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THOR
MINING PLC

MOLYHIL TUNGSTEN-MOLYBDENUM PROJECT

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

Prepared For **Thor Mining PLC**

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June 2007

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1.0 INTRODUCTION

1.1 SCOPE AND FORMAT

This draft Environmental Management Plan (EMP) draws together a range of information related to the history, operations, practices and documentation at the Molyhil Tungsten-Molybdenum Project (Molyhil Project). The principle objective of this document is to record the procedures, practices and documentation required to achieve an appropriate level of environmental management that will assist Thor Mining PLC (Thor) to operate the project in an environmentally responsible manner. This document has been prepared to assist Thor in achieving one of the aims in its Environmental Policy and to implement the philosophy and strategies of Thor's environmental management philosophy.

This document concentrates on the environmental components of the projects proposed operations, however many of the activities also involve elements of occupational health and safety and quality management that are integrated, as far as is necessary, with environmental management.

The EMP is supported by other documentation designed to achieve appropriate standards and consistency in the Company's environmental performance. By necessity, the EMP is a dynamic document as it is a management tool that needs to reflect the changes in technology, legislation, industry practices, the economic climate and the status of Thor's onsite activities.

The approach to the documentation of environment-related issues in the EMP is focussed on particular activities for which defined areas of authority and responsibility are in place. This EMP is written in sections reflecting the various activities and environmental management issues.

Each Section comprises of:

- A brief program for the respective activity including rehabilitation procedures;
- Legal Compliance: a review of the relevant approval conditions; and
- Thor's Environmental Objectives and Targets.

Thor's long term plans for each activity are based on the extent of knowledge of its plans for the mine. This document also sets out a range of objectives, targets and procedures that Thor considers are necessary to achieve an acceptable level of environmental management. A set of objectives, targets, operating procedures and environmental procedures is included for each activity on the mine site.

1.2 BACKGROUND

1.2.1 History

In 1973 prospector Lindsay Johannsen, using UV lamps, discovered scheelite in layered calc-silicate rock at the Molyhil Pinnacle, from which Fama Mines Pty Ltd extracted around 20 t of scheelite. Subsequently, additional scheelite was located 800 m east of the Pinnacle and this deposit, named Yacht Club deposit, produced 20,000 t of ore averaging 0.5% WO_3 which yielded 100 t of concentrate grading 70% W O_3 to 1976.

After a Northern Territory Department of Mines and Energy drilling program in the late 1970's, the Southern ore body, containing molybdenum in addition to tungsten, was discovered.

Petrocarb Exploration NL (Petrocarb) acquired the Molyhil leases in 1978, upgraded the mining and processing plant and commenced mining the Southern ore body. Nicron Resources NL acquired a major shareholding in Petrocarb in 1980 improving the mining and processing operations and completed a major drilling program in 1981. Although production records are incomplete, it is estimated that approximately 900,000 t of material (ore and waste) has been extracted from the open pit (272,000 m^3) (Plate 1). Mining ceased in 1982 and the leases were then placed on care and maintenance.

The lease was purchased by Normandy Woodcutters Ltd (Normandy) in the mid 1980s.

In 1998 Normandy completed the required lease closure rehabilitation and surrendered the Mining Lease in 1999. The ground was subsequently applied for by Imperial Granite and Minerals Pty Ltd (IGM) and was granted in 2002. In 2002 Tennant Creek Gold (NT) Pty Ltd (TCGNT) signed an option to purchase agreement with IGM for specified work requirements on the lease which when completed would have complete ownership of the tenements. The work was completed and TCGNT applied for the transfer of tenements in 2003. In 2004 Hallmark Consolidated Limited purchased the Molyhil tenements from TCGNT and renamed the company Tennant Creek Gold Limited (TNG).

In early 2005, the Molyhil tenements were vended by TNG into Thor via its wholly owned subsidiary Molyhil Mining Pty Ltd (formerly Sunsphere Pty Ltd) (Sunsphere). Thor was successfully listed on the London AIM on 29 June 2005 and subsequently listed on the ASX on the 27 September 2006.

Plate 1 - General view of existing pit looking west with Molyhil in background

1.2.2 Molyhil Project

Thor is planning to develop a tungsten (W) – molybdenum (Mo) open pit operation at the Molyhil Project northeast of Alice Springs in the Northern Territory (Molyhil Project). The main objective of the proposed facility is to produce scheelite and molybdenite concentrates for sale and approximately 300,000 tonnes or ore is expected to be treated annually at the mine.

1.2.3 Location

The Molyhil deposit is located 240 km northeast of Alice Springs (320 km by road) at latitude 22° 45' S, longitude 135° 45; E, on the Huckitta (SF 53-11) 1:250 000 and Jinka (6052) 1:100 000 scale maps, Northern Territory. Molyhil is serviced via Alice Springs (population approximately 25,000), a modern city with full amenities and infrastructure.

Site access is via the sealed Stuart Highway, some 70 km north of Alice Springs then east for approximately 225 km along the Plenty Highway (95 km sealed single land, 130 km unsealed gravel) until the Jinka Station turn-off is reached. The mine site is located approximately 25 km north from the turnoff along a single lane dirt road (Figure 1).

1.2.4 Ownership and Land Tenure

The Molyhil project comprises EL 22349, totalling 829 km^2 in area, and includes Mining Lease Applications (MLA) 23825 which covers the deposit (former open pit, waste dumps and Run-of-Mine (ROM) stockpile). In September 2004, Sunsphere (now Molyhil Mining Pty Ltd) applied for MLA 24429 to further extend the mining operation at Molyhil and has recently applied for MLA 25721 to cover the project infrastructure requirements. The combined mining lease applications cover an area of 247 ha.

The mine site is located on the southern central boundary of EL 22349 (Figure 2).

Relevant data for Thor:

Address:	Level 1, 282 Rockeby Road SUBIACO PERTH WA 6904 PO Box: 1126
Telephone:	08 9327 0900
Facsimile :	(08) 9327 0901

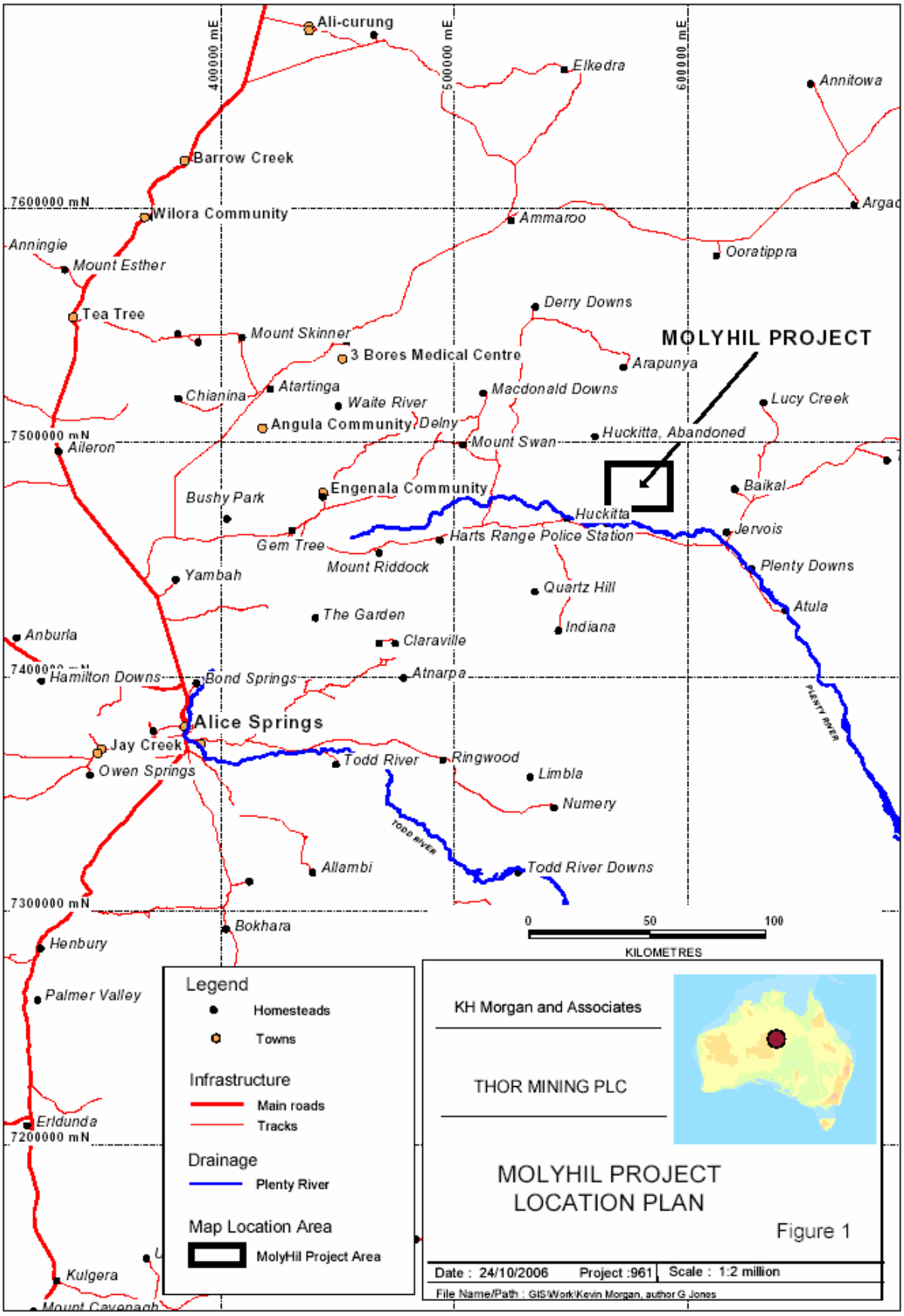

Figure 1 - Molyhil Project location map

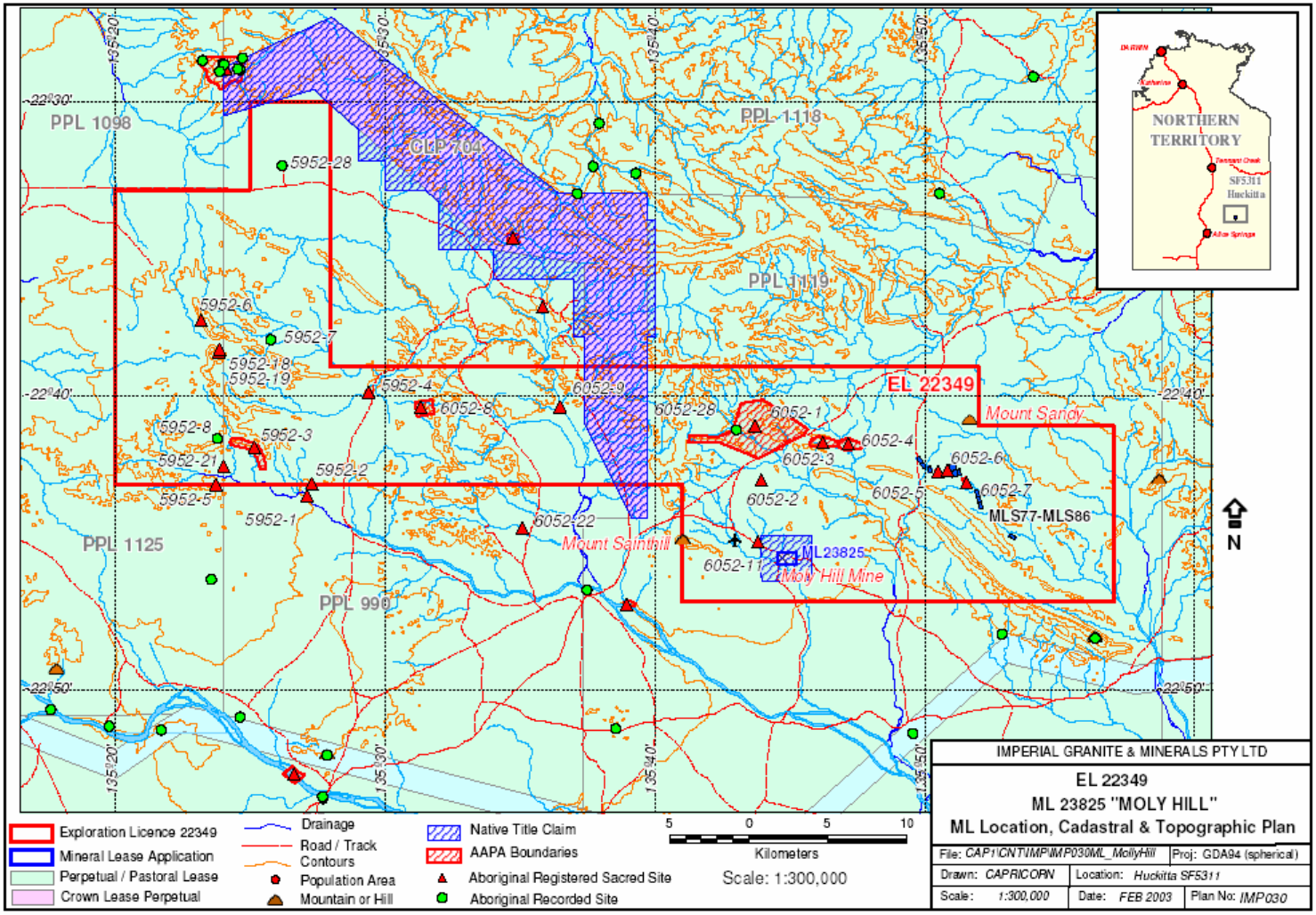

Figure 2 - Molyhil Tenure map

1.3 LEGISLATION AND OTHER APPROVALS

1.3.1 Legislation

The principle legislation under which mining projects in the Northern Territory is the *Mining Act 1980*. Other legislation which may be relevant to the project include:

- *Aboriginal Land Rights (NT) Act 1976*
- *Native Title Act (Commonwealth) 1993*
- *Mining Management Act 2001*
- *Water Act 1992*
- *Waste Management and Pollution Control Act 1998*
- *Environmental Assessment Act 1982*
- *Environment Protection and Biodiversity Conservation Act*
- *Soil Conservation and Land Utilisation Act 1970*
- *Bushfires Act 1980*
- *Water Supply and Sewerage Act 1983*
- *Conservation Commission Act 1980*
- *Dangerous Goods Act*
- *Territory Parks and Wildlife Conservation Act 1977*
- *Conservation Commission Act 1980*
- *Parks and Wildlife Commission Act 1980*
- *Power and Water Authority Act 1987.*

1.3.2 Standards

Australian Standards which may be relevant to the Molyhil Project are:

- Australian Standards 1940 for the use and storage of hydrocarbons;
- Australian Standard AS/NZS 5667.1:1998 – "*Water Quality Sampling – Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*";
- Australian Dangerous Goods Code and AS1940: *"The storage and handling of flammable and combustible liquids"*; and
- Australian Standard 1692: "*Tanks for flammable and combustible liquids*".

1.3.3 Environmental Procedures

Thor recognises that it is necessary to implement and maintain a range of procedures not only to demonstrate compliance with the legal requirements, but demonstrate due diligence and achieve various standards of environmental performance that are not necessarily covered by the various approval conditions.

A list of environmental procedures to accompany this document is currently being developed by Thor.

1.3.4 Current Project Status

Thor have recently completed a Definitive Feasibility Study for the project and have submitted the Public Environmental Report to the Environmental Protection Agency. This EMP accompanies the PER document.

1.4 THOR POLICIES

A list of Thor's Corporate Environmental, Occupational Health and Safety, Indigenous People's and Site Policies are attached as Appendix 1.

1.5 SITE RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT

Although all employees and contractors are required to comply with all aspects of the EMP, the following personnel shall be responsible for specific aspects of the Plan (Table 1).

Table 1 - Responsibilities of Thor Personnel for Environmental Management

Position	Responsibilities
Registered Manager	• Ensuring the Molyhil Project meets the company's corporate Environmental Policy, Tenement conditions, license conditions and all applicable state and Federal government legislation • Ensure that the EMP is implemented, and that all personnel are aware of and adhere to the procedures set out in the document • Improving community, government and employee awareness of Molyhil environmental programs
OH&S and Environmental Manager	• Regularly monitor that regular training for improved safety performance has been provided and site safe work procedures have been followed • Ensure that all statutory and site rules are adhered to • Scheduling and conducting regular inspections of each work area • Review all incident reports , participating in investigations and applying measures in accordance with site procedures • Provide direction and advice on all aspects of the EMP • Responsible for risk assessments and regular audits • Ensure relevant documentation is forwarded to the project manager as required and files on site are accurately maintained • Ensures site emergency plan addresses key environmental requirements and an action plan • Conduct environmental inductions in coordination with safety inductions
Mining Manager	• Ensure mine planning, development and operations are carried out in accordance with the Molyhil EMP • Waste rock dump construction and rehabilitation • Management of pit dewatering and disposal of excess to the plant or for dust suppression

Position	Responsibilities
Process Manager	• Ensure that ore processing operations are conducted in accordance with the EMP • Management of tailings • Salvage and disposal of surplus equipment • Purchasing materials/equipment in accordance with OHS/environmental procedures
Exploration Manager	• Conducts regional exploration activities in accordance with site policy • Ensure all exploration activities approved by regulatory authorities • Ensure that all exploration disturbances are rehabilitated within 6 months of completion
All Staff and Contractors	• Follow all procedures set out in the EMP • Report any non-compliance with the EMP to the OH&S Environmental Manager • Provide assistance in implementing and maintaining impact minimisation programs when requested by the OHS&E Manager or Resident Manager

Site management procedures will be put in place which review on an annual basis the overall compliance and performance of all operational facets including environmental matters.

1.6 STAKEHOLDER CONSULTATION

Thor is aware of the importance of regular and pro-active stakeholder and community consultation. This is implemented by a range of methods:

- Regular meetings with employees, both staff and contractors;
- Promptly responding to enquiries and complaints;
- Ongoing involvement with Traditional Owners.

Thor has and will continue a policy of keeping nearby communities fully informed of their future activities, especially those which may have an impact on the environment.

To this end, Traditional Owners have been involved in the development of the plans for the site.

Thor also engages in meetings and ongoing consultation with government authorities, traditional owners and the pastoralist to keep them informed of the proposed project.

1.7 REVIEW TIMETABLE

To ensure the currency, effectiveness and practicality of this EMP, it will be reviewed and amended annually. The selection of this timing will allow any modification or updates to be reviewed and allowed for in the annual budgetary process.

This EMP is a draft document and will be updated to include advice and amended procedures following the review of the Public Environmental Report.

2.0 MOLYHIL OPEN PIT MINE

2.1 PROJECT DESCRIPTION

A description of the project is summarised in Table 2.

Table 2 - Summary of the Molyhil Project

ELEMENT	DESCRIPTION
Life of mine (mine production)	4 years
Size of orebody • Measured resource • Indicated resource • Inferred resource	 370,000t at 0.52% WO_3 and 0.32% 1,750,000t at 0.52% WO_3 and 0.26% MoS_2 250,000t at 0.7% WO_3 and 0.2% MoS_2
Reserve Estimate	1,100,000t at 0.21% Mo and 0.62% W
Surface RL	410mRL
Top level of orebody	400mRL
Lowest level of orebody	290mRL
Depth of pit	120m (floor elevation 290 mRL)
Water table depth	~7.3 meters
Area of disturbance including access (ha)	74 ha
Ore processing rate • maximum	 300,000 tpa
Solid waste rock materials • maximum	 8.2 Mt
Water Supply • source	 Borefield
Power generation	Diesel fired power station

2.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with mining methods include:

SOURCE	COMMITMENT
PER COMMITMENT	Clearing will be kept to a minimum
PER COMMITMENT	Further work is planned by Thor to assess likely pit dewatering requirements
PER COMMITMENT	Pit dewater will be collected in in-pit sumps before being directed to a small settling basin to maximise the removal of suspended solids prior to being pumped into the plant process water system or used for dust suppression purposes

Table 3 lists Thor's objectives, targets and procedures for the ongoing activities associated with the Molyhil mine.

2.3 LONG TERM PLANS

2.3.1 Operations

The proposed development for the Molyhil Project involves the expansion of an existing pit. The current pit model has proved and probable reserves of 1.094 Mt at 0.21% (Mo) and 0.62% (W).

A two-staged pit design has been recommended, providing 201,621t of ore grading 0.26% (Mo) and 1.28% (W) in Stage I and 892,237t of ore grading 0.20% (Mo) and 0.47% (W) in Stage II. Stripping ratios are 8.0:1 and 7.4:1 respectively. All material will be drilled and blasted (except waste rock previously mined that is contained within the footprint of the proposed pit). Blasting will occur every third day.

Mining is planned to be undertaken by conventional truck and shovel operations under contract mining arrangements. Principal mining equipment includes a 100t hydraulic excavator (in backhoe configuration) and three 90t trucks.

The mining schedule has been developed to provide continuous mill feel of 25,000t per month.

Groundwater inflows (and rainfall) into the pit are anticipated to be low in volume and high in salinity and will be collected in in-pit sumps before being directed to a small settling basin to maximise the removal of suspended solids prior to being pumped into the plant process water system or used for dust suppression purposes.

A diversion channel will be constructed immediately north of the pit, waste dump and Tailings Storage Facility (TSF) to divert water from an ephemeral creek that runs between the waste dump and TSF. The diversion will be permanent and will direct the water back to Molyhil creek via Dam creek.

2.3.2 Rehabilitation

An abandonment bund will be placed around the open pits upon closure.

Rehabilitation at the Molyhil project will involve:

- achieving final landforms for the waste dump to minimise erosion in both the short and the long term, thus preventing off-site impacts;
- managing surface water, particularly during large storm events;
- managing potentially acid forming materials; and
- revegetating the open pits and all other disturbed areas so as to provide a sustainable local ecosystem.

2.4 SHORT TERM PLANS

2.4.1 Operations

Earthmoving activities are planned to commence in 2008, at the commencement of the dry season.

2.4.2 Rehabilitation

As the mining has not commenced at the Molyhil site, no rehabilitation works are planned for the short term.

Table 3 - Objectives, Targets and Operating/Environmental Procedures Regarding the Molyhil Open Pit

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Ensure public safety is maintained 2. Ensure ground vibration levels from all blasts comply with the recommended criteria 3. Ensure noise levels associated with mining operations are acceptable 4. Ensure dust generation associated with vehicles and equipment travelling to and from the mine is controlled to acceptable levels	1. Noise levels attributed to vehicles and mining operations shall be less than those required by the Noise Regulations 2. At closure, place an abandonment bund around the open pits	1. Suppress dust on roadways to and from the mine as required 2. Undertake corrective action/maintenance of equipment or vehicles generating excessive noise levels

3.0 PROCESS PLANT

3.1 PLANT DESCRIPTION

The process plant is designed to treat 300,000 tpa of Molyhil ore. The plant comprises a crushing circuit and fine ore stockpile, milling and classification, flotation plant for molybdenum recovery, gravity plant comprising spirals and tables for tungsten recovery, concentrate filtering, drying and handling facilities and associated infrastructure.

3.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with processing methods include:

SOURCE	COMMITMENT
PER COMMITMENT	All plant and equipment has been designed to meet occupational health noise standards and meet environmental noise standards
PER COMMITMENT	As part of the National Pollutant Inventory (NPI), quantities of air emissions will be estimated or measured and reported annually
PER COMMITMENT	Pit dewater will be collected in in-pit sumps before being directed to a small settling basin to maximise the removal of suspended solids prior to being pumped into the plant process water system or used for dust suppression purposes

Table 4 outlines Thor's legal requirements, objectives and procedures relating to the process plant.

3.3 LONG TERM PLANS

3.3.1 Operations

Processing of Stage I ore is scheduled over months 1 – 8 and Stage II ore from 9 to 44.

Approximately 90,000 t of magnetite will be produced during the design life of the project. The concentrate, which is understood to be inert, will be dewatered at the plant and transported by truck or conveyor to the separate storage area adjacent to the northern wall of the TSF. The pyrite concentrate disposal area will be located adjacent to the combined magnetite and general plant tailings TSF.

Molybdenite concentrate handling involves filtration of the concentrate followed by drying and packaging into 1 tonne bulker bags. The concentrate filter cake is dried in a diesel fired fluidised bed drier and packaged into one tonne bulker bags. The bulker bags are transferred by fork lift into a 40 ft sea container for shipment. Gravity tungsten concentrate is dried and subjected to magnetic and high tension separation to produce a final tungsten concentrate and a secondary magnetite product

3.3.2 Rehabilitation

At the end of mine life, the processing plant is to have all buildings and structures removed, all concrete footings and concrete bunded areas broken up and buried and all surface cables and pipelines removed. The underground cables and pipelines are only to have the first 30 cm below ground cut off with the remainder remaining underground.

With removal of the crusher and mills, the large concrete footings are to be covered to a minimum depth of 1.0 m with benign waste material from the ROM pad.

The area will be sampled (where appropriate) for the presence of hydrocarbon contamination and if present, removed and treated in the bioremediation area on a waste rock dump. All plastic liners in ponds and bunded areas are to be removed and buried and the walls pushed in. The area is then to be reshaped, deep ripped and seeded and any stockpiled vegetation respread.

3.4 SHORT TERM PLANS

3.4.1 Operations

The process plant will not be operational in the short term.

3.4.2 Rehabilitation

No rehabilitation is planned for the short term.

Table 4 - Objectives, Targets and Operating/Environmental Procedures for the Process Plant

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Ensure public safety is maintained 2. Ensure noise levels associated with mining operations are acceptable 3. Minimise dust emissions 4. Minimise exhaust emissions	1. Noise levels attributed to crushing and processing operations shall be less than those required by the Noise Regulations	1. Undertake corrective action/maintenance of equipment generating excessive noise levels 2. Dust suppression via sprinklers, sprays in crusher 3. Implement practical measures to reduce energy consumption 4. Ensure hearing protection available and used in required areas

4.0 ORE TRANSPORT

4.1 ORE TRANSPORT

The access road to the mine site coming in from the Plenty Highway will require upgrading to an 8m wide all weather road so it can accommodate the double and triple road trains which will use this road for construction access as well as ongoing supplies of diesel fuel, stores and also the shipment of concentrates.

The existing access road crosses two main rivers, Plenty River and Marshall River. At these creek crossings, the running surface will be sheeted with road base material that will be placed at the level of the river bed (to avoid silting). Existing access roads will be upgraded as necessary to provide an acceptable access road consistent with the amount of traffic to be handled and the design mine life and to a standard consistent with Thor requirements for durability during and/or following wet weather.

All roads will be gravel, to a minimum construction standard consistent with Thor requirements for durability during and/or following wet weather.

The ROM will be located immediately north of the plant.

4.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with ore transport include:

SOURCE	COMMITMENT
PER COMMITMENT	All road base will be produced from crushed waste rock that will be sourced from the pit during mining
PER COMMITMENT	There will be minimal light vehicle usage of the highways because of the fly in-fly out program
PER COMMITMENT	It is proposed to use these concentrate trucks to backload reagents and general freight to the site, thus reducing the number of trucks going to Molyhil on the Plenty Highway
PER COMMITMENT	Signs will be erected at the turnoff to site off the Plenty Highway, advising that road trains are entering and leaving the site to travel on the Highway
PER COMMITMENT	Licensed road vehicles will be used for haulage and standard axle loadings will be complied with
PER COMMITMENT	Road train drivers will use radio communications to co-ordinate safe passing

Table 5 lists Thor's objectives, targets and procedures for the ongoing activities associated with the ore transport.

4.3 LONG TERM PLANS

4.3.1 Operations

Ore haulage will continue throughout the life of the mine.

Water sourced from the pit will be used for dust suppression along haul and access roads and for the ROM area.

A stockpile of road base material will be located in close proximity to the creek crossings, and ongoing maintenance with the use of a loader/grader to remove sediment and reinstate the creek crossing (with stockpiled road base material) following heavy rains will be undertaken by Thor.

4.3.2 Rehabilitation

At the end of operations, any salt contamination on haulage roads will be ripped and disposed of by encapsulation in waste rock dump.

Any material remaining at the ROM and other disturbed areas will be re-shaped, ponds filled in with embankments removed, and all plastic folded up and buried either in a designated pit or under the reshaped ROM pad.

Where appropriate, growth medium would be spread over all disturbed areas, deep ripped on the contour and seeded with various local native tree, shrub and understorey species.

4.4 SHORT TERM PLANS

4.4.1 Operations

Following approval for the project, Thor will commence upgrading of the haul roads.

Dust suppression along the haulage roads and the ROM area.

4.4.2 Rehabilitation

No rehabilitation works associated with ore stockpiling and haulage will occur until the end of mine life.

Table 5 - Objectives, Targets and Operating/Environmental Procedures for Ore Haulage

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Ensure employee safety 2. Ensure public safety 3. Minimise dust emissions	1. Enhance the appearance of the site where possible through aesthetic planting 2. No spillage of ore during haulage	1. Suppress dust on haulage roads and areas regularly used by traffic and/or equipment 2. Regular maintenance of the creek crossings 3. Regular maintenance of the haul/access roads 4. Rehabilitation of the haulage roads and ROM following decommissioning

5.0 TAILINGS STORAGE FACILITY

5.1 PROGRAM

The combined tailings will be deposited into a conventional, rectangular shaped paddock-type TSF, with a footprint area of approximately 12.76 ha and functional storage area of approximately 9.9 ha.

5.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with the TSF include:

SOURCE	COMMITMENT
PER COMMITMENT	A sediment collection trench, nominally 300 mm deep, will be excavated around the outer toe of the perimeter embankment to contain any material washed off the outer embankment slope
PER COMMITMENT	After allowing the water to pass through a sump to settle out most of the suspended solids, the water will be released into natural flow paths to the south and west of the TSF
PER COMMITMENT	Engineering and agronomic advice will be obtained to assess the cover design options
PER COMMITMENT	All roads will be gravel surfaced to a minimum construction standard consistent with Thor requirements for durability during and/or following wet weather
PER COMMITMENT	During the early stages of operation of the TSF, tailings deposition will be managed to obtain early control of the released supernatant water, collect it into a single pond and move the pond towards the decant location
PER COMMITMENT	The area of pond should not exceed 15% of the storage area under normal conditions. However, a 15% area exceedance is likely to occur following major storm events. Under these circumstances, the water on the TSF will be drawn down as soon as practicable by reducing make-up water drawn from the borefield
PER COMMITMENT	A minimal total freeboard of 300mm will be provided within the ponding water of the TSF that allows for a 1 in 100 year, 72-hour duration rainfall event falling in the catchment of the TSF itself
PER COMMITMENT	A sediment collection trench/sump will be constructed around the outer wall to collect any runoff
PER COMMITMENT	A keyway will be excavated down into the compact weathered bedrock zone beneath the perimeter embankment of the TSF and will be backfilled with compacted low permeability material to reduce the potential for seepage movement at the base of the TSF
PER COMMITMENT	Regular monitoring of the monitoring bores located around the perimeter of the TSF will detect any impacts to groundwater
PER COMMITMENT	A sediment collection trench, nominally 300 mm deep, will be excavated around the outer toe of the perimeter embankment to contain any material washed off the

SOURCE	COMMITMENT
	outer embankment slope

Table 6 lists Thor's objectives, targets and procedures for the activities associated within the TSF.

5.3 LONG TERM PLANS

5.3.1 Operations

Tailings will be produced as two separate tailings streams, pyrite concentrate (7.6%) and a combined magnetite concentrate (25.2%) – general plant tailings (67.3%) stream.

The pyrite concentrate tailings and the general plant tailings will be combined at the plant and pumped to a nearby TSF as slurry at a design solids content of 34% by mass. The perimeter starter embankment will be raised periodically to provide a life of mine storage for approximately 890,000 t of pyrite and general plant tailings. There will be potential for increasing the storage capacity of the TSF by further embankment raises in the event that the mineral resource is increased. Assuming an average tailings dry density of 1.6 t/m^3 and beach slope of 1.3%, the maximum height of the perimeter embankment required to store the estimated 0.89 Mt of combined tailings will be approximately 11 m and final crest elevation will be at approximately RL422 m.

The magnetite concentrate disposal area will be located adjacent to the combined pyrite and general plant tailings TSF. The extent of embankment construction proposed for the magnetite concentrate storage will be limited to that necessary to protect the stockpiles from surface runoff.

5.3.2 Rehabilitation

At completion of the processing operation and after consolidation of the tailings material, heavy earthmoving equipment will push waste rock over the surface to cover the tailings material. If sufficient fines are available and the rock voids are closed, then topsoil will be spread over the rock cover and seeded with local native plant species.

The TSF embankments will be constructed using downstream techniques, utilising non-acid forming (NAF) waste. Topsoil removed from the TSF prior to construction will be redeployed on the final downstream slopes of the final embankments of the facility to assist with rehabilitation.

In summary, the rehabilitation of the TSF will include:

- Removal of all pipelines, powerlines and other materials associated with the operational stage of the storage;
- Fill the decant towers and surrounding pond with waste rock;
- Cover the surface of the TSF with a designed "store and release" cover;
- Reinforce the "freeboard" around the crest of the TSF embankment to ensure runoff cannot flow over the TSF embankments; and
- Provide reinforced lockable caps to all monitoring bores.

5.4 SHORT TERM PLANS

5.4.1 Operations

The civil construction for the Molyhil combined pyrite and general plant TSF will involve the clearing and stripping of the TSF footprint and excavation of a cut-off keyway, construction of a zoned perimeter embankment and decant access causeway, construction of a central pump-out decant and installation of slurry delivery and distribution pipework and return water pipework.

5.4.2 Rehabilitation

As the TSF will be constructed during the short term, no rehabilitation is planned for the short term.

Table 6 Objectives, Targets and Operating/Environmental Procedures for the Tailings Storage Facility

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Achieve a stable landform long term 2. Achieve an appropriate level of revegetation 3. Protect environment from accidental release of tailings 4. Prevent contaminated water being released into groundwater 5. Limit impact of TSF on local fauna 6. Limit PAF of TSF at closure	1. No discernible adverse impact on ground or surface water quality 2. No spills of tailings	1. Monitor water quality in groundwater in monitoring bores around the TSF 2. Daily monitoring of the tailings pipeline 3. Recording of fauna activity in the TSF 4. Development of a tailings operating manual 5. Annual geotechnical stability confirmation

6.0 WASTE ROCK DUMP

6.1 PROGRAM

Waste rock in excess of requirements will be contained in a waste rock dump located to the east and south of the open pit and surrounding the TSF, particularly on the northern side.

6.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with the waste rock dump include:

SOURCE	COMMITMENT
PER COMMITMENT	The outer faces will be established first and contoured to a maximum slope of 20% to assist in early stabilisation and minimise erosion
PER COMMITMENT	If PAF rock is identified during mining activities, it will be encapsulated in the waste dump
PER COMMITMENT	Benign waste rock generated from the mining of the open pit will be used to construct the ROM pad, the TSF and possibly also for road base/sheeting materials

Table 7 lists Thor's objectives, targets and procedures for the activities associated with the ongoing activities within the waste rock dump.

6.3 LONG TERM PLANS

6.3.1 Operations

Benign waste rock generated from the mining of the open pit will be used to construct the ROM pad, the TSF and also possibly for road base/sheeting materials. Waste dumps have been designed to accommodate waste from Stage I and Stage II pits and will be located east and south of the open pit.

Anecdotal information suggested that some potential acid generating material was mined as waste during the 1990's. Further investigation of this in 1998 revealed that there are no signs of acid mine drainage in the waste dump.

It is possible that the existing, small waste rock dump may be retreated through the new (proposed) processing plant. If the existing waste dump is not retreated, then a watching brief will be maintained on the waste rock dump to identify any acidic seepages that may be generated from the dump. However, it is anticipated that sulphidic waste rock will not be generated by the proposed mining operation.

6.3.2 Rehabilitation

As decommissioning approaches, waste rock will be stockpiled on the top surface of the waste dump in sufficient quantity to cover the TSF surface to the designed depth. The waste rock dump is anticipated to contain blocky competent rock with few fines; the dump will be quite porous with large voids. The outer slopes of the dump will be shaped to an angle of less than 20° from the horizontal. No topsoil will be applied to the side slopes of the dump but may be applied to the top surface if fine material has consolidated and filled the voids.

6.4 SHORT TERM PLANS

6.4.1 Operations

The dump is to be constructed in stages and this will allow any potential acid generating waste (which is not anticipated) to be temporarily encapsulated within a specified part of the dump.

6.4.2 Rehabilitation

No rehabilitation work is anticipated on the waste rock dump in the short term.

Table 7 - Objectives, Targets and Operating/Environmental Procedures for the Waste Rock Dump

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Construct the waste rock dumps without any adverse impacts on: • Air quality • Surface water • Visibility 2. Maximise the opportunity to use stockpiled materials as resources 3. Achieve a long term stable landform 4. Achieve an appropriate level of revegetation	1. Position the waste rock where is has the least visual impact 2. Control all runoff from the dumps and minimise erosion	1. Suppress dust during construction 2. Maximise the use of waste dump materials for other operating or rehabilitation programs 3. The final waste rock dump will be rehabilitated to the requirements the Northern Territory Government

7.0 SITE INFRASTRUCTURE

7.1 PROGRAM

Site infrastructure to be established at the Molyhil project includes:

- Contractors hardstand areas;
- Offices;
- Workshop;
- Access Roads;
- Power Station;
- Airstrip.

7.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with the waste rock dump include:

SOURCE	COMMITMENT
PER COMMITMENT	A contour trench will be constructed on the northern side of the airstrip to minimise the flow of water onto the runway. The trench will direct the water to the creek south east of the runway
PER COMMITMENT	Pipeline will be placed in a v-trench
PER COMMITMENT	Flow meters will be fitted to production bores to enable monitoring of groundwater abstraction
PER COMMITMENT	Standing water levels will be recorded monthly for the duration of the project
PER COMMITMENT	The waste disposal site will be within the waste dump and progressively buried as the waste dump is advanced
PER COMMITMENT	Any hydrocarbons such as waste oil will be collected in drums for collection by waste oil contractors and transported to Alice Springs for recycling
PER COMMITMENT	The landfill will contain only inert and putrescible waste materials
PER COMMITMENT	No burning of refuse at any time
PER COMMITMENT	No disposal of hydrocarbons or hydrocarbon contaminated materials
PER COMMITMENT	No disposal of hazardous goods
PER COMMITMENT	Thor will reuse and recycle construction materials, scrap metals, equipment and tyres to minimise disposal into the landfill
PER COMMITMENT	The operation of the camp will be in accordance with the Food Act 2004 and Food Safety Standards, AS 4674 :"Design, Construction and Fit-out of Food Premises"

SOURCE	COMMITMENT
PER COMMITMENT	The camp will be registered as a boarding house in accordance with the Public Health Act and Public Health (Shops, Eating Houses, Boarding Houses, Hostels and Hotels) Regulation

Table 8 lists Thor's objectives, targets and procedures for the activities associated with the ongoing activities within the site infrastructure.

7.3 LONG TERM PLANS

7.3.1 Operations

All site infrastructure will be maintained for the life of the mining operation.

7.3.1.1 Services Water

Raw water will be sourced from four production bores located approximately 6-7 km north east of the plant site. A six kilometre, 160mm diameter HDPE pipeline will be constructed from Prices Bore to the plant. Feeder lines from the other bores will be 90mm HDPE to the main pipeline. The pipeline will be placed in a v-trench.

Raw water will be delivered via a raw water transfer system to the plant raw water tank, which will provide water to the process plant and to a dedicated reverse osmosis unit for production of potable water. The potable water requirements for the camp and general purpose workshop have been estimated as 5,600 m^3. Process water will also be returned to the process from the tailings dam via a decant water pump installed in a decant well at the tailings dam.

7.3.1.2 Roads

Existing access roads and river crossings will be upgraded as necessary to provide an acceptable facility consistent with the amount of traffic to be handled and the design mine life. A new access road has been provided between the village and the airstrip, and between the village and the process plant.

A parking area will be allowed for the process plant administration buildings and warehouse. Hardstand areas have been provided as necessary in the process plant, mining contractor's area, village and airstrip.

All roads will be gravel, to a minimum construction standard consistent with Thor requirements for durability during/following wet weather.

7.3.1.3 Airstrip

The existing airstrip, located 2 km to the northwest of the pit will be upgraded as necessary to requirements acceptable to charter aircraft operators for the fly in fly out (FIFO) operation and RFDS for emergency events.

7.3.1.4 Power

Power to the Accommodation Camp, Process Plant and associated facilities will be supplied from a Build Own and Operate (BOO) Power Station operating on diesel fuel.

A separate standby emergency diesel generator rated approximately 350kVA will be provided at the power station to supply back-up power at 415V for essential services at the plant. At the Accommodation Camp a standby emergency diesel generator

rated approximately 500kVA will be provided to supply local back-up power for the camp site only. This will allow continued operation of camp services in the event of a supply line failure.

Remote from the plant and camp, local 415V diesel generator sets will be provided to supply power for the bore pumps, water transfer station and airstrip.

7.3.1.5 Waste Storage and Disposal

A sewerage treatment plant is to be installed at the Molyhil project. The plant will be located south and downslope of the camp within MLA25271. The unit, Novaclear Membrane Bioreactor (MBR), designed by EcoNova will treat daily wastewater flow of 20 kL/day that will provide recycled water for irrigation throughout the development grounds.

A waste disposal site will be located within the waste dump and will be progressively buried as the waste dump is advanced. Any hydrocarbons such as waste oil will be collected in drums for collection by waste oil contractors and transported to Alice Springs for recycling.

7.3.1.6 Accommodation

The camp will be located south of the mining operations and comprises: 64 ensuited rooms, camp managers office, dining room, laundry, car park and potable water treatment.

The accommodation village will be provided by a separate contractor on a Build, Own Operate (BOO) basis. Design, manufacture, supply, installation and commissioning of the village facilities will be the responsibility of the Contractor.

This contractor will also provide the support, amenities and administration buildings for the process plant, Workshop, Office, Security and Stores.

7.3.2 Rehabilitation

The location of the project infrastructure has taken into account the existing environment, potential environmental impacts and the wishes of the traditional owners. A variety of alternatives have been considered.

Once full production ceases, it is envisaged that all major roads not required for any long term access or monitoring purpose will be ripped to either completely remove the formed roadway or to leave a narrower long term access. Where appropriate, drainage controls will be constructed. Smaller tracks will be lightly ripped.

All buildings will be removed after consultation with stakeholders, the site re-contoured and revegetated.

All other areas disturbed throughout the life of the project would be rehabilitated in accordance with procedures comparable to those outlined in the previous sections. Emphasis would be placed on reshaping, covering sites with growth medium (if material is available), contour deep ripping all disturbed areas and stabilising those areas with vegetation through direct seeding of local native trees and shrubs.

7.4 STORES AND ADMINISTRATION – MATERIALS HANDLING

Functions of the Mine Store involve receiving, storing and distribution of general goods, hydrocarbons etc. The mining contractors are responsible for stores purchase and management for their own materials such as vehicle parts, hydrocarbons and explosives, providing that they fall within the site guidelines.

Control of materials and goods is a stores responsibility with regard to:

(a) Received goods condition, e.g. packaging and acceptable condition specified quantity and quality. The environmental aspect of this is to guard against spills, wastage and contamination.

(b) Purchasing and stock control including sub-store compounds.

(c) Correct placement within stores according to hazardous goods standards and labelling – i.e. safe storage.

(d) Authorisation of after hours delivery and retrieval/use procedures.

(e) Compounds including the removal of waste boxes, drums and packaging.

(f) Waste control, security of leakage and contamination from those stores and sites – e.g. bunding provision and maintenance, and clean up of spillage.

(g) Ensure sufficient stocks of contamination clean up products are available, e.g. hydrocarbon spill control kits.

(h) Off-site sales and disposal of oil drums and bulk waste oil including administration of the disposal receipts for government perusal (in conjunction with mining contractors).

(i) Waste bin management siting and regularity of sufficient waste bins to effectively control waste. Siting is important to ensure availability in high use areas as a central point for general areas.

7.5 SITE MAINTENANCE MANAGEMENT

Development and maintenance of the overall site encompasses the following:

- Hazard removal;
- Security fencing and access;
- Road maintenance;
- Repairs to bunding, drainage systems and lines, pipelines;
- Scrap materials recovery
- Aesthetics – clean up; and
- Correct disposal of wastes and scrap.

These programs will be performed by the maintenance team. The utilisation of the maintenance team for the above tasks relies on communication with and scheduling of time by the Manager and adequate resources being made available. Clear design and instruction of tasks and standards to be met are given to ensure a high standard is achieved, as well as sufficient resources being allowed for by the authorising personnel.

7.6 ENVIRONMENTAL CONSIDERATION

Long term impacts can be generated by short term practices which do not take sufficiently into account the likely total impact of successive short term design failures or as the life of the mine extends past the “use by” date of pipes, drains, storages, roads, etc. Where practicable it is intended all actions would be carried out with regard to a total “life cycle” approach.

Table 8 - Objectives, Targets and Operating/Environmental Procedures for Site Infrastructure

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
Water Management 1. Avoid water pollution 2. Responsible on-site storage 3. Regular removal of wastes 4. Planned on-site disposal **Roads** 5. Employee and public safety 6. Avoid noticeable dust 7. Incorporate/maintain appropriate drainage for all roads **Power Generation** 8. Ensure noise levels from generators and compressors is in compliance and not intrusive **Buildings / Structures** 9. Maintain structural and visible standard	1. Achieve noise levels below Regulation Requirements 2. Compliance with all management strategies to achieve compliance 3. Zero wastage of water 4. No accidents on roads 5. Minimise erosion of road and surface deterioration with appropriate silt controls 6. All contamination (including fuel) shall be minimized and contained on site 7. Responsible placement covering and/or segregation of wastes 8. Neat presentation of buildings and structures	1. Erection of appropriate warning/advisory signs 2. Provide shielding, enclosures etc. and specify registered noise levels from supplier 3. Suppress dust on roads as required 4. Ensure roadside drains are appropriately constructed and maintained 5. An inventory of hydrocarbon use will be maintained to allow determination of whether storage containers are leaking 6. All mobile equipment and light vehicle servicing activities including washdown will be conducted on impermeable surfaces 7. A washdown facility incorporating a concrete base and triple interceptor style sediment and oil/grease removal system will be provided for the workshop facility 8. Refueling of mobile equipment will be conducted on a sealed surface at the main fueling facility using a mobile refueling vehicle 9. The on-site landfill will only receive solid wastes classified as non-hazardous (inert and putrescible) 10. Design, construction, operation and closure of the onsite landfill will conform to all applicable regulations 11. Domestic waste from the workshop and offices

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
		will be properly handled, transported to and disposed of in the landfill 12. Thor staff and contractors will be trained in proper handling and disposal of waste material. 13. Domestic waste from the workshop and offices will be properly handled, transported to site and disposed of in the onsite landfill 14. Provide bunding around fuel tanks and drums 15. Require employer and contractors to follow specified storage procedures using appropriate containers 16. Regularly inspect stored waste with respect to maximum quantities 17. Use reputable waste contractors on a programmed basis 18. Follow plans/procedures developed for each waste site 19. Regular maintenance

8.0 HYDROCARBONS AND HAZARDOUS SUBSTANCES

8.1 PROGRAM

The major materials to be utilized in ore processing and concentrate production are:

- Lime;
- Frother (DSF001/IF50);
- Sulphide collector (AM2);
- Oxide collector (AM2); and
- Depressant (NaCl).

Diesel will be contained within self bunded, double-skinned storage tanks.

Hydrocarbons and hazardous substance management at Molyhil is broken up into four areas:

- Transport;
- Storage and Handling;
- Disposal; and
- Spills Management.

8.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with hazardous substances include:

SOURCE	COMMITMENT
PER COMMITMENT	All hazardous substances will be contained within a concrete bunded facility (including a drain pipe and valve) and will be built in accordance with the Australian Dangerous Goods Code and AS1940: *"The storage and handling of flammable and combustible liquids"* and AS1692: "Tanks for flammable and combustible liquids"
PER COMMITMENT	Spill containment kits will be provided at the workshops and areas where chemicals and hydrocarbons are stored
PER COMMITMENT	All hazardous and dangerous goods and materials will be transported by road and will be used and stored in accordance with the relevant statutory requirements
PER COMMITMENT	Only those persons specifically trained in the storage, handling and use of any process plant hazardous materials will be permitted to handle that hazardous material
PER COMMITMENT	A register of all hazardous substances kept at site will be maintained by Thor
PER COMMITMENT	Waste oil and other hydrocarbons will be collected and stored, either in bulk or in 200-litre drums, prior to removal from site by contractor for re-use or other approved form of disposal
PER COMMITMENT	Oil-filters will be thoroughly drained of oil before disposal into a bin which will then be removed and transported to Alice Springs for disposal

Table 9 lists Thor's objectives, targets and procedures for the activities associated with the ongoing activities with hydrocarbons and hazardous substances.

8.3 Transport

Thor will use various hazardous substances and a large variety of hydrocarbon products during operational activities. These substances will be transported to site using road trains, which are either purpose built (such as diesel fuel tankers or cyanide tankers), or on standard freight trucks.

8.4 Storage and Handling

All hydrocarbon containers will be stored in bunded areas according to statutory requirements by licence and/or tenement conditions, regulations, Australian/New Zealand Standards and industry good practice. Above ground storage tanks will be contained within a bunded area with a sump to enable spillage to be collected. The bund will be built to contain 110% of the capacity of the largest tank or 25% of the total storage of interlinked storages (whichever is the largest). Depending on the design, some bunds may be fitted with an outlet valve and pipe, which only discharges to a lined collection sump or hydrocarbon triple interceptor tanks, or may include a sump pump that discharges collected water or hydrocarbon into a triple interceptor.

All 200 L drums will be stored within either:

- A compacted earthen floor and bund with a spillage capacity of at least 20% of the total hydrocarbon stored within the bund. If suitable compaction cannot be attained the bund will be lined with HDPE
- A concrete floor and bund with a spill holding capacity of 20% of the total hydrocarbon stored in the drums
- A concrete floor within a workshop with the floor bunded on three sides and the fourth open to enable any spillage to enter the drainage system and ultimately be retained by the waste oil collection system.

In addition, where individual drums are required to be stored outside a bunded area:

- All drums stored vertically will be held individually or by groups on steel or plastic grates over drip or spillage trays with a capacity to hold 220 L (110% of the capacity of a drum)
- All drums stored horizontally will be located on suitable holding tables over a steel or plastic drip tray with a capacity of 220 L
- Each row of horizontal drums will have a sand drip tray under each row of outlet (supply) valves.

All drums with a volume less than 200 L are recommended to be stored on steel or plastic grates or shelving located over a concrete floor. These storage areas can be either bunded with a storage capacity of 20% of the total volume of stored materials, or unbunded with drainage to a triple oil interceptor tank.

Wherever possible, hydrocarbons will be purchased, stored and handled in bulk containers. Bulk oils and greases used in plant maintenance and servicing at workshops will be provided with drip collection trays over a concrete floor. Transfer points to or from bulk containers or permanent refuelling stations will be provided with a bunded concrete apron with collection of drainage discharging to a lined collection sump or triple oil interceptor tank.

8.5 Disposal

Thor will ensure all oil and grease is collected and sent off-site for recycling or disposal.

Waste mill (Ceplattyn) or vehicle grease will be collected in sealable 200L drums. All waste grease containers will be stored in bunded areas according to the statutory requirements by tenement or licence conditions, regulations, Australian/New Zealand Standards and industry good practice.

Waste mill grease from the processing plant will be stored on the concrete pad to the east of the Power Station. The drums will be stacked on pallets and transported offsite for disposal.

8.6 Spill Management

A spill management procedure will be developed and will require spills to be contained and prevented from spreading but only if it is safe to do so.

Impact of hydrocarbons and hazardous substance on the environment will be minimised through the implementation of a number of management measures developed in accordance with NT regulations.

Table 9 - Objectives, Targets and Environmental Procedures regarding hazardous substances

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Ensure the safe transport, storage and use of all potentially hazardous materials 2. Ensure the potential for accidental release is minimized 3. Ensure that accidental releases are mitigated as soon as practicable 4. Comply with legal requirements associated with transport, storage and handling of dangerous goods and hazardous substances 5. Prevent contamination through uncontrolled discharge of hydrocarbons or chemicals	1. All contamination (including fuel) shall be minimized and contained on site 2. Ordered, regular storage of waste stocks below those levels on the Register 3. Low number of environmental incidents relating to spills 4. No contaminated sites	1. Erection of appropriate warning/advisory signs 2. Management of hazardous goods will be in accordance with statutory regulations, standard industry structures and procedures 3. An inventory of hydrocarbon use will be maintained to allow determination of whether storage containers are leaking 4. Prepare a map of storage and fixed usage locations and spill response equipment 5. Refueling of mobile equipment will be conducted on a sealed surface at the main fueling facility using a mobile refueling vehicle 6. Thor staff and contractors will be trained in proper handling and disposal of waste material. Hazardous waste generated by the operation will be transported offsite to licensed waste disposal facilities 7. Solutions drained from punctured pressurized containers and vessels will be managed as hazardous wastes and appropriately disposed of offsite 8. Hazardous materials and wastes will be stored in appropriately labeled containers within bunded areas 9. Provide bunding around fuel tanks and drums 10. Require employer and contractors to follow specified storage procedures using

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
		appropriate containers 11. Ensure there is no secondary contamination outside the existing facilities 12. Regular auditing of chemical and hydrocarbon storage areas 13. Prepare a Hydrocarbon Management Procedure 14. Prepare an Environmental Procedure for hazardous substance management

9.0 EXPLORATION ACTIVITIES

9.1 Scope of Activities

Thor may potentially undertake further exploration drilling at the Molyhil site.

9.2 Legal Requirements, Objectives and Targets

Table 10 lists Thor's objectives, targets and procedures for the activities associated with the ongoing activities during exploration.

9.3 Long Term Plans

No exploration activities are scheduled for the immediate long term.

9.4 Short Term Plans (2007 – 2008)

No exploration activities are anticipated in the short term.

9.5 Site Rehabilitation

All un-rehabilitated areas are to have drill holes plugged ground using a concrete or gypsum conical plug, all sample bags removed and buried, all sumps pushed in and the area ripped and seeded.

All surface disturbance activities are to be rehabilitated in accordance with the Company's rehabilitation procedures of exploration activities. These procedures involve:

- Removal of all rubbish, equipment, consumables, containers etc;
- Removal of areas contaminated with oils etc;
- Reshaping disturbed areas to the former landform unless varied with the permission of the land owner or the NT Government;
- Replacement of any growth medium onto the final landform;
- Revegetation through the use of appropriate native seed;
- The use of temporary erosion control measures;
- Regular review of rehabilitation progress with maintenance as required;
- Consultation with the stakeholder and/or NT Government regarding their acceptance of the rehabilitation undertaken.

Table 10 - Objectives, Targets and Operating/Environmental Procedures for Exploration Activities

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Ensure the safety of all employees, contractors and public 2. Minimise impacts upon other land users, community and environment 3. Ensure activities comply with approval and Best Practice Guidelines 4. Ensure current and future rights to explore are maintained via obtaining necessary approvals and consultation	1. Compliance with appropriate noise criteria for each site 2. Minimise surface disturbance during site preparations and operations 3. Keep exploration sites clean and tidy at all times 4. Avoid adverse effects on local air quality 5. Nil contamination of surrounding surface and ground water	1. Enclosure/suppression of noisy items 2. Abide by designated working hours 3. Care with all noise sources 4. Regular litter patrols 5. All fuel and chemicals carefully stored with absorbent matting available if necessary 6. Preferable use of biodegradable drilling fluids 7. Undertake monitoring specified in the Environmental Procedures Manual

10.0 VEGETATION AND FLORA

10.1 Vegetation

There are three habitats present within the mine lease; sand plain, alluvial riparian and rocky hill slope habitat. Heavy grazing of grasses, forbs and small shrubs in the understorey as well as clearing during previous mining activity has resulted in much of the Molly Hill area being highly disturbed.

The dominant vegetation associations are open Gidgee (*Acacia georginae*) woodland over short grass and open Ironwood (*A. estrophiolata*) woodland over short grass. According to Perry *et al*. (1962), Gidgee communities are extensive in the north-eastern region around the Jervois Station. "Sparse low tree" communities mostly characterised by *A. estrophiolata*, occur in a range of habitats and are a widespread community.

In general, dominant species for the area are wide spread and their persistence is not dependant on the Molyhil area.

The dominant vegetation includes *Acacia georginae* overstorey, *Senna* spp. shrubs, and heavily grazed *Cenchrus ciliaris* and *Calotis hispidula*. Riparian zones were dominated by *Eucalyptus camaldulensis* overstorey, *Acacia farnesiana* tall shrub layer and *Cenchrus ciliaris* and *Zygochloa paradoxa* in the ground layer.

10.2 Declared Rare and Threatened Species

Ninety-five plant species have been recorded throughout two vegetation surveys conducted in 2004 and 2006/7 (Moon *et al.* 2007). No threatened plant species were recorded during these surveys. A search of the EPBC Act (1999) website listed no threatened species in the area. Likewise, none of the species identified are listed in the Northern Territory list of threatened species.

10.3 Introduced Species

Currently, Buffel Grass is the main introduced species throughout the area and region. Control of this widespread exotic species is not viable. To a lesser extent Ruby Dock occurs at sites scattered across the existing waste rock dump and this species has the potential to be an invasive weed at the site, however control methods will be instigated early in the construction phase and thorough operations.

10.4 Legal Requirements, Objectives and Targets

Environmental commitments relevant to management associated with vegetation and flora include:

SOURCE	COMMITMENT
PER COMMITMENT	Earthmoving activities are planned to commencement of the dry season
PER COMMITMENT	Minimise clearing profile
PER COMMITMENT	Prior to clearing areas will be clearly defined
PER COMMITMENT	Clearing operations will be supervised
PER COMMITMENT	Protect vegetation outside clearing profile
PER COMMITMENT	Progressively rehabilitated disturbed areas as available

SOURCE	COMMITMENT
PER COMMITMENT	Cleaning down of machinery prior to arriving on site
PER COMMITMENT	Collect and stockpile all vegetation and topsoil for use in rehabilitation works
PER COMMITMENT	Top 300mm of topsoil removed and stockpiled for use in later rehabilitation works
PER COMMITMENT	These topsoil stockpiles will not exceed two metres to ensure viability of the topsoil
PER COMMITMENT	All rehabilitated landforms have been designed and will be controlled to minimise erosion
PER COMMITMENT	Larger trees and shrubs will be retained whenever possible
PER COMMITMENT	Only flora found in the local area will be used in rehabilitation programs
PER COMMITMENT	Operations will act in accordance with Vegetation Clearing Management Plan
PER COMMITMENT	Operations will act in accordance with Weed Management Plan

Table 11 outlines Thor's legal requirements, Objectives and Procedures relating to vegetation and flora.

Table 11 - Objectives, Targets and Operating/Environmental Procedures for Vegetation and Flora

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Prevent weed species establishing in disturbed areas 2. Minimise the loss of habitat, species diversity and abundance, and re-establish appropriate habitat through rehabilitation	1. Effective rehabilitation of disturbed sites 2. Implement weed control program 3. Compliance with all management measures to achieve the objectives	1. Minimise disturbance 2. Protect all vegetation outside the clearing profile 3. Clearly marking out of areas to be cleared and supervision during clearing activities 4. Periodically inspect disturbed areas for weeds 5. Remove all weeds encountered on the minesite and surrounding areas 6. All ground engaging machinery is blown down prior to entering the project area to remove weed seeds and possible plant pathogens 7. Implement the Weed Management Plan and Vegetation Clearing Management plan 8. Obtain necessary licenses and permits for the clearing of land associated with the Molyhil Project 9. Restricting the clearing of vegetation to the minimum necessary for operations by: • locating operations on areas already disturbed by previous mining • clearly delineating boundaries of all areas to be cleared prior to the commencement of clearing works

11.0 FAUNA

11.1 POTENTIAL ISSUES OR IMPACTS

A search of the EPBC Act (1999) website listed no threatened species known in the area. Likewise, none of the species identified area listed in the N.T. list of threatened species (Parks and Wildlife web site).

As the mining lease is situated on land that has been disturbed for many years if not decades, remaining animal population are well adjusted to living in such an environment. Reptiles especially seem adapted to the modified mine site environment with Long-nosed dragons (*Amphibolurus longirostris*) and Geckoes (*Gehyra variegate*) found in most cast iron pipes and in an old septic tank. Mining activity is unlikely to have an impact on remnant populations.

Thirty-to bird species, six mammal and eight reptile species were recorded during the 2004 survey on site. Red kangaroos and Euros were common and Domestic House Mice were the only mammal species captured. Zebra finches, Willie wagtails, White-Plumed Honeyeaters and Magpie-larks were also commonly observed during the survey.

A search of the EPBC Act (1999) website listed two threatened species that could potentially be in the area: Mulgara (*Dasycercus cristicauda*) and Black-footed Rock Wallaby (*Petrogale lateralis* MacDonnell Rangers race). Although no record of these species have occurred within the mine lease area, it would be expected that Black-footed Rock Wallabies would have and may still occupy the nearby ranges.

The Rainbow Bee-eater (*Merops ornatus*) is listed as Migratory and Marine under the EPBC Act (1999). The Rainbow Bee-eater is widely distributed throughout Australia and follows a migratory distribution pattern populating southern regions of Australia during summer and migrating northwards to Northern Australia and Asia during the summer. It is commonly found in Central Australia during the warmer months of the year. Its habitat of nesting in burrows built into the banks of creeklines means it is often found in riparian woodlands and is not uncommon in towns and communities. Disturbance from proposed mining activities is unlikely to have a damaging effect on local and regional populations of this species.

11.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with fauna include:

SOURCE	COMMITMENT
PER COMMITMENT	Existing cleared areas will be utilised for the mine
PER COMMITMENT	All bore holes being utilised will be securely capped to ensure that fauna do not become trapped
PER COMMITMENT	Unused bore holes will be permanently plugged below ground level
PER COMMITMENT	All personnel will be prohibited from bringing pets, firearms, or traps into the camp or project area
PER COMMITMENT	The rehabilitation program for the site will include fauna habitat reconstruction, including the replacement of dead timber, creation of rock piles and litter establishment
PER COMMITMENT	Regular monitoring of the TSF will occur to ensure no fauna become trapped

Table 12 outlines Thor's objectives, targets and operating and environmental procedures with regards to the management of fauna.

Table 12 - Objectives, Targets and Operating/Environmental Procedures for fauna management

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. Minimise the loss of species diversity and abundance 2. Re-establish appropriate habitat through rehabilitation 3. Manage and control the spread of pest species as a result of their operations	1. Effective rehabilitation of sites at closure 2. No increase in feral animal populations at site 3. Compliance with all management measures to achieve the objectives	1. Employees and contractors will be required to attend an induction program that will include a component relating to environmental management which will clearly explain employee and contractors roles and responsibilities in terms of restricting impacts on fauna and habitat 2. All staff and contractors will be educated in recognising species of conservation significance particularly Mulgara and the Black-Footed Rock Wallaby 3. Sightings of species of conservation significance will be reported to the Northern Territory Parks and Wildlife Commission 4. Haulage routes and mine roads will have speed restrictions in place to minimise fauna death on roads 5. The rehabilitation program for the site will include fauna habitat reconstruction, including the replacement of dead timber, creation of rock piles and litter establishment 6. All personnel will be prohibited from bringing pets, firearms or traps into the camp and project area 7. All bore holes being utilised will be securely capped to ensure that fauna do not become trapped

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
		8. Old unused bore holes will be permanently plugged below the ground level 9. During site specific inductions, all staff will be advised of the potential for seasonal problems relating to biting insects, and will be advised on personal protection measures to protect themselves from mosquitoes and other biting insects

12.0 ABORIGINAL HERITAGE

12.1 POTENTIAL ISSUES OR IMPACTS

Traditional Owners have been regular visitors to the site to discuss their sites and concerns and their input has been included into the design phase of the project. A site visit in March 2007 with the Eastern Arrente people was undertaken to assess the proposed infrastructure locations for sites of Aboriginal significance. At the request of the traditional owners, Thor:

- Have changed the main access road from the site to the village to avoid the sacred site at Molyhil;
- Have made a minor variation (of a few meters) to avoid some significant trees at the creek crossing;
- Have agreed to stockpile Gidgee trees removed from the southern waste rock dump and make them available to the traditional owners for traditional uses; and
- Have fenced off the site of significance (Molyhil) at the request of the Traditional Owners.

A Triparitite Deed exists between Molyhil Mining Pty Ltd (Thor), Central Land Council (CLC) and the Traditional Owners that forms a mining agreement between all parties at the Molyhil Project. The Deed of agreement has been drawn up and is in the approval process waiting to be signed off.

The location of Aboriginal sacred sites was investigated during exploration work undertaken in the area in 2003. Aside from Molyhil, there do not appear to be any Aboriginal scared sites in the project area that will be impacted.

12.2 LEGAL REQUIREMENTS, OBJECTIVES AND PROCEDURES

Environmental commitments relevant to management associated with Aboriginal Heritage include:

SOURCE	COMMITMENT
PER COMMITMENT	Thor will (and have) change the access route to the mine/camp to avoid the sacred site at Molyhil
PER COMMITMENT	Thor will amend the location of the creek crossing along the site access road as requested by the Traditional Owners
PER COMMITMENT	The Central Land Council and NRETA will notified immediately if sites of potential significance are discovered
PER COMMITMENT	Thor will make available to the Traditional Owners all gidgee trees that will be removed from the southern waste rock dump area
PER COMMITMENT	Thor will obtain an authorisation certificate from AAPA prior to clearing activities

Table 13 outlines Thor's legal requirements, Objectives and Procedures for Aboriginal Heritage issues relating to the Molyhil Project.

Table 13 - Objectives, Targets and Operating/Environmental Procedures for management of Aboriginal Heritage sites

OBJECTIVES	TARGETS	OPERATING/ENVIRONMENTAL PROCEDURES
1. No disturbance of archaeological sites 2. No disturbance of ethnographic sites	1. Compliance with all management measures to achieve the objectives	1. Agreement of infrastructure plan with traditional owners 2. Relocation of access roads and waste dump in accordance with request of Traditional Owners 3. Fencing of Molyhil sacred site to prevent access 4. A Triparitite Deed exists between Thor, CLC and the Traditional Owners that forms a mining agreement between all parties at the Molyhil Project 5. Thor will comply with the provisions of the Aboriginal Land Rights (NT) Act 1976 and the NT Aboriginal Sacred Sites Act 6. Site induction will detail the importance of avoiding Aboriginal heritage sites and reporting of any suspected sites 7. Consultation with Indigenous land owners

13.0 IDENTIFICATION OF ENVIRONMENTAL INCIDENTS

13.1 Risk Analysis and Issue Prioritisation

A comprehensive aspects register and risk assessment has been completed as part of the EMP. The environmental risk assessment was undertaken in accordance with Australian/New Zealand Standard 4360:1999 Risk Management.

To maximize the return investment in pro-active management of environmental issues, it is important that manpower and other resources are allocated on priority issues. It is normally accepted that the highest risk issues receive the highest priority.

The generally accepted measure of risk is the product of the likelihood of an event occurring and the consequence of the event. For example, an event that has a high likelihood and moderate consequence may be considered to have similar risk as an event that has a moderate or low likelihood and a high consequence. The process however has a high degree of subjectivity.

The methodology used in the Molyhil risk assessment rated both likelihood and consequence on a scale of 1 to 5. These numbers were assessed in the matrix shown in Table 14 to provide an indicator to the degree of risk associated with the issue and relative priority of the issue. Historical data from other mining operations was used to assess the likelihood of an environmental risk occurring (Table 15). The consequence of an environmental issue was assessed by determining the severity of the effect, the area/population to be affected, the permanence of effects and the capacity of the area to recover. The resulting consequence descriptions were taken from levels of notification used in draft procedures prepared for Thor by Keith Lindbeck & Associates (Table 16). Tables 17 and 18 show the prioritisation matrix used in the risk assessment (Table 19) and the definitions of the risk levels respectively.

Table 14 - Qualitative Risk Analysis Matrix

	CONSEQUENCE				
LIKELIHOOD	1	2	3	4	5
5	M	S	S	H	H
4	L	M	S	H	H
3	L	M	S	S	H
2	L	M	M	S	H
1	L	L	M	S	H

H = High Risk, S = Significant Risk, M = Moderate Risk, L = Low Risk

Table 15 - Qualitative Measures of Likelihood.

LEVEL	DESCRIPTOR	DESCRIPTION
1	Rare	Environmental issue has not occurred in the past and there is a low probability that it may occur in exceptional circumstances
2	Could Occur	Environmental issue may have occurred in the past and there is a moderate probability that it could occur at some time
3	Should Occur	Environmental issue may have arisen in the past and there is a high probability that it should occur at some time

4	Likely to Occur	Environmental issue has been a common problem in the past and there is a high probability that it will occur in most circumstances
5	Will Occur	Environmental issue will occur, is currently a problem or is expected to occur in most circumstances

Table 16 - Qualitative measures of Consequence

LEVEL	DESCRIPTOR	DESCRIPTION (and *example)*
1	No Impact	Technical breach of environmental requirements with no environmental effect. *Licence requiring a toe drain around TSF to receive any seepage. The drain is yet to be installed but there is no seepage.*
2	Minor	Minor non-recurrent issues. *Isolated incidences of pollution standards that are exceeded.*
3	Limited	Issues of a continuous nature but with limited environmental effect. *Groundwater pollution with limited biological damage and no contamination of a potentially usable groundwater resource.*
4	Significant	Issues of a significant nature (medium term impact). It also includes incidents that could politically, legally or economically affect Western Areas regardless of extent of environmental impact. *Groundwater pollution with potential serious biological damage and/or contamination of a potentially usable groundwater resource.*
5	Major	Major issues with potentially serious public health and/or environmental consequences. *Major hydrocarbon spill to a land area, major tailings wall failure with extensive surface and water pollution.*

Table 17 - Prioritisation of risks

	CONSEQUENCE				
LIKELIHOOD	1	2	3	4	5
5	16	11	8	3	1
4	21	15	10	5	2
3	22	18	13	9	4
2	24	20	17	12	6
1	25	23	19	14	7

Table 18 - Risk Definitions (AS/NZ 4360:1999)

High	Immediate action required
Significant	Senior management attention required
Moderate	Management responsibility must be specified

Low	Manage by routine procedures

Table 19 - Environmental Issues and Risk Assessment

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
CLEARING	Lack of awareness of requirement to stockpile available topsoil. Topsoil mixed with or contaminated by other soil materials or saline water.	Loss of topsoil. Insufficient topsoil available for rehabilitation.	2	3	17	M	Stockpiling of topsoil for rehabilitation.
	Removal of topsoil when too dry.	Production dust - Air Pollution (particulates).	2	3	17	M	Avoid topsoil stripping in very dry and windy conditions.
	Inappropriate stripping and storage of topsoil.	Damage to structure and viability of topsoil during stripping or storage.	2	3	17	M	Follow site procedure for topsoil management.
	Hydrocarbon spills during topsoil stripping operation.	Soil contamination.	2	3	17	M	All vehicles and equipment will contain spill equipment. All hydrocarbon contaminated soils are collected and removed offsite.
	Location of topsoil and vegetation stockpiles near watercourses.	Loss of topsoil required for rehabilitation works.	2	3	17	M	Follow site procedure for topsoil management. All stockpiles will be located away from watercourses.
	Uncontrolled removal of vegetation.	Clearing of significant vegetation or habitat. Habitat destruction. Fauna loss. Vegetation loss.	2	3	17	M	The area to be cleared will be clearly marked prior to the commencement of clearing activities. Area of disturbance minimised where possible. Disturbance avoided, if possible, in areas of significance or with large habitat trees.
	Removal of rare flora.	Increased conservation significance of the species. Reduced population numbers.	1	4	14	S	No rare flora has been identified.
	Clearing of restricted fauna habitat.	Reduction in available fauna habitat. Fauna loss.	1	4	14	S	Significant fauna habitat has not been identified.
	Machinery infected with pathogens or weed seeds	Weed or pathogens spread in topsoil.	2	3	17	M	Follow weed management procedure (i.e. wash or blow down machinery

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
	used to clear topsoil.						prior to entry to site).
PIT DEVELOPMENT	During a significant rainfall event, surface runoff above pit could wash into the open pit.	Erosion of pit walls. Floodwaters and surface runoff entering pit operations.	2	3	17	M	Drainage diversion north of pit will be constructed to divert water away. Routine inspections of drainage diversion bunds, especially after significant rainfall.
	Combustion emissions from vehicles and equipment.	Combustion products from exhaust pipes. Air emissions.	5	1	16	M	Regular servicing of vehicles and equipment.
	Pit dewatering.	Reduction in groundwater levels and quality. Impact to aquifer.	1	3	19	M	Groundwater flows into pit are expected to be minimal. The small scale of the project and short mine life involves minimal quantities of groundwater abstraction and groundwater levels are expected to recover within a short period following mining.
PIPELINES	Water leak caused by a pipeline fracture or leaking valves.	Soil erosion. Land contamination. Vegetation loss/damage. Failure of dewatering pipelines.	2	3	17	M	Trenched pipeline. Daily inspection of pipelines. Water is of good quality and will have minimal adverse impacts if a spill occurs.
TSF	Seepage.	Increase in groundwater table. Soil contamination Groundwater contamination.	1	4	14	S	A sediment collection trench/sump will be constructed around the outer wall to collect any runoff. This trench will also intercept potential seepage Network of monitoring bores around TSF to measure groundwater levels, quantity and quality.

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
	Embankment failure of the TSF.	Soil contamination Groundwater contamination.	1	5	7	H	The TSF has been designed by Golder Associates and operation will be in accordance with their operation guidelines.
	Appropriate freeboard not maintained.	Overflow of TSF. Land contamination.	1	4	14	S	TSF has been designed to manage the expected throughputs and any rainfall events. Routine inspections of TSF. Final freeboard is 0.3m.
	Spillage of tailings during transfer to TSF.	Soil contamination Groundwater and surface water contamination.	2	3	17	M	Daily inspections of pipeline to detect failures. Pipelines contained within v-trench.
	Generation of acid rock drainage from TSF.	ARD. Soil contamination Groundwater and surface water contamination.	1	4	14	S	Sufficient store and cover release will be constructed at completion of mining operations.
	Tailings facilities becoming fauna traps.	Fauna death or injury.	2	3	17	M	Daily inspection of TSF by employees.
	Structural damage to TSF wall.	Soil contamination Groundwater and surface water contamination.	1	4	14	S	Creek diversion will divert potential flood waters away from the TSF. Fault mode and effect analysis undertaken by Golder Associates. Golder concluded - that the risk of a dam break and subsequent release of tailings is considered to be low and more detailed assessment of the potential for a flow failure is not considered to be required.
CONCENTRATE LOADING & HAULAGE	Spill of concentrate.	Groundwater contamination. Land contamination.	2	4	12	S	Molybdenum and tungsten concentrate will be placed in one tonne (1) bulk bags for transport.
	Combustion emissions from vehicles and equipment.	Combustion products from exhaust pipes. Air emissions.	5	1	16	M	Regular servicing of vehicles and equipment.

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
	Dust produced by road traffic on unsealed roads.	Dust generation on ore haulage route (public unsealed road). Air Pollution (particulates). Public nuisance/traffic hazard.	3	2	18	M	Use of water trucks along haulage route.
	Dust produced from uncovered loads.	Air Pollution (particulates).	2	2	20	M	Concentrate stored in bags - covered load.
	Increased road train traffic on Plenty Highway.	Damage to road surface (public road). Public nuisance/ complaints.	3	2	18	M	Three trucks every two weeks will be used for transport of concentrate, this is not considered a significant increase to traffic. Signs will be erected at the turnoff to site to advise of road trains entering.
	Road kill.	Fauna deaths on roads.	2	3	17	M	Staff educated to be alert for wildlife (especially at night).
WASTE DUMP	ARD generation of waste rock.	Groundwater contamination. Land contamination.	2	4	12	S	It is anticipated that sulphidic waste rock will not be generated by the proposed mining operation. Only small traces of sulphides have been identified in waste rock. If PAF rock is identified during mining activities, it will be encapsulated in the waste dump.
	Dust produced during dumping and loading of waste rock.	Dust generation from material handling (dumping/loading). Air Pollution (particulates).	4	3	10	S	Water cart will be used as required during stockpiling and removing operations.
	Erosion and inadequate drainage on and around the waste dump.	Surface water runoff into surrounding vegetation Sediment deposition. Water ponding. Vegetation damage.	2	3	17	M	Creek diversion north of waste dump. Rehabilitation of waste dump.
WORKSHOP FACILITIES	Ruptured or damaged containers in workshop or fuel farm.	Hydrocarbon spillage (workshop).	2	3	17	M	Concrete bunds are located around bulk hydrocarbon storage tanks. Hardstand area surrounding refuelling

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
							areas. All hydrocarbons spilled in workshop areas will be cleaned up. Diesel storage tanks will be self bunded with double skinned walls to meet Australian Standards.
	Ruptured or damaged containers on vehicles. Vehicle rollover or other road accident.	Spillage of hydrocarbons during bulk transport to site. Contamination of soil, groundwater and surface water. Loss of resources.	2	4	12	S	Ensure that transport company has adequate spillage controls and inspection schedule. Emergency Management Plan addresses the actions required to deal with a road accident.
	Spillage while transferring, using or transporting hydrocarbons onsite.	Hydrocarbon spillage while onsite. Contamination of soil, groundwater and surface water. Loss of resources.	2	3	17	M	Fuel will be stored in compliance with the Australian Standards. Concrete bunded areas are located around all other bulk hydrocarbon storage tanks. All hydrocarbons spilled in workshop and other bunded areas at the workshop are collected and the area cleaned up.
	Clearing of vegetation leaving exposed land. Disturbance of surface soils.	Excessive dust from unsealed areas. Dust.	3	2	18	M	Water truck services both open areas and the workshop area.
	Spillage during transfer from one container to another. Damaged containers or hoses.	Hazardous material spills. Contamination of soil, groundwater and surface water.	2	2	20	M	Solvent recycling facilities at all workshops. Spillages will be cleaned up and disposed of as per appropriate MSDS and any other relevant environmental and safety guidelines.
	Combustion emissions from vehicles and equipment.	Combustion products from exhaust pipes. Air emissions.	5	1	16	M	All vehicles and machinery will be serviced regularly and maintained.
EXPLOSIVE FACILITIES	Spillage whilst transporting and unloading. Ruptured tanks.	Spillage of ammonium nitrate emulsion (on and offsite). Contamination of soil, groundwater and surface water.	2	3	18	M	Has appropriate HAZCHEM information to clean up spills.

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
		Fire.					
	Spillage whilst transporting and unloading. Ruptured or damaged containers.	Hydrocarbon spillage. Contamination of soil, groundwater and surface water.	2	3	15	M	Fuel will be stored in compliance with the Australian Standard.
WASTE MANAGEMENT	Disposal and frequency of waste collection.	Odours, vermin and litter generated from putrescible wastes. Increase in feral animals and vermin. Unpleasant odour Leachate Windblown litter.	2	2	20	M	Putrescible wastes contained with the putrescible landfill at site. The landfill is covered regularly and operated in accordance with the EMP.
	Bins and storage areas not available or inaccessible. Procedures not known and understood.	Loss of resources. Land Contamination. Contaminants from some wastes entering soil, groundwater or surface water. Recyclable materials or hazardous goods disposed of in general waste.	2	2	20	M	Batteries are stored temporarily in a bunded area and sent offsite for recycling. Tyres are returned to suppliers by contractors. Recycling scrap metal and other re-usable wastes.
	Inappropriate storage, handling and disposal of wastes.	Spillage of hydrocarbon wastes. Contamination of soil, groundwater and surface water.	2	2	20	M	Waste oil tanks utilised and bunded facilities provided for waste hydrocarbons in the processing plant and workshops. Removed off-site for recycling.
	Sewage treatment plant.	Generation of odour, noise.	2	2	20	M	System designed to produce low noise emissions with equipment within shed fitted with noise reduction equipment. Odour emissions are low due to aerobic treatment process. All tanks are sealed.
TRANSPORT	Crossing of Plenty and Marshall Rivers by vehicles.	Impacts to flow and increased erosion in these rivers.	2	4	12	S	Running surface for access road will be constructed at creekbed level to reduce potential for silting. Ongoing

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
							maintenance of river crossings over project life.
	Transport of staff and freight to site.	Increased traffic on Plenty Highway.	3	2	18	M	Transport to site for employees will be by air thus reducing traffic travelling to site. Concentrate trucks will backload freight and other goods to site to reduce traffic.
	Road kill.	Fauna deaths on roads.	2	3	17	M	Staff educated to be alert for wildlife (especially at night).
	Ruptured or damaged containers on vehicles. Vehicle rollover or other road accident.	Spillage of hydrocarbons during bulk transport to site. Contamination of soil, groundwater and surface water. Loss of resources.	2	4	12	S	Ensure that transport company has adequate spillage controls and inspection schedule. Emergency Management Plan will address the actions required to deal with a road accident.
REHABILITATION	Insufficient rainfall or heavy rainfall washing away seed and topsoil. Inappropriate species used.	Rehabilitated areas with minimal vegetation growth. .Air Pollution (particulates). Lack of rehabilitation. Visual impact (aesthetics). Erosion of landform.	2	3	17	M	Use local plant species which are suitable for revegetation. Ensure topsoil is handled and stored appropriately. Direct placement of topsoil wherever possible.
	Insufficient revegetation of slopes to help stabilise batter. Lack of stormwater diversion systems. Wind erosion. General surface instability. Lack of surface water (runoff) control.	Erosion of battered faces on waste rock dumps. Build up of sediment in stormwater drains and surface water systems. Air Pollution (particulates). Lack of rehabilitation. Visual impact.	2	3	17	M	Retention of stormwater on top of waste dump. Deep ripping to encourage rainfall infiltration. Development of native plant cover.
	Establishment of weeds.	Invasion and spread of weeds on rehabilitated structures and project area. Reduction on germination and growth of required native species.	3	3	13	S	Monitoring of weed establishment. Follow machinery hygiene guidelines to minimise weed spread. A Weed Management Plan has been developed.

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
GENERAL	Molyhil – aboriginal site.	Unauthorised access. Impact on traditional owners.	1	4	14	S	Molyhil has been fenced off to prevent access to the sacred site. All Thor employees will be advised in the site induction that access to Molyhil is prohibited.
	Lightning strike. Sparks from grinding equipment. Uncontrolled fire on-site.	Bushfire. Vegetation damage. Infrastructure damage.	1	2	23	L	Firebreaks constructed and maintained. Staff education on fire prevention techniques (inductions). Fire Management Plan has been developed.
	Flooding.	Impacts to stability of waste dump and TSF. Safety risk for Thor staff.	2	4	12	S	Creek diversion will be constructed immediately north of the pit, waste dump and TSF to divert water away from these structures. Thor will regularly monitor the Bureau of Meteorology website during the wet season. Mining activity is to cease and personnel vacated from the pit and other exposed areas when heavy rain is threatening.
	Complaints regarding noise.	Excessive noise generation associated with the construction and operation Public nuisance/ complaints.	1	2	23	L	Site is remote from any residences. No noise impact anticipated.
	Biting insects	Increase in adult mosquito populations (potentially to pest population sizes). Transmission of mosquito carried diseases (i.e. malaria). Production of additional mosquito breeding sites.	2	3	17	M	If mosquito populations cause a significant issue, Thor will liaise with the Medical Entomology Branch (MEB). All personnel will be advised of the relevant personal protective measures to protect themselves from biting insects. The dam located north of the pit and

ACTIVITY	ASPECT	ENVIRONMENTAL IMPACT	LIKELIHOOD	CONSEQUENCE	PRIORITY	RISK	CURRENT CONTROL
							the crossing across the Plenty highway will be regularly monitored to assess potential breeding sites and biting insect populations.
	Lack of baseline data. Unaware of requirements. Procedures not followed.	Licence non-compliance. Environmental monitoring data not collected or poor quality data collected.	2	4	12	S	All baseline information has been collected and documented. Monitoring requirements will be well documented and carried out on a routine basis.
	Changes in natural topography due to roads, drains, infrastructure, and sediment build-up due to increased erosion of surrounding areas.	Flooding of surrounding areas causing change in ecology. Vegetation loss/damage.	2	2	20	M	Progressive rehabilitation.

Table 20 - Prioritisation of Environmental Issues

RISK	ASPECT	PRIORITY
7	Embankment failure of the TSF	H
10	Dust produced during dumping and loading of waste rock.	S
12	Spill of concentrate during loading.	S
12	ARD generation of waste rock.	S
12	Ruptured or damaged containers on vehicles. Vehicle rollover or other road accident.	S
12	Crossing of Plenty and Marshall Rivers by vehicles.	S
12	Ruptured or damaged containers on vehicles. Vehicle rollover or other road accident.	S
12	Flooding.	S
12	Lack of baseline data. Unaware of requirements. Procedures not followed.	S
13	Establishment of weeds.	S
14	Removal of rare flora	S
14	Clearing of restricted fauna habitat	S
14	Seepage from TSF.	S
14	Appropriate freeboard in TSF not maintained.	S
14	Generation of acid rock drainage from TSF	S
14	Structural damage to TSF wall	S
14	Impact to Molyhil – aboriginal site	S
15	Spillage whilst transporting and unloading hydrocarbons. Ruptured or damaged containers.	M
16	Combustion emissions from vehicles and equipment.	M
16	Combustion emissions from vehicles and equipment.	M
17	Lack of awareness of requirement to stockpile available topsoil. Topsoil mixed with or contaminated by other soil materials or saline water.	M
17	Removal of topsoil when too dry. Production dust - Air Pollution (particulates).	M
17	Inappropriate stripping and storage of topsoil. Damage to structure and viability of topsoil during stripping or storage.	M
17	Hydrocarbon spills during topsoil stripping operation. Soil contamination.	M

RISK	ASPECT	PRIORITY
17	Location of topsoil and vegetation stockpiles near watercourses. Loss of topsoil required for rehabilitation works	M
17	Uncontrolled removal of vegetation.	M
17	Machinery infected with pathogens or weed seeds used to clear topsoil.	M
17	During a significant rainfall event, surface runoff above pit could wash into the open pit.	M
17	Water leak caused by a pipeline fracture or leaking valves.	M
17	Spillage of tailings during transfer to TSF.	M
17	Tailings facilities becoming fauna traps	M
17	Road kill.	M
17	Erosion and inadequate drainage on and around the waste dump	M
17	Ruptured or damaged containers in workshop or fuel farm.	M
17	Spillage while transferring, using or transporting hydrocarbons onsite.	M
17	Road kill.	M
17	Insufficient rainfall or heavy rainfall washing away seed and topsoil. Inappropriate species used.	M
17	Insufficient revegetation of slopes to help stabilise batters of waste dump. Lack of stormwater diversion systems. Wind erosion. General surface instability. Lack of surface water (runoff) control.	M
17	Biting insects	M
18	Dust produced by road traffic on unsealed roads during.	M
18	Increased road train traffic on Plenty Highway.	M
18	Clearing of vegetation leaving exposed land. Disturbance of surface soils.	M
18	Spillage during transfer of chemicals.	M
18	Spillage whilst transporting and unloading explosives.	M
18	Transport of staff and freight to site. Increased traffic on Plenty Highway.	M
19	Pit dewatering. Reduction in groundwater levels and quality. Impact to aquifer.	M
20	Dust produced from uncovered loads.	M
20	Disposal and frequency of waste collection. Odours, vermin and litter generated from putrescible wastes. Increase in feral animals and vermin.	M

RISK	ASPECT	PRIORITY
20	Bins and storage areas not available or inaccessible. Procedures not known and understood. Loss of resources. Land Contamination.	M
20	Sewage treatment plant. Generation of odour, noise.	M
20	Changes in natural topography due to roads, drains, infrastructure, and sediment build-up due to increased erosion of surrounding areas.	M
23	Lightning strike. Sparks from grinding equipment. Uncontrolled fire on-site.	L
23	Complaints regarding noise.	L

14.0 ENVIRONMENTAL MANAGEMENT PROGRAMS

14.1 Approach and Methodology

Environmental management programs are targeted at key aspects of significant potential impact or risk, and have been developed to address the key aspects as the first priority. Programs for issues deemed to be of a lower risk, may be included, however, formal programs will generally only target 'high' and 'significant' risk issues. The management of most 'moderate' and 'low' risk issues will usually be addressed by the adoption of appropriate procedures and work practices, and performances will be subject to review by auditing. Procedures for 'moderate' risks need to have the management responsibility specified.

Key environmental aspects need to be addressed by management objectives and targets. An 'objective' represents an overall goal for environmental performance. A 'target' represents the performance requirements. Wherever possible the targets shall be measurable, and performance with respect to the targets shall be monitored. Performance indicators for each objective have also been nominated. These are referred to as Key Performance Indicators (KPIs). A diagram illustrating the relationships between objectives, targets and KPI's is presented in Figure 3. Timeframes for achievement of targets, accountabilities for achieving objectives and targets, and resources required are also included.

Overall, the Environmental Management Programs detail how Thor intends to achieve its environmental objectives and targets in order to comply with the Thor Environmental Policy and other statutory guidelines.

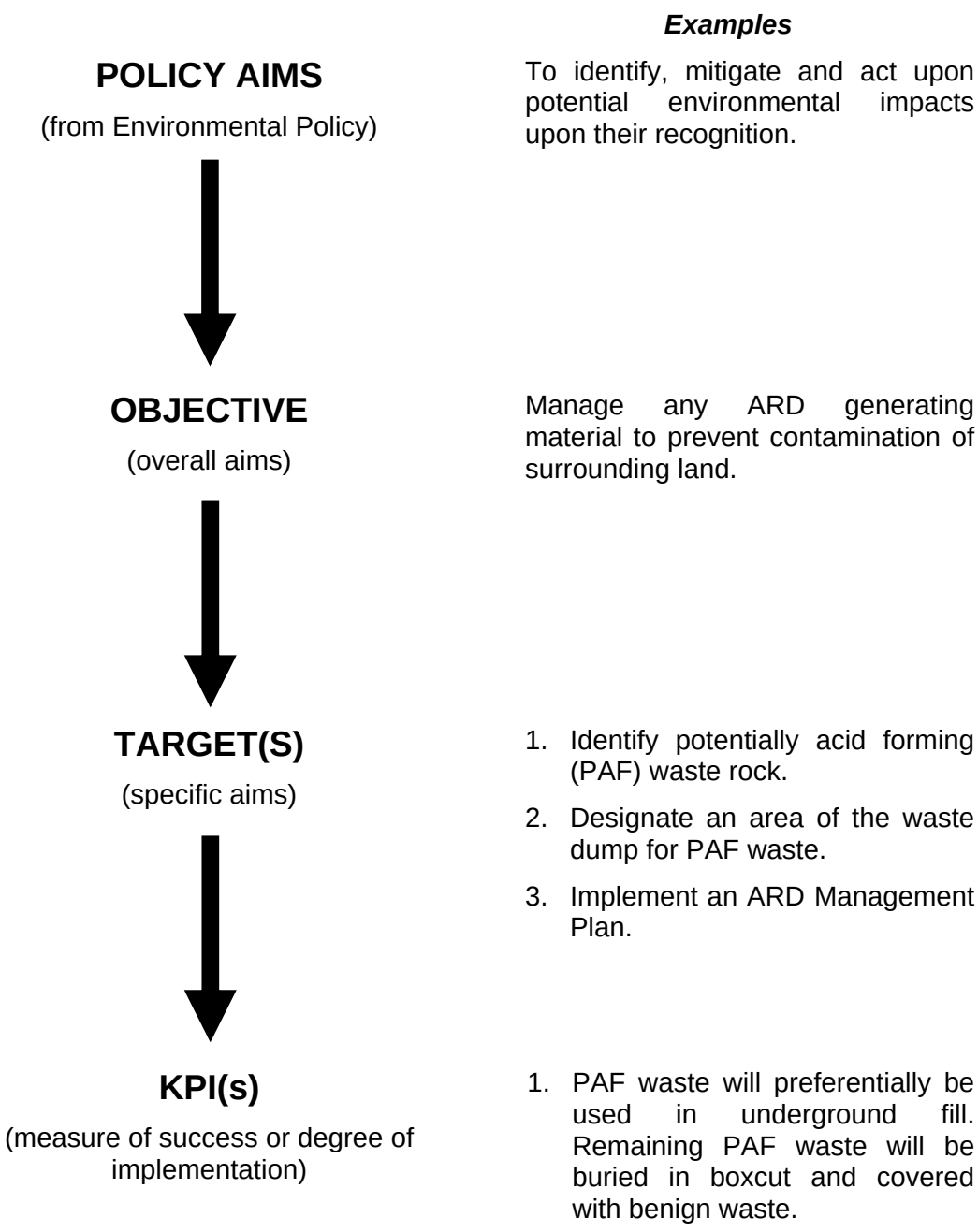

Figure 3 - Relationship between Policy Aims, Objectives, Targets and Key Performance Indicators

14.2 ENVIRONMENTAL MANAGEMENT PROGRAMS

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			**Program No. 1**
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise impact on air quality.			
TARGET: Minimise and manage dust emissions.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Identify dust emission sources and current controls			
2. Identify ways to prevent and control dust generation.			
3. Prepare an environmental procedure for dust suppression.			
4. Benchmark with other companies to determine best practice dust suppression and monitoring techniques.			
6. Design and implement dust monitoring program.			
7. Write procedure for dust monitoring.			
8. Incorporate results into Annual Report.			
9. Develop a dust management plan.			
Key Performance Indicators (KPIs)			
• Establishment of baseline data across the site. • Quantitative KPI's to be developed based on baseline data.			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			Program No. 2
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning..*			
OBJECTIVE: Minimise impacts on air quality.			
TARGET: Minimise and manage all air emissions.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Identify sources of air emissions onsite and the current level of control.	NPI Reporting		
4. Incorporate monitoring results in Annual Report.			
5. Identify further prevention and control strategies.	NPI Handbooks Benchmarking of other industries		
Key Performance Indicators (KPIs)			
• Quantitative KPI's to be developed once baseline data has been established. • Air quality analysis data below industry average (submitted under NPI records).			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			Program No. 3
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise soil, surface water and groundwater contamination.			
TARGET: Minimise and manage impacts from the TSF.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Develop process flow diagrams.	Consulting Hydrogeologist Manager Metallurgy		
4. Develop additional monitoring programs for tailings as required.			
5. Include results from all monitoring in Annual Report.			
6. Include results in NPI annual report			
7. Develop Tailings Management Plan.			
Key Performance Indicators (KPIs)			
• Quantity of water recovered from tailings. • Number of reported environmental incidences relating to tailings facilities. • Groundwater quality monitoring.			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			**Program No. 4**
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise soil, surface water and groundwater contamination.			
TARGET: Minimise and manage impacts from hydrocarbons and chemicals.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Establish inventory of hydrocarbon and chemical usage onsite.			
2. Prepare a map of storage locations and closest emergency response/spill response equipment.	Chem Alert System		
5. Establish a register of all containment facilities to enable the effectiveness of them to be maintained.			
6. Prepare a procedure for hydrocarbon and chemical management.			
7. Audit all carriers and/or contractors used for the transportation of hydrocarbons and chemicals.			
9. Conduct auditing and testing of all containment facilities on an annual basis.			
10. Conduct an assessment of spill response equipment available at the site on an annual basis.			
11. Ensure there is no secondary contamination outside established facilities.			
12. Prepare a procedure for spill response.			
13. Dispose of all hydrocarbon and chemical wastes according to the procedures.			
14. Conduct an annual hydrocarbon audit			
Key Performance Indicators (KPIs)			
• Completed map of storage locations and emergency response equipment. • Number of reported incidences. • Effectiveness of management and mitigation of incident impacts. • Quantity of hydrocarbons used onsite (with the aim of minimising the use of consumables).			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			Program No. 5
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise impacts on groundwater.			
TARGET: Control and monitor all activities that have the potential to impact groundwater.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Identify all activities that may impact groundwater quality.			
2. Identify all existing controls on groundwater contamination.			
3. Identify any potential long term impacts on regional groundwater.			
4. Revise existing monitoring program to ensure it encompasses all required parameters and locations.			
5. Develop strategies to reduce impacts on regional groundwater.			
Key Performance Indicators (KPIs)			
• Bore monitoring review. • Completion of Groundwater Management Plan. • No adverse environmental impacts at borefield and region.			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			**Program No. 6**
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise impacts on surface waters.			
TARGET: Control and monitor stormwater runoff and drainage.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Conduct site drainage assessment.			
2. Prepare drainage action plan.			
3. Assess earthmoving and infrastructure requirements.			
4. Implement necessary drainage earthworks.			
Key Performance Indicators (KPIs)			
• Regular inspections conducted and remedial action taken when required.			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			Program No. 7
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise land disturbance.			
TARGET: Control and monitor erosion and sedimentation.			
Target Date: On-going	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Implement "Permit to Clear" procedure.			
2. Ensure all staff uses the Clearing Permit system and obtain approval before clearing commences.			Ongoing
3. Conduct site erosion and sedimentation assessments.			On-going
4. Prioritise areas requiring erosion control earthworks			On-going
5. Implement earthworks.			On-going
Key Performance Indicators (KPIs)			
• Erosion monitoring data collected and reviewed. • Minimise erosion and sedimentation. • Number of clearing incidents identified that do not have the relevant approval to clear.			

MOLYHIL ENVIRONMENTAL MANAGEMENT PROGRAM			Program No. 8
POLICY AIM: *To minimise adverse impacts on the environment from planning through development, mining, production and decommissioning.*			
OBJECTIVE: Minimise environmental impacts associated with non-process waste.			
TARGET: Develop and implement a non-process waste management plan.			
Target Date:	**Accountable:**		**Approved:**
Action Required:	**Other Resources:**	**Action by:**	**Date:**
1. Conduct a waste assessment of all non-process waste onsite to determine waste types and quantities.	Manager Mining		
2. Revise the procedure for waste and landfill management.	Manager Mining		Ongoing
3. Identify any potential environmental impacts associated with the landfill and any waste.	Manager Mining		Ongoing
4. Assess the elimination / reduction / reuse and recycling potential of all waste generated.			
5. Formalise a waste minimisation program.			
6. Identify and develop suitable areas to be used for waste stockpiling and final disposal.	Manager Mining		Ongoing
7. Identify the most appropriate management method for each waste.			
8. Develop a monitoring procedure for landfill impacts.			
Key Performance Indicators (KPIs)			
• Volume of wastes disposed to landfill. • Recycling quantities.			

15.0 MONITORING AND MEASUREMENT

15.1 MONITORING PROGRAMS

15.1.1 Water Quality

Potable water sampling and analysis will be undertaken to ensure that the potable water is of a suitable standard for human consumption.

Water samples will be delivered to a NATA certified commercial testing laboratory and analysed.

Monitoring of groundwater related to extraction, process and potable consumption and around the TSF, will be undertaken as stipulated in the MMP.

Sampling Techniques

Sampling, handling and storage techniques of all water samples collected at Molyhil will be undertaken according to the requirements of Australian/New Zealand Standard 5667.1:1998 (Water Quality Sampling).

15.1.2 TSF Monitoring

Personnel will conduct routine daily inspections of the TSF embankments (signs of movement and/or seepage), decant (to ensure only clean water is being returned), tailings, and return water pipelines during operation.

Monitoring of groundwater will be undertaken using monitoring bores located around the TSF. Monitoring bores will be sampled prior to recommencement of operation of the TSF, and then quarterly for water analysis.

The monitoring procedures will include:

- Inspections each shift of tailings delivery lines, return water lines and tailings deposition when operating, pond formation on the TSF, internal embankment freeboard and external embankment slopes of the TSF;
- regular inspections of the TSF for fauna or flora mortality, signs of seepage, dusting, and erosion;
- regular monitoring of water levels in any piezometer standpipes that may be installed in the TSF embankment;
- monitoring of supernatant water pond level and pond location;
- measurement of water levels and water quality in the monitoring bores surrounding the TSF;
- regular inspection of TSF for fauna (birds).

15.1.3 Waste Rock Dump

Rehabilitated waste rock stockpiles will be routinely inspected for erosion, particularly after significant rainfall events. If soil erosion is observed during routine inspections, appropriate remediation measures will be implemented.

15.1.4 Climatology

Official Bureau of Meteorology recording stations area located at Jervois. Climatic data from this station is considered to be comparable to that which would be recorded at the Molyhil project.

Daily rainfall for project purposes will be recorded at the site during the construction and operation phases.

Thor staff will keep aware of potential fire and flooding seasons.

15.1.5 Air Quality Monitoring

As part of the National Pollutant Inventory (NPI), quantities of air emissions will be estimated or measured and reported annually. This will include emissions from various activities on-site including blasting, processing, combustion, vehicle movements and wind erosion.

15.1.6 Flora

The area of vegetation clearance will be recorded and tracked through implementation of a Thor Clearing Permit

Regular inspections will be made of the Molyhil site to ensure weed species do not establish on site.

Monitoring will be conducted on an annual basis to establish the effectiveness of rehabilitation. Monitoring will include consideration of vegetation establishment (species diversity, density and cover) and weed presence.

15.1.7 Fauna

Staff will monitor on a daily basis the use by fauna of the TSF and information will be recorded on a 'TSF Wildlife Mortality Identification Record'.

15.2 Review of Monitoring

On an annual basis, all monitoring programs will be reviewed and new or improved programs may be implemented if the need arises.

16.0 AUDITING, REVIEWING AND CORRECTIVE ACTION

16.1 EXTERNAL AUDITING AND CHECKING

Environmental audits will be conducted by independent qualified consultants and/or suitably qualified Thor staff. The audits are utilised to monitor compliance of existing operations with Company policies, to assess impact predictions and the effectiveness of the environmental management program. The Environmental Advisor co-ordinates the preparation of terms of reference for such audits, and liaises with relevant consultants and staff to facilitate the conduct of such audits.

16.2 INTERNAL AUDITING AND CHECKING

Thor environmental personnel will inspect the site on a daily basis. Monthly Environmental Reporting will be carried out. An 'Environmental Incident Report' will be used as a means of identifying and rectifying existing or potential environmental problems.

16.3 NON-CONFORMANCE, CORRECTIVE AND PREVENTATIVE ACTION

Management personnel will review all audit findings, non-conformances and monthly reports. Management will also sign off on all reported incidents.

17.0 COMMUNICATION AND REPORTING

17.1 INTERNAL REPORTING

Thor staff will be required to report Environmental Incidents that are considered to breach the Thor Environmental Management Plan and/or threaten the environment. These incidents may be reported by both internal and external parties and may occur on or off-site.

Monthly reports will be submitted to the Site Manager. Monthly reports will contain statutory compliance information including exploration data, environmental reports and current reporting requirements. Monthly reports will also include rehabilitation progress and earthworks.

17.2 EXTERNAL REPORTING

17.2.1 Department of Natural Resources, Environment and the Arts (NRETA)

The NRETA reporting requirements include:

- National Pollutant Inventory Reporting;
- Reports detailing any significant environmental incidents;
- Annual report detailing compliance with all license conditions and all related monitoring results; and
- Reports detailing any license exceedances.

NRETA require notification if Thor exceed any license conditions. They will also need to be notified before making any alterations to their premises; before commencement of any planned non-standard procedures, and when waste has been discharged as a result of an accident, malfunction or emergency.

NRETA will also require notification if any adverse impacts are noted from the abstraction of groundwater.

17.2.2 DPIFM Requirements

The DPIFM reporting requirements include:

- An annual report

The DPIFM requires notification before land is cleared, before any ground disturbance and before any expansion or alteration is made to operations within the lease boundary.

18.0 EMERGENCY PREPAREDNESS AND RESPONSE

Thor complies with all legal obligations and aims to maintain high environmental standards. Although all reasonable steps are taken to protect the environment and minimise risks, occasions arise when an environmental 'crisis' occurs. In the event of an environmental crisis, the objectives are to ensure a prompt and effective response, and to minimise the effects of any crisis.

18.1 IDENTIFICATION OF AN ENVIRONMENTAL CRISIS

An environmental crisis would involve widespread actual or potential destruction or contamination of the environment that calls for immediate action. Some examples of events that would require the instigation of an emergency response procedure at Molyhil include:

- A chemical spill;
- A fuel tanker rollover involving the spillage of large quantities of fuel;
- Flooding;
- A bushfire; and
- The failure of a pipeline or pump resulting in spillage of material into the surrounding natural areas.

18.2 EMERGENCY RESPONSE PHILOSOPHY

The emergency response procedure involved the following priorities for action:

- Protection of human health and safety;
- Protect and minimise the effect to the health and safety of animals;
- Contain the spread of material;
- Neutralise and render safe any noxious or hazardous materials; and
- Commence clean up activities and site remediation.

By their very nature, emergency response procedures deal with events either not foreseen or almost totally unlikely. It is necessary therefore to plan for worst case scenarios or adopt general procedures, as normally anything that can be covered by a specific plan is not an emergency.

It is important to recognise that any crisis may have serious impacts well beyond the individual operation immediately involved and which may affect Thor as a corporate entity.

18.3 HAZARDOUS MATERIAL SPILL

All hazardous material spills at Thor will be under the direct control of Safety and Emergency Services.

18.4 INJURY ACCIDENT PROCEDURE

Strict procedures will be developed to ensure injured persons are treated promptly and correctly.

19.0 DOCUMENT CONTROL

The Environmental Officer will be responsible for maintaining the record register, which provides evidence concerning the ongoing operation of environmental management at Molyhil. Records maintained will include:

- Monitoring data;
- Heritage surveys;
- Flora and fauna surveys and research;
- Environmental Audits and Reviews;
- National Pollutant Inventory Reports;
- License conditions;
- Mining Tenement Records;
- Notices of Intent;
- Details of non-conformances;
- Details of incidents and complaints; and
- All correspondence relating to statutory obligations.

20.0 TRAINING, AWARENESS AND COMPETENCE

There will be an environmental monitoring component included in the site induction procedure.

The induction will include, but is not limited to, the following:

- The need for preserving natural vegetation;
- The preservation of vegetation will be included in the planning of activities such as movement of earth moving machinery, fire prevention and the control and handling of saline water;
- The need to be alert for the presence of native fauna on the roads, particularly at night;
- Vehicles are restricted to existing tracks within the operational area.
- Domestic pets are prohibited;
- To prevent weed and soil pathogen spread, all earthmoving vehicles arriving on site will be washed down before being allowed to travel on major roads;
- Importance of Aboriginal Sites;
- Potential for biting insects and PPE to wear to prevents impacts, including notification of observations at potential breeding sites;
- Spill response;
- Importance of adequate storage of hydrocarbons and chemicals.

21.0 CLOSURE PLANNING

A decommissioning and rehabilitation plan will be developed by Thor. The plan will include integration of the requirements for rehabilitation (as set out in this EMP), decommissioning and abandonment of the site during the project operations phase to reduce the work required and costs at site closure.

The closure plan will include the following general commitments relating to site closure:

- All costeans and other disturbances to the surface of the land made as a result of exploration, including all drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the DPIFM. Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the DPIFM.
- All waste material, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of the exploration program.
- All surface holes drilled for the purposes of exploration and/or the determination of ore reserves are to be capped, filled or otherwise made safe after completion to the satisfaction of the DPIFM.
- At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the DPIFM.
- The perimeter of each pit will be protected by a substantial bund of suitable waste rock.
- The outer slopes of the waste rock dumps will be contained such that the maximum angle to the horizontal is 20°. In the situation where waste dump angles exceed the angle of 20°, the slopes are to be left in a stable, non-erodible condition.
- At the completion of operation, all buildings and structures being removed from site or demolished and buried to the satisfaction of the DPIFM.

Importantly, the closure plan will integrate the current operations so that work requirements at decommissioning of the site are reduced,

Thor will prepare a detailed closure plan that is reviewed biennially in conjunction with an external consultant.

22.0 REFERENCES

Moon, E., Vinter, A., Leane, T. Reily, T. and B. Low (2007). *Landscape, Flora and Fauna Survey and Assessment of Molyhil Tungsten Molybdenum Project within ML(A) 23825*. Unpublished report prepared by Low Ecological Services Pty Ltd for Thor Mining PLC, May 2007.

Perry, R A, Mabbutt, J A, Litchfield, W H and Quinlan, T (1962). *Land Systems of the Alice Springs Area, Northern Territory, Australia*. CSIRO, Canberra.