



VDM
CONSULTING
EcOz

Australian Ilmenite Resources

Environmental Management Plan



Australian Ilmenite Resources Pty Ltd

SILL80 Project, Mining Lease Application 27422

DW090024

January 2012

CONSULTING SCIENTISTS AND ENGINEERS



Offices:

Western Australia
Queensland
Northern Territory

New South Wales
Victoria
Hanoi, Vietnam



Document Control Record

Prepared by:	J. Shailes and C. Hawkey	Approved by:	Jeff Richardson
Position:	Environmental Scientists	Position:	Senior Scientist
Signed:		Signed:	
Date:	16 December 2011	Date:	12 January 2012

REVISION STATUS

Revision No.	Description of Revision	Date	Approved
0	First Issue	December 2011	Justine Shailes
1	Review	December 2011	Justine Shailes
2	Review	January 2012	Jeff Richardson

Recipients are responsible for eliminating all superseded documents in their possession.

VDM Consulting (NT) Pty Ltd
trading as EcoZ Environmental Services
ACN: 143 989 039



Winlow House, 3rd Floor
75 Woods Street
DARWIN NT 0800
PO Box 381, Darwin NT 0800

Telephone: +61 8 8981 1100
Facsimile: +61 8 8981 1102
Email: ecoZ@ecoZ.com.au
Internet: www.ecoZ.com.au

RELIANCE, USES and LIMITATIONS

This report is copyright and is to be used only for its intended purpose by the intended recipient, and is not to be copied or used in any other way. The report may be relied upon for its intended purpose within the limits of the following disclaimer.

This study, report and analyses have been based on the information available to VDM Consulting at the time of preparation. VDM Consulting accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. VDM Consulting does not take responsibility for errors and omissions due to incorrect information or information not available to VDM Consulting at the time of preparation of the study, report or analyses.

Executive Summary

Australian Ilmenite Resources (AIR) is developing an ilmenite mine and processing facility within Numul Numul Station in the Roper River Region of the Northern Territory. As part of the approvals process for this development the NT Government has requested a suite of planning documents including the development of an Environmental Management Plan (EMP) that describes a framework for the environmental management of the proposal and property.

The government has requested that the EMP include:

- The proposed management structure of the operation and its relationship to the environmental management of the site;
- Management targets and objectives for relevant environmental factors;
- The proposed measures to minimise adverse impacts and maximise opportunities, including environmental protection outcomes;
- Performance indicators by which all anticipated and potential impacts can be measured;
- Proposed monitoring programs to allow early detection of adverse impacts;
- Information on how the land will be managed if it is taken out of production;
- A summary table listing the undertakings and commitments made in the PER, including clear timelines for key commitments and performance indicators, with cross-references to the text of the PER; and
- Provision for the periodic review of the EMP itself.

This EMP uses the environmental risk analysis of the Public Environmental Review (PER) document as an outline of the potential environmental risks of this development. From this, 12 themes of environmental issues were defined: water, flora and fauna, vegetation clearing and rehabilitation, mine decommissioning and closure, erosion and sedimentation, noise and vibration, air quality, culture and heritage, waste management, handling, storage and disposal of dangerous goods, health and safety (including biting insects and fire), and community. Each of these themes were placed into a planning framework of environmental management that describes the objectives and targets, actions to fulfil these objectives and targets, monitoring required to ensure that the actions are being effective, reporting and auditing of environmental activities and any corrective actions required if the actions are not fulfilling the stated objectives.

Effectiveness of the EMP is only possible if there is the capacity to improve management responses as dictated by monitoring outcomes. This EMP will be explicitly aligned with other monitoring, auditing and reporting procedures including a Mining Management Plan and Mine Closure Plans.

Contents

1	Introduction	6
1.1	Purpose and Scope	6
1.2	Legislative Requirements	7
2	Management Framework	9
2.1	Definition of Terms.....	9
2.2	Standards, Codes of Practice and Guidelines.....	9
2.3	Responsibilities	10
2.4	Commitments.....	12
3	Goals and Strategies	16
3.1	Goals.....	16
3.2	Strategic Pathways	16
3.3	Production Interruption	16
4	Key Risk Summary and Management	17
4.1	Water	17
4.2	Terrestrial and Aquatic Flora and Fauna	18
4.3	Rehabilitation	19
5	Environmental Management	21
5.1	Water	21
5.2	Flora and Fauna	23
5.3	Vegetation Clearing and Rehabilitation	25
5.4	Mine Decommissioning and Closure	27
5.5	Erosion and Sedimentation.....	28
5.6	Noise and Vibration	30
5.7	Air Quality	31
5.8	Culture and Heritage.....	32
5.9	Waste Management.....	34
5.10	Handling, Storage and Disposal of Dangerous Goods.....	35
5.11	Health & Safety (Incl. Biting Insects & Fire).....	37
5.12	Community.....	40
6	Performance Review, Monitoring and Auditing	42
6.1	Environmental Induction, Training and Awareness	42
6.2	Monitoring Requirements.....	42

6.3	Reporting Requirements	42
7	Acronyms	44
8	References	45

Tables

Table 2-1.	Relevant Standards, Codes and Guidelines.	9
Table 2-2.	AIR's Project Commitments	12

Figures

Figure 1-1.	Location of Proposal.	6
Figure 2-1.	AIR Personnel Hierarchy.....	11

1 Introduction

Australian Ilmenite Resources (AIR) is developing an ilmenite mine and processing facility within Numul Numul Station in the Roper River Region of the Northern Territory (Figure 1-1). Engagement with stakeholders, to identify their concerns, was an integral part of early scoping for this development. Major concerns identified were management of environmental issues including ensuring stakeholder confidence in AIR’s remediation of potential environmental impacts.

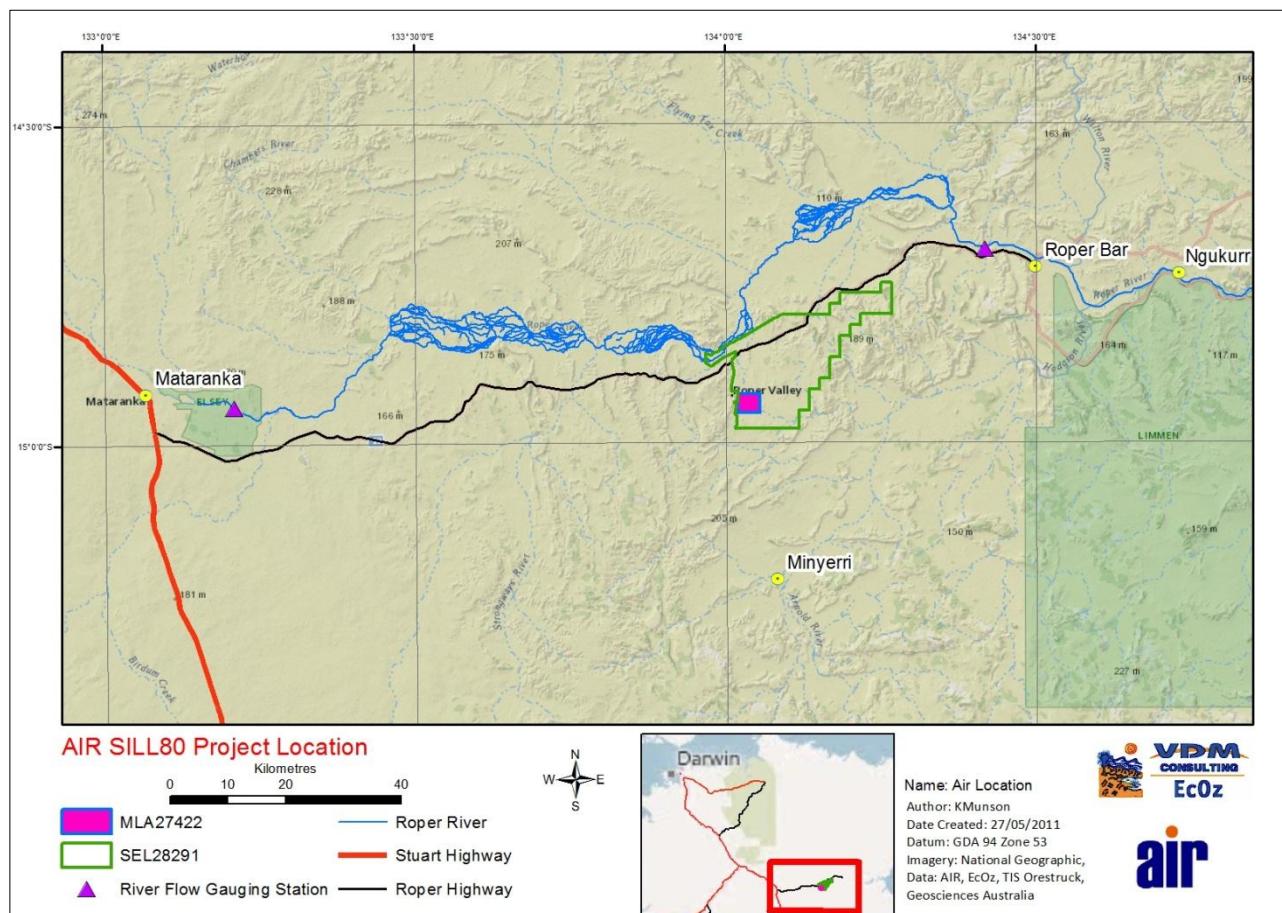


Figure 1-1. Location of Proposal.

This document describes the framework for environmental management employed by AIR; including safeguards and controls developed to ensure Environmental Impacts are minimised and promptly remedied, and outlines effective monitoring and long-term management of the site and surrounding environment.

1.1 Purpose and Scope

This Environmental Management Plan (EMP) has been prepared to cover all construction and operational activities associated with the AIR Operations on MLA27422. This plan has been developed in accordance with industry best practice, and to ensure implementation of commitments stated in the Public Environmental Report (EcOz Environmental Services 2012).

This EMP document covers both construction and operational phases of mining as AIR plans progressive construction works concurrent with operational works, potentially throughout the life of the mine.

The objectives of this Environmental Management Plan (EMP) are as follows:

- To define the statutory obligations that must be fulfilled;
- To present a range of specific environmental management actions necessary to meet the requirements of the environmental assessment process;
- To provide a clear framework for effective environmental management during construction and operational activities on the project;
- To assign clear and appropriate responsibilities for the implementation of specific environmental undertakings;
- To specify monitoring regimes to enable assessment of environmental performance; and
- To facilitate self-assessment to ensure that mitigation measures are implemented.

The EMP will be reviewed and amended annually to maintain relevance to all aspects of the SILL80 project. Any updates to the EMP will be included in the Mining Management Plan annual review.

The EMP will be used by:

- **Managers** to assist in the planning and resourcing of functions and to allow for assessment of required skills, competencies and training;
- **Geological Supervisor** to assist in the selection of workforce and equipment and to identify specific training, competencies and resources for the Project;
- **Site Supervisor (foreman)** to allow them to clearly understand specific requirements for specific tasks at specific locations;
- **Site Field Crew** to avoid spread of potential weeds, undertake appropriate water management, and minimise impact to threatened species and habitats;
- **Contractors** to avoid spread of potential weeds and minimise the risk of impact to threatened species and habitats; and
- **Auditors** to easily understand the general performance requirements of the Project and to enable each of these requirements to be checked and reviewed appropriately.

1.2 Legislative Requirements

The main Territory and Commonwealth legislation associated with this proposal are listed below:

Northern Territory Legislation

- *Aboriginal Sacred Sites Act 1989;*
- *Bushfires Act 1980;*
- *Control of Roads Act 2001;*
- *Dangerous Goods Act 1998;*
- *Environmental Assessment Act 1982;*
- *Local Government Act 1993;*
- *Mineral Titles Act 2010;*

- *Mining Management Act 2001;*
- *Parks And Wildlife Commission Act 2004;*
- *Planning Act 1999;*
- *Soil Conservation and Land Utilisation Act 1978;*
- *Territory Parks and Wildlife Conservation Act 1978;*
 - *Territory Parks and Wildlife Conservation Act Amendment Act 2005;*
- *Traffic Act 1949;*
- *Waste Management and Pollution Control Act 1998;*
- *Water Act 1992;*
- *Weeds Management Act 2001; and*
- *Noxious Weeds Act 2000.*

Commonwealth Legislation

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984;*
- *Aboriginal Land Rights (NT) Act 1976;*
- *Australian Heritage Council Act 2003;*
- *Environmental Protection and Biodiversity Conservation Act 1999;*
- *Industrial Chemicals (Notification and Assessment) Act 1989; and*
- *Native Title Act 1993.*

2 Management Framework

2.1 Definition of Terms

The following information is provided to define the terms used within this EMP, and more specifically, those terms used in Section 5.

Objectives	Objectives help determine what level of environmental management should be achieved and the general intent of the EMP.
Targets	Targets specify indicators to assist in determining if the objectives of the EMP are being met. They define the goal to which actions can be set.
Actions	Specific actions undertaken to aid implementation of the EMP.
Corrective Actions	Management strategies that are to be actioned should it be identified that targets and objectives are not being achieved.

2.2 Standards, Codes of Practice and Guidelines

The design and construction of the project will conform to relevant standards, codes and guidelines as appropriate.

Table 2-1. Relevant Standards, Codes and Guidelines.

Standards
AS/NZS 1269: Occupational Noise Management Set
AS 1678: Road Transport of Dangerous Goods
AS 1851: Maintenance of Fire Protection Systems and Equipment
AS/NZS 1940: The Storage and Handling of Flammable and Combustible Liquids
AS 2436: Guide to Noise Control on Construction, Maintenance and Demolition Sites
AS 2931: Selection and Use of Emergency Procedure Guides for the Transport of Dangerous Goods
AS/NZS 14004: Environmental management systems - General guidelines on principles, systems and support
AS/NZS 31000:2009: Risk Management
AS/NZS 14015: Environmental management - Environmental assessment of sites and organizations
Codes of Practice
National Code of Practice for the Storage and Handling of Workplace Dangerous Goods;
NT Code of Practice for Induction for Construction Work;
National Code of Practice for Manual Handling; and
National Code of Practice for the Labelling of Workplace Substances.
Guidelines
Storm water and wash down water pollution from building sites and Commercial/Industrial premises
Vehicle/plant or equipment wash down facilities
Noise guidelines for development sites
Australian and New Zealand Environment and Conservation Council (ANZECC) Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000

2.3 Responsibilities

AIR is responsible for implementation of, and compliance with, this EMP. AIR may engage construction contractors to carry out activities such as process plant construction, haul road upgrades or pit excavations at the mine.

AIR will be responsible for ensuring that contractors comply with this EMP and for regularly monitoring the performance of the contractors. AIR will also be responsible for approval of quality management procedures and systems prepared in association with the contractors and in accordance with this EMP.

Amongst other obligations, the contractors shall be responsible for:

- Development of Systems, Procedures and Reporting mechanisms which will ensure and demonstrate in a tangible way, compliance with the EMP;
- Development and implementation of appropriate training to all staff and contractors on the requirements of this EMP. This shall range from detailed training for supervisors, through to inclusion of environmental matters in project induction for other workers; and
- Participating in audits and reviews and undertaking corrective actions and system improvements when audit and review results deem necessary.

All AIR personnel are responsible for the environmental performance of their activities and for complying with the laws of the Northern Territory (NT). Specific environmental roles and responsibilities are detailed in the following sections.

2.3.1 Managing Directors – AIR

The Managing Directors are responsible for the standard of all management, including environmental management. To assist in fulfilling this responsibility, the Managing Directors are supported by a series of specialist personnel (refer to hierarchy in Figure 2-1).

2.3.2 General Manager - Production – AIR

The General Manager - Production is responsible for actioning all required surveys, monitoring, consultations, reporting requirements and community support as committed to within this EMP. Local contractors and employees will be sourced through the General Manager - Production. The General Manager - Production will receive feedback from the Field Manager regarding on-ground achievements and conditions, and will liaise directly with the Managing Directors and Financial Director for financial guidance and company direction.

2.3.3 Field Manager – AIR

The Field Manager is responsible for ensuring that onsite environmental safeguards, surveys and monitoring, inspections and remediation are all carried out as committed to within this EMP and as directed by the General Manager - Production. The Field Manager will report back directly to the General Manager - Production with outcomes and on-ground suggestions.

2.3.4 Environmental Contractors

Externally contracted environmental consultancy staff will conduct or supervise required audits and surveys. Environmental consultants will provide reports on this work, including recommendations on environmental management backed by extensive environmental training and experience. Communications regarding logistics will be directed to the Field Manager, and management recommendations will be directed to the

General Manager - Production for consideration. Environmental consultants will also work closely with the General Manager - Production with respect to annual EMP reviews and annual submission of the Mining Management Plan.

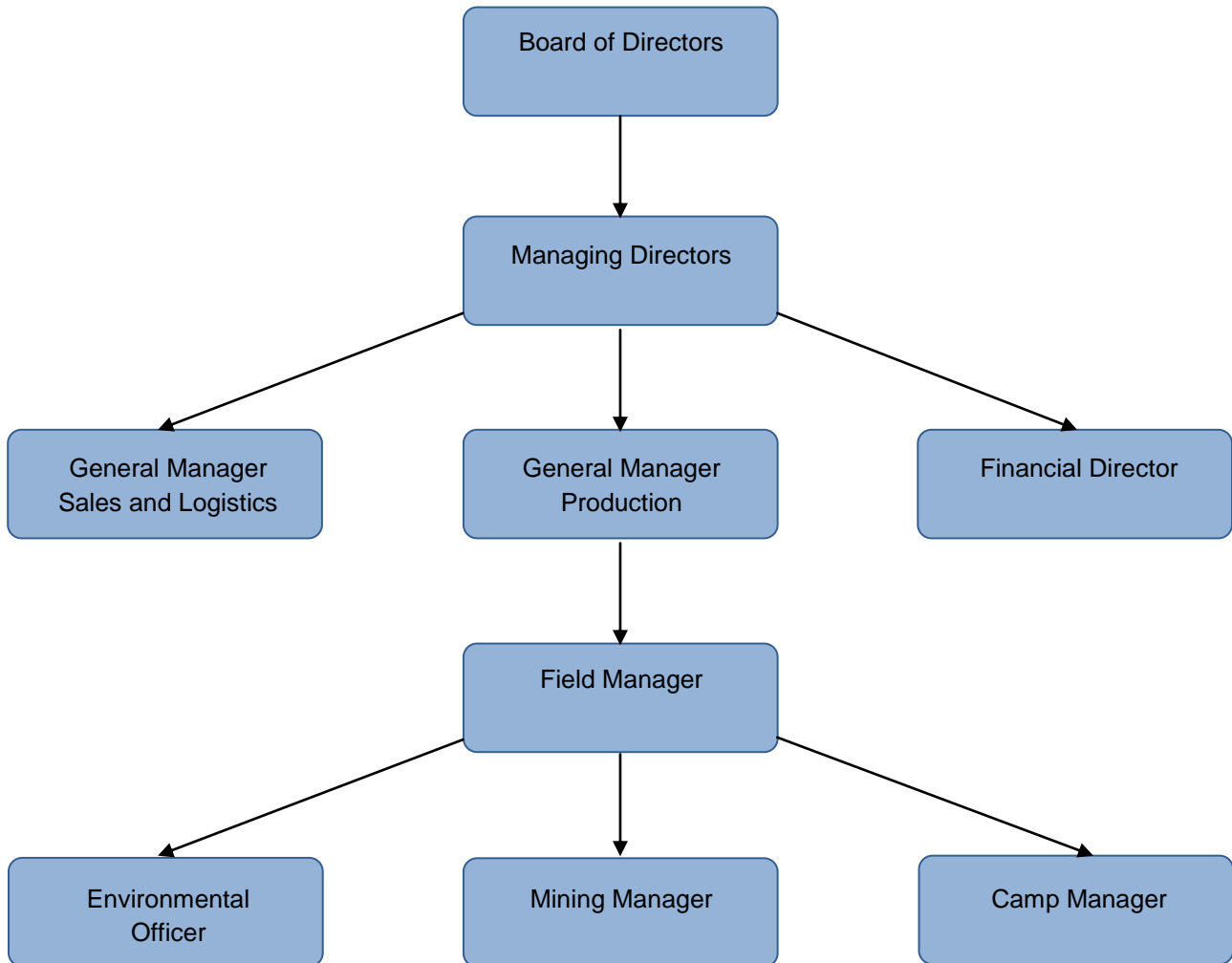


Figure 2-1. AIR Personnel Hierarchy

2.4 Commitments

Table 2-2. AIR's Project Commitments

Subject	Description	Commitment/Safeguard	Section in PER
Safety and Risk Management	Continual Improvement	A continual improvement approach will be taken for risk management and annual updates to the Mining Management Plan (MMP) that will reflect the latest developments in research and monitoring, as well as on-site lessons learned.	Section 6
Economic Contribution	Employment Opportunities	Appropriate skills-transfer and employment opportunities will be provided throughout the region through the encouragement of local business enterprises, giving preference to a local supply chain, and requiring contractors to provide the same.	Section 5.7
	Local sourcing of goods and services	Goods and services will be sourced from the Northern Territory where possible.	Section 4.4
Protection of Flora and Fauna	Management	AIR will undertake active weed control	Section 6.3.3
	Vegetation clearing	Vegetation clearing will be kept to the minimum necessary to accommodate proposed operations.	
	Exclusion of fauna species	AIR will erect fences or similar structures to control stock, along with other vertebrate fauna species, from hazardous areas such as the processing area, mine pit and internal roads.	Section 6.4.2
	Invasive species	AIR will undertake active weed control and construct a wash down area so that all vehicles and equipment arriving and leaving the site can be inspected and if necessary washed to reduce the risk of weed spread.	Weed Management Plan (PER Appendix I)
Protection of Water Resources	Surface water monitoring	<p>AIR will enter a Service Level Agreement with NRETAS to receive an automated flow rate alarm from the Red Rock gauging station, as per the Water Management Plan.</p> <p>AIR will install a surface water gauge board at Judy Crossing.</p> <p>AIR will develop tables capable of converting river height at Judy Crossing into water volume.</p> <p>AIR will install and maintain a flow meter on their water abstraction pump.</p> <p>AIR will monitor water volume at Judy Crossing and pumping volume and follow procedures detailed in Water Management Plan to ensure that water abstraction does not negatively impact on flow rates in the Roper River.</p> <p>AIR will cease pumping operations when critical thresholds are crossed, as detailed in Water Management Plan.</p> <p>AIR will engage an independent auditor to audit water</p>	Section 6.3.1 and the Water Management Plan (PER Appendix G)

Subject	Description	Commitment/Safeguard	Section in PER
		<p>abstraction processes and procedures as per the Water Management Plan.</p> <p>AIR will complete daily data sheets detailing water consumption and extraction.</p> <p>AIR will supply data to the independent auditor monthly.</p> <p>AIR will implement annual updates to WMP if required, as recommended by the independent auditor.</p>	
	Erosion and Sediment Control	<p>AIR will follow the existing ECSP</p> <p>AIR will ensure a site-specific erosion and sediment control plan is completed prior to mining development, in accordance with Northern Territory Governments requirements.</p> <p>AIR will implement recommendations relevant to erosion and sediment control as identified in the annual MMP update.</p>	Section 6.4.2 and the Erosion Sediment Control Plan (PER Appendix H)
Social Impact Management	Stakeholder engagement	Regular (as required) consultation with TO's and affected land holders.	Section 6.4.3 and the Social Cultural Aspects Report (PER Appendix D)
		Relevant stakeholder input or concerns will be addressed within the annually updated Mining Management Plan (MMP).	Section 6.4.3
	Employment and training	<p>AIR will employ three residents of nearby communities and will train appropriately</p> <p>All staff will undergo an induction which includes details on social and cultural impacts and management, 'cease work' protocols and access limitations.</p>	Section 5.7
Erosion and Sediment Control	Sediment dams	Impacted drainage lines will be diverted into a sediment dam to trap any transported sediments. Sediment dams will be designed to accommodate the large rainfall events that are common in the region and monitored and maintained to ensure they remain effective.	Section 6.4.2 and Erosion Sediment Control Plan (PER Appendix H)
	Road development	All road design will follow the principles and procedures outlined in the ESCP.	
		Erosion and sediment monitoring will be conducted over established roads in the project area in line with the ESCP.	
Waste and Hazardous Materials Management	Waste management	AIR will engage a licenced contractor to dispose of all waste material.	Section 6.4.4
	Hazardous materials	All hazardous materials and dangerous goods will be purchased, transported, stored and used in accordance with the relevant Australian Standards, NOHSC guidelines, Work Health (Occupational Health and Safety) Regulations,	

Subject	Description	Commitment/Safeguard	Section in PER
		<p>Dangerous Goods Regulations and Northern Territory guidelines.</p> <p>Specific training for hazardous goods handling will be provided where necessary.</p>	Section 6.4.5
	Fuel storage	<p>Hydrocarbons will be stored in appropriately bunded areas according to Australian standards AS/NZS 1940:1993 and AS/NZS 4452:1997. Bunding will be regularly inspected for damage and repaired as soon as is practicable if any damage is detected. Appropriate licences for storage will be obtained.</p>	
	MSDS and Spill Kits	<p>Appropriate management will be initiated if a spill occurs and the contaminated area will be managed appropriately, consistent with Australia standards.</p> <p>Spill clean-up kits and Material Safety Data Sheets (MSDS) will be provided on site and accessible to all staff.</p>	
	Radioactive Materials	<p>Once mining and processing begins, AIR will conduct a radiological survey over the stockpile and processing area (see Radiation Assessment report Appendix F).</p>	
Protection of Historic and Cultural Environment	Restricted areas	<p>Restricted access areas will be developed to protect historical and cultural sites, and to ensure staff and contractor safety.</p> <p>Whilst on site, workers and visitors will be restricted from accessing culturally sensitive areas. Any inappropriate behaviour will be responded to promptly, and the induction revised if necessary.</p>	Section 6.4.3
	Archaeological sites	<p>Should archaeological material be uncovered during mining activities, work will cease, and the relevant authorities will be informed and consulted in accordance with the Northern Territory <i>Heritage and Conservation Act</i> and the <i>Sacred Sites Act</i>.</p>	
Road and Transport Management	Road maintenance	<p>The access road will be maintained through regular grading and all windrows will be removed.</p> <p>Use of heavy vehicles will be minimised during the wet season, and the condition of road surfaces, tracks and associated drainage will be monitored at least three times a year; leading up to, during, and at the end of the wet season. Further road formation will be undertaken if the roads begin to degrade.</p>	Sections 5.6 & 6.4.3
	Signage	<p>Signage will be placed on the access road regarding appropriate speed and use of the road.</p>	
	Road use	<p>Vehicular traffic will be restricted to the proposed vehicle access road.</p>	Section 5.6
	Dust suppression	<p>Dust suppression will be delivered via water trucks around the mine site and along access tracks.</p>	Sections 5.6.1 & 6.4.5.4

Subject	Description	Commitment/Safeguard	Section in PER
Air Quality and Noise Management	Noise and air pollution	Due to the remote location of the project area, noise mitigation activities will focus on the occupational health and safety of employees. Industry best practice techniques and adherence to the relevant Australian Standards will be used when performing activities likely to create excessive noise or dust.	Section 6.4.5.4
Greenhouse Gas Emissions	Vehicle emissions	Vehicles will be regularly maintained to minimise the quantity of greenhouse gases being produced by vehicular movement around the mine.	Section 6.4.5.2
Biting Insects Management	Water storage	AIR will minimise mosquito breeding areas in line with Biting Insect Management Plan (BIMP) AIR will manage mosquito breeding sites as per BIMP AIR will minimise contact between personnel and mosquitos as per BIMP	Section 6.4.6 and the Biting Insect Management Plan (PER Appendix J)
	Mine site buildings	Will be appropriately screened, and the screens will be inspected annually to ensure they are not damaged. Yellow lights will be used.	
	Monitoring	AIR will monitor mosquitos and potential mosquito habitat as per BIMP	
Decommissioning and Rehabilitation Requirements	Revegetation	AIR will revegetate mined areas with the aim of the land being returned to pastoral production, as detailed in the Rehabilitation Management Plan and in close consultation with pastoral managers.	Section 6.3.2 and the Rehabilitation Management Plan (PER Appendix K)
	Weed management	During rehabilitation AIR will identify and control weeds as per Weed Management Plan.	
	Infrastructure	Ongoing consultations with traditional owners and land managers will occur regarding retention, removal, or relocation of infrastructure. Infrastructure that is not to be retained by traditional owners and land managers will be removed and the site subject to rehabilitation.	
	Ongoing mosquito control	Upon mine closure, all disturbed areas will be rehabilitated to be free draining where practical, and septic tanks and other artificial receptacles will be removed.	Section 6.4.6
Environmental Management	Management Plans	All management plans will be updated annually.	Section 8 and the Environmental Management Plan (PER Appendix L)
	Audits	Annual audits of AIR's performance against the current EMP, commitments stated in this PER, and all relevant and current legislative requirements will be conducted.	
Legislation and Permits	Timing	All applicable legislation will be followed and all applicable licences and permits will be obtained before the relevant aspects of the project commence.	Section 3

3 Goals and Strategies

3.1 Goals

The main aim of environmental management for this project is to ensure that the design, construction activities, rehabilitation and future operation of the mine are conducted in a manner so that, as much as possible:

- There is no unnecessary environmental degradation of the development site and adjacent areas;
- There is minimal adverse impact on the natural, social, economic and cultural values of the land and local area; and
- Where adverse impacts are unavoidable, they are contained in magnitude, time and area.

3.2 Strategic Pathways

The key strategic pathways for achievement of the goals above are:

- Avoid negative impacts through appropriate setting and design of infrastructure to minimise impacts on the surrounding environment;
- Where impacts are unavoidable, ensure strategies for management and mitigation are in place and adhered to; and
- Ensure the rapid and effective response to any identified environmental impacts.

3.3 Production Interruption

The AIR proposal occurs on land which has been used as a pastoral station for many years. Rehabilitation is aimed at re-instating a combination of native and introduced pastoral species in a healthy and productive state to increase the economic viability of the land. Should the land for any reason be taken out of production, then it is expected that it will continue to be used as a pastoral station until such time as mining is able to recommence.

4 Key Risk Summary and Management

The environmental approvals process requires, amongst other things, that the responsible government agency (NRETAS) provide guidelines identifying the key risks of the proposed development on the environment. In this instance, three such key risks have been identified and this section describes these key risks in detail including, at a high level, how these risks will be controlled and mediated. Later (Section 5) these risks, as well as subsidiary and more minor risks, are placed in an EMP framework identifying specific objectives and targets, the actions required to fulfil these targets, monitoring and, to measure progress, reporting requirements and corrective actions.

4.1 Water

Flow gauge records indicate that during extended dry periods, such as those observed in the 1950's and 1960's, the Roper River can cease to flow (at the end of the dry season) at Roper Bar and up to 65 km kilometres upstream, near AIR's proposed water extraction point. In contrast, the last decade has been a relatively wet period with high rainfall, and flows at Roper Bar have hardly dropped below 1 m³/s.

Modelling of integrated surface and groundwater flows and their response to rainfall (Knapton 2009) show that cease to flow (CTF) conditions at Red Rock are relatively common, occurring in 48 of 107 years since 1900. The model also showed that no flow occurred for approximately 5% of the time, equating to 18 days of no flow in an average year. CTF events at Roper Bar were predicted to occur when flows at Red Rock fall below 0.02 m³/s.

Communities and cattle stations adjacent to the Roper River utilise the river for reliable water supply. Cattle stations nearby to the proposed development have reported dams drying up late in the dry season due to extended periods of minimal to no rain and high evaporation rates. Historically, Numul Numul and Flying Fox stations have drawn water from permanent water holes in the Roper River to supplement dam and groundwater infrastructure during dry periods.

AIR's principal objective for the management of water is to ensure a sustainable off-take of water which is defined, in this instance, to mean that:

- There is no increase in the number of cease-to-flow events; and
- Extraction does not impact negatively on water quality and other downstream users, including wildlife.

There is very little extant information that can inform development of targets to achieve this objective. The NT Water Allocation Planning Framework nominates that at least 80% of flow at any one time in any part of a river is allocated as water for environmental and other public beneficial water provision. It also nominates that extraction for consumptive uses will not exceed the threshold level of 20% of instantaneous flow at any time in any part of the Roper River (NT Government 2006). For this development an extraction of 20% of instantaneous flow is the maximum extraction rate allowable, to achieve the above objectives.

AIR proposes installing a pump with a maximum extraction rate of 0.02 m³/s. For this to represent a sustainable off-take (i.e. 20% instantaneous flow) means that pumping must cease when flow gets to less than or equal to 0.1 m³/s at the extraction point.

There is no gauging station at the proposed extraction point on Roper River. Flow monitoring will use a combination of Red Rock gauge as well as manually gauging Judy Crossing downstream from the extraction point.

The Roper River is a losing river downstream of Eley Station, thus any flow at Red Rock is less than at the extraction point; thus Red Rock gauge will be used as a proxy for flows at the extraction point. However, Red Rock gauge is unreliable for flows $<3\text{m}^3/\text{s}$; when this threshold is met AIR commit to perform manual gauging's at Judy Crossing to ensure that extraction is below the 20% instantaneous flow threshold. AIR will remotely monitor daily flow rates obtained from the Red Rock flow monitoring station.

AIR will install a pump flow meter in accordance with the *National Framework for Non-Urban Water Metering*. The pump meter will be read by AIR staff on a daily basis. The meter will be located at the delivery end of the pipe (close to AIR's processing operations).

There is currently no gauge at Judy Crossing. AIR is committed to install a gauge or equivalent at this location to measure inflows to the extraction pool. The relationship between water taken from the extraction pool and river flow will be assessed daily. When there is $>3\text{m}^3/\text{s}$ flow at Red Rock gauge, it is assumed that water flow into the extraction pool is above the off-take limit. When water flow gets beneath this threshold, manual gauging at Judy Crossing will be required. When flow is beneath $0.1\text{ m}^3/\text{s}$ (i.e. at or below the 20% instantaneous flow threshold) pumping is required to stop.

AIR will appoint an independent auditor to fulfil auditing obligations including negotiating with NRETAS (or other specified government body) on the reporting and information exchange, as related to water management for this development.

Compliance audits will ensure that the processes outlined in the WMP are being followed. It will check:

- Data has been collected, regularly entered and appropriately reported;
- Any cease-to pump events have been recorded and complied with;
- Inflows since last reporting period; and
- Extraction since last reporting period.

There are two types of audits:

- Monthly data audits; and
- On-site audits.

For further information refer to the AIR Water Management Plan (PER Appendix G).

4.2 Terrestrial and Aquatic Flora and Fauna

Three aquatic species listed as threatened are potentially present in the proposed water extraction area. Flora investigations to date have comprised aquatic and riparian flora surveys in and around Flying Fox station pump hole. Other incidental observations, including water birds present, have also been recorded.

Thirty-three faunal species were identified during a survey conducted in May 2011, including 17 fish, two reptiles, seven amphibians, four crustaceans, one mollusc and two birds. Riparian vegetation was defined and four aquatic plant species were recorded. No species of conservation significance were found in the area, although it is assumed that several species, in spite of no evidence of their presence, would still be considered likely to inhabit the area at some stage of the year.

It is considered likely that Flying Fox station pump pool acts as a significant refuge during the late dry season, particularly in years of lower rainfall.

The proposed water extraction will have three key potential impacts:

- Diminished environmental flow downstream, with particular consequence to migratory fish which may be prevented from travelling upstream;

- Drawdown of water levels at point of extraction, particularly during dry seasons, compromising refugial value of pool to aquatic fauna; and
- Increased noise and activity in the area and constant new disturbance from 24 hour pumping.

Provided the water extraction operation is limited during periods of low to no flow, appropriate thresholds in water level observed and ongoing monitoring for detection of fauna impact is undertaken, it is considered unlikely that the water extraction operation will significantly affect the aquatic fauna or flora of the area, or the environmental values of the Roper River.

Further information is given in Section 5.2.

4.3 Rehabilitation

Australian Ilmenite Resources Pty Ltd (AIR) SILL80 Project is a proposed open cut mine and processing facility to be constructed in the Roper River region of the Northern Territory. AIR intends to produce 200,000 tonnes of refined ilmenite at the mine per annum, with an expected mine life exceeding 20 years.

Negative impacts that may occur on MLA27422 due to the operation of the mine include:

- Large areas of exposed earth available for weed colonisation and/or erosion and sedimentation;
- Spread of existing weed infestations due to disturbance and vehicle traffic;
- Unstable landscape post mining;
- Reduced quality of surrounding water resources;
- Gradual decline in landscape function;
- Untidy and bare infrastructure areas; and
- Altered drainage and hydrology.

To stabilise mined land to mitigate erosion and sedimentation problems progressive rehabilitation to pastoral production will occur. Specifically, the land should be rehabilitated to a healthy perennial grass rangeland with a diverse mix of plants both native and introduced.

The objectives of the rehabilitation work are to:

- Achieve stable landforms;
- Reduce incidence of weed infestation and spread;
- Reduce risk of erosion and sedimentation;
- Progressively rehabilitate over the life of mining;
- Prevent non-essential access to rehabilitation areas;
- Maintain natural drainage and hydrology of land as much as is practicable;
- Rehabilitate the access tracks and roads that are not required post construction and mining;
- Comply with all regulatory requirements, approvals and any other legislation; and
- Outline monitoring and performance evaluation measures that are practical and measurable.

Mined areas will be rehabilitated in a co-ordinated program between AIR staff and station managers in order to develop the area as a perennial grass rangeland for cattle grazing. Processed spoil will be returned to mine pits, which will then be broadcast with perennial grass seeds and covered with weed free pasture hay. Cattle will be introduced to the area for a short and controlled period to initiate sowing of seeds and stimulate

ground preparation. As a perennial grass rangeland develops, the area will be grazed systematically, for a short duration (6-12 hours) every six or more months, as determined by a Grazing Plan, to promote growth. Native grasses, forbs, small shrubs and trees will also be encouraged.

Photo monitoring will also be conducted within the rehabilitation areas, with flagged reference points set up.

Success and failure will be determined through the use of photo monitoring, the presence/absence of weeds, and presence/absence of erosion and sedimentation. In general terms, it is expected that 80% total groundcover will be achievable and will indicate success. In addition, retention of moisture in the soil, displayed by 'healthy' pasture, particularly towards the end of the dry season, will also be an indicator of success.

Annual reporting on rehabilitation methods will be presented in the Annual Environmental Review required as part of the Environmental Management Plan and reported to the Department of Resources.

A mine closure plan will be developed prior to completion of mining according to objectives developed from the NT Department of Resources *Mine Close Out Objectives* (DoR 2008).

Further commitments are detailed in section 5.3.

5 Environmental Management

5.1 Water	
Objectives and Targets	<ul style="list-style-type: none"> • Ensure water extraction from the Roper River does not negatively impact downstream users, including wildlife. • No increase in 'cease to flow' events in the Roper River. • To manage contaminated water that may cause environmental harm so it is not released from the project site to any waters as a result of ongoing operation of the mine and construction activities, either in a direct or indirect manner. • No spills or leakage to ground and water.
Actions	<ul style="list-style-type: none"> • As part of mine site induction, ensure that all staff are informed about obligations, including annual auditing. • AIR will install a pump flow meter in accordance with the <i>National Framework for Non-Urban Water Metering</i>. The pump meter will be read by AIR staff on a daily basis. The meter will be located at the delivery end of the pipe (close to AIR's processing operations). • Install a pump with a maximum extraction rate of 0.02m³/s. • Install a flow monitoring gauge or equivalent at Judy Crossing. • Pumping is to cease if flow is beneath 0.1m³/s. • An independent auditor is to be appointed by AIR to audit water management, particularly extraction rates. • Devise a spill contingency plan on which to base an emergency response in case of a spill or accident involving chemicals. • Use best practice road and drainage construction. • A datasheet (refer to Water Management Plan) is to be completed daily. This sheet will record: <ul style="list-style-type: none"> - Pump meter reading (volume) is to be recorded and figures used to calculate an average volume/second; - Flow rate at Red Rock Gauging Station, if it exceeds 3m³/s; and - Flow rate at Judy Crossing (if flow at Red Rock < 3m³/s).
Monitoring	<ul style="list-style-type: none"> • Auditing to ensure <ul style="list-style-type: none"> - Data of inflows to the extraction pool and extraction rates has been collected, regularly entered and appropriately reported. - Any cease-to pump events have been recorded and complied to. - Inflows since last reporting period. - Extraction since last reporting period. • Regular monitoring of flow stations and survey gauged sections of the Roper River. • Continued recording of extracted water volumes through weekly recording of water usage. • Inspect and report any accident involving release of fuel or oil immediately. • In the event of any spill, monitor water quality of any nearby waterways to ensure these areas are not impacted. • Monthly data audits will occur at the end of each calendar month. They are intended to ensure: <ul style="list-style-type: none"> - Compliance with data collection and processing procedures; and - Compliance with any cease to pump events. • Audits will review each calendar month's data and will occur at the beginning of the subsequent month. • AIR will enter daily data in a spreadsheet and submit the previous month's data to the auditor within the first week of the calendar month. The auditor will report back to AIR and other required parties within one week of receipt of the data. • Quarterly inspection of fuel and chemical storage locations with respect to spill containment.

5.1 Water	
	<ul style="list-style-type: none"> • All monitoring results to be reported within the Mining Management Plan.
Reporting	<ul style="list-style-type: none"> • Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of Mining Management Act). • Extraction quantities from the Roper River will be reported as required for the annually updated Mining Management Plan. • AIR will undertake two types of compliance audits: <ul style="list-style-type: none"> - Monthly data audits; and - On-site audits. • Auditing results will be reported in the Mining Management Plan. • A datasheet is to be completed daily. This sheet will record: <ul style="list-style-type: none"> - Pump meter reading (volume/day and average litres/second); - If flow rate at Red Rock Gauging Station exceeds 3m³/s; and - Flow rate at Judy Crossing (if flow at Red Rock < 3m³/s). • If AIR recognises any incidents of non-compliance with the WMP obligations, they will immediately inform the independent auditor who is responsible for notifying NRETAS (and/or other government body as required). • WMP commitments and procedures will be reviewed: <ul style="list-style-type: none"> - If auditing identifies any shortcomings of existing procedures; and - At the end of the third pumping season (i.e. after three 3 years of operation).
Corrective Actions	<ul style="list-style-type: none"> • Increase/change monitoring schedule and review actions if it is found that there is an increase in CTF events, evidence of contamination or impact to downstream users.
Relevant legislation, Standards and Plans	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Dangerous Goods Act (NT)</i> • <i>Water Act (NT)</i> • <i>Waste Management and Pollution Control Act (NT)</i> • <i>Mining Management Act</i> <p>Standards</p> <ul style="list-style-type: none"> • AS 1940 • SAA/SNZ HB76 <i>Dangerous Goods – Initial Emergency Response Guide</i> <p>Guidelines</p> <ul style="list-style-type: none"> • NRETAS <i>Erosion and Sediment Control Plan Content</i>

5.2 Flora and Fauna

Objectives and Targets	<ul style="list-style-type: none"> To minimise the impacts of construction activities on flora and fauna. To minimise the potential for weed and pest introduction or spread. No clearing of vegetation or land disturbance outside of the construction, operational and infrastructure areas, including access roads. No new species of listed weed or feral animals or spread of existing species. No incidents of significant fauna kill. Ensure that flow downstream of the extraction point is not diminished to the extent that barriers to fish migration are exposed earlier in the dry season, or delay them being passable early in the wet season (e.g. Roper Bar).
Actions	<ul style="list-style-type: none"> Confine clearing of vegetation to the minimum required for construction and operation of the mine and associated infrastructure such as roads. Further and continuous monitoring to be completed to determine the presence/absence of weeds, with particular focus on Weeds of National Significance. Clearly mark the areas to be cleared prior to land clearing. Parking areas and turning points for plant and equipment is to be within site boundaries to minimise vegetation disturbance. Implement a weed and pest management program to prevent weeds and pests leaving or entering the site. Machines are to arrive on site 'clean' of weed seeds (including mud) and are to be inspected and recorded. Ensure machinery hygiene by establishing a wash down area. Inspect vehicles for weeds, seeds and soil prior to leaving and entering the site. Monitoring of weeds will be conducted during construction and treatment will take place if they become visible, and weed information to be reported within the Mining Management Plan. Maintain clean and tidy work areas to ensure native fauna are not attracted to the site, including provision of covered bins, e.g., dispose of leftover food from construction workers appropriately. Large trees with hollows and hollow logs on the ground should be left in situ where possible, to provide nesting opportunities for native species. As part of inductions instruct personnel to only use existing tracks and avoid off-road driving; In inductions, educate personnel on the importance of protecting stands of native vegetation, and on measures to prevent the spread of weeds, and weed identification and reporting; Develop reporting and action framework for any weed invasions.
Monitoring	<ul style="list-style-type: none"> Monitor construction activities to ensure that land disturbance does not extend beyond the construction area. Inspect construction site and adjacent areas for fauna deaths and for plant stress and detail information in the environmental review required as part of the Mining Management Plan. Conduct ongoing weed monitoring during the construction and operation of the mine, especially in areas disturbed by ongoing construction activities. Use photo monitoring points to help determine success/failure of rehabilitation.

5.2 Flora and Fauna

Reporting	<ul style="list-style-type: none"> • Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management Act</i>). • Internally report any fauna kills (including fish and birds at extraction point). • Internally report any evidence of plant stress as a result of construction activities. • Internally report any occurrence of additional, excessive or unapproved vegetation clearing. • Internal reports to be collated and information included in the updated Mining Management Plan. • Report any occurrence of listed weed species in the Mining Management Plan.
Corrective Actions	<ul style="list-style-type: none"> • Revise/review environmental safeguards as necessary to ensure they remain effective and applicable.
Relevant legislation, Standards and Plans	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Mining Management Act</i> • <i>Endangered Species Protection Act (Cth)</i> • <i>Environmental Protection Biodiversity Conservation Act (Cth)</i> • <i>Fisheries Act (NT)</i> • <i>Weed Management Act (NT)</i> • <i>Plant Diseases Control Act (NT)</i> • <i>Territory Parks and Wildlife Conservation Act (NT)</i> • <i>Planning Act (NT)</i> <p>Guidelines</p> <ul style="list-style-type: none"> • NRETAS <i>Land Clearing Guidelines 2010</i> • NRETAS <i>Land Clearing Guidelines: Riparian Vegetation</i> • NT Planning Scheme

5.3 Vegetation Clearing and Rehabilitation

Objectives and Targets	<ul style="list-style-type: none"> To minimise the impact of site clearing and disturbance to vegetation communities, and to optimise the use of cleared vegetation to encourage regeneration of cleared areas. Minimise disturbance to native flora and fauna in accordance with approved clearing boundaries. Minimise weed spread during clearing. Minimise soil (particularly topsoil) degradation and loss. To develop the land, post mining, to a combination of native and introduced species in a healthy and productive state.
Actions	<ul style="list-style-type: none"> All clearing boundaries and approved access will be clearly shown on Project drawings and maps. The minimum safe area only shall be cleared for pits, access road and infrastructure areas. Cleared vegetation or soil is not to be pushed up against trunks of live trees. Revegetate bare earth as soon as practicable to slow water run-off and improve infiltration. Should previously disturbed areas no longer be necessary for mining activities, rehabilitation will commence in accordance with Rehabilitation Management Plan.
Monitoring	<ul style="list-style-type: none"> Clearing works will be supervised closely by the Site Supervisor or the elected environmental representative to ensure that clearing is only conducted within approved boundaries. Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and management changes as required. Maintain GIS database and undertake on-ground marking by Differential Global Positioning System (DGPS) prior to and verification after clearing.
Reporting	<ul style="list-style-type: none"> Any clearing proposed/undertaken will be reported within the Mining Management Plan. Report progress made with progressive rehabilitation within the Mining Management Plan, including any changes to be employed in the following twelve months. Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management Act</i>). Report any occurrences of listed weed species within the Mining Management Plan.
Corrective Actions	<ul style="list-style-type: none"> Rehabilitation shall be undertaken in such a way that it will be modified over time depending on results from monitoring, as per the Rehabilitation Management Plan.
Relevant legislation, Standards and Plans	Legislation <ul style="list-style-type: none"> <i>Mining Management Act.</i> <i>Environmental Protection and Biodiversity Conservation Act 1999.</i> <i>Territory Parks and Wildlife Conservation Act 2000.</i> <i>Heritage Conservation Act (NT) 1991.</i> <i>Aboriginal Sacred Sites Act (NT) 1989.</i> <i>Soil Conservation and Land Utilization Act 1980.</i> <i>Weeds Management Act 2001.</i> <i>Environmental Assessment Act 1982.</i>

5.3 Vegetation Clearing and Rehabilitation

- *Native Title Act 1993.*
- *Bushfires Act (NT Amendments) 2004.*
- *Pastoral Lands Act 1992.*

Plans and Guidelines

- NT Draft *Land Clearing Guidelines 2009.*
- Rehabilitation Management Plan.
- Weed Management Plan.
- Erosion and Sediment Control Plan.

5.4 Mine Decommissioning and Closure

Objectives and Targets	<ul style="list-style-type: none"> • To rehabilitate the mine site to prevent continued degradation post mining disturbance. • To establish realistic and achievable closure criteria, in consultation with key stakeholders, within the first two years of the mine life. • To monitor progress towards and continually consider closure criteria with respect to mining operations. • Achievement of closure criteria. • Compliance with applicable legislation.
Actions	<ul style="list-style-type: none"> • Develop an appropriate environmental monitoring program to determine progress towards closure criteria and timelines to completion. • Clean up of all contaminated areas. • Ongoing consultations with the land owner and native title holders will include assessment of planned and existing infrastructure that may be of value to others; particularly the sheds and access roads. • General landform will be rehabilitated according to the best practice and end use requirements. • A Closure Plan, with clear, achievable closure actions, will be developed once the major mine expansions have been finalised.
Monitoring	<ul style="list-style-type: none"> • Closure Audits will be conducted to ensure that the closure actions have been successful and closure objectives have been met.
Reporting	<ul style="list-style-type: none"> • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and management changes as required.
Corrective Actions	<ul style="list-style-type: none"> • Continuous consultation will occur throughout the life of mining to establish requirements for closure so that ample planning can be made well before closure.
Relevant legislation, Standards and Plans	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Mining Management Act 2001.</i> • Mining Regulations 1998. • <i>Mineral Titles Act 2010.</i> • <i>Native Title Act 1993.</i> <p>Guidelines and Plans</p> <ul style="list-style-type: none"> • AIR Mining Management Plan & Rehabilitation Management Plan • Department of Resources Mine Close Out Objectives (February 2008) • ANZMEC/MCA (2000), <i>Strategic Framework for Mine Closure.</i> Australian and New Zealand Minerals and Energy Council and Minerals Council of Australia. Canberra, Australian Capital Territory • Association of Mining and Exploration Companies <i>Mine Closure Guidelines</i> (AMEC, 2000) • Australian Mining Industry Council (1989), <i>Mine Rehabilitation Handbook</i> • Commonwealth Guidelines for Mine Closure and Completion (March 2009) • Commonwealth Guidelines for Mine Rehabilitation (October 2006)

5.5 Erosion and Sedimentation

<p>Objective and Targets</p>	<ul style="list-style-type: none"> • Minimise the extent and duration of soil disturbance; • Maintain all erosion and sediment control measures in proper working order, at all times; • Monitor the site and adjust erosion and sediment control practices to maintain the required performance standard; • Control water flow from the top of and through the project area by diverting up-slope 'clean' water away from disturbed areas and ensuring that concentrated flows are below erosive levels and sediment is retained from disturbed areas; • Conserve topsoil for later site rehabilitation or regeneration (in a stabilised stockpile that is appropriately managed for weeds); and • Rehabilitate disturbed lands quickly. • Ensure stormwater is managed to protect downstream water quality. • No obvious accumulation of sediment within natural watercourses or drainage lines outside of the construction area. • No unnecessary disturbance of earth or vegetation outside areas to be cleared or disturbed. • All batters or embankments with slopes greater than 1:4. • Conformance to the AIR Erosion and Sediment Control Plan (ESCP).
<p>Actions</p>	<ul style="list-style-type: none"> • The location and levels (either cut or filled) of infrastructure designed to minimise the concentration of stormwater run-off. • Inclusion of appropriate drainage and water retention structures such as retention basins, rock pitching in drainage lines, drop structures, dump rock etc. to minimise stormwater run-off exiting the property boundaries at high velocities that can create erosion. • Batter or any embankments should be at a slope no greater than 1:4. • All works completed as necessary to prevent any flooding occurring and such works must not adversely affect the surrounding environment or nearby property (Numul Numul Station). • Areas that require land clearing should be minimised and only be selectively cleared to maintain a degree of visual screening and minimise the potential for erosion. • Minimisation of extent and duration of disturbed areas draining to waterways, and prompt revegetation of non-operational disturbed areas (using temporary revegetation if required). • Ensuring both temporary earthworks and permanent land-shaping provide a landform which minimises erosion hazard. • Construct Entry/Exit Shake Down to prevent the tracking of sediment from tyres of vehicles to public roads. • Construct a catch drain to convey flow within disturbed areas to sediment basins. • Install a sediment basin to trap and retain sediment. • Install mulch bunds (batters) to reduce the velocity of treated water discharged from the sediment basins and provide further treatment. • Prompt stabilisation of land following land reshaping (both temporary and permanent). • Design of temporary surface-water collection, conveyance and disposal systems in a manner which minimises erosion.

5.5 Erosion and Sedimentation

	<ul style="list-style-type: none"> • Timing of construction activities are to be planned to minimise the potential for erosion and sediment transport (e.g. no dumping immediately before or during rainfall events). • Ensure sedimentation control measures are installed prior to and maintained throughout construction, including periods when work is suspended on site. • Locate storage areas (e.g. stockpiles) in places to reduce dust generation and wind erosion. • Site must be stabilised and rehabilitated progressively throughout the works. • Regular maintenance on all permanent erosion control structures.
This Monitoring	<ul style="list-style-type: none"> • During construction, monitor sediment control structures for effectiveness. • Ongoing monitoring of erosion control structures.
Reporting	<ul style="list-style-type: none"> • Monitoring reports will be compiled as part of the annually reviewed Mining Management Plan. • Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management Act</i>).
Corrective Actions	<ul style="list-style-type: none"> • Visible and significant erosion will be investigated and modifications made to management as required. • Possible corrective actions may include, but not be limited to: <ul style="list-style-type: none"> - Prevent continuing deterioration with temporary controls; - Remove sediment from existing and constructed drainage lines and clean up any spilt material as quickly as possible; and - Ongoing maintenance of erosion and sediment control structures and drainage (e.g. removal of trapped sediment).
Relevant Legislation, Standards and Plans	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Mining Management Act</i> • <i>Water Act (NT)</i> • <i>Waste Management and Pollution Control Act (NT)</i> • <i>Soil Conservation and Land Utilisation Act (NT)</i> <p>Guidelines and Plans</p> <ul style="list-style-type: none"> • NRETAS Erosion and Sediment Control Plan Content (2006) • Department of Health and Families <i>Guidelines for preventing mosquito breeding sites associated with mining sites, NT</i> (2005) • IEAust. <i>Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites</i> (June, 1996)

5.6 Noise and Vibration

Objective and Targets	<ul style="list-style-type: none"> • Ensure that noise from the proposed construction works comply with the requirements of the <i>Waste Management and Pollution Control (Administration) Regulations</i>. • Minimise complaints due to noise and vibration.
Actions	<ul style="list-style-type: none"> • Implement noise minimising practices as per section 6 of AS2436: <ul style="list-style-type: none"> – Utilise best practice equipment to minimise noise where reasonably practicable; – Use plant in accordance with the manufacturer's instructions; – Site noisy equipment away from noise-sensitive areas (e.g. Numul Numul Homestead); – Carry out loading and unloading operations away from noise-sensitive areas; – Orientate plant known to emit noise strongly in one direction, so that the noise is directed away from noise-sensitive areas where possible; – Shut down or throttle down machines that are used intermittently during intervening periods between works; – Ensure engine covers fitted to machines are closed when the machine is in use; – Regularly maintain stationary and mobile equipment including off-site vehicles to keep noise levels near to that of new machinery; – Maintain all machinery such that mufflers are replaced appropriately; – Equipment used on the construction site is to be the quietest reasonably available; and – Vehicle, plant and machinery emissions will be minimised by regular inspections to ensure equipment are well maintained and in good working order.
Monitoring	<ul style="list-style-type: none"> • Conduct internal, informal monthly audits on site of work practices and condition of equipment and report identified issues, and mitigation employed, within the Mining Management Plan. • Maintain up to date records on site of all noise and vibration complaints and incidents in a community complaint register and report within the Mining Management Plan.
Reporting	<ul style="list-style-type: none"> • Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management Act</i>).
Corrective Actions	<ul style="list-style-type: none"> • Identify the source of any noise complaint and appropriate mitigation measures, such as making adjustments to work practices and/or maintaining or replacing equipment as required.
Relevant Legislation and Standards	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Mining Management Act</i> • <i>Waste Management and Pollution Control Act (NT)</i> • <i>Waste Management and Pollution Control (Administration) Regulations (NT)</i> • <i>Workplace Health and Safety Act (NT)</i> • <i>Work Health (Occupational Health and Safety) Regulations (NT)</i> <p>Standards</p> <ul style="list-style-type: none"> • AS 1055 Description and measurement of environmental noise • AS 2012 Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors • AS 2221 Methods for measurement of airborne sound emitted by compressor units including prime movers and by pneumatic tools and machines • AS 2436 Guide to noise control on construction, maintenance and demolition sites • AS 2659 Guide to the use of sound-measuring equipment

5.7 Air Quality

Objective and Targets	<ul style="list-style-type: none"> • Ensure that air emissions from construction and operation of the mine are minimised. • No complaints regarding dust or other air quality issues resulting from construction activities.
Actions	<ul style="list-style-type: none"> • Rehabilitation to stabilise any areas exposed or disturbed to minimise dust generation. • Suppress dust on haul roads, unsealed roads and work areas using water trucks as required. • Dampen earth stockpiles to minimise wind erosion, or provide grass/vegetative cover on any longer term stockpiles. • Provide adequate water supply for the above activities. • Whenever possible, avoid conducting dust generating activities during high wind speed conditions. • Cover haul trucks to reduce spillage and dust generation. • Burning activities are not allowed on site at any time. • Undertake regular maintenance of all construction machinery and vehicles. • Direct exhaust emissions from mobile plant away from the ground. • Limit vehicle, plant and machinery speeds when not driving on sealed surfaces. • Spraying of paint and other materials that have potential to become air borne particulates will not be undertaken during windy or rainy conditions. • Complaints received will be recorded and attended to promptly. On receiving a complaint, works will be reviewed to determine whether issues relating to the complaint could be avoided or minimised. Feedback will be provided to the complainant explaining what outcomes resulted.
Monitoring	<ul style="list-style-type: none"> • Conduct internal, informal monthly audits of site work practices and condition of equipment. Formally audit work practices and condition of equipment annually and report in the Mining Management Plan, with particular focus on issues and mitigation measures. • Maintain up to date records on site of all air quality complaints (internal or external).
Reporting	<ul style="list-style-type: none"> • Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of the <i>Mining Management Act</i>).
Corrective Actions	<ul style="list-style-type: none"> • Identify the source of any air quality complaints and implement appropriate mitigation measures e.g. adjusting work practices and/or maintaining or replacing equipment as required.
Relevant Legislation and Standards	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Mining Management Act</i> • <i>Fire and Emergency Act (NT)</i> • <i>Waste Management and Pollution Control Act (NT)</i> • <i>Workplace Health and Safety Act (NT)</i> <p>Standards</p> <ul style="list-style-type: none"> • AS 2724.3 <i>Ambient air Particulate matter – Determination of total suspended particulates (TSP) – High volume sampler gravimetric method</i> • AS 3580 <i>Methods of sampling and analysis of ambient air</i>

5.8 Culture and Heritage

Objective and Targets	<ul style="list-style-type: none"> • Developing an understanding of specific stakeholder interests and implications from the project on individual groups; • Working closely with all interested parties to seek mutually beneficial outcomes; • Ensuring transparency internally and externally regarding plans, decisions and changes; • Incorporating, where possible, the knowledge, skills and experience of stakeholders; • To preserve and protect Aboriginal and non-indigenous heritage sites of significance from damage or desecration and comply with statutory requirements. • No known or suspected archaeological places or objects will be disturbed except with the express permission of the relevant authority following an assessment of the feature and its significance and implementation of an appropriate management strategy.
Actions	<ul style="list-style-type: none"> • Ensure that all works are completed in accordance and with regard to any Aboriginal Areas Protection Authority (AAPA) conditions. • AIR will follow a strict protocol of contractor induction covering all topics related to culture and heritage, for example, management and awareness of cultural assets within the lease area. • No disturbance to known archaeological, historical or cultural features, this may be through limiting access (fencing) and / or educational programs and campaigns to raise awareness, including but not limited to signage. • Immediate cessation of works if historical or cultural material found or suspected. • Immediate assessment of any new archaeological, historic or cultural discoveries during works. • Site Induction including 'cease work' protocols and access limitations. • Maintenance of landowner property access at all times, where fences are breached temporary stock proof gates will be provided. • Minimise disruption to landowners and third parties where possible. • Regular communication with TO's to ensure access is not an issue. • Installing a speed limit of <40 km per hour on all access roads. • Promoting training to allow stakeholders/community members to undertake specific management tasks such as surveying or rehabilitation. • Engaging stakeholders/community members as contractors to undertake specific tasks. • Clearly delineate "Restricted Work Areas" as determined by the AAPA certificate.
Monitoring	<ul style="list-style-type: none"> • Monitor contractors/employees compliance with all actions. • Monitor procedures developed and implemented to protect heritage places and items to ensure they are providing adequate protection. • Monitor throughout earthwork activities for evidence of archaeological material.
Reporting	<ul style="list-style-type: none"> • Regular internal and external audits. • Non-compliance and incident reporting, in accordance with relevant legislation.
Corrective Actions	<ul style="list-style-type: none"> • If heritage items/places are damaged in any way as a result of construction activities, notify the Mining Manager and await advice on the implementation of remedial action.

5.8 Culture and Heritage

<p>Relevant Legislation</p>	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Aboriginal and Torres Strait Islander Heritage Protection Act (Cth)</i> • <i>Aboriginal Land Rights (Northern Territory) Act (Cth)</i> • <i>Australian Heritage Council Act (Cth)</i> • <i>Native Title Act (Cth)</i> • <i>Aboriginal Land Act (NT)</i> • <i>Aboriginal Sacred Sites Act (NT)</i> • <i>Heritage Conservation Act (NT)</i>
------------------------------------	--

5.9 Waste Management

Objective and Targets	<ul style="list-style-type: none"> Minimise the production of waste wherever possible. Minimise wastes and pollution entering the surrounding environment. To manage and control the disposal of all unavoidable wastes. Appropriate disposal of wastes generated from construction activities and the ongoing operation of the Mine. Waste handlers and receiving facilities are appropriately licensed.
Actions	<ul style="list-style-type: none"> Permanent and temporary storage facilities for any fuels or chemicals to be designed as per Australian Standards or relevant guidelines. Assessment of impact from high rainfall events, water holding capacity of soils and design of recycled and storm water storage basins to prevent any discharges. Undertake induction and training of construction workforce to ensure awareness of waste management responsibilities. All products and wastes stored on site must be kept in accordance with Australian Standards (and MSDS, where appropriate) and in a clean and tidy condition. Waste and containers not able to be recycled will be disposed of at a licensed landfill site. Segregation of wastes including inert building and construction material. Consider principles to avoid, reduce, reuse and recycle where possible. Ensure any regulated wastes generated on site are transported and disposed of by an appropriately licensed contractor. Waste oil will be sent to approved recyclers where appropriate. During construction provide putrescible waste bins for storage of domestic wastes (e.g., food, paper, and wrappers) prior to removal from site. Putrescible waste bins are to be covered at all times.
Monitoring	<ul style="list-style-type: none"> Monitor the effectiveness of waste management and review procedures and submit within the Mining Management Plan.
Reporting	<ul style="list-style-type: none"> Reporting of incidents in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management Act</i>).
Corrective Actions	<ul style="list-style-type: none"> Undertake remedial action as necessary for the management of waste. Amend procedures relating to waste management if found to be inadequate after monitoring.
Relevant Legislation and Standards	<p>Legislation</p> <ul style="list-style-type: none"> <i>Mining Management Act</i> <i>Dangerous Goods Act</i> (NT) <i>Public Health Act</i> (NT) <i>Waste Management and Pollution Control Act</i> (NT) <i>Water Act</i> (NT)

5.10 Handling, Storage and Disposal of Dangerous Goods

Objectives and Targets	<ul style="list-style-type: none"> • To ensure that transport, storage and handling of dangerous goods on-site does not cause environmental harm or harm to persons. • To minimize potential for land contamination. • Nil human health issues from the use of Dangerous Goods.
Actions	<ul style="list-style-type: none"> • An Emergency Response Plan will be in place and employees inducted in its application. • Hydrocarbons will be stored in appropriately bunded areas according to Australian standards (e.g. AS1940:1993). • Any licences required for storage will be obtained. • Bunding will be inspected for damage regularly and repaired as soon as is practicable if any damage is detected. • Hazardous substances will be stored on site in accordance with the relevant legislative requirements and guidelines. • Storage facilities will be inspected regularly. • All personnel will be trained in the appropriate handling of the various chemicals to be stored on site. • All trucks carrying potentially dangerous goods in or out of the mine will be covered. • A qualified person will be appointed as Site Safety Adviser and will have on-site a set of the relevant MSDS for hazardous and dangerous materials. • Personnel working with dangerous goods will be aware of handling, storage and disposal requirements and as appropriate, have received relevant training. • Waste dangerous goods which cannot be recycled will be transported to a designated disposal site as approved by Local Government. • Spills of dangerous goods will be rendered harmless and collected for treatment and disposal at a designated site, including cleaning materials, absorbents and contaminated soils. • Absorbent and containment material (e.g. absorbent matting) and neutralising material will be available where hazardous materials are used and stored and personnel trained in correct use. • Protective clothing, appropriate to the materials in use, will be provided. • Refuelling on site shall utilise auto shut off valves and refuelling shall not be done within 100 metres of a watercourse, water hole, lake or swamp. • Plant will be refurbished and constructed according to current best practice and standards.
Monitoring	<ul style="list-style-type: none"> • Regular monitoring (at least quarterly) shall be undertaken to ensure compliance with actions. • Regular audits and reviews in accordance with this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Audits shall include inspection of storage facilities and records for hazardous goods.
Reporting	<ul style="list-style-type: none"> • Non-Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and management changes as required. • Reporting in accordance with relevant legislation (e.g. Section 29 of <i>Mining Management</i>

5.10 Handling, Storage and Disposal of Dangerous Goods

	<p>Act).</p> <ul style="list-style-type: none"> Any non-compliance / incident will be reported annually in the Mining Management Plan.
Corrective Actions	<ul style="list-style-type: none"> If there is any contamination of the environment by hazardous goods, this will be investigated and appropriate remedial actions taken to avoid recurrence. Storage and handling procedures will be reviewed as appropriate. Should any evidence of ground contamination be found the flow path to drains and watercourses will be cut off by sand bags or earthen bunds.
Relevant Legislation and Standards	<p>Legislation</p> <ul style="list-style-type: none"> <i>Mining Management Act</i> <i>Waste Management and Pollution Control Act (NT) 1998.</i> <i>Public Health Act (NT) 1997.</i> <i>Dangerous Goods (Road and Rail Transport) Act 2001.</i> Dangerous Goods (Road and Rail Transport) Regulations 2004. Petroleum (OHS) Regulations <i>Water Act 1992.</i> <i>Waste Management and Pollution Control Act 1998.</i> <i>Work Health Act and Regulations 2004.</i> <p>Standards and Plans</p> <ul style="list-style-type: none"> Environmental Health Information Bulletin No. 6 Requirements for Mining, Construction & Bush Camps, NT DHCS 2006. <i>AS/NZS 1940:1993 The storage and handling of flammable and combustible liquids.</i> <i>National Standards for the Storage and Handling of Dangerous Goods [NOHSC:1015(2001)].</i> <i>National Code of Practice for the Storage and Handling of Workplace Dangerous Goods [NOHSC:2017(2001)].</i>

5.11 Health & Safety (Incl. Biting Insects & Fire)

Objective and Targets	<ul style="list-style-type: none"> • Prevent the potential of increasing mosquito populations through appropriate water storage. • Reduce the potential for contact between personnel and mosquitoes. • To ensure all personnel are aware of environmental obligations relating to construction and future operation of the mine to minimise the risk of an environmental incident. • To protect life and property within the mine during construction and operations. • No new biting insect breeding habitats created and no increase in mosquito numbers due to construction and operational activities.
Actions	<ul style="list-style-type: none"> • Sediment traps that cannot be free draining within 5 days must be steep sided and have a sloping bottom base to one end, with erosion protection (e.g. reno mattress) at the inflow and overflow facility. • Sediment traps should be maintained by silt and vegetation removal on a bi-annual basis, prior to and immediately following the wet season. There should be a designated access path for silt removal. • Sediment traps with dry season low flows should be sampled for mosquito larvae periodically in the dry season by AIR personnel and appropriate mosquito control programs arranged as required. • Natural drainage patterns should be maintained where possible. Access roads across drainage lines may need to be fitted with culverts of sufficient size to prevent upstream flooding for periods that will enable mosquito breeding. Culverts should be installed flush with the upstream surface level. Erosion prevention structures will need to be constructed on the downstream side of any culvert, and erosion prevention structures may also be required at the headwalls of any culvert. • Any structures that have disrupted surface drainage should be removed at the end of the mining operations. • Rainwater tanks must be adequately screened to prevent entry by mosquitoes. • Any container capable of holding water e.g. machinery tyres, drums, disused tyres, tanks, pots etc. should be stored under cover, be provided with drainage holes, emptied on a weekly basis, treated with appropriate insecticide on an appropriate schedule, or disposed of in an appropriate dump site to prevent the formation of mosquito breeding sites. • No used tyres, machinery or other containers that have previously held rain water should be brought to the NT from Queensland unless the containers or machinery has been thoroughly treated with chlorine or an appropriate insecticide to remove the possibility of the introduction of drought resistant eggs of exotic <i>Aedes</i> mosquito species. • Any drainage line directed into a dam must be fitted with a sediment trap or erosion prevention structures just upstream from the dam. • Any overflow areas from dams should have erosion protection measures to prevent the creation of plunge pools. • Infrastructure will be designed to minimise potential mosquito breeding sites. • Periodic cleaning of vegetation and silt from around sediment dams and water impoundments. • Maintenance of septic systems to prevent mosquito breeding opportunities. • Periodic removal of potential artificial breeding sites. • Clean all equipment sourced from North Queensland with 10% chlorine.

5.11 Health & Safety (Incl. Biting Insects & Fire)

	<ul style="list-style-type: none"> • Screening of all residential, eating and recreational areas. • Installation of thick curtains inside buildings and yellow lights outside buildings to minimise mosquito attraction to light sources. • Incorporate awareness of disease risk and prevention into the site induction to increase personnel awareness and responsibility to avoid contact with mosquitoes. • Reinforce awareness during breeding season through periodic reminders of risk and prevention. • Maintain a record of events including, but not limited to the following: <ol style="list-style-type: none"> 1. The location of the emergency or incident; 2. The details (name and telephone number) of the person reporting the incident; 3. The estimated time of the release; 4. The environmental harm and/or environmental nuisance caused, threatened, or potentially caused by the release; and 5. Action taken to prevent further release and to mitigate any environmental harm and or environmental nuisance caused by the release. • Ensure dangerous objects or articles, such as sharp or toxic materials and hazardous waste (solid and liquid), are securely fixed in vehicles to prevent injury to personnel. • Ensure that there is no burning on the site. • Ensure fire breaks are maintained on site and in adjacent bushland to protect both the development and nearby associated environment.
<p>Monitoring</p>	<ul style="list-style-type: none"> • Trapping of adult mosquitoes once a month for the initial 12 months of mine operation to develop a baseline mosquito monitoring program. • Inspection of potential breeding sites during peak breeding times. • Isolation of personnel suspected of having the malaria virus to prevent contact with mosquitoes; • Monitor and record all construction-related pollution occurrences. • Monitor and record all construction-related fire occurrences on the construction site and adjacent properties. • Inspect emergency response procedures monthly. • Inspect all fuel and chemical storage facilities monthly to ensure integrity of tanks, bunding and any associated infrastructure.

5.11 Health & Safety (Incl. Biting Insects & Fire)

<p>Reporting</p>	<ul style="list-style-type: none"> • Notify the Mine Manager of any environmental or safety incidents and, where required, the relevant authority. • Report all construction-related pollution occurrences. • Report any fires as soon as possible. • Report any biting insect outbreaks as soon as possible. • Report any pollution occurrences or biting insect outbreaks to the appropriate authority. • Report any occurrence of mosquito borne disease. • All of the above are to be included within the Mining Management Plan and reported on annually. Information should include what incidents occurred, where they occurred, what action was taken and what changes have been made to reduce likelihood of recurrence.
<p>Corrective Actions</p>	<ul style="list-style-type: none"> • Amend procedures relating to incident and safety management if found to be inadequate. • Undertake remedial action as necessary to mitigate any pollution, fire or biting insect incidents/disease. • Application of a suitable barrier insecticide such as bifenthrin should mosquito problems arise.
<p>Relevant Legislation, Standards and Guidelines</p>	<p>Legislation</p> <ul style="list-style-type: none"> • <i>Bushfires Act</i> (NT) • <i>Dangerous Goods Act</i> (NT) • <i>Disasters Act</i> (NT) • <i>Fire Services Act</i> (NT) • <i>Public Health Act</i> and Regulations (NT) • <i>Workplace Health and Safety Act</i> (NT) <p>Guidelines</p> <ul style="list-style-type: none"> • Department of Health and Families <i>Guidelines for preventing mosquito breeding associated with construction practice near tidal areas in the NT 2005</i> • Medical Entomology Guidelines: <ul style="list-style-type: none"> – Mosquito breeding and sewage pond treatment in the Northern Territory – Constructed wetlands in the Northern Territory – Guidelines to prevent mosquito breeding

5.12 Community

Objective and Targets	<ul style="list-style-type: none"> • Building long term relationships which can develop and adapt over the life of the project. • Developing an understanding of who is involved and how each group may be affected by decisions. • Working closely with all interested parties to seek mutually beneficial outcomes. • Ensuring transparency internally and externally regarding plans, decisions and changes. • Incorporating, where possible, the knowledge, skills and experience of stakeholders. • Being flexible in how information is sourced and provided and being adaptable to change. • To minimise negative social and economic impacts on the surrounding area during construction and the ongoing operation of the mine.
Actions	<ul style="list-style-type: none"> • AIR will follow a strict protocol of contractor induction covering the following topics as a minimum: <ul style="list-style-type: none"> - General health and safety; - Environmental management and awareness; - Management and awareness of cultural assets within the lease and surrounding area; and - Identification of 'cease work' protocols and access limitations; - Waste management. • No disturbance to known archaeological, historical or cultural features, this may be through limiting access (fencing) and / or educational programs and campaigns to raise awareness, including but not limited to signage. • Immediate assessment of any new archaeological, historic or cultural discoveries during works. • Immediate cessation of works if historical or cultural material found or suspected. • Maintenance of landowner property access at all times, where fences are breached temporary stock proof gates will be provided. • Minimise disruption to landowners and third parties where possible. • Regular communication with TO's to ensure access is not an issue. • Consultation meetings held as required. • Grading and maintenance work carried out regularly to access tracks particularly following the wet season. • Speed limit of <40 km per hour on all access roads. • Promoting training to allow stakeholders/community members to undertake specific management tasks such as surveying or rehabilitation. • Engaging stakeholders/community members as contractors to undertake specific tasks.
Monitoring	<ul style="list-style-type: none"> • Monitoring river levels over time to gauge the impact and compare to historic data. • Metering of overall abstraction from the river. • Regular monitoring of cultural/historical sites to determine any impacts. • Routine dust monitoring. • Monitoring of rehabilitated land to ensure end function is being achieved. • A continuous review process will be followed to incorporate any changes in circumstances,

5.12 Community

	<p>along with regular internal and external auditing.</p> <ul style="list-style-type: none"> • Regular monitoring and review of potential and realised issues is essential in determining success and the need for adaptive management. Monitoring will be carried out through continued consultation with stakeholders and members of the local community including pastoralists and Traditional Owners. Key aspects of monitoring will be: <ul style="list-style-type: none"> - Consultation feedback; - Internal and external auditing; - Feedback received ad hoc, both positive and negative; and - Assessment of level and type of support and services provided to local communities. • Moves will also be made to work collaboratively with other mine operators in the region to determine whether social impacts are being felt at a regional level and whether a strategy should be developed collectively over a wider area. • Results and findings from monitoring will be fed back into management plans and strategies to allow for continual improvements and adaptive management. • Regular inspection of work areas conducted to assess effectiveness of protection measures. • Non-compliance and incident reporting. • Regular inspections (at least quarterly) will be conducted to assess effectiveness of archaeological/historical site management.
Reporting	<ul style="list-style-type: none"> • Maintain community complaint register. • Notify Mine Manager of any complaints or controversial issues that may arise.
Corrective Actions	<ul style="list-style-type: none"> • Implement ameliorative actions as necessary that arise from community liaison. Implement measures to prevent recurrence. • If any damage is found to be occurring to areas important to the community (tourism, cultural, historic), then immediate action must be taken to report and repair the problem, and the appropriate authorities notified, as required.
Relevant Legislation and Standards	<ul style="list-style-type: none"> • <i>Aboriginal Land Rights (Northern Territory) Act 1976</i> • <i>Native Title Act 1993</i> • <i>Pastoral Land Act 1992</i> • <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> • <i>Environmental Offences and Penalties Act.</i> • <i>Heritage Conservation Act.</i> • <i>Miscellaneous Acts Amendment (Aboriginal Community Living Areas) Act.</i> • <i>Planning Act.</i>

6 Performance Review, Monitoring and Auditing

6.1 Environmental Induction, Training and Awareness

All Managers (including the General Manager - Production, Field Manager, and Mining Manager) are responsible for identifying training and competency requirements for personnel under their control, and for ensuring that personnel have the requisite competencies, skills and training to carry out their assigned tasks. Managers are also responsible for ensuring training records are maintained. Training may include, but not be limited to, inductions and Toolbox Meetings.

6.1.1 Induction

All staff, contractors, and consultants will complete a comprehensive Site Induction. The induction will include safety requirements, site behaviour rules, access protocols and restrictions, cultural requirements and commitments, and a comprehensive review of environmental risks, requirements and standards. All project managers will have an additional training session on the use and implementation of the EMP.

It is the responsibility of the Managers to ensure records of the training of relevant personnel are maintained.

6.1.2 Toolbox Talks

The Field Manager will hold regular toolbox talks with staff and crews to discuss issues associated with the scheduled work. The toolbox talks will involve highlighting and discussing relevant environmental and safety issues and monitoring results. Toolbox Talk Agendas, attendance and outcomes will be recorded and maintained, as they will form the main stream of communication between the upper management and on-site staff.

6.1.3 In-House Training

Regular in house training activities can be identified through forums such as inductions and toolbox meetings.

6.2 Monitoring Requirements

Monitoring requirements have been listed for each category of management in order to establish whether there have been any impacts from the project, and to determine the effectiveness of mitigation measures. Following the recommended monitoring strategy will also determine whether the environmental strategies are being complied with, and whether any environmental incidents have occurred. Monitoring results will feed back into the management plan review, planned annually with the submission of the Mining Management Plan (MMP).

6.3 Reporting Requirements

It is important that records and reports are maintained to ensure that the objectives of the EMP are being achieved. The Field Manager will be required to record daily and weekly activities on pre-prepared checklists addressing relevant EMP requirements.

All reports, reviews, and audits will be maintained by the General Manager - Production, copied to the Managing Directors, and made available to appropriate staff (Mining Manager, Environmental Officer and

Field Manager) and, when relevant, the Regulatory Authorities. Audit results will be used to review management practices, and the EMP will be updated yearly to accommodate changes in management practices.

6.3.1 Mining Management Plan and Environmental Management Plan

The AIR MMP is to be submitted annually and will include an annually revised version of this EMP.

The EMP is a live document and as such will be updated annually to ensure commitments remain effective and applicable.

DoR will be notified of any significant changes to approved mining activities by amending the MMP, this may occur at any time, outside of the above commitment.

6.3.2 Audits

Annual audits of EMP compliance will be conducted and reported as part of the annual MMP review and renewal process.

In order to best assess the effectiveness of erosion and sediment control measures, AIR will conduct the annual environmental audits during, or shortly after the wet season, access permitting.

AIR's operations will be annually audited against this EMP and the results provided to the Department of Resources (DoR), who may also audit the site at any time.

Any reasonable environmental practices, procedures or standards recommended after an environmental audit or assessment will be implemented at the first available opportunity. AIR understands the importance of high environmental standards and is committed to achieving this.

Closure audits will be conducted upon finalisation of closure commitments, and yearly following closure until relinquishment, to evaluate effectiveness of revegetation, erosion and soil stability management. Timing of audits will be dependent on weather conditions and accessibility. Issues identified during audits will be recorded and corrective action implemented.

6.3.3 Incident Reporting and Non-Conformance

Incident reporting will be implemented to record any safety or environmental non-conformances or incidents. These shall be recorded on an incident report form and forwarded to the Field Manager, General Manager – Production. Reporting of incidents externally will be undertaken in accordance with relevant legislation (e.g. Section 29 of the *Mining Management Act*). Incidents will be investigated and followed up and, where relevant, corrective actions nominated and implemented. The Field Manager is responsible for ensuring all incidents are thoroughly investigated and managed accordingly.

6.3.4 Complaints Register

The Field Manager will be required to report and record any complaints from the public or specific Project stakeholders to the General Manager - Production. The General Manager - Production will record any complaints received from the Field Manager and enter these on the AIR Complaints Register in accordance with the Complaints Management Procedure. The General Manager - Production shall review each complaint upon receipt and agree with the Field Manager on how the complaint will be addressed. Corrective actions and other recommendations including, where applicable, modifications to practices and procedures shall be made and closed out under the direction of the General Manager - Production.

7 Acronyms

AAPA	Aboriginal Areas Protection Authority
AIR	Australian Ilmenite Resources
ANZECC	Australia and New Zealand Environment Conservation Council
CEMP	Construction Environmental Management Plan
DoR	Department of Resources
EMP	Environmental Management Plan
ESCP	Erosion Sediment Control Plan
MSDS	Material Safety Data Sheet
NATA	National Association of Testing Authorities
NOHSC	National Occupational Health & Safety Commission
NRETAS	NT Department of Natural Resources, Environment, the Arts and Sport
OEMP	Operation Environmental Management Plan
SOP	Standard Operating Procedure
TO	Traditional Owner

8 References

EcOz Environmental Services 2012, *Public Environmental Report – Australian Ilmenite Resources*, Darwin, Northern Territory.

Knapton, A 2009, *Gulf Water Study Integrated Surface Groundwater Model of the Roper River Catchment Part A: Coupled Surface – Groundwater Model*, NT Department of Natural Resources, Environment, The Arts & Sport, Palmerston, Northern Territory.

NT Government 2006, *Northern Territory Water Allocation Planning Framework*, Department of Northern Territory Department of Natural Resources, Environment, the Arts and Sport, Darwin.