



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1362/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP BILLITON IRON ORE PTY LTD

### 1.3. Property details

Property: ML 244SA (AML70/244)  
Local Government Area: Shire Of East Pilbara  
Colloquial name: ANFO Storage Facility and Borrow Pit Area

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
21		Mechanical Removal	Miscellaneous

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The area is broadly mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i>.</p> <p>Ecologia (2006) classified the vegetation within the 86 ha disturbance area into five types. These are described as:</p> <ol style="list-style-type: none"> <li>1. Low woodland dominated by <i>Acacia inaequilatera</i>, over patches of moderately dense <i>Acacia ancistrocarpa</i>, over <i>Triodia pungens</i> / <i>Triodia basedowii</i>. This vegetation type occurs on gently sloping undulating plains and lower hillslopes in the north western portion of the survey area and comprises about 25% of the overall area.</li> <li>2. Open low woodland of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>, over mixed <i>Acacia</i> species, over <i>Triodia wiseana</i> / <i>Triodia pungens</i>. This vegetation type forms about 20% of the area and occurs on lower to mid hillslopes, and the gravelly plain adjacent to these areas.</li> <li>3. Open, low woodland dominated by <i>Acacia aneura</i> var. <i>aneura</i> (Mulga) and <i>Corymbia hamersleyana</i>, over <i>Eucalyptus gamophylla</i> mallee, over mixed <i>Acacia</i> species, over</li> </ol>	<p>The area proposed to clear involves the construction of an Ammonium Nitrate and Fuel Oils (ANFO) Storage Facility and associated infrastructure. Twenty-one hectares of vegetation will be disturbed within an 86 hectare area for the construction of the ANFO Facility, its associated infrastructure, and borrow pits and storage areas. Areas which no longer need to be used will be rehabilitated progressively (BHPBIO, 2006). The area to be cleared comprises of: 6 ha for the ANFO Storage Facility construction envelope that falls out of the CPS 1118 area; 1 ha for a powerline and temporary construction facilities; 9 ha for borrow areas and haul roads; and 5 ha for topsoil and borrow stockpiling.</p>	<p>Pristine: No obvious signs of disturbance (Keighery 1994)</p> <p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>A baseline flora survey was conducted on the 9th January 2006 (Ecologia, 2006a) to cover the 10 ha area to the west of the Sewerage Treatment Plant. Subsequently, the proposed disturbance footprint was enlarged as a result of design changes and the addition of a new borrow area. Therefore a further 76.3 ha was surveyed by Ecologia on the 18th and 19th April 2006 (Ecologia, 2006b).</p> <p>No flora species listed under the Environmental Protection and Biodiversity Conservation Act 1999, or Declared Rare Flora or Priority Flora listed under the Wildlife Conservation Act 1950 were recorded within the 86 ha disturbance area of the proposed ANFO Storage Facility (Ecologia Environment, 2006).</p> <p>Of the approximately 86 ha surveyed during the field assessments, approximately 80% of the vegetation was considered in pristine condition, with no recorded weed populations and little evidence of degradation from mining or pastoral activities. However, approximately 20% of the vegetation in the area is in poor condition as it has either been ripped and rehabilitated, or has been impacted by invasive weeds such as Buffel grass and other weeds that may have been introduced by the activities of grazing animals (Ecologia, 2006).</p>

*Cenchrus ciliaris* (Buffel grass) and other species of grass. This vegetation type occurs on a gently sloping partially rehabilitated gravelly plain and comprises less than half of the site. The area was partially rehabilitated with Buffel grass, which is the dominant vegetation in parts. Bipinnate beggartick (*Bidens bipinnata*) also was recorded at this site.

4. Low woodland of *Corymbia aspera* and *Corymbia hamersleyana*, over *Eucalyptus gamophylla* mallee, over mixed *Acacia* and *Senna* species, over mixed tussock grasses and *Triodia pungens*. This vegetation type occurs on the low, flat loamy to clayey soils immediately north of the existing sewerage treatment plant, in the far eastern part of the area applied to clear. Buffel grass was recorded at this site also.

5. Low woodland of *Acacia aneura* var. *conifera* / *Acacia aneura* var. *aneura* (Mulga) and *Grevillea berryana*, over *Eremophila latrobei* subsp. *latrobei* and *Senna* species, over *Triodia wiseana*. This vegetation type occurred on the narrow, stoney hill upperslope within the area applied to clear. The vegetation was in pristine condition and no disturbance or weeds were recorded in the area consisting of this vegetation type.

### 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 proposed clearing is for a maximum of 21 hectares within an 86 hectare disturbance boundary, for the construction of an Ammonium Nitrate and Fuel Oils (ANFO) Storage Facility and its associated infrastructure, haul roads, borrow areas, and topsoil and borrow stockpile areas.

The area proposed to clear is situated within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region (GIS Database). High species and ecosystem diversity within the PIL3 Hamersley IBRA subregion are described in CALM (2002) as: *Acacia*, *Triodia*, *Ptilotus*, *Corymbia*, and *Sida* species within the Hamersley Range, and the stygofauna crustacean fauna within calcrete environments. Flora surveys of the application area conducted by Ecologia (2006a; 2006b) recorded 30 families, 58 genera and 122 taxa. The most species rich families were Mimosaceae (22 taxa) and Poaceae (23 taxa). The most species rich genera were *Acacia* (22 taxa), *Senna* (8 taxa) and *Ptilotus* (7 taxa), while 14 families and 39 genera were represented by a single taxon (Ecologia, 2006). The flora of the area proposed to clear consists of five main vegetation associations, all of which are well represented both within the immediate vicinity of the project area and in the Newman and eastern Pilbara regions (Ecologia, 2006b). No vegetation units of restricted distribution and no species of Rare or Priority flora are known to occur within the area applied to clear (Ecologia, 2006b). Some flora and fauna of conservation significance are known to occur within the local area (GIS Database; Ecologia, 2006), however these species have not been recorded within the application area and are not expected to be impacted as a consequence of the proposed clearing.

The proposed clearing envelope of 21 hectares is not likely to be of higher biodiversity than the surrounding areas, and the proposed clearing is unlikely to have any significant impact on the biodiversity of the region. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2006).  
CALM (2002).

Ecologia (2006a).  
Ecologia (2006b).  
GIS Database:  
Clearing Regulations - Environmentally Sensitive Areas - DoE 30/05/05.  
Clearing Regulations - Schedule One Areas - DoE 10/03/05.  
IBRA Subregions - EA 18/10/2000.  
Pre-European Vegetation - DA 01/01

**(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**

Two fauna surveys of the general Mt Whaleback area (which included the proposed ANFO area), were conducted by Ecologia Environmental Consultants in August and November 1997. No Rare, Schedule or Priority fauna species were recorded or collected from the ANFO Storage Facility study area (Ecologia, 1997a &b).

Species known to potentially occur in the local area based on the CALM Threatened and Priority Fauna database include the: Australian Bustard, *Ardeotis australis* (P4); Grey Falcon, *Falco hypoleucos* (P4); Major Mitchell's Cockatoo or Pink Cockatoo, *Cacatua leadbeateri* (S4), Peregrine Falcon, *Falco peregrinus* (VU); Western Pebble-mound Mouse, *Pseudomys chapmani* (P4); and Woma or Ramsay's Python, *Aspidites ramsayi* (S4) (CALM, 2005). These are wide-ranging species and the five vegetation types described within the proposed disturbance area are common and well represented within the Newman and eastern Pilbara areas (Ecologia, 2006). Therefore, the proposed clearing is unlikely to have any significant impact on the habitat of these species.

Aerial photography over the application area show denser vegetation associated with a watercourse in the northern section of the 86 hectare disturbance boundary. The Department of Environment and Conservation (DEC) (2006) advise that this area is likely to contain mature trees such as *Eucalyptus leucophloia*. There is also an area of denser vegetation on the south facing slopes in the south western corner of the disturbance boundary. DEC (2006) consider that both these areas are likely to contain good fauna habitat and should be retained. BHPBIO (2006) advise that these areas will be protected by a riparian buffer zone. Furthermore, a condition has been placed on the clearing permit to prohibit any clearing within these two areas of denser vegetation.

BHPBIO have specific management procedures for fauna in the Mt Whaleback and Orebody 29/30/35 Environmental Management Plan (EMP) (BHPBIO, 2001) aimed at minimising the impacts on fauna. After examining the supporting documentation, DEC database information, and Regional DEC advice, the Department of Environment and Conservation (DEC) (2006a) advised that it is unlikely that this proposal would be at variance to this principle and supported the condition placed on the permit. The proposed clearing of 21 hectares is not likely to have an impact on any significant habitat for native fauna. The proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2001).  
BHPBIO (2006).  
CALM (2005).  
DEC (2006).  
Ecologia (1997a & b).  
Ecologia (2006).  
GIS Database: CALM Threatened Fauna - CALM (30/09/2005).

**(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**

Two flora surveys which together covered the 86 hectare disturbance area were undertaken by Ecologia Environmental Consultants in January and April 2006. No Declared Rare (DRF) or Priority flora species listed under the Wildlife Conservation Act 1950 or flora listed under the Environment Protection and Biodiversity Conservation Act 1999 were recorded (Ecologia, 2006).

At present 90 Priority taxa are known to occur within the Pilbara botanical region (Ecologia, 2006). Based on known habitat preferences and currently recorded distributions within 200 km of the project area (Atkins, 2005), it is considered that two taxa of DRF and 56 taxa of Priority flora could potentially occur within the vicinity of the 86 hectare surveyed area (Ecologia, 2006; GIS Database). According to the CALM DeFL Database, there are six records of the DRF species *Lepidium catapycnon* within the vicinity of the north-west corner of Mt Whaleback Mining Lease ML244SA. The closest record of this species is approximately 6.8 km west of the area applied to clear (GIS Database). Each occurrence of *Lepidium catapycnon* is on Beard Vegetation Association 82, the same vegetation association as the area applied to clear (GIS Database). *Lepidium catapycnon* flowers from August to January (can be dependent on rainfall) and typically grows on steep stony slopes, in skeletal red brown gritty soil, with an overstorey of snappy gum (*Eucalyptus leucophloia*) (DEC, 2006a). After examining the application and supporting documentation, DEC provided the following comments

regarding this species; three of the known populations of Hamersley *Lepidium* are on or adjacent to mineral exploration tracks which are frequently graded. Such disturbance promotes the proliferation of seedlings although many wither and die during the Pilbara's extreme summers (DEC, 2006a). Given these habitat preferences, DEC (2006a) stated that the area proposed to be cleared may be suitable for this species, particularly where there is 'Open low woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, over mixed *Acacia* species, over *Triodia wiseana* / *Triodia pungens*'. This vegetation type covers approximately 20% of the application area, and occurs on lower to mid hillslopes, and the gravelly plain adjacent to these areas (Ecologia, 2006).

In response to DEC's comments, BHPBIO (2006) advised that although no species of *Lepidium catapycnon* were discovered during the two flora surveys conducted in 2006, the botanists from Ecologia Environment were aware of possible occurrence of the plant within the area. The primary botanist involved has undertaken numerous flora surveys in the Pilbara and has identified *Lepidium catapycnon* in the past. The botanist is experienced with the plant in both its flowering and vegetative (non-flowering) states, and did not record any specimens within the area during the two surveys (BHPBIO, 2006). Therefore it is unlikely that *Lepidium catapycnon* occurs within the 86 hectare disturbance area, and it is not likely to be impacted by the proposed clearing.

The CALM databases have no records of any other populations of known DRF or Priority flora within a 50km radius of the area applied to clear (GIS Database). The proposed clearing is located within vegetation types typical of the region, that are well represented both within the immediate vicinity of Newman and throughout the eastern Pilbara (Ecologia, 2006). Given that no restricted vegetation communities, DRF or Priority Flora were recorded, it is unlikely that the native vegetation within the proposed clearing area would be necessary for the continued existence of rare flora. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Atkins (2005).  
BHPBIO (2006).  
DEC (2006a).  
Ecologia (2006).  
GIS Database:  
Declared Rare and Priority List - CALM 01/07/05.  
Pre-European Vegetation - DA 01/01

**(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 (TEC's) within the area applied to clear (GIS Database). According to the surveys conducted by Ecologia Environmental Consultants (1997a; 1997b; 2006), it is unlikely that there are any TEC's within the vicinity of the area to be cleared. The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 12 km east/northeast of the area proposed to clear (GIS Database). Groundwater drawdown is listed as a threatening process for the Ethel Gorge stygofauna (CALM, 2002); however the proposed clearing is not expected to have any effect on groundwater levels. Given the distance, it is unlikely that the vegetation in the proposed clearing area is necessary for the maintenance of this TEC. Therefore the proposal is not likely to be at variance to this principle.

**Methodology** CALM (2002).  
Ecologia (1997a).  
Ecologia (1997b).  
Ecologia (2006).  
GIS Database: Threatened Ecological Community Database - CALM 12/4/05.

**(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 IBRA Bioregion and the Shire of East Pilbara (GIS Database). Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in the IBRA Pilbara Bioregion, with approximately 6.3% in reserves. The vegetation in the application area is recorded as Beard Vegetation Association 82: hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database).

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	% in Reserves/ CALM managed land
IBRA Bioregion - Pilbara	17,804,163*	17,794,650*	99.9%	Least concern	6.3%
Shire of East Pilbara	No information available				
Beard vegetation association - 82	2,565,929	2,565,929	~100%	Least concern	10.2%

\* Shepherd et al. (2001)

\*\* Department of Natural Resources and Environment (2002)

The area proposed to clear does not represent a significant remnant of native vegetation. The proposal is not likely to be at variance to this principle.

**Methodology** Department of Natural Resources and Environment (2002).  
GIS Database:  
IBRA Subregions - EA 18/10/2000.  
Pre-European Vegetation - DA 01/01.  
Shepherd et al. (2001)

**(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**

There are no permanent watercourses or wetlands within or associated with the area applied to clear (GIS Database). Creeks in the surrounding areas are dry for most of the year, only flowing briefly, immediately after significant rainfall. Two intermittent seasonal drainage lines are located in the eastern end and western end of the proposed area to be cleared, orientated in a north-south direction (BHPBIO, 2006). A minor non-perennial creekline dissects the northern section of the disturbance boundary. Aerial photography show denser vegetation associated with this creekline towards the western area of the disturbance boundary. According to DEC (2006a) this area is likely to contain mature trees such as *Eucalyptus leucophloia*, and provide good fauna habitat. Also, on the south facing slopes in the south west corner of the disturbance boundary is an area of denser vegetation, however this area is not associated with a watercourse. A condition has been set on this permit to prohibit any clearing within these patches of denser vegetation. BHPBIO (2006) have agreed to avoid these areas and furthermore, are committed to preserving stands of vegetation and mature trees wherever possible.

All works by BHPBIO will maintain a minimum setback of 50 m from drainage lines for disturbances unless otherwise approved (BHPBIO, 2005a). The proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2005a).  
BHPBIO (2006).  
Ecologia (2006).  
GIS Database:  
Linear Hydrography, (hierarchy) - DoE 13/04/2005.  
Topographic Contours, Statewide - DPLA 12/09/02

**(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**

There are no recorded acid sulphate soils in the area and clearing is not likely to result in an increased risk of salinity (Ecologia, 2006). The area proposed to clear has been mapped by the Department of Agriculture and Food (DAFWA) as comprising of units of the McKay and Elimunna land systems (DAFWA, 2006). According to DAFWA (2006) the bulk of the area to be cleared occurs on the Elimunna stony plain land unit, while the haul road is likely to be constructed on the stony plain land unit of the McKay land system. It is likely that red brown clay soils will be cleared for the ANFO Storage Facility and red duplex or loamy soils will be encountered on the haul road route. Under normal land use these soils are not regarded as being particularly prone to soil erosion. However, unless measures are taken to control surface run off during clearing and development, soil erosion is likely to occur (associated with high intensity storm water) (DAFWA, 2006). Therefore, DAFWA (2006) conclude that this proposal may be at variance with principle (g) for soil erosion. The proponent has advised that appropriate measures will be enforced by BHPBIO in order to control surface runoff and reduce the risk of soil erosion as per the PP-13-100 Minimum Environmental Standards for Construction Projects (BHPBIO, 2005a). All works will maintain a minimum setback of 50 m from drainage lines for disturbances unless otherwise approved. Furthermore, where the potential for erosion is high, BHPBIO (2006) will use the appropriate methods for erosion control such as rip rap rock protection and reno mattresses.

No Declared Weeds listed under the Agriculture and Related Resources Protection Act 1976 were recorded within the area proposed to clear. However three environmental weeds were recorded within the survey area; Kapok bush (*Aerva javanica*), Bipinnate Beggartick (*Bidens bipinnata*) and Buffel grass (*Cenchrus ciliaris*). Only small and localised weed populations of *Bideans bipinnata* and *Aerva javanica* were recorded, while relatively dense populations of *Cenchrus ciliaris* were recorded at some sites. Of the 86 hectares surveyed by Ecologia approximately 80% of the vegetation was considered in pristine condition, with no recorded weed populations and little evidence of degradation from mining or pastoral activities. Only 20% of the vegetation in the area was considered in poor condition as it had either been ripped and rehabilitated, or impacted by invasive weeds. Disturbance to native vegetation during the clearing and construction of the Facility may enable weed species to colonise newly cleared areas. It is recommended that weed hygiene procedures are

implemented to prevent the further spread of weeds. BHP Billiton have a set of requirements for weed management in project areas as described in the Minimum Environmental Standards for Construction Contracts (BHPBIO, 2005a).

Progressive rehabilitation of disturbed areas will be carried out to stabilise short-term impacts such as dust generation and erosion and to return areas to pre-disturbance status. BHPBIO (2006) have committed to progressively rehabilitate cleared areas outside the fenced Facility to further minimise any land degradation. However, areas within the fencing of the Facility must be kept clear due to the DoCEP 'Storage and Handling of Dangerous Goods Code of practice (March 2006)'. Borrow pit areas will be rehabilitated before new borrow areas are excavated. Each pit will be no larger than one hectare and where a series of pits are established, each pit will be separated by no less than a 20 metre buffer zone of undisturbed vegetation (BHPBIO, 2006).

Provided appropriate erosion control measures are implemented, the proposed clearing is not likely to cause appreciable land degradation. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2005a).  
BHPBIO (2006).  
DAFWA (2006).  
Ecologia (2006).  
GIS Database:  
Hydrography, linear - DoE 01/02/04.  
Soils, Statewide - DA 11/99.  
Topographic Contours, Statewide - DPLA 12/09/02.  
Van Vreeswyk (2004).

**(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 in the vicinity of the application area (GIS Database). The nearest CALM managed lands are the Collier National Park, approximately 120km south/southwest of the application area and the Karijini National Park, approximately 120km northwest of the application area (GIS Database). Given the distance of the proposed clearing area from these conservation reserves, the proposal is not likely to be at variance to this principle.

**Methodology** GIS Database: CALM Managed Lands and Water - CALM 1/07/05.

**(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 proposed area to clear is located within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). DoW has assessed the proposal and is satisfied that there will be minimal risk to the Newman groundwater source (DoW, 2006). Groundwater is monitored within the PDWSA as a commitment within the Newman GWL Operating Strategy (DoW, 2006).

The area proposed to clear is not associated with any permanent watercourses or waterbodies however minor, seasonal drainage lines are featured throughout the 86 ha disturbance area (GIS Database). Surface drainage and water control structures will be incorporated into the proposed works to minimise disturbance to natural surface water drainage and minimise water erosion (BHPBIO, 2005; 2006). The proposed clearing of 21 hectares is not likely to cause deterioration in the quality of any surface or underground water. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2006).  
DoW (2006).  
GIS Database:  
Groundwater provinces - WRC 98.  
Groundwater Salinity, Statewide - 22/02/00.  
Hydrography, linear - DoE 01/02/04.  
PDWSA Protection Zones - DoE 7/01/04.  
Public Drinking Water Source Areas (PDWSAs) - DoE 28/04/05.  
Topographic Contours, Statewide - DOLA 12/09/02.

**(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 proposed clearing area is situated within the Pilbara region. The Pilbara experiences an arid-tropical climate, characterised by high temperatures, low and variable rainfall and high evaporation (Pilbara Development Commission, 2005; BHPBIO, 2006). Annual evaporation exceeds the annual rainfall by as much

as 2500 mm per year (BHPBIO, 2006). The region is prone to seasonal cyclones and natural flooding may occur occasionally during the wet season (November to March).

The proposed clearing area is not associated with any permanent watercourses or waterbodies (GIS Database). The event of flooding is only likely as a result of cyclones, in which case the severity of flooding is not likely to be heavily influenced by the amount of vegetation clearing proposed under this application. Therefore, the removal of 21 hectares of vegetation is not likely to cause or exacerbate the incidence or intensity of flooding.

**Methodology** BHPBIO (2006)  
 GIS Database:  
 Evaporation Isopleths - BOM (09/1998).  
 Mean annual rainfall surface (1975-2003) - DoE 09/05.  
 Topographic Contours, Statewide - DOLA 12/09/02  
 Pilbara Development Commission (2005).

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

**Comments**

The clearing application falls wholly within a Public Drinking Water Source Area (PDWSA), and was referred to the Department of Water (DoW) requesting advice on whether referral to the Environmental Protection Authority (EPA) was required. Although it is within the Newman PDWSA the proposed use is comparable / compatible with current land uses within the area. Groundwater is monitored within the PDWSA as a commitment within the Newman GWL Operating Strategy (DoW, 2006). DoW had no objection to the clearing permit and saw no reason to refer the proposal to the EPA.

There is a native title claim (WC99/004) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the Nyiyaparli claimant group. However, the mining tenement 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.

The proposed Fuel Storage Facility and associated works are not a prescribed activity under the Environmental Protection Act 1986 and therefore does not require a works approval or to be licensed (DEC, 2006b).

BHP Billiton Iron Ore Pty Ltd Mount Newman AML70/244 has five current groundwater licences GWL65148, GWL65210, GWL74556, GWL158381, and GWL160437 valid until 31/12/2008 for the purposes of dewatering, dust suppression, mineral ore processing and potable water purposes, granted in accordance with the Rights in Water and Irrigation Act 1914. The licence will not need to be amended to take into account the clearing application (DEC, 2006b).

**Methodology** DEC (2006b).  
 DoW (2006).  
 GIS Database:  
 Aboriginal Sites of Significance - DIA 04/07/02.  
 Native Title Claims - DLI 19/12/04.

**4. Assessor's recommendations**

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Miscellaneous	Mechanical Removal	21	Grant	<p>The clearing principles have been addressed and the proposed clearing is not likely to be at variance with principles a, b, c, d, f, g, h, i and j.</p> <p>The proposed clearing is not at variance to principle e.</p> <p>Within the 86 ha disturbance boundary are two areas of denser vegetation, one associated with an intermittent creekline north of the proposed ANFO Storage Facility and the other to the south of the facility, on top of a hill. The Department of Environment and Conservation (DEC) considered that these areas may contain good fauna habitat (referred to in principle b and f) and should be retained. Given that BHPBIO have the flexibility to clear 21 ha anywhere within the 86 ha disturbance boundary, it was considered necessary for a condition to prohibit any clearing within those areas. DEC support the following condition that clearing should not be undertaken within denser vegetation defined by the areas cross hatched red on Plan 1362/1.</p> <p>The Assessing Officer recommends that the permit be granted subject to the following condition.</p> <p>1) The Permit Holder must not clear native vegetation within the areas cross hatched red on Plan 1362/1.</p>

## 5. References

- Atkins, K.J. (2005) Declared Rare and Priority Flora List. Department of Conservation and Land Management, Perth.
- BHPBIO (2001) Mt Whaleback and Orebody 29/30/35 Environmental Management Plan (June 2001). Prepared for BHPBIO.
- BHPBIO (2005) Borrow Pit Management Manual (MAN-ENV-LAND NW-002). Prepared by BHP Billiton Iron Ore.
- BHPBIO (2006) Newman Hub Ammonium Nitrate (AN) Storage Facility. Amendment to Clearing Permit CPS 1362 Supporting Documentation, July 2006.
- CALM (2005). CALM Database; Records of Threatened and Priority Fauna in the Newman area. CALM, Western Australia.
- DAFWA (2006) Land Degradation Assessment Report (CPS 1362). Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia.
- DEC (2006a) Land clearing proposal advice. Advice to Erin D'Raine, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Clearing Assessment Unit, Department of Environment and Conservation, Perth, Western Australia.
- DEC (2006b) Water Allocation/Licence Advice. Department of Environment, Western Australia.
- 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.
- DoW (2006) EPA Referral Advice regarding PDWSA area. Department of Water, Western Australia.
- Ecologia (2006a) Newman Ammonium Nitrate Storage Facility Conservation Significant Flora Survey (January 2006). Unpublished report for BHPBIO.
- Ecologia (2006b) Newman Ammonium Nitrate Storage Facility - Phase 2: Conservation Significant Flora Survey (January 2006). Unpublished report for BHPBIO.
- Ecologia Environmental Consultants (1997a) Mt Whaleback Fauna Monitoring Survey Summary Report (August 1997). Unpublished Report for BHPBIO.
- Ecologia Environmental Consultants (1997b) Mt Whaleback Fauna Monitoring Programme Phase 1: Winter 1997 (November 1997). Unpublished report for BHPBIO.
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- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- 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.

## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### 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.