Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3259/3
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Moly Metals Australia Pty Ltd**

1.3. Property details

Property: Mining Leases 45/1095, 45/1096, 45/1097, 45/1164
Miscellaneous Licences 45/184 and 45/185
Local Government Area: Shire of East Pilbara
Colloquial name: Spinifex Ridge Iron Ore Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
125		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 June 2014

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard Vegetation Associations have been mapped for the whole of Western Australia and are useful to look at vegetation extent in a regional context. Two Beard Vegetation Associations are located within the application area (GIS Database):

1. **Beard Vegetation Association 93** - Hummock grasslands, shrub steppe; kanji over soft spinifex; and

2. **Beard Vegetation Association 171** - Hummock grasslands, low tree steppe; Snappy Gum over soft spinifex & *Triodia brizioides*.

Outback Ecology Services (2006) undertook a dual season baseline flora and vegetation survey of the Spinifex Ridge Molybdenum Project area between 25 and 30 July 2005 and 28 April and 3 May 2006. Although the Spinifex Ridge Iron Ore Project is located within the Spinifex Ridge Molybdenum Project area surveyed by Outback Ecology Services (2006), no specific vegetation quadrats were established within the area subject to this clearing permit application. Consequently, Moly Mines Limited (2009b) undertook a botanical survey in July 2009 where quadrats were established in the proposed clearing area. The purpose of the survey was to validate vegetation descriptions and conclusions made by Outback Ecology Services (2006) and where necessary, revise vegetation mapping boundaries at the local scale and identify vegetation variability within the clearing footprint area (Moly Mines Limited, 2009b).

Based on flora and vegetation surveys conducted by Outback Ecology Services (2006) and Moly Mines Limited (2009b), the following ten vegetation associations were mapped within the proposed clearing area:

Hills and Ridges (H)

H1 - *Acacia inaequilatera* scattered tall shrubs to high open shrubland over mixed *Corchorus parviflorus* / *Indigofera monophylla / Tephrosia* spp*. / Ptilotus calostachyus* low scattered shrubs to low open shrubland over *Triodia epactia* hummock grassland. This vegetation association covers a majority of the proposed clearing area, occurring on the flat - topped Talga Range and hills.

H2 - *Eucalyptus leucophloia* ssp. *leucophloia* scattered low trees to low open woodland with occasional *Corymbia hamersleyana* over *Acacia inaequilatera* open shrubland over *Triodia epactia* hummock grassland. This vegetation association occurs on the southern faces of the Talga Range and hills. Some small pockets also occur on top of the range, on slopes and in minor valleys.

H3 - *Ficus brachypoda / Atalaya hemiglauca* low open woodland over *Dodonaea viscosa* ssp. *mucronata* scattered shrubs to open shrubland over *Cymbopogon procerus / Eriachne mucronata* open tussock grassland. This vegetation association occurs on very steep southern cliff faces of the Talga Range where rock faces are present.

H4 - *Eucalyptus leucophloia* ssp. *leucophloia* low woodland over *Acacia inaequilatera* scattered shrubs to high open shrubland over *Acacia ptychophylla* / *Corchorus parviflorus* low open shrubland over *Triodia brizoides / T. epactia* hummock grassland. This vegetation association occurs in sections along the lower southern face of the Talga Range.

Plains (P)

P1 - *Acacia inaequilatera* high shrubland to scattered shrubs over *Triodia epactia* hummock grassland. This vegetation association occurs on plains north and south of the Talga Range, including both sandy and rocky areas.

P2 - *Acacia inaequilatera* high open shrubland to scattered shrubs over *Triodia wiseana* hummock grassland with some *Triodia epactia.* This vegetation association occurs on plains north of the Talga Range, often where there is a covering of quartz fragments.

Drainage Lines (D)

D1 – *Triodia longiceps* hummock grassland. This vegetation association occurs as one very shallow drainage line over flats and plains south of the Talga Range.

D5 – *Corymbia hamersleyana* low open woodland over *Acacia tumida var. pilbarensis / A. pyrifolia* open scrub to high open shrubland over *Triodia epactia* hummock grassland. This vegetation association occurs as two rocky drainage lines south of the Talga Range.

D6 - *Eucalyptus camaldulensis* open woodland over *Corymbia hamersleyana* low open woodland over *Tephrosia rosea* shrubland over *Stemodia viscosa* open herbs over *Triodia epactia* open hummock grassland. This vegetation association occurs as one rocky drainage line between the exploration camp and proposed access ramp.

D7 - *Acacia tumida* var. *pilbarensis* open scrub to high shrubland over *Triodia epactia* open hummock grassland along drainage lines. This vegetation association occurs as four minor drainage lines that vary from having very rocky to sandy substrates north of the Talga Range.

Clearing Description

Spinifex Ridge Iron Ore Project.
Moly Metals Australia Pty Ltd proposes to clear up to 125 hectares of native vegetation, within a total boundary of approximately 275 hectares, for the purpose of mineral production. The proposed clearing is for the establishment of the Spinifex Ridge Iron Ore Project (SRIOP), located approximately 50 kilometres north-east of Marble Bar (Moly Mines Limited, 2009a).

Vegetation Condition

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);

To

Pristine: No obvious signs of disturbance (Keighery, 1994).

Comment

Clearing associated with the project will allow open cut pits to be developed on top of a banded ironstone formation ridge (Spinifex Ridge or Talga Range as it is known locally). In addition, the clearing is proposed for the purpose of constructing waste rock landforms, access ramps, a run of mine pad, crushing plant, stockpile areas, access roads and a minor expansion to an existing exploration camp (Moly Mines Limited, 2009a).

The vegetation condition rating is derived from information provided by Outback Ecology Services (2006) and Moly Mines Limited (2009a; 2009b).

Clearing permit CPS 3259/1 was granted by the Department of Mines and Petroleum on 1 October 2009 and was valid from 31 October 2009 to 31 August 2016. The clearing permit authorised the clearing of up to 80 hectares of native vegetation. An amendment was granted on 8 November 2012 to increase the boundary of the clearing permit by 13 hectares and increase the area approved for clearing from 80 to 112 hectares. The increased area was required for the expansion of a waste rock landform. An application for an amendment to clearing permit CPS 3259/2 was submitted by Moly Metals Australia Pty Ltd on 17 April 2014 to increase the permit boundary by approximately 11 hectares and increase the amount of clearing authorised by 13 hectares. The additional clearing and area is for mine expansion works, including the development of a small open pit on the Torchwood deposit and a change from open pit mining to underground at the Dalek pit (portal infrastructure).

3. Assessment of application against clearing principles

Comments

Moly Metals Australia Pty Ltd has applied to increase the boundary of the clearing permit by approximately 11 hectares and increase the area authorised to clear from 112 to 125 hectares.

The proposed amendment to the currently approved clearing footprint will impact upon vegetation associations H1, H2, H3 and H4. Approximately half of the additional area is mapped as vegetation association H1 which is well represented both locally and regionally. The H3 vegetation association of the Mesic area is deemed to be of moderate significance and is likely to have limited local distribution (Moly Mines Limited, 2012; PMI, 2014). The proposed additional clearing for the Torchwood pit will impact a small amount of H3, however PMI (2014) shall minimise impacts to this community as far as practicable.

No Threatened Flora, Priority Flora, Threatened Ecological Communities or Priority Ecological Communities have been identified in the additional areas (PMI, 2014; GIS Database).

Three fauna habitats at Spinifex Ridge have been identified as locally significant: Riverine Community habitat, Rocky Gully habitat (Coppin Gap and Kitty Gap), and the mesic southern slopes of the Talga Range

(Breakaway habitat). These rocky habitat types provide structural habitat qualities to fauna, including fauna of conservation significance (PMI, 2014). No clearing of Riverine or Rocky Gully habitat is proposed in this amendment. A minor amount of Breakaway habitat is proposed to be cleared. The proposed impacts on this fauna habitat consists of 0.386 hectares of basalt ridges, 1.32 hectares of breakaways and 4.05 hectares of rocky slopes (PMI, 2014). The rugged and mesic southern slopes of the Talga Range is considered more important to fauna of conservation significance compared to the H1 vegetation association occurring on the plateau (PMI, 2014). Fauna of conservation significance that have been recorded within these habitats of the Talga Range are: Northern Quoll (*Dasyurus hallucaltus*), Orange Leaf-nosed Bat (*Rhinonicteris aurantius*), Ghost Bat (*Macroderma gigas*), Western Pebble-mound Mouse (*Pseudomys chapmani*) and Rainbow Bee-eater (*Merops ornatus*) (PMI, 2014). Within the Talga Range, the vast majority for the proposal occurs on the rocky slopes of the H1 vegetation association rather than the southern rocky breakaways (PMI, 2014). A regional habitat assessment by Outback Ecology Services (2008) determined that the rocky slopes were widespread within a 80 kilometre radius of Spinifex Ridge, with 13,000 hectares potentially occurring. Recent habitat mapping has been undertaken over the Spinifex Ridge project area to quantify the impact on the Northern Quoll, Orange Leaf-nosed Bat and Ghost Bat (PMI, 2014). The additional proposed clearing will impact an additional 1.32 hectares of locally significant Northern Quoll habitat in the form of Breakaway habitat. PMI (2014) considers this insignificant at local and regional scales and with the implementation of appropriate management controls the potential impacts are not considered significant. With regard to the bats of conservation significance, a report by Armstrong and Konishi (2010) concluded that based on the relatively few acoustic recordings, the lack of evidence for daytime or breeding roosts, a reasonable level of survey effort, and an appropriate survey methodology, the impact of the proposed project to the Orange Leaf-nosed Bat and Ghost Bats is anticipated to be insignificant. An additional impact to potential bat habitat of 1.22 hectares of the 61.95 hectares mapped over the project area is not considered significant at the local and regional scales (PMI, 2014). The additional area does not provide substrates that Rainbow Bee-Eaters require for nesting burrows (PMI, 2014). Approximately 0.39 hectares of potential Western Pebble-mound Mouse habitat is to be impacted, which is not likely to be significant given the availability of habitat in the area (PMI, 2014).

The additional area is located within the Capricorn Land System (GIS Database). The Capricorn Land System is characterised by hills and ridges of sandstone and dolomite supporting shrubby hard and soft spinifex grasslands (Van Vreewyk et al., 2004). The stony surfaces of the landforms in this land system provide resistance to erosion (Van Vreeswyk et al., 2004). Rehabilitation including revegetation of cleared areas will be carried out progressively where possible, minimising the long term impact of land degradation (PMI, 2014). However, in the short term there is a risk of wind and water erosion if any susceptible areas are left cleared and bare for long periods of time. Potential impacts from erosion may be minimised by the implementation of a staged clearing condition.

The environmental impacts of this proposal have been reviewed and there are no significant additional environmental impacts associated with this amendment (GIS Database; PMI, 2014). Therefore the assessment against the clearing principles has not changed and can be found in the Clearing Permit Decision Reports CPS 3259/1 and CPS 3259/2.

Methodology

Armstrong and Konishi (2010)
Moly Mines Limited (2012)
Outback Ecology Services (2008)
PMI (2014)
Van Vreeswyk et al. (2004)
GIS Database:
- DEC Tenure
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Public Drinking Water Source Areas (PDWSAs)
- Rainfall, mean Annual
- Rangeland Land System Mapping
- Threatened Ecological Sites Buffered
- Threatened and Priority Flora

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There is one Native Title Claim (WC1999/008) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are multiple registered Aboriginal Sites of Significance in the vicinity of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, Department of Parks

and Wildlife and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks permit, or any other licences or approvals are required for the proposed works.

On 25 February 2014, Mineral Resources Limited informed the federal Department of the Environment of the additional proposed clearing. The notification was based on the removal of 1.32 hectares of *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed endangered Northern Quoll habitat. The Department of the Environment acknowledged that Minerals Resources Limited did not intend to refer the action for consideration under the EPBC Act and noted that Minerals Resources Limited do not believe the proposed action constitutes a significant impact (PMI, 2014).

The clearing permit amendment application was advertised on 12 May 2014 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology

PMI (2014)
GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

Armstrong and Konishi (2010) Bats of Significance at Spinifex Ridge. Risk Assessment Prepared for Moly Mines.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Moly Mines Limited (2009a) Application for a Clearing Permit (Purpose Permit) under the Environmental Protection Act 1986 s 51E, July 2009.

Moly Mines Limited (2009b) Spinifex Ridge Iron Ore Project. Botanical Site Survey (Iron Ore Project). July 2009.

Moly Mines Limited (2012) Spinifex Ridge Iron Ore Project. Application for an Amendment to the Clearing Permit (Purpose Permit) No: 3259/1 under the Environmental Protection Act 1986 s51m. September 2012.

Outback Ecology Services (2006) Spinifex Ridge Molybdenum Project: Vegetation and Flora - Baseline Surveys (2005-2006). November 2006.

Outback Ecology Services (2008) Regional Fauna Habitat Assessment. Outback Ecology Services, February 2008.

PMI (2014) Spinifex Ridge Iron Ore Mine Supporting Documentation Application for an Amendment to a Clearing Permit (Purpose Permit) M45/1095). April 2014.

Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Perth, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:

(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or

(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.