INVITATION TO MAKE A SUBMISSION

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal. The environmental impact assessment process is designed to be transparent and accountable, and includes specific points for public involvement, including opportunities for public review of environmental review documents. In releasing this document for public comment, the EPA advices that no decisions have been made to allow this proposal to be implemented.

Moly Metals Australia Pty Ltd (Moly Mines) proposes to construct and operate the Spinifex Ridge Molybdenum Project (Spinifex Ridge), which is located approximately 50 km north east of Marble Bar in Western Australia.

The project will involve the open pit mining and processing of 20 Million tonnes per annum (Mtpa) of ore to produce 23,000 tpa of molybdenum concentrate and 48,000 tpa of copper concentrate (co-product) and development of associated infrastructure. Spinifex Ridge has a nominal ten year life of mine and will be a significant contributor to the world molybdenum market. In accordance with the Environmental Protection Act 1986, a Public Environmental Review (PER) has been prepared which describes this proposal and its likely effects on the environment. The Draft PER is available for a public review period of 6 weeks from 20th September to 2nd October 2007.

Comments from government agencies and from the public will assist the EPA to prepare an assessment report in which it will make recommendations to government.

VIEWING THE PER

The PER can be downloaded from the Moly Mines website [www.molymines.com](http://www.molymines.com) or be viewed at the following locations:

- Department of Environment and Conservation
  Library/Reading Room
  4th Floor, The Atrium
  168 St Georges Terrace
  PERTH WA 6000

- Department of Environment and Conservation Pilbara Region Office
  PO Box 835
  KARRATHA WA 6714

- Port Hedland Public Library

- Marble Bar Public Library

- Newman Public Library

Hard copies of the PER are available at a cost of $10 for the main document or $5 for a CD-ROM version (includes postage and packaging). Requests for hard copies or CD-ROM copies should be directed to:
Moly Mines Ltd,
P.O. Box 8215,
Subiaco East,
Western Australia, 6008

Ph: +61 8 9429 3300

WHY WRITE A SUBMISSION?
A submission is a way to provide information, express your opinion and put forward your suggested course of action - including any alternative approach. It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Electronic submissions will be acknowledged electronically. The proponent will be required to provide adequate responses to points raised in submissions. In preparing its assessment report for the Minister for the Environment, the EPA will consider the information in submissions, the proponent’s responses and other relevant information. Submissions will be treated as public documents unless provided and received in confidence, subject to the requirements of the Western Australian Freedom of Information Act 1992, and may be quoted in full or in part in each report.

WHY NOT JOIN A GROUP?
If you prefer not to write your own comments, it may be worthwhile joining with a group or other groups interested in making a submission on similar issues. Joint submissions may help to reduce the workload for an individual or group, as well as increase the pool of ideas and information. If you form a small group (up to 10 people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

DEVELOPING A SUBMISSION
You may agree or disagree with, or comment on, the general issues discussed in the PER or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal environmentally more acceptable.

When making comments on specific proposals in the PER:
- clearly state your point of view;
- indicate the source of your information or argument if this is applicable;
- suggest recommendations, safeguards or alternatives.

POINTS TO KEEP IN MIND.
By keeping the following points in mind, you will make it easier for your submission to be analysed:
- attempt to list points so that issues raised are clear. A summary of your submission is helpful;
- refer each point to the appropriate section, chapter or recommendation in the PER;
- if you discuss different sections of the PER, keep them distinct and separate, so there is no confusion as to which section you are considering;
attach any factual information you may wish to provide and give details of the source. Make sure your information is accurate.

Remember to include:
- your name;
- address;
- date; and
- whether you want your submission to be confidential.

The closing date for submissions is: 2nd October 2007

The EPA prefers submissions to be made electronically using one of the following:
- the submission form on the EPA’s website: www.epa.wa.gov.au/submissions.asp;
- by email to submissions.eia@dec.wa.gov.au;
- by email to the officer douglas.betts@dec.wa.gov.au.

Alternatively submissions can be
- posted to: Chairman, Environmental Protection Authority, Locked Bag 33, CLOISTERS SQUARE WA 6850, Attention: (Douglas Betts); or
- delivered to the Environmental Protection Authority, Level 4, The Atrium, 168 St Georges Terrace, Perth, Attention: (Douglas Betts); or
- faxed to (08) 6467 5562.

If you have any questions on how to make a submission, please ring the EPA assessment officer, Douglas Betts on 6467 5406.
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- Appendix E  Baseline Subterranean Fauna
- Appendix F  Environmental Management Programme
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<th>Date approved</th>
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<td>G. Kininmonth</td>
<td>G. Kininmonth</td>
<td>17 May 2007</td>
<td>First draft compilation</td>
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<td>14 June 2007</td>
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<td>G. Kininmonth</td>
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<td>3 August 2007</td>
<td>G. Kininmonth</td>
<td>G. Kininmonth</td>
<td>3 August 2007</td>
<td>Final draft</td>
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<td>14 August 2007</td>
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<td>G. Kininmonth</td>
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Printed: 14 August 2007  
Last saved: 14 August 2007 04:45 PM  
File name: I:\WVES\Projects\WV03141\Deliverables\PER Chapters Current\Chapters\Rev 4\PER Rev4  Moly Mines Spinifex Ridge.doc  
Author: Graeme Kininmonth  
Project manager: Graeme Kininmonth  
Name of organisation: Moly Mines Australia Pty Ltd.  
Name of project: Spinifex Ridge  
Name of document: Spinifex Ridge Molybdenum Project - PER  
Document version: Revision 4  
Project number: WV03141
Executive Summary

Introduction

This executive summary presents a description of the information presented in the Spinifex Ridge Molybdenum Project Public Environmental Review prepared by Moly Mines Ltd. (Moly Mines).

The Spinifex Ridge Molybdenum Project is based on the molybdenum deposit located at Spinifex Ridge, approximately 50 km north east of Marble Bar in Western Australia (Figure ES-1).

The Spinifex Ridge Project is located primarily on the Yarrie Pastoral Lease. Access to this land for the proposed operation will be in accordance with a compensation agreement to be negotiated with the leaseholder. A number of reserves exist within the project area, including an A Class Reserve (No. 31047) encompassing Coppin Gap and its immediate environs, timber reserve (No 13649) and water reserve (No. 12757).

Mining and processing activities will be set back from the A-Class Reserve, although some environmental monitoring is likely to be undertaken. The timber and water reserves are typical of similar reserves established throughout the Pilbara as part of the historical opening of the region. There is no differentiation in the current management of these reserves from the surrounding pastoral land and no flora, vegetation, or hydrological difference between the reserves and adjacent land.

Project Objectives and Benefits

Spinifex Ridge is a robust, nationally significant project that has many benefits at a local, regional and national level. It is well sited to service the international molybdenum market and will rank as one of the top ten molybdenum producers in the world. The Project will be the first world class molybdenum mine in Australia and will open up markets not currently exploited by Australian operations. The project aims to take advantage of increasing molybdenum demand in a period of tight supply.

Molybdenum is regarded as an indispensable alloying element in high performance stainless steels and is present in 15% - 20% of stainless steel grades produced. It is also used in the production of alloy and high speed steels, catalysts, lubricants and pigments.

The worldwide petroleum industry also possesses a strong demand for molybdenum. The establishment of offshore drilling platforms and associated infrastructure (e.g. sub-sea and over-land pipelines, LNG and oil tankers) required for the extraction, transportation and refining of oil and gas requires large amounts of corrosion resistant molybdenum steels. Continued focus on petroleum exploration and production in Western Australia and across the world will continue to stimulate demand for molybdenum.

The development of the project will provide a number of substantial benefits including:

- direct and indirect employment opportunities, business and training opportunities;
- opportunities for indigenous employment
- direct expenditure of approximately A$900M during the construction phase of the project;
- income for Government through the payment of rates, taxes and royalties;
- improved emergency response capabilities, community support and social network opportunities for the town of Marble Bar;
- identification and protection of Aboriginal sites of significance; and
- supply of key material to the steel industry required in the manufacture of pipelines, desalination plants, hydrocarbon industry, lighter / safer vehicles in the manufacture of Ultra Low Sulphur Diesel.

Project Summary

Moly Metals Australia Pty Ltd (Moly Mines) proposes to construct and operate the Spinifex Ridge Molybdenum Project (Spinifex Ridge), which is located approximately 50 km north east of Marble Bar in Western Australia (53° 0.79'S, 7° 5.84'E).

The project will involve the open pit mining and processing of 20 Million tonnes per annum (Mtpa) of ore to produce 23,000 tpa of molybdenum concentrate and 48,000 tpa of copper concentrate (co-product). Spinifex Ridge has a nominal ten year life of mine and will be a significant contributor to the world molybdenum market, ranking Moly Mines in the top ten molybdenum producers in the world.

Mining of overburden and ore will be by simple open pit methods using conventional mining equipment and techniques such as drill and blast, and load and haul. To facilitate mining, the diversion of Coppin Creek around the pit will be required. Ore from the open pit will be crushed and conveyed through a transport tunnel to secondary crushing facilities. Crushed ore will be drawn from stockpiles and fed to a mill circuit to prepare it for processing by flotation, followed by thickening, leaching and filtration.

The processing of ore will produce tailings as a waste product. Tailings will be stored in a large circular tailings storage facility (TSF) approximately 2.9 km in diameter and occupying an area of approximately 660 ha.

Overburden will be stockpiled to form three large waste rock landforms, covering a total area of approximately 400 ha. The waste rock landforms will be located to the south, southwest and west of the open pit.

Spinifex Ridge will be supported by a predominantly fly-in fly-out (FIFO) workforce, with approximately 400 personnel accommodated on site. A small component of the workforce will consist of locally based employees who will drive in and drive out (DIDO).
Power for the operational phase of the project will be supplied by an onsite gas power plant comprising multiple, spark ignition, reciprocating engines. The main substation and switchyard will be located in the grounds of the processing plant. The gas supply will be sourced by installation of a branch pipeline from the existing Port Hedland to Telfer gas pipeline. The pipeline route will follow existing tracks and will be adjacent to the water supply pipeline from the Canning borefield. Water will be supplied via a number of borefields, comprising the De Grey River Borefield, Canning Borefield and Woodie Woodie Borefield.

Other project activities that are assessed in this PER document include:

- clearing of land for mining, processing and associated infrastructure and activities;
- sourcing of construction materials for infrastructure (e.g. roads, airstrip and concreting);
- installation and operation of communication towers;
- transportation of chemical reagents, equipment and other materials to site;
- waste generation and disposal;
- establishment of support infrastructure such as warehouses, storage areas, lay down yards, water supply pipelines, internal roads, access ways, administration buildings and accommodation village; and
- establishment of an airstrip for the transport of personnel, equipment and emergency response.

**Stakeholder Engagement**

During the preparation of this PER, Moly Mines has developed a stakeholder consultation plan for the Spinifex Ridge Project that identifies the key stakeholders and triggers for both scheduled and routine consultation, including quarterly community meetings in the town of Marble Bar. Consultations to date have included meetings, telephone and electronic mail communications, letter (mail-out) correspondence, site visits and on-ground surveys.

Moly Mines is committed to continuing consultation throughout the life of the project and into post closure. Stakeholders will be inherently important, providing valuable input to develop and implement acceptable completion criteria for mine closure.

**Baseline Studies**

A range of environmental desktop studies and field surveys were conducted as part of the environmental review to provide detailed baseline data and to gain a better understanding of the potential environmental issues associated with the project. In addition to specialist desktop studies and review of existing environmental investigations field surveys including terrestrial flora and vegetation, fauna habitat assessment and cultural heritage were undertaken.
Existing Biophysical Environment

Climate

The northern Pilbara region of Western Australia is described as arid with wet summers, and waterways are typically ephemeral, generally flowing only a few times a year. The climate is characterised by seasonally low and unreliable rainfall, with an annual average of 300 mm combined with very high temperatures and high diurnal temperature variations (Kendrick and McKenzie, 2001).

Geology

The project is located within the Archaean Pilbara Craton of north Western Australia, specifically in the Eastern Pilbara Granite – Greenstone Terrane. The Pilbara Craton is divided into two tectonically distinct terranes: (i) the older granite-greenstones that host a wide variety of precious and base metal deposits, including Spinifex Ridge; and (ii) the younger Hamersley Basin that host the bulk of the major iron-ore deposits.

The project is located in the arcuate Marble Bar greenstone belt between the Mount Edgar Batholith to the south and the Muccan Batholith to the north. The dominant ore carrying sulphide species are molybdenite and chalcopyrite. Non ore sulphides include pyrrhotite and subordinately pyrite/marcasite which often form in the interstitial regions of the pillow lavas.

Landforms and Soils

The project area is located across four land systems, namely Capricorn, Macroy, Rocklea and Talga. These land systems vary in regard to landform, geology, and vegetation, and in their proportions within the Pilbara region and the project area.

While the greatest proportion of the project area is comprised of the lower footslopes, stony and sandy plains, the area is visually dominated by the major ridge of the Talga Range. The Range extends in an east-west direction across the project area with a maximum height of 324 mASL.

The baseline soil survey for the project area (OES 2006a) indicated that the majority of the soil profiles over the slopes and plains to the north and south of the Talga Range show little pedological organisation or structure, with only slight textural differences present through the majority of profiles examined. Most profiles consist of an indistinct and shallow, loamy sand, or clayey sand to sandy loam A-horizon, overlying a B-horizon of similar texture. The soils are typically dominated by a high coarse fraction (>2mm), which generally increases in size and abundance with increasing depth.

Three main lithotypes are associated with the orebody at Spinifex Ridge; granodiorite, mafic volcanics and felsic volcanics. It is expected that all of the granodiorite will be processed as ore, while much of the felsic and mafic units will be taken as waste to the waste landform or stockpiled as mineralised waste or low-grade. Modelling of the likely distribution and volume of potentially acid forming waste rock indicates that the majority of the waste rock is non acid-forming (Graeme Campbell and Associates, 2006).
Groundwater

The groundwater system at the Spinifex Ridge site is broadly defined by three surface water catchments. Two of these three that drain through Coppin Gap also directly influence the groundwater system of the proposed open-cut mine.

Recharge to groundwater within the catchments is limited to direct infiltration from rainfall within the catchment. Within the catchment of Spinifex Ridge, the identified aquifer types are fractured bedrock, in-situ calcretes and alluvial sediments.

Potential impacts from abstraction of water at the borefields relate to sustainability of the aquifers and impacts on groundwater dependant vegetation and fauna.

A groundwater divide is inferred to exist between the southern and northern sides of the Talga Range in the vicinity of Spinifex Ridge. Groundwater levels are between 30 and 20m higher on the southern side of the range and the groundwater flow direction is to the north on the northern side (following topography) and to the east on the southern side towards Coppin Gap.

The groundwater quality at Spinifex Ridge can be described as relatively fresh with a Total Dissolved Solid (TDS) concentration typically between 800 and 1300 mg/L.

Surface Water

The project is located within the De Grey River catchment. The Spinifex Ridge catchment drains northwards into Kookenyia Creek which discharges into the De Grey River. The Pilbara region is set in a rugged landscape, where gorges are cut into hill ranges and form oasis like water holes with sheer ancient rock faces.

In the study area, a ridge 100 to 150m high, known as Spinifex Ridge, is the dominant feature in the landscape. Two breaks in Spinifex Ridge known as Coppin Gap and Kitty's Gap concentrate flow from the upstream catchment and allow it to pass through the ridge. Floodwaters downstream from these two gaps then flow about 25km northwards before discharging via Kookenyia Creek into the De Grey River.

Coppin Creek is a tributary of Kookenyia Creek, and drains the Coppin Gap West Catchment. During heavy rainfall events it flows northward through Coppin Gap to the De Grey River. Coppin Creek is a temporary, inland, dryland creek, similar to other creeks in the region, classified as a ‘slightly to moderately disturbed’ ecosystem (ANZECC, 2000).

Coppin Gap is a semi-permanent water body located where Coppin Creek intersects the Talga Range. Coppin Gap has minimal fringing (riparian) vegetation due to steep rocky inclines, with only a small section of creek bank supporting eucalypt and melaleuca species, classified as a ‘slightly to moderately disturbed’ ecosystem (ANZECC, 2000).
Vegetation and Flora

The project area lies in the Chichester subregion of the Pilbara biogeographic region of Australia. There are no Environmentally Sensitive Areas or Threatened Ecological Communities within the project area. Twenty four vegetation associations were identified over the project area and 86 within the proposed pipeline corridor. Vegetation occurring over the orebody itself has been cleared or severely degraded during ongoing drilling programmes over the past 23 years.

At the local scale it is recognised that Coppin Gap possesses a particular microclimate with a dependable supply of moisture and nutrients, and that the related vegetation association (D2) has a discontinuous and patchy local distribution. No Declared Rare Flora or Priority Flora species were identified within the project area, service corridor or borefields.

Terrestrial Fauna

Comprehensive vertebrate fauna surveys over the project area, borefields and service corridor were conducted during 2006 and 2007. Six major terrestrial vertebrate fauna habitats were delineated over the project area. Thirty four species of Herpetofauna, 26 mammal species, 63 bird species and 3 species of fish were recorded over the project area. The vertebrate fauna assemblages recorded are similar to others recorded in the region, and do not represent significant proportions of the total population of any species. Of the potential invertebrate SRE species recorded at Spinifex Ridge little is known of the distribution and taxonomic relationship of the un-named species of terrestrial snail, “Quistrachia sp.” However, the habitat that this species was recorded from is common in the local and regional context.

Aquatic fauna were studied at both Coppin Gap and Coppin Creek. The aquatic biota recorded at Coppin Gap has a wide distribution in many aquatic systems throughout Western Australia, and also Australia. Coppin Gap’s aquatic biota was also recorded in other sections of Coppin Creek. Furthermore, apart from the fish fauna, all were also recorded from the Kookenyia Creek at Kitty’s Gap.

A number of significant fauna are expected to occur or were recorded in surveys over the project area, including the Northern Quoll, Mulgara, Western Pebble-mound Mouse, Lakeland Downs Mouse, Orange Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python, Peregrine Falcon, Grey Falcon, Australian Bustard, Bush Stone-Curlew, Star Finch, Rainbow Bee-eater, Fork-tailed Swift and migratory waterbirds.

Subterranean Fauna

Outback Ecology has conducted surveys for stygofauna and troglofauna between 2005 and 2007. Species accumulation curves for stygofauna show that additional surveys are required within the project area and borefields, and these are scheduled for mid-2007. The majority of the stygofaunal taxa identified to date are considered common within the Pilbara and have a known distribution outside of the project area, borefields and service corridor. Exceptions are one species in the project area which has a limited known distribution in the Pilbara; two new species at Woodie Woodie and
one potentially new species at De Grey. Assessment of species identity, distribution and conservation significance is currently restricted by:

- limited knowledge of some stygofauna groups;
- the dynamic state of knowledge of stygofauna in general; and
- a need for further sampling in these areas.

No troglobofauna were recorded on site.

*Air Quality and Noise*

There are currently no major point source emitters of dust within or near the project area. No dust monitoring locations exceeded the NEPM ambient PM$_{10}$ guideline of $50 \mu g/m^3$ during the sampling programme. All eight metals analysed for each of the seven monitoring sites, were also well below the NOHSC personal exposure limits.

Noise levels were monitored at Kitty’s Well and north of Coppin Gap during a baseline survey in 2006. Background noise levels exceeded the regulatory assigned noise levels at a number of occasions at both sites. Higher noise levels are likely to be an indication of some regular activity occurring either due to fauna in the immediate vicinity or wind noise. The nearest noise sensitive premise is Yarrie Homestead, approximately 25 km to the north-east.

*Existing Social and Economic Environment*

*Communities*

The Pilbara region is comprised of four local government areas with the towns of Port Hedland and Karratha as its major population centres. The project is located within the Shire of East Pilbara, in the Pilbara Region of Western Australia. The major centres of this shire are Newman, Nullagine and Marble Bar. The Shire supports a population of approximately 6,790 people, over an area of 380,000 km$^2$. The majority of the area is utilised for pastoralism, however the economy is supported by significant contributions made by iron ore, gold and base metal mining.

*Land Use*

Spinifex Ridge is located entirely within the Yarrie pastoral station lease. No previous mining activities have occurred within the project area; however exploration activities have been ongoing in the area over the past 30 years.

Tourism is an emerging development in the region, and Coppin Gap and Kitty’s Gap both attract visitors during the cooler months of the year. Aside from this low level tourism, no other recreational activities occur within the project area.
Indigenous Heritage

Moly Mines has successfully negotiated a Native Title Agreement with the Njamal People, which establishes terms for access, compensation and management of specific heritage, cultural and environmental issues. Archaeological and ethnographic surveys have been undertaken over the majority of the project area. No archaeological sites of indigenous heritage significance have been located to date. Four ethnographically significant sites have been identified to the north of the Talga Range. All of these are outside the disturbance footprint.

Non-Indigenous Heritage

No sites of European heritage significance have been identified within the project area. The nearest site is the Bamboo Creek mining relics, 15 km from the project area.

Environmental Impact Assessment and Management

The key environmental impacts regarding the following environmental factors are described below:

- Landforms and soils;
- Geoheritage;
- Groundwater;
- Surface water and drainage;
- Terrestrial fauna;
- Subterranean fauna;
- Flora and vegetation;
- Aquatic ecology;
- Air quality;
- Greenhouse gases;
- Noise/blasting and vibration;
- Waste management;
- Dangerous goods and hazardous materials;
- Social factors; and
- Mine closure and decommissioning.

Proposed management of the key environmental impacts described are detailed below for each environmental factor:

Landforms and Soils

Potential impacts to landforms and soils include the modification of existing landforms through the development of the pit, waste dump and tailings storage facility, and soil erosion and sediment mobilisation across the project area. Key management strategies to minimise impacts pertaining to soils and landforms in the project area will include:
construction of landforms the blend in with existing landforms, are suitable for closure, stable and resistant to erosion,
- collection, stockpiling and management of soil resources in ways as to maximise rehabilitation potential and minimise erosion potential,
- development, implementation and ongoing review of Rehabilitation Plans incorporating applicable design criteria for the reconstruction and rehabilitation of surface soil profiles, and
- progressive rehabilitation of disturbed areas.

**Groundwater**

Potential impacts to groundwater from the project include four possible locations: the mine site (including Coppin Gap and Creek) and the borefields at Canning Woodie Woodie and De Grey.

Potential impacts to groundwater include impacts to water levels and quality from the TSF, the lowering of water levels in Coppin Gap by dewatering for the pit, the lowering of water levels in creek systems between the mine and Coppin Gap, and change in groundwater chemistry between the mine and Coppin Gap.

Measures will be introduced to manage any impacts to the groundwater system (both north and south of the ridge), these include:

- development and implementation of a Groundwater Management Plan;
- ongoing monitoring and prediction of the groundwater response to mining activities both within and surrounding the mine;
- incorporate water from the pit into the mine water circuit;
- establish a groundwater monitoring system around the TSF; and,
- monitoring of the water level within Coppin Gap.

**Surface Water**

Displacement of natural flow and flood waters is a potential impact at a number of areas across the project area, including the pit, diversion channel, waste dumps, tailings storage facility, and plant areas. Surface water contamination is also a potential impact from the waste dump, tailings storage and plant and workshop areas in particular. Surface water impacts will be managed by the use of diversion structures around key infrastructure, and sediment traps and basins where appropriate. The design of the waste dumps and tailings storage facility will also be cognisant of the potential impacts to surface water, minimising the transport of sediment laden surface flows from the structures.

**Vegetation and Flora**

Potential impacts to vegetation and flora include direct clearing and disturbance, as well as secondary impacts due to changes to the groundwater regime and impacts to riparian vegetation due to the diversion of Coppin Creek. Clearing will be kept to a minimum on site and disturbance to comparatively sensitive vegetation areas such as riparian vegetation will be minimised when positioning the waste landform and TSF. Approximately 1,600 ha will require clearing to
accommodate the project footprint. Culverts will be installed along the diversion channel where disturbance to riparian vegetation can not be avoided, to maintain natural drainage lines.

**Fauna**

Threatening processes currently affecting biodiversity over the project area include altered fire regimes, grazing by stock, impacts of introduced predators and weed invasion. Potential impacts associated with this proposal include habitat loss/modification due to clearing and mining activities and the potential to increase populations of introduced species.

Management of potential impacts will be detailed in a Fauna Management Plan, and will include minimal disturbance to fauna habitats associated with Coppin Gap and Kitty’s Gap. Feral animals will be managed on site in liaison with local pastoralists, the Department of Environment and Conservation and Department of Agriculture and Food.

**Subterranean Fauna**

Potential impacts to subterranean fauna populations include loss of habitat due to changes in groundwater levels, groundwater contamination and the potential incursion of saline groundwater. The detailed sampling regime will be continued on site in line with best practice stygofauna sampling protocols. Management strategies will be implemented to reduce impacts to groundwater (see above) which will limit the potential for impacts to subterranean fauna populations.

**Air Quality**

Potential impacts associated with atmospheric dust include elevated particulate and/or metal concentrations and reduced visual amenity. Dust will be managed on site via a number of measures including:

- minimising the footprint and clearing of temporary lay-down areas;
- regular watering of haul roads and other unsealed internal roads;
- progressive rehabilitation of mine landforms;
- fitting of water sprays to the primary crusher, conveyor and stockpile feed points; and
- appropriate covering of conveyors.

**Greenhouse Gases**

Emissions of greenhouse gases contribute to the greenhouse effect and are linked with global warming. Significant greenhouse gas emissions from Spinifex Ridge Project are linked with the use of electricity and combustion of diesel fuel. Emissions will be minimised on site by optimal positioning of site infrastructure to minimise haul distances. Greenhouse gas emissions have been minimised from the design phase of the project with the selection of a reciprocating engine gas fired power plant for electricity generation. This option was chosen based on its relatively low greenhouse gas emissions when compared with other power supply options. Progressive rehabilitation will also be undertaken where practicable over the life of the project.
**Noise, Blasting and Vibration**

Noise emissions will be generated during construction and operation from a number of sources in the project area and infrastructure corridors. The nearest noise sensitive receptor is Yarrie Homestead, 25 km from the project area. Potential impacts include reduced amenity to residents such as Yarrie Homestead, reduced amenity to visitors at Coppin Gap and disturbance to nearby bat roosts and other fauna. Noise mitigation will be based on EPA guidance and best practice techniques and will include noise evaluations in equipment procurement and project design, engineering controls and regular maintenance of equipment.

**Waste Management**

**Waste Rock Landforms**

Key risks associated with the waste rock landform include the potential for acid rock drainage and the movement of sediment. Sediment movement will be controlled by the landform design. Concave slopes will be utilised, and the faces will have an average slope of just over 13 degrees, with a maximum angle on the upper slope of 26 degrees. Any runoff from the landform will be directed through sediment traps before release into the Coppin Creek Diversion.

Potentially acid forming waste will be encapsulated within the waste rock landform and a store-and-release cover system will be designed using non acid forming material.

**Tailings and Process Waste**

Potential impacts associated with the construction and operation of the tailings storage facility include an unstable landform causing leakage and contamination of surface water, groundwater and/or soil. Current worst case scenario modelling indicates a seepage loss of 1.2%, and contaminant plumes have been modelled to predict that water quality remains within the NHMRC guidelines for molybdenum and other parameters.

**General Waste**

Moly Mines will avoid or reduce the volume of waste produced by the Project wherever possible. However, it is understood that the following potential impacts exist regarding waste production, storage and handling on site:

- groundwater, surface water or soil contamination; and
- risk to fauna and human public health and safety.

Waste management on site will incorporate the “Waste Hierarchy” of avoid, reduce, replace, segregate, recover/reuse, recycle and dispose.
Dangerous Good and Hazardous Materials

Dangerous goods and hazardous materials, for example hydrocarbons and explosives, will be used on site. Potential impacts associated with the use and storage of these materials includes contamination and risk to fauna and public health. During construction and operation, Moly Mines will ensure hydrocarbons, chemicals and dangerous goods are stored according to the relevant legislation, or relevant Australian Standards, and will minimise the potential for contamination at all times.

Social Impact Assessment and Management

The key social and economic impacts regarding the following social factors are described below:

- Communities;
- Land Use;
- Indigenous Heritage;
- Non-Indigenous Heritage;
- Public safety – Traffic and Ore Transport;
- Public safety – Metal toxicity; and
- Visual Amenity.

Proposed management of the impacts described are detailed below for each social factor.

Communities

A number of potential opportunities and risks to the communities resulting from the proposed activities have been identified. Key risks include increase pressure on community services, community concerns regarding the development and access to recreation/tourism areas. Dialogue with the community has already begun, and responses to several community/stakeholder concerns have been incorporated into the Project. An example is the maintenance of public access to Coppin Gap. Efforts will be made to maximise local and indigenous employment and training opportunities.

Land Use

The project area has historically been used for pastoral activities, and the majority of land is located within the Yarrie Pastoral Lease. Consultation with pastoral managers will be ongoing to increase opportunities and minimise negative impacts associated with the Project.

Tourism and recreation activities which currently infrequently occur at Coppin Gap will be supported, with access to Coppin Gap maintained throughout construction and operations.

Indigenous Heritage

A number of ethnographic sites have been identified on site, and these will remain protected and undisturbed throughout the Project life. Moly Mines will continue liaison with relevant Aboriginal representatives during all project phases.
Non-Indigenous Heritage

No sites of European heritage have been identified within the project area.

Public Safety – Traffic and Ore Transport

Operation of the Spinifex Ridge project will result in approximately two additional product transport vehicles a day compared with the existing estimated 163 vehicles from other mining operations in the region.

Visual Amenity and Landscape

Construction of the pit, waste landforms, tailings storage facility and plant has the potential to impact visual amenity. Design and location of the facilities will consider the effects on visual amenity where possible, and waste rock landforms will be constructed to be well below the height of the Talga Range.

Environmental Management System

Moly Mines is finalising the initial development and implementation of a management system that will assist the company in proactively managing environmental issues and promoting environmental excellence and continual improvement. The management system will be developed to be consistent with the intent of AS/NZS ISO 14001:2004 ‘Environmental management systems - Requirements with guidance for use’.

The Environmental Management Programme (EMP) is a management tool that provides a summary of the environmental aspects of the project and includes the environmental management plans necessary to manage potential environmental impacts. The management plans detail objectives; issues and management actions to effectively address these issues. The EMP forms an additional, higher level of operational control over the requirements that originate from the management system.