17 Non-mining Waste

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17 NON-MINING WASTE

17.1 INTRODUCTION

This section describes waste and land contamination issues relevant to the Eastern Leases Project (the project). It is restricted to discussing non-mining waste. Waste generated from mining, i.e. tailings and middlings generated from the processing of manganese ore, is discussed in Section 3 – Project Description and is not discussed in this section.

17.2 WASTE

17.2.1 Regulatory Requirements

The current legislation and regulatory guidelines that provide the legal and strategic framework for managing wastes in the NT, and that are relevant to the project, are as follows:

- *Waste Management and Pollution Control Act* (WMPC Act);
- *Waste Management and Pollution Control (Administration) Regulations* (WMPC Regulations); and
- *Draft Waste Management Strategy for the Northern Territory* (NT EPA, 2014).

The WMPC Act and WMPC Regulations are administered by the NT Environment Protection Authority (NT EPA), and provide the legal and strategic framework for managing wastes in the NT.

The NT EPA is currently reviewing the WMPC Act and conducting public consultation in relation to the potential changes. The review aims to improve the environmental protection framework for waste management in the NT, through better regulation of environmental values and objectives, and to ensure appropriate legislative enforcement is in place to deter polluters. The revised legislation is anticipated to be available in late 2015.

In response to submissions received during this legislative review, the NT EPA has released a *Draft Waste Management Strategy for the Northern Territory* (2014). This draft strategy provides actions and objectives for the management of waste across the NT. The strategy is based on the principles of the waste management hierarchy, which are as follows:

1 Waste avoidance (most preferred);

2 Waste reduction;

3 Waste reuse;

4 Waste recycling;

5 Recover waste resources; and

6 Waste disposal (least preferred).

Licensing

The WMPC Act requires an environmental protection approval or licence for various activities, including activities that involve the disposal of prescribed, or 'listed' wastes. Listed wastes are provided in Schedule 2 of the WMPC Regulations and include a variety of organic and inorganic waste types.

Additional licensing and approvals will not be required for the project, given that the waste types generated by the project will be consistent with the waste streams generated by the existing mine, and waste from the project will be disposed in existing licensed facilities (refer to Section 17.2.3).

17.2.2 Existing Waste Management System

The proponent has a waste management system in place for the existing mine and the town of Alyangula. Wastes generated by the project will be managed in accordance with this system. The waste management system is based on the regulatory requirements, values and principles as described in Section 17.2.1.

There are logistical constraints associated with waste management, given that Groote Eylandt is remote from the mainland and there are no waste recycling facilities on the island. These constraints limit the options available for waste management. Notwithstanding this, the proponent adopts the principles of the waste management hierarchy as far as is practicable and ensures that on-island waste disposal is in well managed facilities. The waste management strategies are the subject of a continual improvement process to ensure wastes are appropriately minimised and managed.

Objectives

The proponent's waste management system reflects the objectives of the WMPC Act and WMPC Regulations by:

- Preventing pollution;
- Reducing the likelihood of pollution occurring;
- Effectively responding to pollution events;
- Avoiding and reducing the generation of waste;
- Increasing the re-use and recycling of waste; and
- Effectively managing waste disposal.

Key features of the waste management system include:

- Segregation and secure containment of all wastes for appropriate reuse, recycling or disposal at licensed facilities;
- Employee awareness of waste management practices;
- Regular environmental auditing; and
- Regular inspections and ongoing monitoring.

Waste Management Facilities

Where possible, wastes are reused or recycled, however, the majority of domestic wastes are typically disposed to landfill on the island. This is currently the only practicable method for dealing with the majority of the wastes, given the remote location of the island, and logistical constraints associated with regular waste removal to the mainland. Despite this, a proportion of recyclable wastes are collected and shipped to the mainland for recycling, including waste hydrocarbons (waste diesel, oil, oily rags), coolant, scrap metals, steel and aluminium cans, batteries, and some plastics.

The proponent's existing waste management system includes the following waste management facilities, which are shown on Figure 17-1:

- Integrated Waste Facility (IWF): This is a licensed facility located within the existing mine site. The IWF accepts domestic wastes generated from the township of Alyangula, and non-mining wastes generated by the existing mine, for disposal to landfill. The IWF accepts dry, wet and green waste streams, including inert construction materials, non-recyclable scrap steel, solid non-hazardous wastes, and domestic and putrescible wastes.
- Hazardous Waste Management Facility (HWMF): Located adjacent the Milner Bay Port Facility, the HWMF provides temporary storage for hazardous wastes and dangerous goods, as well as recyclable waste streams. The HWMF accepts items such as waste oils, coolants, paints, batteries, electrical equipment, steel and aluminium cans, and glass and plastic bottles. Items are segregated into waste type and temporarily stored at this facility before being shipped to Darwin for repair, reuse, recycling, or disposal by licensed contractors.
- Waste Transfer Facility (WTF): Located within the existing mine site, the WTF provides designated zones for the temporary storage of non-hazardous wet and dry wastes and scrap metals generated by mining activities. Wet and dry wastes are collected and transported to the IWF for disposal, and scrap metals are shipped to Darwin for reuse, recycling or disposal by licensed contractors.
- Bioremediation land farm: Located within the existing mine site, the land farm stockpiles hydrocarbon contaminated soils from the mine site. The stockpiles are turned regularly, and water and fertilisers added to encourage microorganisms, which in turn break down the hydrocarbons in the soils.
- Used tyre bays: Located within the existing mine site, used tyres that are no longer able to be repaired or retread, are stockpiled in designated bays for burial within designated quarry areas on the mine site. Areas where tyres are buried are surveyed, with the number of tyres registered on the site waste disposal database.
- Sewage Treatment Facilities: The proponent operates three sewage treatment facilities – one at the existing mine, and two in Alyangula. Treated sewage and grey water generated at the existing mine are pumped to containment dams, where they biodegrade.

There is sufficient capacity within these waste management facilities to accept the wastes likely to be generated by the project (refer to Section 17.2.3).

17.2.3 Waste Inventory

The main wastes anticipated to be generated by the project include:

- General and recyclable wastes;
- Green waste;
- Sewage;
- Waste oils;
- Coolant;
- Miscellaneous hydrocarbon wastes; and
- Tyres and batteries.

Wastes predicted to be generated by project activities are presented in Table 17-1, together with the source and proposed management strategy for each waste type. The waste types likely to be generated by the project are consistent with the waste streams currently being generated by the existing mine. With the exception of green waste, all other wastes generated by the project will be transported from the project site to the appropriate waste facility, and reused, recycled, or disposed of in accordance with the proponent's existing waste management system. No changes to the system or the waste management facilities are required as a result of the project, and the proponent's waste management facilities have sufficient capacity to accept wastes generated by the project.

Table 17-1 Wastes Predicted to be Generated on the Project Site

WASTE CATEGORY & GENERAL COMPOSITION	SOURCE	MANAGEMENT STRATEGIES (WASTE MANAGEMENT HIERARCHY LEVEL) *
General and Recyclable Wastes		
General waste: ■ Food scraps ■ Non-class 1, 2, 5 plastics	Crib hut	General waste will be stored on the project site in designated bins and regularly collected for transport to the Integrated Waste Facility (IWF) for disposal (6).
Recyclable waste: ■ Aluminium and steel cans ■ Class 1, 2, 5 plastics	Crib hut	Recyclable waste will be stored on the project site in designated bins and regularly collected for transport to the Hazard Waste Management Facility (HWMF) for recycling (4).
Green waste: ■ Cleared vegetation	Clearing of vegetation	Following clearing, the vegetation will be stockpiled and burnt on the project site (6).
Personal Protective Equipment and small items: ■ Gloves ■ Hardhats ■ Safety glasses ■ Gumboots ■ Water coolers	Crib hut	Waste items will be collected in designated bins for regular transport to the IWF for disposal (6).
Engine air filters	Basic on-site maintenance of light and heavy vehicles	Used air filters will be collected, cleaned and tested for reuse (3) if possible, or transported to the IWF for disposal (6).
Wooden pallets	For the transport of materials required for construction activities	Used wooden pallets will be collected and temporarily stored at the Waste Transfer Facility (WTF) for reuse (3). If the pallets are unable to be reused, they will be transported to the IWF for recycling (4) or disposal (6).
Scrap metals: ■ Steel ■ Light and Heavy gauge steels	Construction activities – formwork	Scrap metals will be temporarily stored at the WTF, prior to shipping to Darwin for reuse (3) or recycling (4) if possible, or for disposal (6) by licensed contractors.
Concrete	Construction activities	Unwanted concrete blocks will be broken up into transportable-sized pieces and taken to the IWF for disposal (6).
Listed Wastes		
Sewage waste / effluent	Crib hut portable toilet facilities	Sewage waste will be collected and transported to the sewage treatment facilities at the existing mine for treatment and disposal (6).

WASTE CATEGORY & GENERAL COMPOSITION	SOURCE	MANAGEMENT STRATEGIES (WASTE MANAGEMENT HIERARCHY LEVEL) *
Waste oils, grease, oily water, engine oil and fuel filters	Basic on-site maintenance of light and heavy vehicles and equipment	Waste oils, grease, sludge, oily water, oil filters and fuel filters will be collected and stored in separate designated containers, and transported to the existing mine for reuse (3) and recycling (4) if possible, or taken to the HWMF for shipping to Darwin for repair, reuse (3) or recycling (4) if possible, or for disposal (6) by licensed contractors.
Miscellaneous hydrocarbon wastes: ■ Oily rags ■ Absorbent and other oil spill cleanup products	Basic on-site maintenance of light and heavy vehicles, and mobile equipment	Oily rags and oil spill kit materials will be collected in designated regulated waste bins, and transported to the HWMF for shipping to Darwin for reuse (3) or recycling (4) if possible, or for disposal (6) by licensed contractors.
Tyres	Basic on-site maintenance of light and heavy vehicles, and mobile equipment	Used tyres will be collected and transported to the used tyre bay at the existing mine for retreading and reuse if possible (3) or disposal (6).
Spent vehicle batteries	Basic on-site maintenance of light and heavy vehicles	Spent batteries will be collected and transported to the HWMF for shipping to Darwin for reuse (3) or recycling (4) if possible, or for disposal (6) by licensed contractors.

** Waste Management Hierarchy: (1) Avoid; (2) Reduce; (3) Reuse; (4) Recycle; (5) Recover; (6) Dispose*

17.2.4 Waste Reporting

In accordance with WMPC Act and WMPC Regulations, the proponent currently maintains an inventory for the existing mine of all waste types and quantities produced and applicable disposal methods. This inventory will be extended to include wastes generated by the project. The proponent will also continue to submit annual National Pollution Inventory reports in accordance with the *National Pollutant Inventory Guide* Version 6.0 (DotE, 2015) (and associated manuals) as required.

17.3 LAND CONTAMINATION

17.3.1 Introduction

Land can become contaminated due to spills of contaminants or accumulation of wastes, and this can subsequently threaten human health and the environment. This section describes the control strategies to prevent land contamination from project activities.

Section 18 – Health and Safety provides further information on the storage and handling of hazardous and dangerous materials.

17.3.2 Regulatory Requirements

Land contamination is managed in the NT by the NT EPA under the WMPC Act. The WMPC Act also facilitates the implementation of national environmental protection measures as provided in the *National Environment*

Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM). The purpose of the ASC NEPM is to establish a consistent approach to the assessment of site contamination by encouraging sound environmental management practices, and to ensure the protection of human health and the environment. The NT EPA requires contaminated sites to be assessed in accordance with the ASC NEPM.

17.3.3 Contaminated Land History

The project is located on land with no past history of development or agricultural activities. The only activities that have taken place on the project site that may potentially give rise to contamination of the land are exploration drilling activities. These activities have taken place sporadically on the project site since 2001, and involve the use mobile drilling rigs and associated equipment.

The exploration drilling activities are small scale activities, undertaken in accordance with procedures designed to minimise land contamination. There are no known instances of land contamination on the project site as a result of these or any other activities.

17.3.4 Contamination Prevention and Control

The project is an additional mining area that will be operated as part of the existing mine, rather than an independent mine. Consequently there are only limited activities being undertaken on the project site that may give rise to land contamination. For example, the storage of diesel and chemicals will be limited to small scale, portable containers, and there is no disposal of waste proposed on the project site. Activities with the potential to give rise to land contamination include:

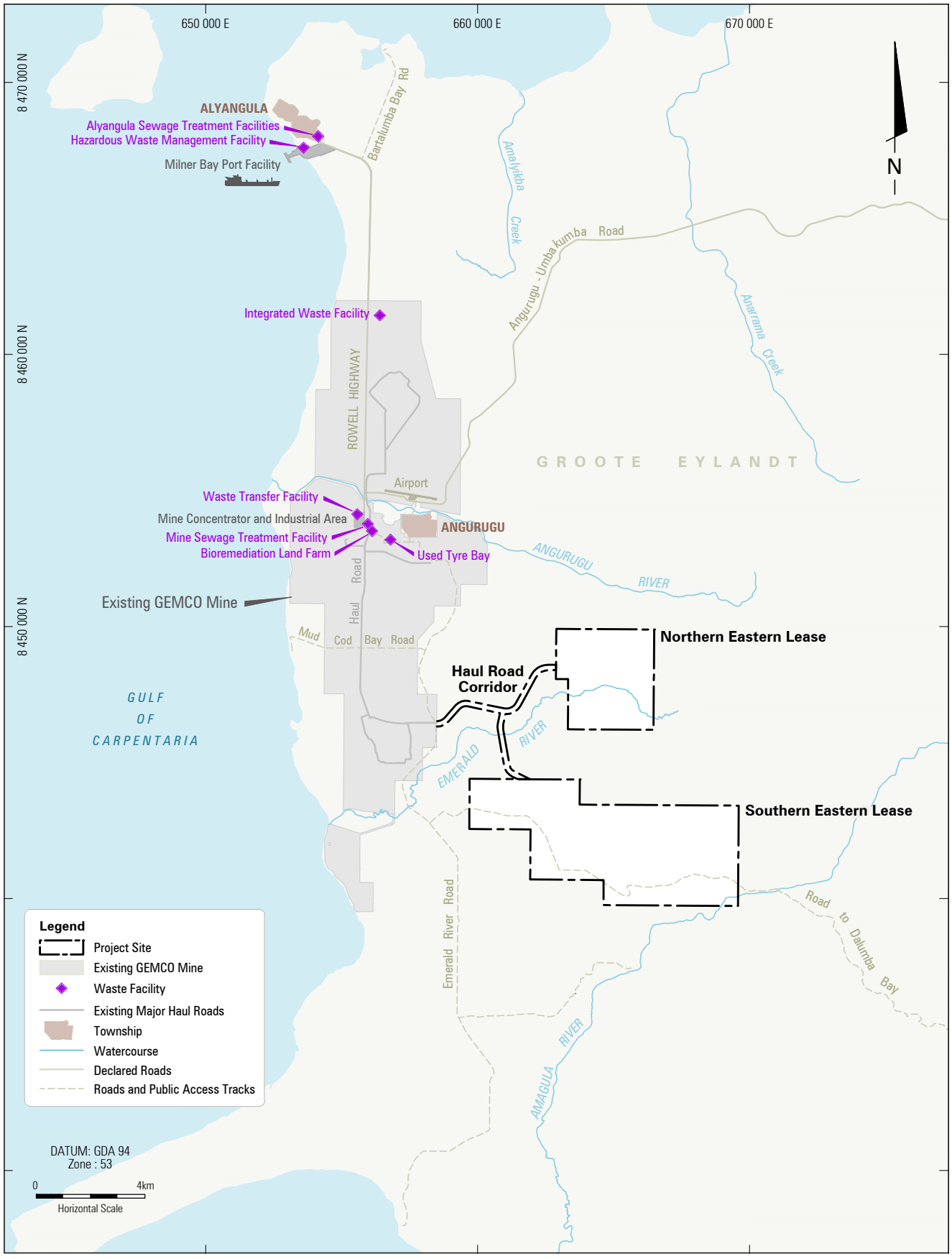
- Refuelling of on-site equipment using mobile refuelling trucks; and
- Basic maintenance works required on-site for equipment.

The proponent has refuelling procedures in place to prevent and control any spills that may occur during vehicle refuelling. In addition, the proponent will ensure spill cleanup kits are available on-site and located at strategic and easily accessible locations, and that all staff are adequately trained in the use of these emergency kits.

Although comprehensive maintenance of mine vehicles and equipment will occur at the heavy vehicle workshops located within the existing mine, it may be that basic maintenance of equipment permanently located on the project site is required. In addition there will be routine servicing and maintenance of the construction mobile equipment fleet in the vicinity of the crib hut and parking area (refer to Figure 3-14). Servicing and maintenance work may include replacing batteries, tyres, filters or other such maintenance works. These activities will be undertaken in designated hardstand areas, equipped with spill cleanup kits. Wastes generated by these activities will be collected and disposed of in line with the waste management strategies described in Section 17.2.3.

The risk of land contamination on the project site from project activities is therefore considered minimal.

FIGURES



EASTERN LEASES PROJECT

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Location of GEMCO's Waste Facilities

FIGURE 17-1