

## 10.0 ENVIRONMENTAL COMMITMENTS

Commitments with respect to the development and operation of the Molyhil Project made throughout the PER are summarised in Table 20.

**Table 20 - Summary of PER commitments**

ASPECT	COMMITMENT
<b>PIT</b>	Further work is planned by Thor to assess likely pit dewatering requirements.
	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
<b>WASTE DUMP</b>	The outer faces will be established first and contoured to a maximum slope of 18% to assist in early stabilisation and minimise erosion
	If PAF rock is identified during mining activities, it will be encapsulated in the waste dump.
	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.
<b>CONCENTRATE</b>	The concentrate filter cake will be dried in a diesel fired fluidised bed drier and packaged into one tonne bulker bags.
	The facility to contain the pyrite concentrate will be constructed on the northern side of and attached to the TSF. It will be lined with plastic and will be designed to minimise the overall height of the structure to control runoff (and prevent scouring of the cover material).
<b>TSF</b>	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.
	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.
	Engineering and agronomic advice will be obtained to assess the cover design options.
	All roads will be gravel surfaced to a minimum construction standard consistent with Thor requirements for durability during and/or following wet weather.
	During the early stages of operation of the TSF, tailings deposition will be managed to obtaining early control of the released supernatant water, collect it into a single pond and move the pond towards the decant location.
	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.
	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.
	A sediment collection trench/sump will be constructed around the outer wall to collect any runoff.
	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.
	Regular monitoring of the monitoring bores located around the perimeter of the TSF will detect any impacts to groundwater.
	Tailings pipeline will be contained in a v-trench.

ASPECT	COMMITMENT
	To confirm estimations, kinetic testwork (weathering columns) is required to refine geochemical characterization. This work will be undertaken when tailings from the operating plant become available.
<b>AIRSTRIP</b>	The airstrip will be upgraded to meet requirement for charter aircraft and RFDS. A contour trench will be constructed on the northern side of the runway to minimise the flow of water onto the runway. The trench will direct the water to the creek south east of the runway.
<b>WATER PIPELINE &amp; BORES</b>	Pipeline will be placed in a v-trench Flow meters will be fitted to production bores to enable monitoring of groundwater abstraction. Standing water levels will be recorded monthly for the duration of the project.
<b>WASTE DISPOSAL</b>	The waste disposal site will be within the waste dump and 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. The landfill will contain only inert and putrescible waste materials No burning of refuse at any time No disposal of hydrocarbons or hydrocarbon contaminated materials No disposal of hazardous goods Thor will reuse and recycle construction materials, scrap metals, equipment and tyres to minimise disposal into the landfill. In accordance with the Mining Management Plan (MMP) all waste will be placed within a defined trench or within an area enclosed by earth bunds.
<b>DANGEROUS GOODS</b>	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: “ <i>The storage and handling of flammable and combustible liquids</i> ” and AS1692: “ <i>Tanks for flammable and combustible liquids</i> ”. Spill containment kits will be provided at the workshops and areas where chemicals and hydrocarbons are stored. 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 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. A register of all hazardous substances kept at site will be maintained by Thor. 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. 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.
<b>GREENHOUSE GASES</b>	As part of the National Pollutant Inventory (NPI), quantities of air emissions will be estimated or measured and reported annually. All vehicles and machinery will be regularly serviced to minimise the emissions of combustion gases. All employees will be encouraged on energy efficient practices that can be used in their daily activities and the site induction will include a section on this issue.
<b>TRANSPORT</b>	All road base will be produced from crushed waste rock that will be sourced from the pit during mining. There will be minimal light vehicle usage of the highways because of the fly in-fly out program. 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.

ASPECT	COMMITMENT
	<p>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.</p> <p>Licensed road vehicles will be used for haulage and standard axle loadings will be complied with.</p> <p>Road train drivers will use radio communications to co-ordinate safe passing.</p>
<b>BITING INSECTS</b>	<p>All personnel will be advised of the relevant personal protective measures to protect themselves from biting insects.</p> <p>If mosquito populations cause a significant issue, Thor will liaise with the Medical Entomology Branch (MEB).</p> <p>The dam located north of the pit and the crossing across the Plenty highway will be regularly monitored to assess potential breeding sites and biting insect populations.</p>
<b>FIRE</b>	<p>Emergency drills will be conducted at a minimum of once every six months.</p> <p>Fire extinguishing equipment (extinguishers and hoses) available throughout the project area and regular maintenance of this equipment.</p> <p>Maintain firebreaks.</p> <p>A Mutual Aid Agreement shall be used in circumstances where the nature of an emergency, such as fire, is such that the resources immediately available may be insufficient to maintain an effective response.</p> <p>Maintain an effective communication system, incorporating a 'call-out' system.</p> <p>Maintain education of fire awareness.</p>
<b>CAMP</b>	<p>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".</p> <p>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</p>
<b>REHABILITATION &amp; CLOSURE</b>	<p>Whenever possible, progressive rehabilitation of the Molyhil site will occur as disturbed sites no longer required become available</p> <p>Apart from reshaping these sites, direct placement of topsoil removed from a newly disturbed area will be placed over the area ready for topsoiling.</p> <p>It is planned to return the site to seasonal livestock grazing by cattle after closure.</p>
<b>DEWATERING</b>	<p>Further work is planned by Thor to assess likely pit dewatering requirements.</p> <p>Pit inflows will be collected in in-pit sumps and directed to a settling basin.</p> <p>Water will then be directed to the process plant or used for dust suppression.</p>
<b>ABORIGINAL</b>	<p>Thor will change the access route to the mine/camp to avoid the sacred site at Molyhil.</p> <p>Thor will amend the location of the creek crossing along the site access road as requested by the Traditional Owners.</p> <p>The Central Land Council and NRETA will notified immediately if sites of potential significance are discovered.</p> <p>Thor will make available to the Traditional Owners all gidgee trees that will be removed from the southern waste rock dump area.</p> <p>Thor will obtain an authorisation certificate from the AAPA prior to commencement of clearing works.</p>
<b>CLEARING</b>	<p>Earthmoving activities are planned to commencement of the dry season.</p> <p>Minimise clearing profile.</p> <p>Prior to clearing areas will be clearly defined.</p> <p>Clearing operations will be supervised.</p> <p>Protect vegetation outside clearing profile.</p> <p>Progressively rehabilitated disturbed areas as available.</p> <p>Cleaning down of machinery prior to arriving on site.</p> <p>Collect and stockpile all vegetation and topsoil for use in rehabilitation works.</p> <p>Top 300mm of topsoil removed and stockpiled for use in later rehabilitation works.</p>

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	<p>These topsoil stockpiles will not exceed two metres to ensure viability of the topsoil.</p> <p>All rehabilitated landforms have been designed and will be controlled to minimise erosion.</p> <p>Larger trees and shrubs will be retained whenever possible.</p> <p>Only flora found in the local area will be used in rehabilitation programs.</p>
<b>WEEDS</b>	<p>Conduct inspection during construction and operation for potential weed establishment.</p> <p>Thor will train personnel in identification of problem weed species.</p> <p>Liaison with DRETA regarding weed control activities.</p> <p>Log to be kept of all vehicles and machinery entering site during construction to ensure all machinery has been blown down/cleaned.</p> <p>Use of approved control mechanisms if noxious weed species are identified.</p> <p>Rehabilitation with weed free soils.</p>
<b>FAUNA</b>	<p>existing cleared areas will be utilised for the mine,</p> <p>all bore holes being utilised will be securely capped to ensure that fauna do not become trapped</p> <p>unused bore holes will be permanently plugged below ground level,</p> <p>All personnel will be prohibited from bringing pets, firearms, or traps into the camp or project area.</p> <p>The rehabilitation program for the site will include fauna habitat reconstruction, including the replacement of dead timber, creation of rock piles and litter establishment.</p> <p>Regular monitoring of the TSF will occur to ensure no fauna become trapped.</p>
<b>SURFACE WATER DRAINAGE</b>	<p>A pit protection bund will be installed to protect the pit from flooding from a storm event. Part of this bund may double as the abandonment bund at pit closure.</p> <p>Open drains and pipe/culvert systems will control localised surface runoff around project infrastructure. All rainfall runoff falling on the plant structures will be collected and retained in bunds and pumped into the process system by sump (spindle) pumps.</p> <p>All hydrocarbons and chemicals will be stored in adequately bunded facilities.</p> <p>All mobile equipment and light vehicle servicing activities including wash down bays will be done on impermeable surfaces</p>
<b>CREEK CROSSING</b>	<p>A washdown facility will be constructed with collection sumps. Any hydrocarbons and chemicals collected will be pumped into suitable containers for collection and sent off site to Alice Springs for disposal.</p> <p>Running surface of the access road across these rivers will be sheeted with road base material that will be placed at the level of the river bed to avoid silting.</p>
<b>DUST</b>	<p>Dust generated during the construction and operations phases will be mitigated by regular water sprays from water truck(s)</p> <p>All vehicles will be limited to designated access tracks where dust control measures can be used.</p> <p>Fine mist sprays will be installed at the crusher and screens to reduce dust.</p>
<b>NOISE</b>	<p>All plant and equipment has been designed to meet occupational health noise standards and meet environmental noise standards.</p> <p>All mining equipment will be fitted with the required noise attenuation equipment.</p> <p>Hearing protection will be provided for all personnel.</p>

## 11.0 PUBLIC INVOLVEMENT & CONSULTATION

Thor has undertaken the following consultation in the development of the Molyhil Project:

**DNRETA and DPIFM** combined meeting in Darwin to outline the proposed Project and to seek advice on the approval process. In attendance:

Ms J Croft	Director of Environmental Assessment and Policy (EPA)
Ms W Hutchinson	Manager Environmental Assessment (EPA)
Mr J Miller	Senior Mining Officer (DPIFM)

**DPIFM** meeting in Alice Springs with the **Minister for Mines and Energy ( Mr Chris Natt MLA) and Mr Ross Trevena** of the **Director of Resource Development and Policy**. The purpose of the meeting was to outline the proposed Molyhil Project and Thor's strategies and long term policies regarding development activities in the Northern Territory.

**DBERD** meeting outlined the proposed project detailing the supply, services and employment opportunities for the local community. In attendance:

Mr M Steller	Manager Mining, Petroleum and Defence Support
Mr N Almond	Director Investment Services

**Central Lands Council** meetings in Alice Springs and Molyhil Project site to present and discuss the proposed mining infrastructure plan. The planning and potential issues were discussed and agreed to with some minor road adjustments required.

In attendance were several members of the **CLC** represented by Maria McCoy (Mining Officer), Mr Rodger Barnes (Mining Manager), Mr James Nugent (Legal Adviser) and **Traditional Owners** represented by Lindsay Booke, Nujinn Bookie (Bookie Matriarch), William Bookie, Murray Bookie and the wider Eastern Arrente group of that region.

**Pastoralist:** Mr Mike Broad (Jervois Station) has been consulted and informed of the proposed project. Land access issues were discussed and agreed to. Issues were mainly the roads and recommendations in order to minimise the traffic near the old Jinka Station were acknowledged and necessary re alignments made to the plans to satisfy the pastoralists requests. There were no objections to address.

### **Mining Expo and AGES presentation**

A presentation was delivered at the Mining and Supply expo to inform the wider Alice Springs community of the proposed project and details regarding opportunities that the project would generate for local business.

An information booth was set up during the two day combined conference to discuss and answer any queries that existed.