



***Waste Management Plan***  
***for the***  
***Werris Creek Coal Mine***





***Whitehaven Coal Mining Pty Ltd***

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***for the***  
***Werris Creek Coal Mine***

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**ACRONYMS USED THROUGHOUT THIS REPORT**

AEMR	-	Annual Environmental Management Report
CCC	-	Community Consultative Committee
DA	-	Development Application
DECC	-	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
ISO	-	International Standards Organisation
LPSC	-	Liverpool Plains Shire Council
NATA	-	National Association of Testing Authorities
PA	-	Project Approval
ROM	-	Run of Mine
WMP	-	Waste Management Plan
WCM	-	Whitehaven Coal Mining Pty Ltd
WCC	-	Werris Creek Coal Pty Ltd

The following Acts, Regulations and Guidelines have been utilised in the production of this document and are applicable to this WMP.

- 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.
- Waste Classification Guidelines (April 2008)

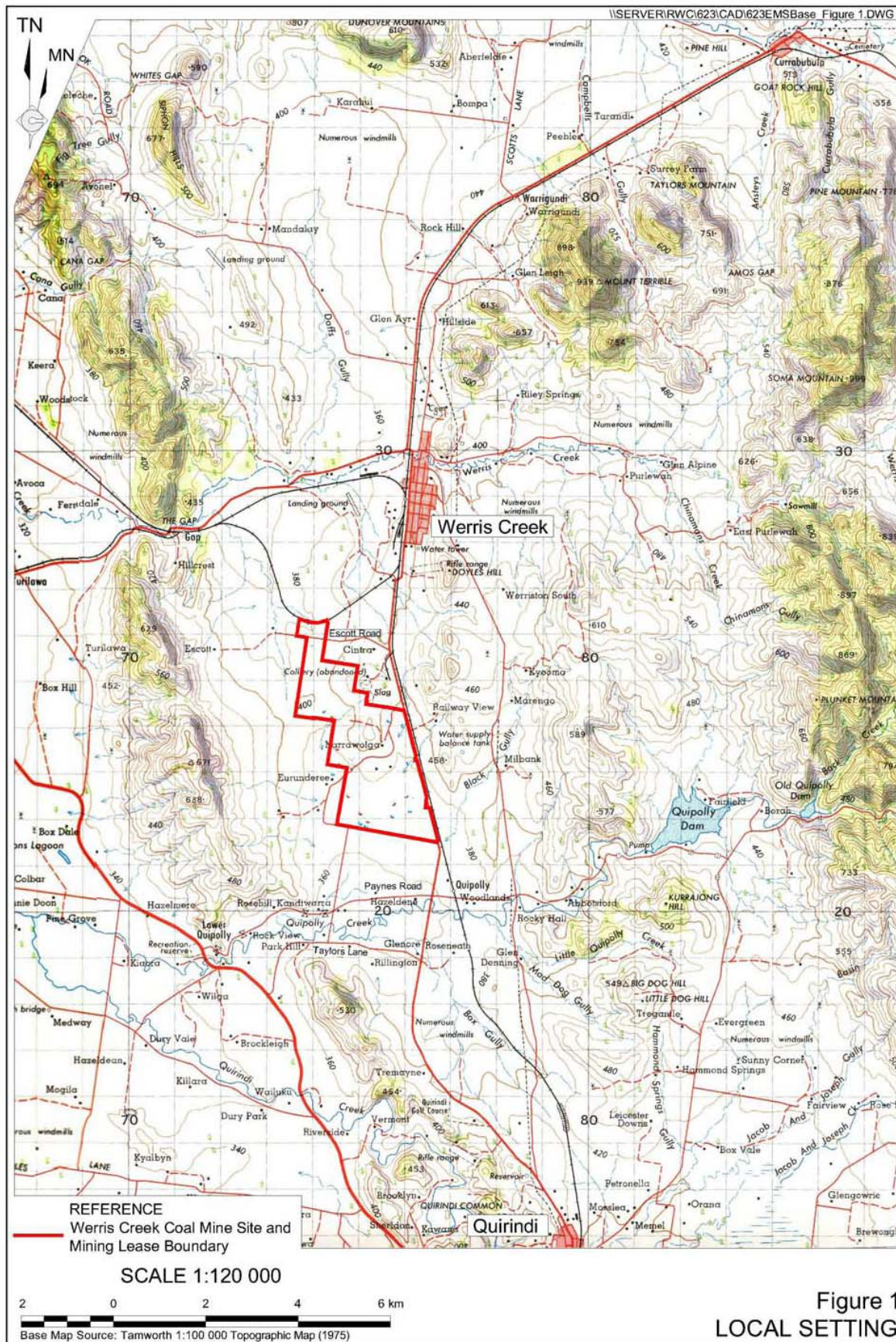
## 1 INTRODUCTION

The Werris Creek Coal (WCC) Mine is located approximately 4 km south of Werris Creek and 11 km north-northwest of Quirindi in central northern New South Wales (**Figure 1**). The mine is owned and operated by Whitehaven Coal Mining Pty Ltd (WCM), as an open cut operation. Development Consent (DA 172-7-2004) was granted from the Minister for Infrastructure and Planning on 18 February 2005 and construction activities (as defined in the Development Consent) commenced in April 2005. The WCC site is mined by truck and excavator producing up to 1.5 million tonnes per annum as raw coal for the export market. The coal is transported directly by rail from Werris Creek to the Port of Newcastle, with small quantities also being sold into the local domestic market.

WCC recognises that poor waste management practices have the potential to impact on the local environment. The recognised impacts have been 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 document applies to all of the activities conducted during the operation of the mine. The WMP is to be utilised in conjunction with the Environmental Management Strategy (EMS) and other environmental management documents specific to the Werris Creek Site.



## 2 MINE WASTE STREAMS

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

- General domestic-type wastes from the on-site buildings and routine maintenance consumables, i.e. paper and cardboard;
- Oils and grease; and
- Sewage.

Production wastes generated by the mine consist of:

- Mined rock from the open cut mining area;
- Mined overburden and interburden materials from the open cut mining area;
- Potentially contaminated solids from the maintenance workshop, wash-down pad and fuel storage areas.

**Appendix 2** 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 minimise waste production.
- (ii) To identify waste types and quantities on site.
- (iii) To maximise the beneficial use of production waste material for site constructions 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 to applicable guidelines or licences.
- (vii) To ensure areas where fuels, oils or other potential contaminants are stored are appropriately contained, banded and managed.
- (viii) To ensure sewage disposal does not degrade the waste water utilisation area.

## 4 MONITORING LOCATIONS

Regular monitoring of waste receptacles is undertaken by senior WCC staff members, with waste receptacles located in close proximity to heavy usage areas, such as:

- In the breeze ways of offices and crib rooms; and
- The workshop area.

Monitoring of the waste receptacles is generally undertaken to determine that the appropriate waste materials are being disposed of in their correct bins and waste streams are divided for ease of sorting.

Additionally, internal and external inspections of the above mentioned areas have occurred intermittently, to identify areas of improvement and determine compliance with this document and other relevant key guidelines and licences.

## **5 MANAGEMENT SAFEGUARDS AND AMELIORATIVE ACTIONS**

### **5.1 General Site Waste Management**

The following actions/strategies have been put into practice to minimise the accumulation/generation of waste on site and disposal to landfill.

- All personnel working on the mine site undergo a site induction. The site induction includes the waste management practices on the mine site.
- All waste areas have been clearly identified as waste storage areas. This includes bins and other receptacles for domestic and recycling waste, which are marked according to the type of waste accepted, e.g. scrap metal, oil filters and oily rags, other recyclables, general waste, etc.
- Clear written instructions have been erected at appropriate locations detailing recycling and waste separation information.
- With the exception of mined overburden / interburden materials and solid waste generated in the wash-bay sump (all production wastes), there is no long term storage of any waste materials on the mine site. Notably, small quantities of the mined rock have been utilised in the construction of rock lined water ways, rock bunds and other items of mine site infrastructure such as the ROM coal and product stockpile areas.

### **5.2 Waste Minimisation**

The following methods have been utilised to minimise waste production onsite:

- Ordering specifications of material quantities for the workshop and contractors are as accurate as possible to avoid the over-ordering of materials and the potential for excess waste.
- The use of degreasers is regulated in the workshop areas to ensure the efficiency of the oil-water separator.
- All waste items suitable for reuse or recycling are utilised in such a way.

### 5.3 Recycling

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

- Paper, plastics, aluminium cans and cardboard: are primarily generated within the site office facilities and crib rooms, but also in lesser quantities from contractor offices and workshops. These items are placed into appropriate collection bins, which are collected by a recycling contractor on a regular basis.
- Scrap metal: is generated in significant amounts and on a continuing basis from the WCC workshop and contractors. The scrap metal is placed into large skip bins, which are collected by a metal recycler as sufficient quantities are available.
- Oil filters and oily rags: are generated at the maintenance workshops on the Project Site and have their own storage receptacles. A licenced contractor removes these products from site on a regular basis.
- Waste Oil: is collected within a bunded storage facility onsite where it is stored until the licenced contractor removes the oils for recycling. Other waste oils and hydrocarbons captured in the sump of the wash bay from the refuelling and maintenance areas are stored within waste oil bins once it has passed through an oil-water separator. This waste oil is also removed from site by a licensed waste oil contractor for recycling.
- Batteries: are stored in a bunded area on site and are removed from site for delivery to a facility able to despatch them to an appropriate recycling facility.
- Miscellaneous recyclables: including printer cartridges and plastics are also stored at appropriate locations prior to collection by, or delivery to, appropriate recycling facilities.

**Appendix 2** provides a more comprehensive list of the waste streams generated and recycling opportunities for each waste stream.

WCC's senior staff members undertake regular inspections of the all waste storage locations to ensure that the appropriate separation and collection of waste is being managed appropriately. As far as practical, WCC maintains a register of recycled material at the mine site.

### 5.4 Reuse of Waste Materials

Opportunities for the re-use of materials on site are evaluated on a regular basis, i.e. mined rock is to be re-used where possible in the construction of waterways.

## 5.5 Waste Disposal

Disposal is 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 have been implemented at the mine in regard to waste disposal.

- Only transport operators or companies that are licensed by the appropriate authorities are contracted to remove waste from the mine site.
- Waste vehicle tyres have been stored on site and disposed of at appropriately licensed facilities on an as needs basis.
- Waste materials, which cannot be either re-used or recycled, are sent to a licensed landfill that may accept that category of waste. An experienced waste contractor will remove the waste off site.

### **Disposal of solid waste residing in the onsite wash-bay.**

Due to the nature of the material left in the wash-bay sump there is little opportunity for this product to be recycled or reused on site. After consultation with the DECC, it was noted that if the residual material contained in the sump was tested for hydrocarbon contaminants and concentration levels were under the General Solid Waste threshold, the waste material could be disposed of in pit. The following details the process for disposal of solid waste material residing in the wash bay sump:

- After the wash bay is used and the sump contains water, the oil / water separator is engaged, removing all hydrocarbons floating on the surface of the liquid. Oils and grease captured in this process are stored for removal and recycling as previously mentioned.
- All residual solid waste is dried, aerated and exposed to UV radiation. This process helps in the breakdown and removal of any residual hydrocarbons.
- A minimum of four core samples are randomly taken from the solid waste product and mixed for consistent results. Soil Samples are sent to a NATA accredited laboratory for analysis.
- After testing for hydrocarbon levels, if hydrocarbon levels are under the General Solid Waste threshold (*C6-C9 petroleum hydrocarbons <650mg/kg and C10 – C36 petroleum hydrocarbons <10,000mg/kg*) this material is disposed of in pit. If hydrocarbon contaminants are above this threshold then treatment of the solid waste will continue until hydrocarbon concentrations are within the desired limits.

## 5.6 Waste Schedule

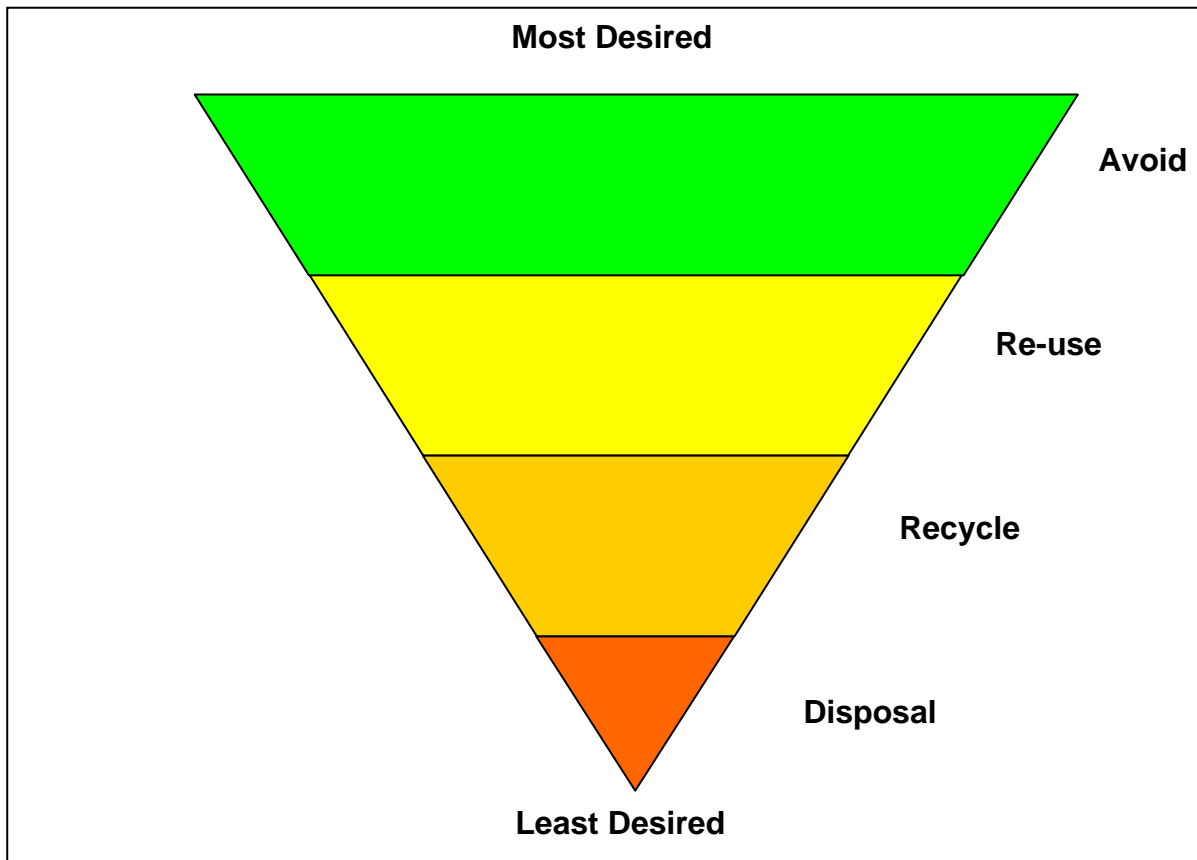
Included in **Appendix 2** is a schedule of wastes that are generated on the mine site during the establishment, development and operation of the mine. The quantities of these wastes are regularly monitored by WCC's staff and reported as required.

## 5.7 Protection of the Environment Operations Act 1997

WCC has ensured that the mine will comply with the requirements of the POEO Act 1997, through the adoption of a waste hierarchy philosophy of Avoid, Reuse, Recycle and Disposal (see **Figure 2** below).

The production of waste has been controlled and reduced through the accurate ordering of materials and the avoidance of over-ordering resulting in the potential wastage of materials. All materials, which are available for recycling, are collected and recycled off-site. Only materials, which do not fit into the above categories, are disposed of to an appropriately licensed facility, or through a pre approved process on site.

WCC has undertaken waste management on site in accordance with the legislation and guidelines listed on **page iv**, of this document. All contractors removing waste from site are suitably licensed with appropriate governing bodies as required.



**Figure 2:** Waste Management Hierarchy

## **6 MONITORING, REPORTING AND REVIEW**

Waste management data has been documented and is reported in each Annual Environmental Management Report (AEMR). The information includes 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 also be provided on the success of the WMP implemented and any areas that require improvements, included and highlighted.

## 7 RESPONSIBILITIES AND ACCOUNTABILITIES

The Project Manager, Manager of Mining and Engineering, Workshop Supervisor, Manager of Coal Processing and Environmental Officer are responsible for the following activities described in this WMP.

- Implementing the activities contained in this WMP, 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 waste materials are separated and recycled appropriately;
- Maintaining a database that records 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 WCC to operate at the mine are 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 WMP.

## 8 APPENDIX

### 8.1 Appendix 1: Consent Condition Relating to Waste Management

#### SCHEDULE 3 SPECIFIC ENVIRONMENTAL CONDITIONS

##### WASTE MANAGEMENT

59. The Applicant shall:

- (a) monitor the amount of waste generated by the development;
- (b) investigate ways to minimise waste generated by the development;
- (c) implement reasonable and feasible measures to minimise waste generated by the development;
- and
- (d) report on waste and management and minimisation in the AEMR, to the satisfaction of the Director-General.

60. The Applicant shall not cause, permit or allow any waste generated outside the mine to be received at the mine for storage, treatment, processing, reprocessing or disposal, or any waste generated at the mine to be disposed at the mine, except as expressly permitted by a DEC licence.

*Note: This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste that requires a licence under the Protection of the Environment Operations Act 1997.*

## 8.2 Appendix 2: Werris Creek Coal Mine Waste Schedule

### Waste Schedule

**Table 1**

**Schedule of wastes generated at the Werris Creek Coal Mine.**

Waste Type	Source	Management/Disposal
Paper	Office/Workshop areas	Paper to be placed into recycling bins for collection
Cardboard	Office/Workshop areas	Cardboard to be placed into recycling bins for collection
Plastic Packaging	Office/Workshop areas	Placed into general rubbish receptacles for disposal to landfill
Putrescible Waste	General consumables waste from employees	Placed into general rubbish receptacles for disposal to landfill
Timber	Workshop. Goods received on pallets.	Stacked for collection by local contractor and reuse or recycled..
Metal	Workshop. General excess materials during operations.	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 through licensed facilities
Effluent	From bathhouse and office areas	Effluent will be treated by a water treatment facility on site. Sludge material collected will be removed through a licenced contractor. Some of the treated effluent in a liquid form will then be applied to an approved waste water utilisation area.
Wash-bay Solids	Workshop/Production Waste	Hydrocarbon analysis of solid waste. If waste material meets general solid waste category then waste material can be disposed of in pit.