Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4413/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hamersley Iron Pty Ltd**

1.3. Property details

Property: *Iron Ore (Hamersley Range) Agreement Act 1963*, Mineral Lease 4SA (AML 70/4)
Local Government Area: Shire of Ashburton
Colloquial name: B26 Drilling Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 11 August 2011

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 in a regional context. The following Beard vegetation associations have been mapped within the application area (GIS Database):

82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana*; and

567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex & *Triodia basedowii.*

A flora and vegetation survey of the application area was conducted by a botanist from Rio Tinto Iron Ore Pty Ltd (Rio Tinto) on 21 October 2010. The following four vegetation units were recorded within the application area (Rio Tinto, 2011):

1. ElAaAp: *Eucalyptus leucophloia* scattered low trees over *Acacia aneura, Acacia pruinocarpa* high open shrubland over *Triodia pungens* open hummock grassland;

2. ElGbAcTw: *Eucalyptus leucophloia, Grevillea berryana* low open woodland over *Acacia aneura* open scrub over *Triodia wiseana* hummock grassland;

3. ElAp: *Eucalyptus leucophloia* low open woodland over *Acacia pyrifolia* scattered shrubs; and

4. AaApAcAbAsEpTp: *Acacia aneura, Acacia pruinocarpa, Acacia citrinoviridis* low open forest over *Acacia bivenosa, Acacia synchronicia* open shrubland over *Eremophila phyllopoda* low open shrubland over *Triodia pungens* open hummock grassland.

Clearing Description

Hamersley Iron Pty Ltd has applied to clear up to 2.4 hectares within an application area of approximately 5.4 hectares (GIS Database). The application area is located approximately 30 kilometres west of Tom Price (GIS Database).

The proposed clearing is for the purpose of mineral exploration. Clearing will be by mechanical means.

Vegetation Condition

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

to

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment

The vegetation condition was assessed by a botanist from Rio Tinto. The vegetation condition was described using a scale based on Trudgen (1988) and has been converted to the corresponding condition from the Keighery (1994) scale.

Due to the dry conditions at the time of the survey many ephemeral species may have been missed (Rio Tinto, 2011).

Parts of the application area have been recently affected by fire (Rio Tinto, 2011).

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The flora and vegetation survey of the application area identified four different vegetation units (Rio Tinto, 2011). The vegetation units identified are considered to be well represented within the Hamersley subregion (Rio Tinto, 2011). None of the vegetation communities recorded are considered to be a Threatened or Priority Ecological Community (Rio Tinto, 2011).

The flora survey of the application area recorded a total of 25 native flora taxa from 14 genera and 8 families (Rio Tinto, 2011). There were no weed species indentified within the application area. The number of native species recorded was within the expected range for the size and locality of the survey and is considered to represent average species richness (Rio Tinto, 2011). No species of Declared Rare or Priority Flora were identified within the application area (Rio Tinto, 2011).

A search by the assessing officer of the DECs NatureMap incorporating a 20 kilometre radius of the application area revealed records of 55 bird, two mammal and 34 reptile species (DEC, 2011). From these records it appears that the area may support a high level of avian diversity. Given the relatively small scale of the proposed clearing and the vegetation present, the application area is not expected to possess a higher level of faunal diversity than surrounding areas.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DEC (2011)
Rio Tinto (2011)

(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.

Comments

Proposal is not likely to be at variance to this Principle

There have been no fauna surveys undertaken over the application area. Rio Tinto (2011) conducted a desktop review of conservation significant fauna species that could potentially be found within the application area. This review identified nine conservation significant species that could potentially utilise the application area (Rio Tinto, 2011). Based on the habitats present and the relatively small size of the application area, it is not likely that the area to be cleared would represent significant habitat for the species identified. The vegetation within the application area is well represented with the bioregion and no significant habitat features (e.g. caves or permanent water sources) have been identified (Rio Tinto, 2011). Given this, the application area is not expected to be significant habitat for native fauna species.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Rio Tinto (2011)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, there are no records of any Declared Rare Flora (DRF) within the application area (GIS Database). A flora survey of the application area was conducted by Rio Tinto on 21 October 2010. This flora survey did not record any DRF (Rio Tinto, 2011).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Rio Tinto (2011)
GIS Database:
- Declared Rare and Prioirty Flora List.

(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.

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, there are no records of any Threatened Ecological Communities (TECs) within the application area (GIS Database). A vegetation survey was conducted by Rio Tinto on 21 October 2010. This survey did not identify any vegetation communities as being a TEC (Rio Tinto, 2011).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

Rio Tinto (2011)
GIS Database:
- Threatened Ecological Sites Buffered

(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.

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.9% of the pre-European vegetation remains (see table) (GIS Database, Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana*; and
567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex & *Triodia basedowii.*

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remains at both a state and bioregional level. Therefore the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,000	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.2
567	777,507	777,507	~100	Least Concern	22.3
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.2
567	776,824	776,824	~100	Least Concern	22.4

* Shepherd (2009)
** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

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

Comments

Proposal is at variance to this Principle

There are numerous minor ephemeral watercourses located within the application area (GIS Database). The vegetation unit AaApAcAbAsEpTp was identified as occurring within minor drainage lines (Rio Tinto, 2011). These drainage lines are only likely to flow during periods of significant rainfall.

Given that there is vegetation growing in association with a watercourse, the proposed clearing is at variance to this Principle. However, given the relatively small scale of the clearing, it is not expected to have significant impacts on watercourses within the application area.

Methodology

Rio Tinto (2011)
GIS Database:
- Hydrography, linear

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

Comments

Proposal is not likely to be at variance to this Principle

The application area has been mapped as occurring on the Newman and Table land systems (GIS Database). The large majority of the application area is comprised of the Newman land system which is not generally prone to erosion (Van Vreeswyk et al., 2004). The Table land system is also generally not prone to erosion (Van Vreeswyk et al., 2004).

At a broad scale the surface soil pH of the application area is 5.5 to 6.0 and there is no known occurrence of acid sulphate soils (CSIRO, 2009). The average annual evaporation rate is over eight times the annual average rainfall so there is a low probability of the proposed clearing causing increased groundwater recharge resulting in rising saline water tables (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology CSIRO (2009)
Van Vreeswyk et al. (2004)
GIS Database:
- Evaporation Isopleths
- Mean Average Rainfall
- Rangeland Land System Mapping

(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.

Comments **Proposal is not likely to be at variance to this Principle**
The application area does not lie within any conservation areas or DEC managed lands (GIS Database). The nearest conservation area is Karijini National Park which is located approximately 40 kilometres east of the application area (GIS Database). Given the distance between the application area and the National Park, the proposed clearing is not likely to impact the environmental values of any conservation areas.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- DEC Tenure

(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.

Comments **Proposal is not likely to be at variance to this Principle**
The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are several minor non-perennial watercourses within the application area (GIS Database). The majority of the surface water within the application area is likely to occur as sheet flow following heavy rains. With an annual evaporation rate over eight times the average annual rainfall any surface water is likely to evaporate quickly (GIS Database). The proposed clearing is not likely to have an impact on surface water quality in the local area.

The groundwater within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the relatively small nature of clearing, it is not likely to cause salinity levels within the application area to alter.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- Evaporation Isopleths
- Groundwater Salinity, Satewide
- Hydrography, linear
- Mean Average Rainfall
- Public Drinking Water Source Areas (PDWSAs)

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

Comments **Proposal is not likely to be at variance to this Principle**
With an average annual rainfall of 400 millimetres and an average annual evaporation rate of 3,400 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in the flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- Evaporation Isopleths
- Mean Average Rainfall

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC10/16) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). 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*.

According to available databases, there are no registered Aboriginal Sites of Significance within 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 and Conservation 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.

The clearing permit application was advertised on 20 June 2011 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology

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

4. References

CSIRO (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 8 August 2011.

DEC (2011) NatureMap - Department of Environment and Conservation and Western Australian Museum. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 8 August 2011).

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

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

Rio Tinto (2011) Flora and Vegetation Survey for Drilling Within B26 Tenement. Supporting documentation for a clearing permit application, dated May 2011.

Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

Trudgen M.E. (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, 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.