



1. Application details

1.1. Permit application details

Permit application No.: 782/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Traka Resources Limited

1.3. Property details

Property: E74/73
E74/152
E74/144
E74/176
E74/209
E74/219
E74/272
E74/291
M74/82
M74/83
M74/84
M74/85
M74/105
P74/218
P74/252
P74/211
P74/212
P74/206

Local Government Area: Shire Of Lake Grace & Shire Of Ravensthorpe
Colloquial name: Ravensthorpe Project

1.4. Application

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

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
Beard vegetation association 47: Shrublands; Tallerack mallee-heath.	The area to be cleared is 8.14 ha out of a total application area of approximately 46,400 ha. The purpose of clearing will be for access to undertake exploration drilling (Traka Resources, 2005a). Approximately 62% (29,000 ha) of the area under application is cleared farmland, and an extensive network of gridlines, tracks and fences allow good access to the areas for exploration (Traka Resources, 2005). A large cleared firebreak runs through a portion of the tenements.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Both of the areas surveyed in 1999 and 2004 are within the Ravensthorpe Ranges Area (Red Book Area 3.8), a majority of which is on the Register of National Estate. The areas surveyed represent approximately 2,020 ha or 11% of the total vegetated area within the area under application (GIS Database). These surveys, combined with Beard's broad scale vegetation mapping give a representative indication of the vegetation of the application area.
Beard vegetation association 511 (majority is cleared farmland in the area): Medium woodland; Salmon Gum & Morrel.			
Beard vegetation association 519: Shrublands; mallee scrub, <i>Eucalyptus eremophila</i> .			The excellent vegetation condition applies only to vegetated areas, with cleared farmland having a completely degraded condition. The condition has been determined through consideration of the vegetation types and flora species reported in the flora surveys, in combination with a study of historical aerial photography of the area under
Beard vegetation	Two flora surveys have been		

association 934:
Shrublands; mallee scrub,
Eucalyptus platypus (was
E. nufans).

Beard vegetation
association 691:
Shrublands; *Dryandra*
quercifolia & *Eucalyptus*
spp. thicket.

Beard vegetation
association 142: Medium
woodland; York Gum &
Salmon Gum.

Beard vegetation
association 931: Medium
woodland; Yate.

Beard vegetation
association 352 (majority is
cleared farmland in the
area); Medium woodland;
York Gum.

Beard vegetation
association 516:
Shrublands; mallee scrub,
Black Marlock (Hopkins et
al., 2001; Shepherd et al.,
2001).

completed within native
vegetation on two tenements in
the application area:

- The first was conducted from
the 14 to 19 February 1999 on
E74/152 at the northern extremity
of the Ravensthorpe Range
(Curtin Consultancy Services,
1999);

- The second was conducted on
the 16 November 2004 on a
portion of E74/144 (135ha)
adjacent to the Jerdacuttup River
(Craig, 2004).

Vegetation units mapped within
E74/152 were:

1. Shrub Mallee over *Melaleuca*
spp. Scrub;
2. *Eucalyptus platypus* Low
Forest;
3. *E. tetragona* Very Open Shrub
Mallee over Low Heath;
4. *E. tetragona/ E falcata* Open
Shrub Mallee over Thicket;
5. *E. salubris/ E. flocktoniae* Low
Woodland over *Melaleuca spp.*
Scrub;
6. *Halosarcia* Dwarf Scrub.
Saltlake feature; and
7. *E. indurata/ E. annulata* Low
Forest.

Vegetation types identified within
E74/144 were:

1. *Eucalyptus annulata* woodland
with a sparse understorey in the
drainage lines;
2. Woodland dominated by *E.*
longicornis ssp corvine, *E.*
indurata and *E. brachycalyx* with
a mid-dense shrub understorey;
3. Open mallee (*E. flocktoniae*
and *E. uncinata*) and dense
shrubs;
4. *Proteaceous* and *myrtaceous*
thickets;
5. *E. gardneri ssp*
ravensthorpensis woodland with
a sparse to mid-dense
understorey of low shrubs;
6. *E. megacornuta* woodland with
a shrub understorey; and
7. Grasses and rushes, including
Spartochloa scirpoidea and
Gahnia ancistrophylla.

Traka Resources (2005).

Traka Resources (2005a).

Craig (2004).

Curtin Consultancy Services
(1999).

application. Fire, in particular wild fire, is the major
factor resulting in vegetation disturbance. Wildfires
occurred in January 1991 and 1996, and affected a
number of the described vegetation units (Curtin
Consultancy Services, 1999). Aerial photography
suggests that a significant area of vegetation to the
east and north of the application area was burnt
between 2002 and 2004 (GIS databases).

Craig (2004).

Curtin Consultancy Services (1999).

GIS databases:

Western Australia TM5 50m 543 - AGO 1972.

Western Australia TM5 50m 543 AGO- 80.

Western Australia TM5 25m 543 - AGO 89.

Western Australia TM5 100m 147 - DOLA 94.

Western Australia ETM 25m 321 - GA 99.

Western Australia ETM 25m 543 - AGO 02.

Western Australia ETM 25m 543 - AGO 04.

System 1 to 5 and 7 to 12 Areas - DEP 06/95.

Register of National Estate - EA 28/01/03.

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 may be at variance to this Principle

The vegetation of the application area has a high level of biodiversity, as indicated in the commentary on the 'Ravensthorpe Range Area in Conservation Reserves in Western Australia' (Conservation Through Reserves Committee, 1974). It is due to this botanical diversity that the Ravensthorpe Ranges Area (Red Book Area 3.8)

has been placed on the Register of National Estate (Department of the Environment and Heritage, 2005).

The flora of the Ravensthorpe Ranges Area is "very rich and contains many species not known from the surrounding country" (p 3-26, Conservation Through Reserves Committee, 1974). A number of species are endemic, and others are common in the Range, but rare elsewhere. The area is a focal point for species of Eucalyptus, with over 20 taxa occurring in the area. Many rare species including Warted Yate, Desmond Mallee, *Beaufortia orbifolia*, *Scaevola myrtifolia* and *Hakea verrucosa* occur in the Ravensthorpe Range Area, as well as many orchids (Department of the Environment and Heritage, 2005).

The flora surveys which have been conducted over approximately 11% of the vegetated area under the application indicate a high level of biodiversity in the vegetation types, units and taxa present (Curtin Consultancy Services, 1999; Craig, 2004). More than seven vegetation types were described for each of the surveys, and these were distinct for each of the tenements surveyed. Furthermore, the survey conducted in February 1999 within E74/152 identified 178 species of flowering plants from 81 genera and 37 families within the survey area.

The vegetation condition is excellent as determined from the descriptions provided in the flora surveys and aerial photography. The major threat to the condition of the vegetation is wildfire, which has occurred over parts of the application area in the last 15 years.

In the context of the current application, the proposal may be at variance to this principle because of the floral diversity. The area has high species richness, and at least 20 Priority species and one Declared Rare Flora species are known to occur in the application area (GIS database; Curtin Consultancy Services, 1999; Craig, 2004). However, considering the relatively small area to be cleared, and the dispersed nature of the clearing, it is not likely to compromise the diversity of the vegetation in the application area. A total of 8.14 ha (0.04%) of native vegetation out of approximately 17,400 ha of native vegetation within the application area will be cleared for exploration activities. Therefore, whilst the vegetation within the application area is of high biological diversity, the area to be cleared is small and therefore the impacts on the diversity of the vegetation are very low.

Management strategies identified by the operator to minimise the impact of exploration activities on the diversity of the vegetation are (Traka Resources, 2005) :

- Clearing by raised blade or hand will only be used during exploration;
- Disturbance to vegetation is kept to a minimum by use of existing tracks and infrastructure ie. firebreaks.

CALM (2005) recommends that botanical survey reports be prepared for each proposed exploration area which clearly detail the flora values along each linear transect intended to be cleared. In addition, CALM advise that these surveys need to be undertaken in Spring or thereabouts to ensure that the majority of flora is in flower. Surveys outside of the Spring flowering season are not acceptable in these high value landscapes and will not receive support for approval.

Furthermore, CALM advised that exploration should not be allowed to proceed in areas outside of the boundaries of the Ravensthorpe Range Area (an Environmentally Sensitive Area), if these remaining areas include CALM Proposed Nature Reserves (CALM, 2005a; CALM, 2005b). In cases such as these, CALM requests that adequate surveys are undertaken and made available to CALM Ravensthorpe for processing and advice. A condition has been placed on this permit to ensure flora surveys and management are conducted over CALM Proposed Nature Reserves and other tracts of native vegetation, and approval for these flora surveys and management plans is obtained prior to any clearing taking place at these locations. Declared Rare Flora shall be avoided and a buffer set around these populations.

DoIR is required to consult with CALM regarding the management of Declared Rare and Priority Flora for mining activities according to the *'Memorandum of Understanding between the Department of Industry and Resources and the Environmental Protection Authority in relation to the referral of Onshore Mineral Exploration and Mining Development Proposals'* (MoU, 2004).

Methodology Conservation Through Reserves Committee (1974).
Craig (2004).
Curtin Consultancy Services (1999).
Department of the Environment and Heritage (2005).
Traka Resources (2005).
CALM (2005).
CALM (2005a).
CALM (2005b). Senior Technical Officer, (pers comm, 23/11/05) ref: 477.KF
MoU (2004).
GIS databases:
System 1 to 5 and 7 to 12 Areas - DEP 06/95
Register of National Estate - EA 28/01/03
Declared Rare and Priority Flora List - CALM 01/07/05

(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

The area to be cleared is 8.14 ha within a total vegetated area of 17,400 ha across the area under application. As this clearing is for exploration purposes and will be widely dispersed throughout the area covered by native vegetation, it is unlikely to compromise the whole or a part of, or be necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.

Vegetated parts of the study area are ecologically important as they are part of a narrow corridor which links the Fitzgerald River National Park to the expansive crown lands of the interior (Craig, 2004). The corridor facilitates movement of larger fauna between these two land systems and is 6 km wide at its narrowest point (Curtin Consultancy Services, 1999). However, as the 8.14 ha of clearing will be widely dispersed over the vegetated area, and rehabilitation of cleared vegetation will be undertaken progressively, it is unlikely that the clearing will impede the use of this corridor by fauna.

Management strategies identified by the operator to minimise the impact of exploration activities on habitat which may be significant for fauna indigenous to Western Australia are (Traka Resources, 2005):

- Disturbance of the bush is kept to a minimum by use of existing tracks and infrastructure;
- All drillholes are capped to ensure no fauna is trapped;
- Any swamps are ramped to allow animals to get out.

In consideration of the above factors, it is unlikely that the proposed clearing is at variance to this principle.

Methodology Craig (2004).
Curtin Consultancy Services (1999).
Traka Resources (2005).

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

Comments Proposal is at variance to this Principle

The Declared Rare Flora (DRF) species *Daviesia megacalyx* is recorded in CALM's databases as being present within the application area, and was identified during the flora survey of E74/152 in 1999 (Curtin Consultancy Services, 1999). This species germinates well in areas where the soil has been disturbed, and is most common in old gravel pits and along tracks. It is confined to heavy red gravelly clay over laterite in the Ravensthorpe Range area. A further 20 Priority taxa were identified through one or a combination of CALM's databases, and the surveys in 1999 and 2004 (Craig, 2004; Curtin Consultancy Services, 1999):

Conservation status	Name	CALM	1999 (E74/152)	2004 (E74/144)
DRF	<i>Daviesia megacalyx</i>	X	X	
P1	<i>Dryandra corvijuga</i>	X		
P1	<i>Guichenotia anota</i>	X	X	
P1	<i>Microcorys pimeleoides</i>	X		
P1	<i>Pultenaea calycina ssp proxena</i>	X		X
P2	<i>Acacia disticha</i>			X
P2	<i>Acacia larinica var crassifolia</i>	X	X	
P2	<i>Boronia oxyantha var oxyantha</i>	X	X	
P2	<i>Dryandra foliosissima</i>	X	X	
P2	<i>Gastrolobium rigidum</i>	X		
P3	<i>Acacia bifaria</i>	X	X	
P3	<i>Acacia excentrica</i>	X	X	
P3	<i>Acacia heterochroa spp heterochroa</i>	X	X	
P3	<i>Boronia oxyantha var brevicalyx</i>			X
P3	<i>Grevillea fulgens</i>	X	X	
P3	<i>Spyridium glaucum</i>	X		X
P4	<i>Acacia argutifolia</i>	X	X	
P4	<i>Dampiera deltoidea</i>	X		
P4	<i>Goodenia stenophylla</i>			X
P4	<i>Pimelea physodes</i>	X	X	
P4	<i>Siegfriedia darwinioides</i>			X

The vegetation of the study area is poorly surveyed for significant flora. It can therefore be concluded that areas not captured by the two surveys are highly likely to provide suitable habitat and support significant flora.

In addition to being an area rich in DRF and Priority species, the Ravensthorpe Range Area is an area of relatively high endemism (taxa only occurring on the Ranges), and exhibits end of range occurrence of species from the north, west and east. Species described for the Ravensthorpe Ranges area which are considered significant in the context of this clearing principle include:

- *Eucalyptus megacornuta*;
- *E. desmondensis*;
- *E. stoatei*;
- *Boronia ternata var elongata*;
- *Grevillea fulgens*;
- *Banksia laevigata ssp nov*;
- *Guichenotia apetala*; and;
- Several species of *Acacia*.

On the basis of the information provided by the applicant and local knowledge of the area, it is concluded that the proposal is at variance to this principle. CALM (2005; 2005a) has advised that the Curtin University Botanical survey report (Curtin Consultancy Services, 1999) is not sufficient as it is dated, and does not reflect the level of detail along the specific lines of interest to adequately determine the potential impact of the proposal on significant flora populations. CALM recommends that this survey should not be used as supporting information for clearing within the boundaries delineated by the survey, but may be used to provide background information to the area (CALM, 2005b). The survey conducted by Craig (2005) is acceptable for processing the line clearing and approval to implement exploration drilling (CALM, 2005). CALM recommend that botanical survey reports be prepared for each proposed exploration area which clearly detail the flora values along each linear transect intended to be cleared (CALM 2005). Surveys need to be undertaken in Spring or thereabouts to ensure that the majority of flora is in flower. Surveys outside of the Spring flowering season are not acceptable in these high value landscapes and will not receive support for approval.

CALM advised that exploration should not be allowed to proceed in areas outside of the boundaries of the Ravensthorpe Range Area (an Environmentally Sensitive Area), if these remaining areas include CALM Proposed Nature Reserves (CALM, 2005a; CALM, 2005b). In cases such as these, CALM requests that adequate surveys are undertaken and made available to CALM Ravensthorpe for processing and advice.

In order to address the issues that have arisen with respect to the high level of endemism and presence of Declared Rare, Priority and other significant flora within the application area, a condition has been placed on this permit to ensure flora surveys and management are conducted over CALM Proposed Nature Reserves and other tracts of native vegetation prior to any exploration activity occurring. Additionally, approval of these flora surveys and management plans must be obtained prior to any clearing taking place at these locations.

Furthermore, Declared Rare Flora shall be avoided and a buffer set around these populations. In any case, DoIR is required to consult with CALM regarding the management of Declared Rare and Priority Flora for mining activities according to the *'Memorandum of Understanding between the Department of Industry and Resources and the Environmental Protection Authority in relation to the referral of Onshore Mineral Exploration and Mining Development Proposals'* (MoU, 2004).

Methodology Craig (2004).
Curtin Consultancy Services (1999).
CALM (2005).
CALM (2005a).
CALM (2005b). Senior Technical Officer, (pers comm, 23/11/05) ref: 477.KF
MoU (2004).
GIS Database:
Declared Rare and Priority Flora List - CALM 01/07/05

(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 as defined under Schedule 5 (2) of the *Environmental Protection Act 1986* in the vicinity of the application area (GIS database). Therefore, this proposal is unlikely to be at variance to this Principle.

Methodology GIS databases:
Threatened Ecological Communities - CALM 12/04/05

(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 likely to be at variance to this Principle**
The State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment, 2002; EPA, 2000).

Approximately 17,400 ha of the application area is covered by native vegetation, and of this 8.14ha (or 0.04%) is proposed to be cleared for exploration activities. Rehabilitation of cleared areas will also be undertaken in accordance with Department of Industry and Resources standards. Given that Beard Vegetation Associations 142

and 352 already have less than 30% of the pre-European extent remaining, it is unlikely that the clearing of such a small area of vegetation is at variance to this principle.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in IUCN Class I-IV reserves
IBRA Bioregion – Esperance Plains***	2,520,106	1,144,827	45.4%***	Depleted	
IBRA Bioregion - Mallee***	4,130,281	806,971	19.5%***	Vulnerable	
Shire of Lake Grace	1,031,972	225,891	21.9%	Vulnerable	
Shire of Ravensthorpe	865,382*	512,776	59.3%	Least concern	
Beard vegetation associations					
- 142	1,134,385	281,570	24.8%	Vulnerable	14.5%
- 352	874,652	133,255	15.2%	Vulnerable	3.0%
- 47	1,272,406	455,429	35.8%	Depleted	54.0%
- 511	409,458	219,324	53.6%	Least concern	22.7%
- 516	1,541,361	666,416	43.2%	Depleted	35.9%
- 519	2,221,704	1,346,958	60.6%	Least concern	18.9%
- 691	55,727	43,044	77.2%	Least concern	83.0%
- 931	38,861	15,174	39.0%	Depleted	13.3%
- 934	78,095	65,971	84.5%	Least concern	2.0%

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

*** Area within the Intensive Landuse Zone

Methodology Shepherd et al. (2001).
EPA (2000).
Department of Natural Resources and Environment (2002).
GIS Databases:
Pre-European Vegetation - DA 01/01.
Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
Local Government Authorities - DLI 8/07/04.

(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

The Jerdacuttup River which flows in a SE direction and is located to the east of the Ravensthorpe Ranges (GIS Database). Watercourses within the Ravensthorpe Ranges are likely to be narrow and flows are expected to have high velocities. Vegetation clearing within these watercourses would be likely to present a high risk of erosion.

Management actions identified by the operator to minimise the effects of exploration activities on watercourses and native vegetation are (Traka Resources, 2005):

- Careful planning to locate drillholes away from watercourses and the remnant vegetation that lines watercourses;
- Use of existing tracks and gridlines.

There are no wetlands in the application area, although several minor, non-perennial watercourses are situated within the same area (GIS Database). Given the small amount of vegetation to be cleared and the operator's commitment to avoiding watercourses and utilising existing tracks, it is unlikely that these watercourses will be impacted upon through the clearing activity.

The proposal is for the progressive clearing of 8.14 hectares of native vegetation within an application area of 46,400 hectares. This clearing will not significantly alter water tables and is unlikely to impact upon ecological communities that are wetland or groundwater dependent. Consequently, it is not likely that the clearing of vegetation is at variance to this principle.

Methodology Traka Resources (2005).
GIS databases:
Hydrography, linear - DOE 1/2/04.
Lakes, 1M - GA 01/06/00.
Rivers, 1M - GA 01/06/00.

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

Comments Proposal is not likely to be at variance to this Principle

The Ravensthorpe Range and adjacent hilly country are associated with the outcrop of basic 'greenstones' which predominate around the Ravensthorpe area where they form a series of subdued parallel ridges and valleys (Curtin Consultancy Services, 1999). The greenstones appear to be folded into the granite and basement and strike NNW-SSE. The Range rises in parts to 404 mAHD. Soil depth varies according to topography:

- Very deep soils are found in the bottomlands;
- Gentler slopes are mantled with deep red loam;
- The rougher country has more rocky and skeletal soils.

DAWA (2005) advise that the geology of the exploration area is mapped as Archaean sedimentary and basic/ultrabasic rock. The National Land and Water audit identified the area as having a moderate to high salinity risk. It is concluded that the proposed clearing of approximately 8 hectares for exploration purposes is unlikely to be seriously at variance with principle (g) for salinity or soil erosion, provided the disturbed areas are rehabilitated after drilling is completed.

Although parts of the proposal occur within a dieback risk area, the Shire of Ravensthorpe Council considered the matter in its Ordinary Meeting on Thursday 15th June 2005, and does not have any objection to the proposal, subject to appropriate measures being taken to avoid the spread of dieback disease (Shire of Ravensthorpe, 2005). In order to address this issue, a condition has been placed on the permit limiting exploration activities to occur during dry soil conditions only, and a requirement that machinery is free of adhering soil and vegetation prior to arrival on site. These are standard CALM requirements for exploration activities within the Ravensthorpe area (CALM, 2005c).

Traka Resources have made commitments to ensure that dieback is not introduced or spread through exploration activities. These are detailed in Traka Resources (2005) and include:

- Scheduling activities that involve soil disturbance for low rainfall months;
- Vehicle access kept to a minimum with vehicles required to stay on hard, well-drained tracks and avoid puddles;
- Footwear, vehicles, tools and equipment to be free of soil and mud when entering or leaving bushland;
- All drill rigs and support vehicles to be washed down and cleaned prior to entering the company's licences.

In addition, Traka's tenement conditions require the licensee to provide a management plan to prevent the spread of dieback disease in all appropriate areas of native vegetation prior to the commencement of any exploration activities. This management plan shall be subject to the approval of the State Mining Engineer (MITIS, 2005).

In consideration of the above factors, it is unlikely that the proposal is at variance to this principle.

Methodology Craig (2004).
Curtin Consultancy Services (1999).
DAWA (2005).
Shire of Ravensthorpe (2005).
Traka Resources (2005).
MITIS (2005).
CALM (2005c). Senior Technical Officer, (pers comm, 19/12/05)

(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

A small portion of both the Overshot Hill and Kundip Nature Reserve is located within the area under application. Two un-named nature reserves (43060 and 27177) are also found within E74/209 located in the southern extent of the area under application (GIS Database).

Vegetated parts of the study area are ecologically important as they are part of a narrow corridor which links the Fitzgerald River National Park to the expansive crown lands of the interior (Craig, 2004). The corridor facilitates movement of larger fauna between these two land systems and is 6 km wide at its narrowest point (Curtin Consultancy Services, 1999). However, as the 8.14 ha of clearing will be widely dispersed over the vegetated area, and rehabilitation of cleared vegetation will be undertaken progressively, it is unlikely that the clearing will impede the use of this corridor by fauna.

Traka Resources do not intend to conduct exploration activity within any nature reserves, and CALM Ravensthorpe have been informed of the exploration program planned for the area under application (Verbeek, 2005). An approval for ground disturbing exploration must be sought from the local CALM office, and a condition is attached to this permit stipulating that a flora survey be conducted within any vegetated areas prior to the commencement of exploration activities.

Furthermore, it is a tenement condition of E74/209 that prior to any disturbance, the licensee prepare a detailed program for each phase of proposed exploration for approval of the State Mining Engineer in agreement with the Regional Manager, CALM. The written consent of the Minister for Mines must also be obtained before the commencement of mining within any of the above-mentioned nature reserves (MITIS, 2005).

Whilst part of the application area is within Red Book Area 3.8, this has not yet been made into a conservation area. Although it is a Proposed Nature Reserve, the 'proposed' status of this area means that it is not a conservation area as defined in the Environmental Protection Act 1986. Furthermore, although it is on the Register for National Estate, this does not deem the Environmentally Sensitive Area (ESA) a 'conservation area' in accordance with the Environmental Protection Act 1986.

In consideration of the above factors, it is unlikely that the clearing associated with this project is at variance to this principle.

Methodology Craig (2004).
Curtin Consultancy Services (1999).
MITIS (2005).
Patrick Verbeek - Managing Director Traka Resources (pers comm. 29/12/2005).
GIS databases:
CALM Managed Lands and Water - CALM 1/07/05.
System 1 to 5 and 7 to 12 Areas - DEP 06/95.
Register of National Estate - EA 28/01/03.

(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 area to be cleared does not fall within a Public Drinking Water Source Area (PDWSA) or PDWSA Protection Zone (GIS Database). Part of the area under application is subject to the *Rights in Water and Irrigation Act 1914*, as it is part of the Kondinin-Ravensthorpe Groundwater Area. A mining exploration drilling licence is required for drilling to occur in this groundwater area (DoE, 2005).

As the area to be cleared is very small in size (8.14 ha within a total application area of 46,400 ha), it is unlikely that the proposed clearing will impact upon larger, landscape-scale processes such as rises in the water table, considering the magnitude of the regional Yilgarn-Southwest groundwater province which is in excess of 246,000 sq km in area (GIS Database). Similarly, the proposal is unlikely to impact upon ecological communities that are wetland or groundwater dependent.

Groundwater within the area under application is saline at between 7,000 - 35,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). The quality of groundwater will not be impacted upon by the clearing activity.

There are no wetlands in the application area, although several minor, non-perennial watercourses are situated within the same area (GIS Database). Given the small amount of vegetation to be cleared and the operator's commitment to avoiding watercourses and utilising existing tracks for exploration activities, it is unlikely that these watercourses will be impacted upon through the clearing activity.

There is some potential for surface or groundwater contamination during drilling activities. Traka Resources have management procedures to reduce the risk of groundwater and surface water contamination. These are detailed as follows (Traka Resources, 2005):

- Where groundwater is likely to be intercepted during drilling, sumps are dug to collect the water;
- Sumps are lined with plastic to stop contamination of the surface water with saline water, and are rehabilitated once the water has evaporated and rubbish has been removed;
- Water from the sumps is not discharged, especially when saline groundwater is intercepted;
- If discharge into the sumps exceeds the capacity of the sump, drilling temporarily ceases and relevant approval is obtained to discharge the fluid to an approved outlet. This is particularly important when saline groundwater is encountered.

Similarly, Traka Resources have detailed commitments for hydrocarbon management so as to reduce the threat of surface and groundwater contamination. These include (Traka Resources, 2005):

- Location in areas where fire, spill and leak risk are minimised;
- Construction of plastic lined sumps to capture potential spillage;
- Immediately fixing leaks once they are noticed;
- Management actions in the event of a hydrocarbon spill including containment in bunds, and techniques for spill removal.

On the basis of the above information, the proposal is not likely to be at variance to this principle.

Methodology Traka Resources (2005).
 DoE (2005).
 GIS Databases:
 Hydrography, linear - DOE 1/2/04.
 Groundwater Salinity, Statewide - 22/02/00.
 Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
 Groundwater Provinces - WRC 98.
 Public Drinking Water Supply Areas (PDWSAs) - DOE 28/4/05.
 PDWSA Protection Zones -DOE 7/1/04.
 RIWI Act, Groundwater Areas - WRC 13/06/00.

(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 clearing of 8.14 ha of native vegetation within a total application area of 46,400 ha will not increase the risk of flooding.

 The applicant has outlined management procedures to minimise the effects of exploration activities on the risk of flooding (Traka Resources, 2005):
 - The cleared areas will be rehabilitated to further minimise the risk of flooding;
 - Work will not be carried out during times of significant rainfall.

 Based on the above information and commitments from the operator, it is unlikely that the proposed clearing is at variance to this principle.

Methodology Traka Resources (2005).

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

Comments
 There are two native title claims over the area under application; WC96/109 and WC98/070. These claims have been registered with the National Native Title Tribunal on behalf of the Southern Noongar and Wagyl Kaip claimant groups respectively. 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 (ie. 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 four Aboriginal sites of significance (ID 722, 1460, 1826, & 6621) within the area under application. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no sites of Aboriginal significance are damaged through the clearing process.

 There are no approvals that have been issued under Part V of the *Environmental Protection Act 1986* for the operator or tenements (DoE, 2005). Part of the area under application is subject to the *Rights in Water and Irrigation Act 1914* as it is part of the Kondinin-Ravensthorpe Groundwater Area. A mining exploration drilling licence is required for drilling to occur in this groundwater area. No Environmental Impact Assessment has been carried out for Traka Resources on the tenements listed under Part IV of the *Environmental Protection Act 1986*.

Methodology DoE (2005).
 GIS Databases:
 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
Mineral Exploration	Mechanical Removal	8.14	Grant	<p>The proposal is for the clearing of 8.14 hectares of native vegetation for the purposes of mineral exploration. Traka Resources have consulted extensively with CALM with respect to the proposal and have exploration management procedures in place to ensure that clearing is only undertaken where absolutely necessary. Traka Resources have also committed to the use of existing tracks and gridlines wherever possible. Post-exploration rehabilitation of the cleared areas will also be carried out in accordance with Department of Industry and Resources standards.</p> <p>The assessing officer recommends that the permit be granted subject to the following conditions:</p> <p>1. When clearing native vegetation for access tracks under this permit, the Permit Holder must use a raised blade or hand clearing.</p>

2. The Permit Holder must stockpile all native vegetation cleared under this permit for use in rehabilitation in accordance with condition 4. Cleared native vegetation must be stockpiled in an area that has already been cleared.

3. For each instance of clearing done under this permit, the Permit Holder must record:

- a) the co-ordinates of areas cleared using Geocentric Datum Australia 1994;
- b) the size of the areas cleared in hectares; and
- c) the dates on which the area was cleared.

4. For each instance of clearing recorded under condition 3, the Permit Holder must, within 6 months of the completion of exploration activities, rehabilitate all cleared areas by re-shaping the surface so that it is consistent with the surrounding 5 metres of uncleared land, and re-spreading the topsoil and vegetative material stockpiled under condition 2 over each cleared area.

5. For each area rehabilitated under condition 4 of this permit, the Permit Holder must record:

- a) the co-ordinates of areas rehabilitated using Geocentric Datum Australia 1994;
- b) the size of the areas rehabilitated in hectares; and
- c) the dates on which the area was rehabilitated.

6. Prior to clearing an area cross-hatched red on attached Plan 782/1A, the site shall be walked, inspected and surveyed by a suitably qualified person who shall identify the flora species present in accordance with *Guidance Statement No 51 Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*, June 2004, Environmental Protection Authority.

The Permit Holder shall record the following prior to each instance of clearing:

- a) findings of the suitably qualified person as described under condition 6;
- b) location of declared rare flora;
- c) location of priority flora;
- d) location of significant habitat for specially protected fauna; and
- e) location of threatened ecological communities.

The Permit Holder shall upon completion of the above survey, provide a report to the Director, Environment Division, of the Department of Industry and Resources setting out the records required under condition 6 of this permit.

7. In this permit, suitably qualified person means a person who has had formal training and/or experience in ecology and taxonomy of the Australian flora. They shall have had a minimum of 3 years experience in the survey of WA's flora and vegetation, preferably with knowledge and experience in the region being surveyed.

8. Declared Rare Flora identified in the flora survey must not be cleared. Buffers around populations of Declared Rare Flora must be approved by the Director, Environment, of the Department of Industry and Resources so as to be in accordance with the Wildlife Conservation Act 1950. Buffers shall not be cleared under this permit.

9. In this permit, a buffer means the minimum distance from a boundary of a population of the identified taxon within which clearing must not occur.

10. Exploration activities shall only be undertaken during dry soil conditions. All machinery shall be free of adhering soil and vegetation prior to arrival on site.

11. The Permit Holder shall provide a report to the Director, Environment Division, of the Department of Industry and Resources by 1 February 2007 and each subsequent year for the life of this permit, setting out the records required under conditions 3 and 5 of this permit in relation to the clearing activities.

5. References

- CALM (2005). Land clearing proposal advice. Advice to Program Manager, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR) - Department of Conservation and Land Management, Western Australia.
- CALM (2005a). Land clearing proposal advice. Advice to Program Manager, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR) - Department of Conservation and Land Management, Western Australia.
- Conservation Through Reserves Committee (1974). Conservation Reserves in Western Australia. Systems 1, 2, 3, 4, 5, 8, 9, 10, 11, 12. Report of the Conservation Through Reserves Committee to the Environmental Protection Authority.
- Craig, GF (2004). Ravensthorpe Project Prospect B1. Declared Rare and Priority Flora Survey. Report prepared for Traka Resources by Dr G.F. Craig, Ravensthorpe.
- Curtin Consultancy Services (1999). Report on Flora Survey of the Mt Short Project Area, Ravensthorpe. Curtin Consultancy Services, Perth. Appendix B in Additional information to accompany the application for a clearing permit (purpose permit). Traka Resources Limited, Perth.
- DAWA (2005). Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department

of Agriculture 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 the Environment and Heritage (2005). Department of the Environment and Heritage annual report 2004-05. Volume one

DoE (2005). Water Allocation/Licence Advice. Department of Environment, Western Australia.

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.

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

MITIS (2005). Mineral Title System. Department of Industry and Resources.

MoU (2004). Memorandum of Understanding between the Department of Industry and Resources and the Environmental Protection Authority in relation to the referral of Onshore Mineral Exploration and Mining Development Proposals. Dated and signed on 17/12/2004.

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.

Shire of Ravensthorpe (2005). Council submission with respect to CPS 782/1. Shire of Ravensthorpe.

Traka Resources (2005). Additional information to accompany the application for a clearing permit (purpose permit). Traka Resources Limited, Perth.

Traka Resources (2005a). Information provided on the application for a clearing permit (purpose permit) - Form C2.

6. Glossary

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAWA	Department of Agriculture, Western Australia.
DA	Department of Agriculture, Western Australia.
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	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.