • Contact point for Community Complaints in accordance with ULN SD PRO 0001 – Complaints Procedure. • Ensure effective management of all community complaints. • Provide copies of updated management plans to CCC members and upload to the UCML website. • Conduct periodic environmental inspections of UCML's buffer lands to identify any waste management issues. • Ensure any potential or actual waste management issue, including incidents and non conformances is reported to the ECM. • Proactively engage government and community as required.
<p>Project Managers, Supervisors and Task Coordinators</p>	<ul style="list-style-type: none"> • Provide that sufficient resources are allocated for the implementation of this Plan, as required. • Ensure adequate resources are budgeted for in relation to waste management for their task/project. • Implement and manage changes through UCML's Change Management process. • Ensure that waste management considerations are undertaken in the installation of all new infrastructure to be installed at the project. • Ensure that operational changes consider the potential impacts of waste from the project on the surrounding environment and adjacent private landowners. • Monitor that team members and contractors carry out work appropriate monitoring and maintenance tasks. • Ensure any potential or actual waste management issue is controlled. • Ensure any potential or actual waste management issues, including environmental incidents, are reported to the ECM • Conduct regular inspections of the work area to monitor compliance with this plan • Provide input to management on the adequacy and effectiveness of this plan. • Ensure the effective implementation of strategies designed to reduce waste from the project.

	<ul style="list-style-type: none"> • Provide visible and proactive leadership in relation to waste management. • Ensure personnel working at the operation are aware of the waste obligations whilst working with UCML.
<p>All employees and contractors</p>	<ul style="list-style-type: none"> • Ensure the effective implementation of this Plan with respect to their work area. • Ensure any potential or actual waste management issues, including environmental incidents, are reported to the Project Manager, Supervisor or Task Coordinator. • Ensure equipment (relevant to task/area of responsibility) is maintained and operated in a proper and efficient manner.

8 REFERENCES

8.1 Legislation

- *Protection of the Environment Operations Act, 1997* (POEO Act)
- *Protection of the Environment Operations Amendment Act, 2005*
- *Protection of the Environment Operations Waste Regulation 2005*
- *Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation, 2008*
- *Waste Avoidance and Resource Recovery Act, 2001* (WARR Act)
- *NSW Waste Avoidance and Resource Recovery Strategy, 2007*
- *Environmentally Hazardous Chemicals Act, 1985*
- *Contaminated Land Management Act, 1997*
- *Coal Mines Health and Safety Act, 2002*

8.2 Xstrata plc

- Sustainable Development (SD) Policy

8.3 Xstrata Coal NSW

- XCN SD GDL 1.0 Environment, Biodiversity and Landscape Functions
- XCN SD GDL 3.0 Behaviour, Awareness and Competency
- XCN SD GDL 7.0 Legal Compliance and Document Control
- XCN SD GDL 10.0 Environment, Biodiversity and Landscape Functions
- XCN SD GDL 14.0 Product Stewardship
- XCN SD GDL 16.0 Monitoring and Review
- XCN SD ANN 0041 10.4 Hydrocarbon Management
- XCN SD ANN 0042 10.5 Waste Management

8.4 UCML

- Environmental Management Strategy (ULN SD PLN 0050)
- Hazard and Incident Management Procedure (ULN SD PRO 0018)
- Incident Report and Investigation Form (ULN SD FRM 0008)
- Complaints Procedure (ULN SD PRO 0001)
- Social Involvement Plan (ULN SD PLN 0015)
- Radiation Safety Management Plan (USO SD PLN 0021)
- Consultation and Communication Procedure (ULN SD PRO 0016)
- Water Management Plan (ULN SD PLN 0017)

8.5 Other

Umwelt, 2009 Ulan Coal Continued Operations Environmental Assessment (October 2009)

9 CONTROL AND REVISION HISTORY

9.1 Document information

Property	Value
Approved by	Environment and Community Manager
Document Owner	Environment and Community Coordinator
Effective Date	
Keywords	Waste, disposal, segregation, waste management

9.2 Revisions

Version	Date reviewed	Review team (consultation)	Nature of the amendment
1	31 December 2010	XCN IT	Document transfer to new Intranet platform.
2	31 March 2011	Jamie Lees, Ian Flood, Cheryl Henriques, Kristy Bennetts (Barnson)	Review of Waste Management Plan following Project Approval 08-0184 being granted by the DoP.
3	31 March 2011	Cheryl Henriques	Formatting – no change to content
4	1 April 2011	Cheryl Henriques	Formatting – no change to content
5	8 July 2011	Cheryl Henriques, Jamie Lees	Update following feedback from DoPI

10 APPENDICES

APPENDIX 1 – Waste Management Matrix

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
Special Waste	Asbestos	Old buildings/pipes	N/A	Collected in accordance with NSW WorkCover requirements. Transported by a licensed waste contractor to a licensed landfill that accepts asbestos waste.	REQUIRED
	Waste Tyres (and conveyor belt)	Workshop/service bay	Stockpile in an appropriate location	Small tyres (<1.2m in diameter) must be removed from site by a licensed waste contractor for recycling/disposal. EPL variation will be sought to bury large used tyres and conveyor belt in approved reject emplacement areas.	REQUIRED – for internal reporting
	Clinical Waste	First Aid Room, Drug Testing Room	Sealed containers	Collected by licensed contractor and transported to licensed facility for micro-wave decontamination, shredded and disposed of at secure landfill	REQUIRED
Liquid Waste	Septic/effluent	Adjacent buildings	Septic tank	Effluent pumped to onsite evaporation ponds. Sludge collected from septic tank by licensed waste contractor and transported to sewage treatment plant	REQUIRED
	Waste Oil/Oily Water	Workshops/service bays, fuel farms and oil/water	Empty oil drum bins, oil trolleys, waste oil/oily	Waste oil/oily water is collected and stored in bunded area or waste oil tanks for collection by licensed	REQUIRED

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
		separators, pump house	water tanks	waste contractor who transports it to a licensed facility where it is recycled for use in fuels/oils and bitumen products.	
	Parts washer liquid waste and degreaser	Workshop/service bay	Sealed drums	Collected by licensed contractor and recycled for re-use	REQUIRED
	Engine Coolant	Workshop/service bay	Mobile collection tanks for reuse or directly evacuated from the machinery	Coolant is not usually removed from engine unless contaminated, in which case the waste coolant is added to the waste oil tanks for collection (see above).	REQUIRED
	Water treatment plant waste water	Water treatment plant	Tanks, dams or underground storage	Currently recycled through UCML's mine water management system. Brine reuse/disposal study currently being developed.	
General Solid Waste (putrescible)	Animal waste and food waste	Various	General waste bins	Collected in dedicated general waste bins by licensed contractor and disposed of at offsite licensed landfill	REQUIRED – for internal reporting
General Solid Waste (non-putrescible)	Municipal Waste Silt, sediment, litter & gross pollutants Garden Waste Wood Waste	Various	General waste bins	Collected in dedicated general waste bins by licensed contractor and disposed of at offsite licensed landfill Approval may be sought from OEH to dispose of waste onsite.	REQUIRED – for internal reporting

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
	Concrete Waste Building & Demolition Waste Air Filters Plastic Drums				
	Paper and Cardboard	Various	Paper/cardboard Bins	Collected in dedicated paper/cardboard bins and transported by licensed waste contractor to local recycling facility	REQUIRED – for internal reporting
	Virgin excavated material	Various	N/A	Collected and transported to approved emplacement areas for burial.	NOT REQUIRED
	Washery rejects and stowage	Emplacement Areas	Emplacement Areas	Trucked or pumped to emplacement areas.	REQUIRED – for internal reporting
	Scrap metal/wire ropes	Laydown area, CHPP, crushing plant, under magnet shutes	Scrap metal bins	Licensed waste contractor transports scrap metal to scrap metal recycler, where it is weighed, consolidated and sent away for processing. UCML receive rebates for scrap metal through the waste contractor.	REQUIRED – for internal reporting
	Co-mingled Recyclables	Various	Recycle Bins	Collected in dedicated bins and transported by licensed contractor to material recovery facility where recyclables are sorted then	REQUIRED – for internal reporting

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
				packaged for recycling.	
	Water Hoses	Laydown area	Hose bin	Used water hoses are collected, inspected and repaired where possible. Hoses that cannot be repaired are disposed of as General waste (see above)	MAY BE REQUIRED (if hoses require disposal)
	Timber pallets	Various		Hardwood timber pallets are returned to suppliers for reuse. Softwood pallets are collected for use as firewood, taken offsite for disposal as "green waste" or stockpiled for wood chipping.	REQUIRED – for internal reporting
	Timber	Laydown areas	Stored in dedicated timber collection bin	Timber such as props, link'n'locks and broken pallets are collected and offered to the workforce as firewood for a nominal fee.	NOT REQUIRED
	Toner Cartridges	Offices	PlanetARK bin	Collected by licensed waste contractor on behalf of PlanetARK for recycling.	NOT REQUIRED
	Conveyor Belts	Conveyors	Laydown area	Conveyor belts are collected by a local company and recycled. Belts that cannot be recycled are buried onsite as per "waste tyres" above.	REQUIRED
	Drill bits and steels	Laydown area	Stored in 205 litre drum and plastic buckets	Segregated/collected by site staff for recycling. Bits are sent away to be "re-tipped" and reused.	NOT REQUIRED
Hazardous	Lead Acid Batteries	Workshops	Stored on bunded pallets	Collected by licensed waste contractor and transported to scrap	REQUIRED

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
Waste				metal recycler where they are weighed, consolidated and sent away for processing. UCML receive rebates for lead acid batteries through Thiess Services.	
	Chemical Anchors	Underground pit top	Chemical Anchor Bin	Collected in dedicated bins by licensed contractor and transported to a licensed facility for disposal.	REQUIRED
	Oily rags/oil absorbent material	Workshops, service bays, crushing plant	Oily Rag Bins	Licensed waste contractor transports oil rags to a licensed facility for further processing (dependent on contaminant levels). Low contamination rags sent to licensed landfill site. High contamination rags (<40,000mg/kg total petroleum hydrocarbons) are pressed (to remove free liquid). The liquid is removed for treatment as waste oil and the solid portion is sent to a licensed landfill site for disposal.	REQUIRED – for internal reporting
	Aerosols	Underground pit top, workshops	Empty aerosols bin	Collected in dedicated bins by licensed contractor, depressurised and sent to scrap metal recycler	REQUIRED – for internal reporting
	Oil filters	Workshops and service bays	Oil filter waste bins	Licensed waste contractor collects oil filters and transports them to a licensed facility where they are counted, crushed, shredded and sent to a scrap metal recycler. Any oil residue is collected by a licensed	REQUIRED

EPA Waste Classification	Waste Material	Usual Site Locations/Source	Storage	Waste Collection, Treatment and Destination	Tracking Requirements
				waste oil contractor and taken to a licensed facility where it is recycled and refined for reuse in fuels/oils and bitumen products.	
	Empty Oil Drums (20 litre and 205 litre)	Underground pit top, workshops	Empty oil drum bins, bunded areas	Collected by licensed waste contractor, drained, cleaned, flattened and sent to scrap metal recycler. Any residual oil is collected by a licensed waste oil contractor and taken to a licence facility for refining.	REQUIRED – for internal reporting
	Waste Grease	Workshop/service bays	Stored in sealed 205L drums	Licensed waste contractor transports waste grease to a licensed facility where waste grease is processed for recycling and drums are cleaned for reuse or flattened/shredded and sent to scrap metal recycler.	REQUIRED
	Hydrocarbon contaminated soil/sludge	Laydown area, fuel facilities	Stored in sealed 205L drums	Depending on contamination either collected by licensed waste contractor for disposal at approved landfill or bio-remediated on site	MAY BE REQUIRED
	Hydrocarbon contaminated pallecons (1000L plastic tanks)	Workshops/service bays	Stored in bunded area	Collected by licensed waste contractor and taken to licensed facility for disposal	MAY BE REQUIRED

APPENDIX 2 – Correspondence



ULAN COAL MINES LIMITED
A.C.N. 000 189 248

Managed by

xstrata
coal

Seq No: 83/11

Mine Office
4505 Ulan Road
Ulan NSW 2850

Private Mail Bag 3006
Mudgee NSW 2850
Telephone (02) 6372 5300
Facsimile: (02) 6372 5333

31 March 2011

David Kitto
Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Dear David

Re: UCML Management Plan Submission

Project Approval was granted for the Ulan Coal Continued Operations project by the Minister for Planning on the 15 November 2010 (PA 08_0184).

In accordance with this Project Approval, Ulan Coal Mines Limited (UCML) is required to submit a number of Management Plans by the 31 March 2011 for approval.

These Management Plans have been submitted electronically on the 31 March 2011 in accordance with email correspondence received from Dept of Planning (DoP). Hard copies of these Plans will be forwarded to DoP by courier. **Table 1** identifies the Management Plans that are being submitted for approval in accordance with the Project Approval.

All Management Plans have been prepared in consultation with the relevant stakeholder as specified in the Project Approval.

In reference to the *Rehabilitation Management Plan* as required by Schedule 3 Condition 57, UCML understands that the pending Rehabilitation Environmental Management Plans (REMPs) will eventually supersede the Mining Operations Plans (MOP) once the Mining Act Amendment 2008 and Mining Regulation 2010 proclamation has occurred. Until these changes are implemented the current relevant DII guidelines applicable to this Project Approval condition are the "*Guidelines to the Mining, Rehabilitation and Environmental Management Process*" (MREMP) (Version 3, January 2006)). Therefore UCML believes that the Project Approval condition has been satisfied through the submission of the current approved MOP (approved on the 17 November 2011).

Registered Office; Level 38, 1 Macquarie Place, Sydney NSW 2000 Australia

Table 1 - UCML Management Plans Submitted for Approval

Management Plan	UCML Document Number	Project Approval Condition No.	Comments
Environmental Management Strategy (EMS)	ULN SD PLN 050	Schedule 5 Condition 1	
Noise Management Plan	ULN SD PLN 031	Schedule 3 Condition 9	
Blast Management Plan	ULN EXT PLN 092	Schedule 3 Condition 16	Submitted to DoP on the 21 March 2011 Document No. Has changed from ULN TS PLN 002 to ULN EXT PLN 092
Air Quality & Greenhouse Gas Management Plan	ULN SD PLN 059	Schedule 3 Condition 22	
Water Management Plan (incorporating the Site Water Balance)	ULN SD PLN 017	Schedule 3 Condition 34 & 35	
Goulburn River Diversion Remediation Plan	ULN SD PLN 054	Schedule 3 Condition 36	
Erosion & Sediment Control Plan	ULN SD PLN 025	Schedule 3 Condition 37	
Surface Water Monitoring Program	ULN SD PLN 055	Schedule 3 Condition 38	
Ground Water Monitoring Program	ULN SD PLN 056	Schedule 3 Condition 39	
Surface and Ground Water Response Plan	ULN SD PLN 057	Schedule 3 Condition 40	
Heritage Management Plan	ULN SD PLN 013	Schedule 3 Condition 47	The Conservation Management Plans (CMP's) for Old Ulan Village & Bobadeen Homestead will be submitted for approval at the end of April 2011 in accordance with the letter submitted to DoP on the 6 th March 2011
Waste Management	ULN SD PLN 016	Schedule 3 Condition 54	
Rehabilitation Management Plan	N/A	Schedule 3 Condition 57	This Management Plan is currently the UCML Mining Operations Plan (MOP) 2010 – 2017.

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Could you please confirm that these plans have been developed to the satisfaction of the Director-General. If UCML does not receive a response from DoP within 28 days from the date of this letter, it will be determined that DoP is satisfied with these Management Plans.

If you have any questions or require any additional information relating to the preparation of these Management Plans, please don't hesitate to contact either myself on 02 63725368 or Cheryl Henriques on 02 63725329.

Yours faithfully



Jamie Lees
Environment & Community Manager – UCML Complex
Ulan Coal Mines Limited

Registered Office; Level 38, 1 Macquarie Place, Sydney NSW 2000 Australia

APPENDIX 3 – 2011 Waste Reduction Plan

Goal	2010 volume	Target
Reduce chemical anchor wastage through education of workforce, auditing of work areas	22,962kg	50% decrease (on 2010 levels)
Reduce volume of general waste taken to offsite landfill through improved segregation	419,289kg	10% decrease (on 2010 levels)
Reduce volume of oily water taken offsite for processing through introduction of oil-water separation process at UG Compressor Shed	261,200 litres	50% decrease (on 2010 levels)
Eliminate transport of empty oil drums offsite by draining & crushing drums onsite for scrap steel ¹		75% drums crushed onsite
Record & quantify stock wastage reporting to waste receptacles		Establish baseline levels
Improve rebates for scrap metal through better segregation onsite		Maximum rebates for different metals

- Note: Life of Mine waste volumes are difficult to predict and therefore waste management targets have been established to achieve continual improvements on the previous year's volumes. It is noted that waste volumes can be influenced by significant operational changes e.g. changing geological conditions in the underground. This waste reduction plan will be reviewed annually.

¹ Assumes drum crusher set up and operating by end March 2011