



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4279/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: BHP Billiton Worsley Alumina Pty Ltd

1.3. Property details

Property: Alumina Refinery (Worsley) Agreement Act 1973 (ML 258SA), Lease 3116/7574, Document I 150306 L, Lot 5314 on Deposited Plan 220209.

Local Government Authority: Shire of Collie

Colloquial name:

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 May 2011

2. Background

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2009):</p> <p>Beard Vegetation Association 3: Medium Forest; Jarrah - Marri.</p> <p>Mattiske (1999) conducted a flora and vegetation survey over the application area which identified the following six vegetation types (Mattiske Consulting, 1999):</p> <p>CW: Woodland to Open forest of <i>Eucalyptus patens</i> – <i>Corymbia calophylla</i> – <i>Banksia littoralis</i> with dense understorey of <i>Agonis linearifolia</i> and <i>Astartea fascicularis</i> on lower slopes and along creeklines and watercourses in broader valley systems..</p> <p>Q: Open forest of <i>Eucalyptus marginata</i> – <i>Corymbia calophylla</i> – <i>Eucalyptus patens</i> with dense understorey of <i>Trymalium floribundum</i>, <i>Acacia extensa</i> and <i>Phyllanthus calycinus</i> on lower steeper slopes with loam – gravelly soils.</p> <p>S: Open forest of <i>Eucalyptus marginata</i> – <i>Banksia grandis</i> – <i>Allocasuarina fraseriana</i> with scattered understorey, including <i>Adenanthos barbigier</i>, <i>Leucopogon capitellatus</i> and <i>Styphelia tenuiflora</i> on upper slopes with gravelly soils.</p> <p>ST: Open forest of <i>Eucalyptus marginata</i> – <i>Corymbia calophylla</i> with scattered understorey, including <i>Leucopogon capitellatus</i>, <i>Bossisea aquifolium</i> subsp.</p>	<p>BHP Billiton Worsley Alumina Pty Ltd proposes to clear up to 24.4 hectares of native vegetation to widen an existing haul road and establish additional stockpile areas. The proposed clearing is located within the existing BHP Billiton Worsley Alumina refinery lease area. The application area is located approximately 14 kilometres north-west of Collie (GIS Database).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p>	<p>The vegetation condition rating is derived from aerial imagery and a flora and vegetation survey conducted over the application area by Mattiske (1999). The application area is located within the existing BHP Billiton Worsley Alumina refinery lease area and adjacent to existing cleared areas utilised for refinery purposes.</p>

Ninox Wildlife Consulting (2001)
 Ninox Wildlife Consulting (2007)
 Shepherd (2009)
 GIS Database:
 - Declared Rare and Priority Flora List
 - Interim Biogeographic Regionalisation of Australia
 - Interim Biogeographic Regionalisation of Australia (subregions)
 - Collie Orthomosaic - Landgate 2008
 - Threatened Ecological Communities

(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 may be at variance to this Principle

Two fauna surveys have been conducted over the application area by Ninox Wildlife Consulting in 2001 and 2007. The baseline vertebrate fauna survey was conducted over four seasons during 2000 and 2001 within the refinery lease area. The baseline survey identified 59 species of native birds, 13 native mammals and 18 reptiles within the refinery lease area. Two fauna sampling sites during this survey were located in vegetation types associated with the application area (vegetation types ST and Q) (Mattiske, 1999).

A further assessment for the presence of the Western Ringtail Possum (*Pseudocheirus occidentalis* - Schedule 1, Vulnerable), was undertaken over three days in May 2007 (Ninox Wildlife Consulting, 2007). The 2007 survey for the Western Ringtail Possum did not identify evidence of this species however Red-tailed Black Cockatoos were observed utilising the survey area.

Based on these surveys 9 conservation significant species have the potential to occur within the refinery lease area (Ninox Wildlife Consulting, 2001 and 2007):

- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) - Schedule 1, Vulnerable;
- Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) - Schedule 1, Vulnerable;
- Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) - Schedule 1, Vulnerable;
- Water Rat (*Hydromys chrysogaster*) - Priority 4;
- Western Brush Wallaby (*Macropus irma*) - Priority 4;
- Southern Brown Bandicoot (Quenda) (*Isodon obesulus fusciventer*) - Priority 5;
- Peregrine Falcon (*Falco peregrines*) - Other Specially Protected Fauna;
- Rainbow Bee-eater (*Merops ornatus*) - Schedule 3, Migratory; and
- Fork-tailed Swift (*Apus pacificus*) - Schedule 3, Migratory.

The vegetation under application is unlikely to provide an ecological link or corridor for native fauna movement due to the adjacent BHP Worsley Alumina Refinery and the high level of existing disturbance in the area. The habitats associated with the application area are well represented within the Northern Jarrah Forest subregion. Ninox Wildlife Consulting (2007) has recommended that a dampland located at the south of the 2007 survey area be retained if possible. Diggings of the Quenda (*Isodon obesulus fusciventer* - Priority 5) were observed in this area however this dampland does not form part of the area proposed for clearing.

Ninox Wildlife Consulting (2001 and 2007) report observing several threatened Black-Cockatoo species utilising the refinery lease area for foraging habitat. Considering that the area applied to be cleared is predominantly Jarrah – Marri forest which has the potential to contain larger hollow forming habitat trees the area proposed to be cleared may provide suitable habitat for some conservation significant species however the implementation of a fauna relocation condition will reduce the impact of the clearing upon individual species that may be utilising these hollows.

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

Methodology Mattiske (1999)
 Ninox Wildlife Consulting (2001)
 Ninox Wildlife Consulting (2007)
 GIS Database:
 - Collie Orthomosaic - Landgate 2008

(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 is one species of declared rare flora (*Grevillea rara*) located within a 10 kilometre radius of the proposed clearing which occurs in similar vegetation and soil types to those of the application area. A detailed flora and vegetation survey undertaken by Mattiske in 1999 of the refinery lease area, however, did not identify this species.

Grevillea rara is currently known from six populations located in State Forest surrounding the Harris Dam, 8 kilometres east of the area applied to be cleared. The Department of Environment and Conservation's recovery

EPA (2000)
Shepherd (2009)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(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 is one minor perennial watercourse mapped approximately 100 metres northwest of the area under application (GIS Database). This water course feeds into the refinery freshwater lake which supplies water to the site for processing purposes. Water from this lake also feeds into the Augustus River (located 2 kilometres east of the application area) during overflow and when an obligatory summer flow is maintained (BHP Billiton Worsley Alumina Pty Ltd, 2011).

Mattiske (1999) has mapped vegetation types SW and CW within the application area which are growing in association with a watercourse. These vegetation types were mapped in the southwest corner of the application area covering approximately 3 hectares of the area proposed for clearing at the head of the watercourse which feeds into the refinery freshwater lake. Therefore, it is considered that the vegetation proposed to be cleared may include riparian vegetation.

The vegetation type CW occurs in the gullies and creek-beds of the western valley floors, which are dominated by loamy soils in the Darling Ranges. This vegetation type is well represented in the remainder of the refinery lease area and the within the conservation estate (Mattiske, 1999). The vegetation type SW appears to be reflecting a change in the local plant communities within the refinery lease area, as the moister indicator species occur in gravelly soils higher up in the landscape. Vegetation type SW is not well represented within the conservation estate however is well represented throughout the remainder of the refinery lease area (Mattiske, 1999).

These vegetation types form a small part of the application area and exist within a highly modified refinery environment. The removal of 3 hectares of these vegetation types within the refinery lease area is unlikely to have any significant environmental impacts.

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

Methodology BHP Billiton Worsley Alumina Pty Ltd (2011)
Mattiske (1999)
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

The BHP Worsley Alumina refinery lease area occurs on the lateritic capped archaean granite and metamorphic rocks of the Darling Plateau (CALM, 2002). A study of the landforms and soil units of the Darling System has been undertaken by Churchward and McArthur (1980). Two landforms and soil units are represented within the application area;

- Dwellingup – Gently undulating landscape with duricrust on ridges; sand and gravels in shallow depressions; and
- Yarragil – Valleys of the western part of the plateau; sandy gravels on the slopes; orange earth in swampy floors.

Groundwater within the application area has marginal salinity levels of between 500 to 1000 milligrams per litre (Total Dissolved Solids) (GIS Database). Given the size of the area to be cleared (24.4 hectares) the main land degradation risks associated with the removal of the vegetation within the area under application are considered to be water erosion.

The application area is located directly adjacent to the existing cleared areas of the BHP Worsley Alumina Refinery. BHP Billiton Worsley Alumina Pty Ltd have identified that drainage from the application area will be directed to a silt trap before feeding into a minor watercourse and the refinery freshwater lake.

The application area is to be cleared for the purpose of widening an existing haul road and the creation of stockpiles. Given the existing roadside and refinery infrastructure already in place to manage drainage it is unlikely that the proposed clearing will substantially increase the potential for water erosion and any potential water erosion risks are likely to be short term during the construction period. The implementation of a revegetation condition will minimise this impact in the long term.

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

Methodology BHP Billiton Worsley Alumina Pty Ltd (2011)
CALM (2002)

(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 vegetation proposed to be cleared is located approximately 100 metres upslope of one minor perennial watercourse (GIS Database). This water course feeds into the refinery freshwater lake which supplies water to the site for processing purposes. Water from this lake also feeds into the Augustus River (located 2 kilometres east of the application area) during overflow and when an obligatory summer flow is maintained (BHP Billiton Worsley Alumina Pty Ltd, 2011).

Given the above the clearing of 24.4 hectares of native vegetation within the refinery lease area is unlikely to cause, or exacerbate the incidence or intensity of flooding in this area.

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

Methodology BHP Billiton Worsley Alumina Pty Ltd (2011)
 GIS Database
 - Hydrography, linear

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments There is one Native Title Claim (WC98/58) 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 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 11 April 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to this application regarding aboriginal heritage issues. A written response was provided on the matters raised.

Methodology GIS Database
 - Aboriginal Sites of Significance
 - Native Title Claims

4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- BHP Billiton Worsley Alumina Pty Ltd (2011) Clearing Permit Application Supporting Documentation. January 2011.
- Churchward, H.M. and McArthur (1980) Landforms and Soils of the Darling System. In: *Atlas of Natural Resources, Darling System, Western Australia*. Perth, Pinjarra and Collie Sheets. Department of Conservation and Environment, Western Australia.
- Department of Environment and Conservation (2009) Rare *Grevillea (Grevillea rara)* Recovery Plan. Department of Environment and Conservation, Western Australia.
- 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.
- Department of Water (2011) DOW Advice for Clearing Permit Application CPS 4279/1. Email to Assessing Officer received 9/05/2011.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Glevan Consulting (2009) *Phytophthora cinnamomi* Occurrence Assessment Refinery Lease Area and Overland Bauxite Conveyor. Worsley Alumina Pty Ltd.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske (1999). Flora and Vegetation of Collie Refinery Lease Area, Prepared by Mattiske Consulting Pty Ltd, July 1999.
- Ninnox Wildlife Consulting (2001) The Vertebrate Fauna of the Refinery Lease Area and Mornington Mills Block. Prepared for Worsley Alumina Pty Ltd. December 2001.
- Ninnox Wildlife Consulting (2007) An Assessment of the Presence of the Western Ringtail Possum at the Worsley Alumina Pty Ltd Refinery near Collie Western Australia. Prepared for Worsley Alumina Pty Ltd. June 2007.

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.