Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7808/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Northern Star Resources Ltd**

1.3. Property details

Property: Mining Leases: 27/37, 27/92, 27/103, 27/123
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: Kanowna Belle TSF2 Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
300		Mechanical Removal	Mineral production and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 14 December 2017

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation of the application area is broadly mapped as the following Beard vegetation association: 20: Low woodland; mulga mixed with *Allocasuarina cristata* and Eucalyptus sp. (GIS Database).

A flora and vegetation survey was conducted over the application area, by Botanica Consulting on 5-6 September 2017. The following three vegetation associations were recorded within the application area (Botanica, 2017):

CLP-EW1: Mid woodland of *Eucalyptus salmonophloia* over low shrubland of *Acacia hemiteles* / *Eremophila scoparia* / *Maireana sedifolia* and open chenopod shrubland of *Atriplex vesicaria* on clay-loam plain.

CLP-EW2: Mid woodland of *Eucalyptus lesouefii* over low shrubland of *Maireana sedifolia* and open chenopod shrubland of *Atriplex vesicaria* on clay-loam plain.

OD-EW1: Mid open woodland of *Eucalyptus salmonophloia* over low shrubland of mixed Chenopods in open depression (Botanica, 2017).

Clearing Description

Kanowna Belle TSF2 Project
Northern Star Resources Limited proposes to clear up to 300 hectares of native vegetation within a boundary of approximately 377 hectares, for the purpose of mineral production and associated activities. The project is located approximately 20 kilometres northeast of Kalgoorlie, within the City of Kalgoorlie-Boulder.

Vegetation Condition

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

Comment

The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (2017). The proposed clearing is for the development of additional minesite infrastructure at the existing operational Kanowna Belle minesite, including a Tailings Storage Facility (TSF), powerlines, roads and topsoil stockpiles (Northern Star, 2017).

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 clearing permit application area is located within the Eastern Murchison subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Murchison Bioregion (GIS Database).

A Level 1 flora and vegetation survey was conducted by Botanica Consulting (Botanica) over the application area during September 2017 (Botanica, 2017). A total of 69 flora species, from 18 families and 33 genera were recorded within the application area (Botanica, 2017).

No Threatened flora, Priority flora, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the application area (GIS Database), and none were found during the flora and vegetation survey (Botanica, 2017).

Desktop surveys of available databases identified six Priority flora species and one Threatened flora species with the potential to occur within the survey area, based on known distributions (Botanica, 2017). Of these, three Priority flora species were considered the most likely to occur within the application area, based on habitat preferences, *Eremophila praecox* (P1), *Ptilotus chortophytus* (P1), *and Rhagodia* sp. Yeelirrie Station (P1) (Botanica, 2017). However none of these species were found during the on-site survey (Botanica, 2017).

The vegetation condition within the survey area was described as Good on the Keighery scale, with parts of the application area suffering disturbance from historical mining activities, and grazing activities (Botanica, 2017).

One weed species was recorded during the flora survey, *Salvia verbenaca* (Wild Sage). Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The vegetation associations, fauna habitats and landform types present within the application area, are well represented in surrounding areas (Botanica, 2017; GIS Database). The application area is unlikely to represent an area of higher biodiversity than surrounding areas, in either a local or regional context.

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

Methodology

Botanica (2017)

GIS Database:
- IBRA Australia
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered
- Threatened Fauna

(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 Level 1 fauna reconnaissance survey was conducted over the application area during September 2017 (Botanica, 2017). The fauna survey included opportunistic observations of fauna, and recording of secondary evidence such as tracks, scats, foraging evidence or calls (Botanica, 2017).

The fauna habitats within the survey area comprised a mosaic of clay-loam plains and open depressions (Botanica, 2017). The application area did not contain any locally restricted habitat types (Botanica, 2017).

Several fauna species (mostly birds) of conservation significance have the potential to occur within the application area based on previous records (Botanica, 2017). However, most fauna species occurring in the region tend to be wide ranging, and are unlikely to be specifically dependent on the habitats within the application area (Botanica, 2017; CALM, 2002). No species of conservation significance were recorded during the on-site survey (Botanica, 2017).

Malleefowl (*Leipoa ocellata*) (Vulnerable) previously inhabited much of the Murchison region, however their range and abundance is now greatly reduced. Database searches found previous records of Malleefowl within 10 kilometres of the application area (Botanica, 2017). However, no evidence of Malleefowl was found during the on-site survey, and Botanica (2017) considered that the application area was only marginally suitable for Malleefowl, due to the sparseness of the vegetation and lack of suitable leaf litter required for mound construction. Botanica (2017) concluded that, although Malleefowl may be an occasional transient visitor, the application area did not represent significant habitat for Malleefowl.

The landforms and habitat types found within the application area are relatively common and widespread in the region (Botanica, 2017; CALM, 2002; GIS Database). The vegetation proposed to be cleared is unlikely to represent significant habitat for fauna in either a local or regional context.

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

Methodology Botanica (2017)
CALM (2002)

GIS Database:
- Imagery
- Pre-European Vegetation
- Threatened Fauna

(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**
There are no known records of Threatened flora within the application area (GIS Database). Desktop surveys of available databases identified one Threatened flora species, *Gastrolobium graniticum*, with the potential to occur within the survey area, based on known distributions (Botanica, 2017). However Botanica (2017) reported that the application area was generally lacking in suitable habitat for this species and therefore considered that it was unlikely to occur. The on-site flora survey of the application area did not record any species of Threatened flora (Botanica, 2017).

The vegetation associations within the application area are common and widespread within the region (Botanica, 2017; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened (rare) flora.

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

Methodology Botanica (2017)

GIS Database:
- Pre-European Vegetation
- Threatened and Priority 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.

Comments **Proposal is not likely to be at variance to this Principle**
There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database).

A flora and vegetation survey of the application area did not identify any TECs (Botanica, 2017).

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

Methodology Botanica (2017)

GIS Database:
- Threatened and Priority Ecological Communities boundaries
- Threatened and Priority Ecological Communities 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 Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99% of the pre-European vegetation still exists in the IBRA Murchison Bioregion (Government of Western Australia, 2016).

The application area is broadly mapped as Beard vegetation association 20: Low woodland; mulga mixed with *Allocasuarina cristata* and Eucalyptus sp. (GIS Database). Approximately 99% of the pre-European extent of this vegetation association remains uncleared at both the state and bioregional level (Government of Western Australia, 2016).

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

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

Methodology Government of Western Australia (2016)

GIS Database:
- IBRA Australia
- 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 may be at variance to this Principle

There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Two minor drainage lines pass through the application area (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall (CALM, 2002).

Based on the above, the proposed clearing may be at variance to this Principle. However, these drainage lines have already been impacted by adjacent mining-related infrastructure, and any additional impacts to vegetation growing in association with these watercourses, is likely to be minimal.

Methodology CALM (2002)

GIS Database:
- Hydrography, Lakes
- 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

The proposed clearing area is mapped as occurring within the Gumland land system (GIS Database). Land systems of the area have been mapped and described by the Department of Agriculture and Food (DAFWA). The Gumland land system is described as level to gently inclined pedeplains with halophytic shrubs under eucalypt woodland (DAFWA, 2015). This land system may be susceptible to soil erosion where vegetation is cleared or protective stony mantles are disturbed, particularly within drainage areas (DAFWA, 2015).

Based on the above, the proposed clearing may be at variance to this Principle. Potential land degradation may be minimised by the implementation of a staged clearing condition.

Methodology DAFWA (2015)

GIS Database:
- Landsystem Rangelands
- Hydrography, linear
- Topographical Contours, Statewide

(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

There are no conservation areas within the application area. The nearest DBCA (formerly DPaW) managed land is a Timber Reserve which is located approximately 15 kilometres east-northeast of the application area, at its nearest point (GIS Database). The proposed clearing is unlikely to 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:
- DPaW 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

There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Two seasonal drainage lines pass through the application area (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water quality.

The proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

Methodology GIS Database:
- Hydrography, Lakes
- Hydrography, Linear
- Public Drinking Water Source 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 region is semi-arid, with a low average rainfall of approximately 200-300 millimetres per year (CALM, 2002).

There are no permanent watercourses or waterbodies within the application area (GIS Database). Two seasonal drainage lines pass through the application areas and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.

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

Methodology CALM (2002)

GIS Database:
- Hydrography, Lakes
- Hydrography, linear

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

Comments

The clearing permit application was advertised on 30 October 2017 by the Department of Mines, Industry Regulation and Safety (DMIRS) inviting submissions from the public. One submission was received in relation to this application, raising no concerns about the proposed clearing.

There are no registered Aboriginal Sites of Significance located within the application area (DPLH, 2017). 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.

There is one native title claim (WC2017/001) over the area under application (DPLH, 2017). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenements have 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*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology DPLH (2017)

4. References

Botanica (2017) Kanowna Belle Tailings Storage Facility / Mill Expansion Flora and Fauna Reconnaissance Survey. Report prepared for Northern Star Resources Limited, by Botanica Consulting, October 2017.

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

DAFWA (2015) Advice received in relation to Clearing Permit Application CPS 6603/1. Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia, 29 July 2015.

DPLH (2017) Aboriginal Heritage Enquiry System. Department of Planning, Lands and Heritage, Western Australia. http://maps.daa.wa.gov.au/AHIS/ (Accessed 5 December 2017).

Government of Western Australia (2016) 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2016. WA Department of Parks and Wildlife, Perth.

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

Northern Star (2017) Clearing Permit Supporting Document – Kanowna Belle TSF2. Northern Star Resources Limited, October 2017.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DBCA	Department of Biodiversity Conservation and Attractions, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DBCA and DWER)
DEE	Department of the Environment and Energy, Australian Government
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora
DoE	Department of the Environment, Australian Government (now DEE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DEE)
DWER	Department of Water and Environmental Regulation, Western Australia
EPA	Environmental Protection Authority, Western Australia
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
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2017) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
Published as Specially Protected under the *Wildlife Conservation Act 1950,* listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the *Wildlife Conservation Act 1950*.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the *Wildlife Conservation Act 1950*.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN **Endangered species**
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU **Vulnerable species**
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX **Presumed extinct species**
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA **Migratory birds protected under an international agreement**
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD **Conservation dependent fauna**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS **Other specially protected fauna**
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P **Priority species**
Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species:**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species:**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species:**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring:**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.