



Narrabri Coal Pty Ltd

ABN: 76 107 813 963

Waste Management Plan

for the

Narrabri Coal Mine



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Prepared By: Narrabri Coal Pty Ltd
PO Box 600
Gunnedah NSW 2380

Tel: [02] 67424337
Fax: [02] 67423607
Email: CBurgess@whitehaven.net.au

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ACRONYMS USED THROUGHOUT THIS REPORT

AEMR	-	Annual Environmental Management Report
CCC	-	Community Consultative Committee
DECC (EPA)	-	Department of Environment and Climate Change (Environment Protection Authority)
DoP	-	Department of Planning
DPI-MR	-	Department of Primary Industries - Mineral Resources
EA	-	Environmental Assessment
EMS	-	Environmental Management Strategy
INP	-	Industrial Noise Policy
ISO	-	International Standards Organisation
NCM	-	Narrabri Coal Mine
NCPL	-	Narrabri Coal Pty Ltd
NSC	-	Narrabri Shire Council
PA	-	Project Approval
ROM	-	Run of Mine
WaMP	-	Waste Management Plan

1 INTRODUCTION

The Narrabri Coal Mine ("the mine") is located approximately 30km south-southeast of Narrabri, and 10km north-northwest of Baan Baa (see **Figure 1**). The mine is being developed by Narrabri Coal Pty Ltd (NCPL) as an underground mining operation.

The mine lies within a 5 213ha area covered by a mining lease ("the mine site"), with a 255ha section of the lease designated for surface activities of the mine and referred to throughout this document as the Pit Top Area.

Project Approval (PA) 05_0102, granted by the Minister for Planning on 13 November 2007, approves the development and operation of the 2.5Mtpa underground mine, which will involve the following activities.

- Construction of a box cut, transport drift, conveyor drift and ventilation drift to provide access and ventilation to the underground workings.
- Construction of infrastructure within the Pit Top Area.
- Construction of a rail loop and site access road.
- Underground mining by continuous miner method.
- Transportation of mined coal to the ROM coal stockpile area of the Pit Top Area via conveyor system within the conveyor drift.
- Crushing and sizing of the ROM coal through the crushing/sizing plant and stockpiling on the product stockpile of the Pit Top Area.
- Loading of product coal into train wagons via the rail load-out bin for transportation to the Port of Newcastle.
- Rehabilitation of areas of disturbance, including landscaping and progressive maintenance of the Pit Top Area.

NCPL recognises that poor waste management practices have the potential to impact on the local environment. These impacts have been recognised by NCPL and are described as follows.

- Waste, or leachate from waste storage areas, has the potential to contaminate land and water.
- Offensive odours may be produced from waste storage areas.
- Ineffective recycling and/or over-ordering of stock can lead to the wastage of resources.

This Waste Management Plan (WaMP) has been prepared in recognition of the impact poor waste management could have on the environmental performance of the mine, and is in accordance with Condition 3(41) of PA 05_0102, which reads as follows.

"Waste Minimisation

"The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director General. The plan must:

- (a) be submitted to the Director-General for approval prior to the commencement of construction;*

- (b) *identify the various waste streams of the project;*
- (c) *describe what measures would be implemented to reuse, recycle, or minimise the waste generated by the project;*
- (d) *ensure irrigation of treated wastewater is undertaken in accordance with the Environmental Guidelines: Use of Effluent by Irrigation (DEC, 2004), or its latest version; and*
- (e) *include a program to monitor the effectiveness of these measures.”*

This document applies to all of the activities conducted during the construction, development and operation of the mine. The WaMP is to be read in conjunction with the Environmental Management Strategy (EMS) and other environmental management plans.

2 MINE WASTE STREAMS

The wastes that the mine will generate can be categorised as production and non-production wastes. Non-production wastes will include:

- general domestic-type wastes from the on-site buildings and routine maintenance consumables;
- fencing materials;
- oils and grease; and
- sewage.

Production wastes generated by the mine would consist of:

- mined rock from the development of the box cut, drift portals, and part of the rail loop;
- potentially contaminated water from the maintenance workshop, washdown pad and fuel storage areas; and
- saline water dewatered from the underground workings and consolidated salt generated by the evaporation of this water.

Appendix 1 presents a comprehensive list of the various waste streams generated by the establishment, development and operation of the mine.

3 WASTE MANAGEMENT OBJECTIVES

The objectives of waste management at the mine are as follows.

- (i) To minimize waste production.
- (ii) To identify waste types and quantities on site.
- (iii) To maximise the beneficial use of production waste material for site construction and rehabilitation activities.

- (iv) To identify potential re-use or recycling opportunities and ensure appropriate handling and collection procedures are in place.
- (v) To investigate methods to minimise waste generated by the mine and implement reasonable and feasible measures to minimise waste.
- (vi) To ensure the disposal of wastes conforms with applicable guidelines or licences.
- (vii) To ensure areas where fuels, oils or other potential contaminants are stored are appropriately banded.
- (viii) To ensure sewage disposal does not degrade the waste water utilisation area.

4 LEGISLATION AND GUIDELINES

The following Acts, Regulations and Guidelines have been reviewed and are applicable to WaMP.

- Environmental Guidelines: Assessment, classification and management of liquid and non-liquid wastes (EPA 1999).
- Environmental Guidelines: use of effluent by irrigation (DEC, 2004).
- Protection of the Environment Operations Act 1997.
- Waste Avoidance and Resource Recovery Act 2001.
- Protection of the Environment Operations (Waste) Regulation 2005.

5 MANAGEMENT SAFEGUARDS AND AMELIORATIVE ACTIONS

5.1 General Site Waste Management

The following actions/strategies will be put into practice to minimise the accumulation/generation of waste on site.

- All personnel working on the mine site are to undergo a site induction. The site induction will include the waste management practices on the mine site.
- All waste areas are to be clearly identified as waste storage areas. This includes bins and other receptacles for domestic waste, and which would be marked according to the type of waste accepted, eg. scrap metal, oil filters and oily rags, other recyclables, general waste, etc.
- Clear written instructions are to be erected at appropriate locations detailing recycling and waste separation information.
- With the exception of mined rock and accumulated salt from the evaporation of dewatered groundwater (both production wastes), there will be no long term storage of any waste materials on the mine site. Notably, the mined rock will be utilised in construction of the perimeter amenity bund and other items of mine site infrastructure such as the ROM coal and product stockpile areas.

5.2 Waste Minimisation

The following methods will be used to minimise waste production:

- Specifications of construction material quantities for contractors will be as accurate as possible to avoid the over-ordering of materials and the potential for excess waste.
- The ordering of stock during the operation of the mine will be regularly reviewed to ensure efficient stock control and to avoid wastage
- Effluent from the site offices, bathhouse and other amenities will be pumped to a self irrigating eco-cycle septic sewage system. The treated septic system water will be irrigated on revegetated areas and landscaped areas in accordance with *Environmental Guidelines: Use of Effluent by Irrigation* (DEC, 2004) and/or specific conditions of the mine's Environment Protection Licence.
- The use of degreasers will be regulated in the workshop areas to ensure the efficiency of the oil-water separator.

5.3 Recycling

NCPL will provide appropriate storage areas or receptacles for all materials that are suitable for recycling. The main recyclable waste materials that will be generated by the mine and their primary source(s) are as follows.

- Paper and cardboard: will be primarily generated within the administration facilities of the Pit Top Area but also in lesser quantities from contractor offices and workshops. Paper will be placed into appropriate collection bins, which will be collected by a recycling contractor on a regular basis.
- Scrap metal: will be generated in significant amounts during the site establishment phase, but on a continuing basis from the NCPL and contractor workshops. The scrap metal will be placed into large skip bins, which will be collected by a metal recycler as sufficient quantities are available. Separate containers or bins would also be maintained at strategic locations for the collection of aluminium cans.
- Oil filters and oily rags: will be generated at the maintenance workshops of the Pit Top Area.
- Waste Oil: will be collected within bunded fuel storage, refuelling and maintenance areas and stored within waste oil bins once it has passed through an oil-water separator. The waste oil will be removed from site by a licensed waste oil contractor for recycling.
- Batteries: will be removed from site for delivery to a facility able to despatch them to an appropriate recycling facility.
- Miscellaneous recyclables: including printer cartridges and plastics will also be stored at appropriate locations prior to collection by, or delivery to, appropriate recycling facilities.

Appendix 1 provides a more comprehensive list of the waste streams generated and recycling opportunities for each waste stream.

NCPL's Environmental Officer will undertake regular inspections of the all waste storage locations to ensure that the appropriate separation and collection waste is being undertaken. As far as practical, NCPL will maintain a register of recycled material at the mine site.

5.4 Reuse of Waste Materials

Opportunities for the re-use of materials on site will be evaluated on a regular basis, ie. construction timbers are to be re-used where possible. The effluent from the site office, bathhouse and other amenities will be treated and re-used as irrigation water on rehabilitation and landscaped areas in accordance with *Environmental Guidelines: Use of Effluent by Irrigation* (DEC, 2004) and/or specific conditions of the mine's Environment Protection Licence.

The salt generated by the evaporation of dewater groundwater may be of commercial value, and opportunities to "re-use" this through commercial sale will be investigated during the life of the mine.

5.5 Waste Disposal

Disposal will be viewed as the last option in the management of waste, only if the avoidance, re-use or recycling of the waste in question is not practical. The following systems will be implemented at the mine in regard to waste disposal.

- Only transport operators or companies that are licensed by the appropriate authorities will be contracted to remove waste from the mine site.
- Waste vehicle tyres will be stored on site and disposed of at appropriately licensed facilities on an as needs basis.
- In the event a commercial market or other alternative market for the salt accumulated in the mine evaporation ponds is not identified, the salt would be either:
 - (a) stored within the evaporation ponds for the life of the mines and then excavated and placed within the drifts and box cut which are to be backfilled; or
 - (b) excavated and transferred to a facility with appropriate capabilities and licences to manage this material.
- Waste materials, which cannot be either re-used or recycled, will be sent to a licensed landfill that may accept that category of waste. An experienced waste contractor will remove the waste off site.

5.6 Waste Schedule

Included in **Appendix 1** is a schedule of wastes that are likely to be generated on the mine site during the establishment, development and operation of the mine. The quantities of these wastes will be monitored by NCPL's Environmental Officer and reported as required.

5.7 Protection of the Environment Operations Act 1997

NCPL will ensure that the mine will comply with the requirements of the POEO Act 1997, through the adoption of a waste hierarchy philosophy of Avoid, Re-use, Recycle and Disposal (see **Figure 2**).

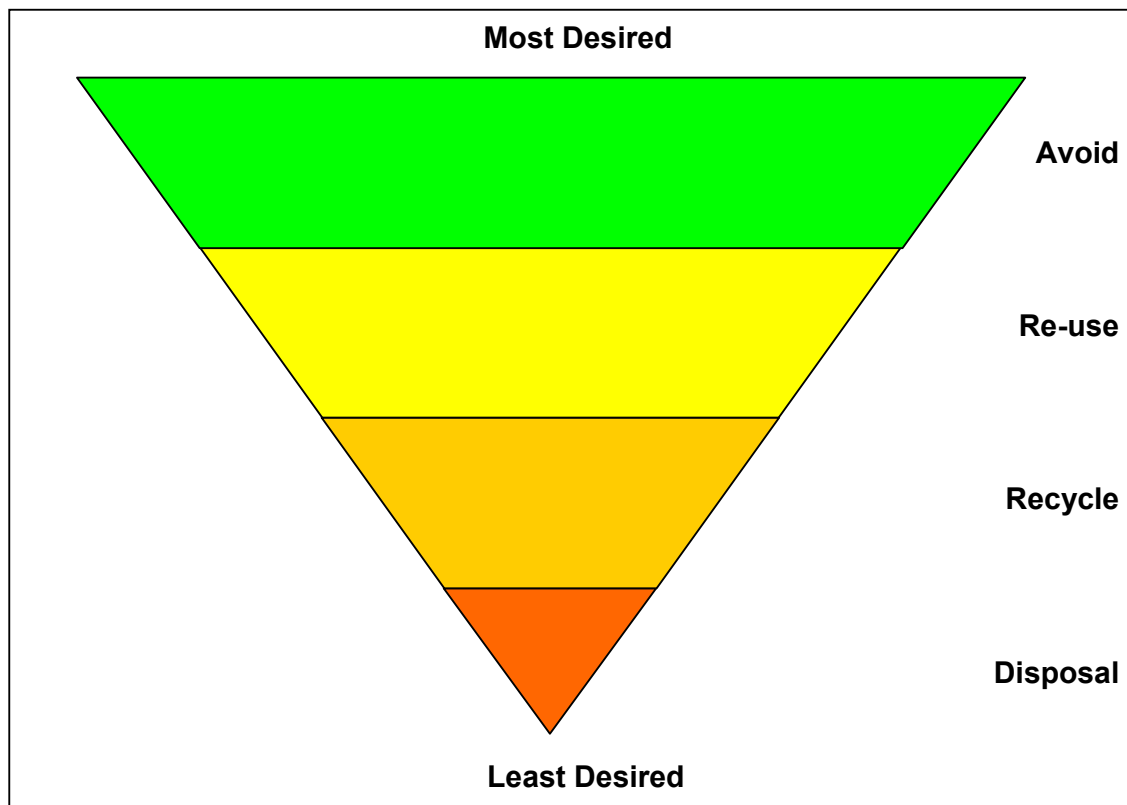


Figure 2
Waste Management Hierarchy

The production of waste will be controlled and reduced through the accurate ordering of materials and the avoidance of over-ordering and potential wastage of materials. Effluent from the site office, bathhouse and other amenities will be re-used around the mine site. All materials, which are available for recycling, will be collected and recycled off-site. Only materials, which do not fit into the above categories, will be disposed of to an appropriately licensed facility.

NCPL will undertake waste management on site in accordance with the legislation and guidelines listed in Section 5 of this Waste Management Plan. All contractors removing waste from site will be suitably licensed with appropriate governing bodies as required. Wastes, which are required to be tracked, will be done so, in accordance with the relevant legislation.

6 MONITORING, REPORTING AND REVIEW

Waste management data will be documented and reported in each Annual Environmental Management Report (AEMR). The information will include the quantities and type of waste removed off site for recycling or disposal, the contractor engaged to remove the wastes, and the final destination for all waste products. Details will be provided on the implementation success of the WaMP implemented and any areas that require improvement will be highlighted.

7 RESPONSIBILITIES AND ACCOUNTABILITIES

The Mine Manager and Environmental Officer will be responsible for the following activities described in the WaMP.

- implementing the activities contained in this WaMP, including recording sources and destinations of recyclable wastes;
- ensuring that all on-site waste contractors are inducted;
- ensuring that all waste contractors are appropriately licensed;
- ensuring that all materials are separated and recycled appropriately;
- maintaining a database which will record the quantities and types of waste removed from the site; and
- conducting regular audits around the mine site to inspect waste management practices.

Contractors that are engaged by NCPL to operate at the mine will be responsible for:

- ensuring that all wastes are placed into the appropriate storage areas or receptacles;
- ensuring they comply with all on-site regulations;
- ensuring they engage in safe work practices; and
- undertaking work practices that comply with this WaMP.

Appendix 1

Narrabri Coal Mine Waste Schedule

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WASTE SCHEDULE

Table 1
Schedule of wastes likely to be generated at the Narrabri Coal Mine during the construction, commissioning and operation of the mine

Waste Type	Source	Management/Disposal
Paper	Office/Workshop areas	Paper to be placed into recycling bins for collection
Cardboard	Used as packaging for various items	Cardboard to be placed into recycling bins for collection
Plastic Packaging	Used for shrink wrap over large goods deliveries. Used for general packaging	Placed into general rubbish receptacles for disposal to landfill
Putrescible Waste	Waste from employees	Placed into general rubbish receptacles for disposal to landfill
Timber	General off cuts during construction	Timber will be mulched and used around bare areas and in landscaping.
Metal	General excess materials during construction	Metals to be stored separately and removed from site for recycling
Hydrocarbons	Used in workshop and servicing areas	Any excess oil which is collected either through the separator or by other means will be stored in an appropriate location prior to removal by a licensed waste oil recycler.
Rags	Used in workshop and servicing areas	Soaked rags will be placed into general rubbish receptacles and taken by a licensed contractor
Batteries	Expended batteries from vehicle fleet	Will be removed from site for collection by a licenced contractor
Tyres	Expended tyres from vehicle fleet	Where practicable, tyres will be used as road boundaries and support for mounted towers. Otherwise tyres will be disposed of licensed facilities
Effluent	From bathhouse and office areas	Effluent will be treated by a water treatment facility on site. Treated effluent will then be applied to rehabilitated and landscaped areas.