Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4076/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Newcrest Mining Limited**

1.3. Property details

Property: Mining Lease 45/203
Local Government Area: Shire of East Pilbara
Colloquial name: O'Callaghan's Borefield

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
18.5		Mechanical Removal	Borefield installation and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 December 2010

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 at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association has been mapped within the application area (GIS Database).

134: Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex on sandhills / Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills.

Areas adjacent to the application area were surveyed in 2007 by Syrinx Environmental Pty Ltd. Based on this survey three broad vegetation types are expected to occur in the O'Callaghan deposit. These are:

Sandplain vegetation type 3: Mixed shrubland over *Acacia stellaticeps* open shrubland over *Triodia basedowii* grassland;

Sand dune vegetation type 11: Scattered *Corymbia chippendalei* over mixed shrubland over *Triodia schinzii* grassland; and

Rocky outcrop vegetation type 13: *Triodia schinzii* grassland.

Clearing Description

Newcrest Mining Limited is proposing to clear up to 18.5 hectares of native vegetation for the installation of a borefield utilising existing cleared areas (drill pads, tracks) within an exploration drilling area. New clearing is for the purpose of widening tracks, new track access, corridor for power line and water pipe line, water transfer tank, production and observation bore areas and drill pads.

Vegetation Condition

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

Comment

The application area is located in the Great Sandy Desert region of Western Australia and is situated approximately 220 kilometres east of Nullagine (GIS Database).

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 application area occurs within the MacKay (GSD2) sub-region of the Great Sandy Desert Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by tree steppe grading to shrub steppe in the south; comprising open hummock grassland of *Triodia pungens* and *Triodia schinzii* with scattered trees of *Owenia reticulata* and bloodwood (*Corymbia* spp.*)*, and shrubs of *Acacia* spp., *Grevillea wickhamii* and *Grevillea refracta*, on Quaternary red longitudinal sand dune fields overlying Jurassic and Cretaceous sandstones of the Canning and Armadeus Basins. Gently undulating lateritised uplands support shrub steppe such as *Acacia pachycarpa* shrublands over *Triodia pungens* hummock grass (CALM, 2002).

A vegetation survey conducted by Syrinx Environmental Pty Ltd (2007) identified 17 intact vegetation types occurring within the Telfer Borefield area located adjacent to the application area. Three of these vegetation communities are likely to occur with the application area (Newcrest Mining Limited, 2010):

- Sandplain vegetation type 3: Mixed shrubland over *Acacia stellaticeps* open shrubland over *Triodia basedowii* grassland;
- Sand dune vegetation type 11: Scattered *Corymbia chippendalei* over mixed shrubland over *Triodia schinzii* grassland; and
- Rocky outcrop vegetation type 13: *Triodia schinzii* grassland.

These vegetation communities are common both locally and regionally (Syrinx Environmental Pty Ltd, 2007). During the Telfer Borefield survey 112 vascular plant taxa were recorded. Given the common nature of the landform units and vegetation types both locally and regionally, it is expected that a similar diversity of species are present within the application area and therefore the vegetation of the application area is not likely to be considered locally or regionally significant.

A desktop survey by Syrinx Environmental Pty Ltd (2007) revealed the potential for eight amphibian, 96 reptile, 100 bird and 34 mammal species to occur within the Telfer area. A field survey by Syrinx Environmental recorded 59 vertebrate fauna species within the Telfer Borefield area. The land systems, vegetation and habitats of the project area are common and widely represented both locally and regionally. The application area is not likely to comprise a greater diversity than other nearby areas.

No known weed species have been recorded in the O'Callaghan's deposit area (Newcrest Mining Limited, 2010).

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

Methodology

CALM (2002)
Newcret Mining Limited (2010)
Syrinx Environmental Pty Ltd (2007)
GIS Database:
- IBRA WA (Regions – Sub regions)

(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

A desktop survey by Syrinx Environmental Pty Ltd (2007) revealed the potential for eight amphibian, 96 reptile, 100 bird and 34 mammal species to occur within the Telfer area. A field survey by Syrinx Environmental Pty Ltd (2007) recorded 59 vertebrate fauna species within the Telfer Borefield area.

One fauna habitat type, *Triodia schinzii* grassland on rocky outcrops, has been identified in the clearing permit application area. This habitat is widespread both locally and regionally.

A total of 14 vertebrate fauna species considered to be of conservation significance potentially occur within the application area (Syrinx Environmental Pty Ltd, 2007). Given the small size of the proposed clearing and the common nature of the habitat within the application area, both locally and regionally, it is considered unlikely that the vegetation to be cleared represents a significant habitat for these species.

A subterranean fauna survey conducted by Bennelongia Environmental Consultants (2010) recorded one stygofauna species, *Paramelitidae* sp., and one troglofauna species, *Scutigerella* sp. B1, occurring within the application area. Given the small size and the non-contiguous nature of the proposed clearing, it is not likely that significant habitat for these species will be impacted by the clearing.

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

Methodology Bennelongia Environmental Consultants (2010)
Syrinx Environmental Pty Ltd (2007)

(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 GIS databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database).

A flora survey was conducted in areas surrounding the application area by staff from Syrinx Environmental Pty Ltd (2007). No DRF or species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* were recorded in the survey area and no DRF species are likely to occur within the application area (Newcrest Mining Limited, 2010).

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

Methodology Newcrest Mining Limited (2010)
Syrinx Environmental Pty Ltd (2007)
GIS Database:
- Declared Rare and Priority 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 the available GIS Databases there are no known records of Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is located approximately 245 kilometres north-north-east of the application area (GIS Database).

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

Methodology 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 falls within the Great Sandy Desert Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) reports that approximately 100% of the pre-European vegetation remains within the Great Sandy Desert bioregion.

The vegetation within the application area is recorded as Beard vegetation association:

134: Mosaic - Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex on sandhills / Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills.

According to Shepherd (2007) approximately 100% of this Beard vegetation association remains in the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Great Sandy Desert	29,538,788	29,537,613	100	Least Concern	2.67
Beard vegetation associations - State					
134	26,026,863	26,024,371	100	Least Concern	3.3
Beard vegetation associations - Bioregion					
134	13,595,883	13,595,264	100	Least Concern	4.97

* Shepherd (2007)
** 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 (2007)
GIS Database:
- IBRA WA (regions – subregions)
- 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 not likely to be at variance to this Principle**
According to available GIS Databases, there are no permanent wetlands or watercourses within the application area, however one minor non-perennial watercourse occurs within the application area (GIS Database).

No significant surface drainage exists within the mine region and ephemeral drainage lines that do exist are generally poorly defined and only extend for short distances due to the sandy soils (Newcrest Mining Limited, 2010). Most drainage is by sheet flow over the surface, which rapidly dissipates into the sandy soils (Newcrest Mining Limited, 2010).

Given the size (18.5ha) and the nature of the proposed clearing, it is not likely that the clearing will significantly impact on any vegetation growing in association with a watercourse.

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

Methodology Newcrest Mining Limited (2010)
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 may be at variance to this Principle**
According to Newcrest Mining Limited (2010) only the sand dune areas within the application area are likely to be affected by erosion. It is proposed that bare sand will be stabilised using jute mesh to reduce erosion and encourage seed holding and germination within the jute mesh (Newcrest Mining Limited, 2010).

In the long term, rehabilitation will minimise the potential erosion risks associated with the clearing.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Newcrest Mining Limited (2010)

(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 closest conservation area is the Karlamilyi National Park located approximately 45 kilometres south-east of the application area (GIS Database). Given the distance to the nearest area of conservation significance, it is not likely that the proposed clearing will significantly impact on the environmental values of any conservation area.

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**
According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is Nullagine Water Reserve which is located approximately 215 kilometres west of the application area at its closest point (GIS Database). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the water quality of the Nullagine Water Reserve.

The application area is located within a *Rights in Water Irrigation Act 1914* Groundwater Management Area (GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

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

Methodology GIS Database:
- Public Drinking Water Source Areas (PDWSAs)
- RIWI Act, Groundwater Areas

(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

The climate of the application area is arid tropical with summer rainfall with monsoonal influences apparent in the north western sector of the region (CALM, 2002). The nearest weather station, Telfer Aero, reports an average annual rainfall of approximately 363 millimetres (BoM, 2010). The evaporation rates far exceed rainfall with an approximate annual evaporation rate of 3,800 millimetres (GIS Database). It is therefore unlikely that flooding will occur with normal seasonal rains. Flooding during monsoonal rain is common in the north western sector of the region, however the clearing of 18.5 hectares of native vegetation is not likely to significantly alter the intensity of flooding in the application area and surrounding areas.

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

Methodology BoM (2010)
CALM (2002)
GIS Database:
- Evaporation Isopleths

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

Comments

There is one Native Title Claim over the area under application (WC96/78). 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 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 purpose of works.

The clearing permit application was advertised on 29 November 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title NNTT

4. References

BoM (2010) BOM Website - Climate Averages by Number, Averages for TELFER AERO. www.bom.gov.au/climate/averages/tables/cw_007151.shtml (Accessed 14 December 2010).

Bennelongia Environmental Consultants (2010) Preliminary subterranean fauna sampling, O'Callaghans Deposit, Telfer, Prepared for Newcrest Mining Limited. Unpublished report. Bennelongia Pty Ltd, Western Australia.

CALM (Department of Conservation and Land Management) (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

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.

Newcrest Mining Limited (2010) Supporting Environmental Information for O'Callaghan's Borefield Clearing Permit Application. Newcrest Mining Limited, Western Australia.

Shepherd, D.P. (2007) 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.

Syrinx Environmental Pty Ltd (2007) Technical Report: Telfer Borefield Flora and Fauna Survey, prepared for Newcrest Mining Limited. Unpublished report. Syrinx Environmental Pty Ltd, 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.