Windimurra Vanadium Project: Land clearing and mining below the base of weathering

Windimurra Vanadium Limited

Report and Recommendations of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 1288
June 2008
Environmental Impact Assessment Process Timelines

<table>
<thead>
<tr>
<th>Date</th>
<th>Progress stages</th>
<th>Time (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15/10/07</td>
<td>Referral received</td>
<td></td>
</tr>
<tr>
<td>15/10/07</td>
<td>Intention to set EPS Level of Assessment advertised (no appeals)</td>
<td>0</td>
</tr>
<tr>
<td>12/05/08</td>
<td>Proponent’s Final EPS document received by EPA</td>
<td>30</td>
</tr>
<tr>
<td>16/06/08</td>
<td>EPA report to the Minister for the Environment</td>
<td>5</td>
</tr>
</tbody>
</table>

Report Released: 16/06/08  
Appeals Close: 30/06/08  
Assessment No: 1743
1. Introduction and background

This report provides the Environmental Protection Authority’s (EPA’s) advice and recommendations to the Minister for the Environment on the proposal by Windimurra Vanadium Limited to recommence and extend the Windimurra Vanadium mine in relation to land clearing and mining below the base of weathering.

Section 44 of the Environmental Protection Act 1986 (EP Act) requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out:
• the key environmental factors identified in the course of the assessment; and
• the EPA’s recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA was advised of the proposal in October 2007. Based on the information provided, the EPA considered that while the proposal had the potential to have an effect on the environment, the proposal, as described, could be managed to meet the EPA’s environmental objectives. Consequently it was notified in The West Australian newspaper on 22 October 2007 that, subject to preparation of a suitable Environmental Protection Statement (EPS) document, the EPA intended to set the level of assessment at EPS.

The proponent has prepared the EPS document which accompanies this report (MBS Environmental, 2008). The EPS document sets out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts. The EPA notes that the proponent has consulted with relevant stakeholders.

The EPA considers that the proposal can be managed to meet the EPA’s environmental objectives, subject to the EPA’s recommended conditions being made legally binding.

The EPA therefore has determined, under Section 40 of the EP Act that the level of assessment for the proposal is EPS, and this report provides the EPA advice and recommendations in accordance with Section 44 of the EP Act.

2. The proposal

The proposal is described in detail in the proponent’s EPS document (MBS Environmental, 2008). This proposal relates to land clearing and mining below the base of weathering for the recommencement and extension of the already approved Windimurra mine (Ministerial Statements 481 and 565).

The Windimurra Vanadium mine and associated infrastructure are situated 600 kilometres northeast of Perth in Western Australia (Figure 1). The deposit is approximately 80 kilometres southeast of Mount Magnet, the closest town in the Murchison region. 350 hectares of land was cleared for the existing mine. This proposal to recommence and extend the mine requires an additional 300 hectares of
Figure 1: Project Location
Figure 2: Land Clearing Requirements
cleared land. 272 ha will be new clearing and 28 ha will be on previously cleared land (Figure 2). The total clearing of land required will be 622 hectares.

The 300 hectares of land to be cleared is for the new Liquor Disposal Evaporation Pond (15 ha), extension of mine pit (81 ha), waste stockpile area (81 ha), tailings storage facility (86ha), calcine waste disposal facility (5.3ha), mine village (2ha) and infrastructure, including power lines, water supply and tracks. (30ha)

Previous mining operations progressed to about 35 to 40 metres in depth, which is two to five metres below the base of weathering. Mining operations are now proposed to occur to a maximum of 90 metres in depth. The nature of the geology in the pit area avoids mining activities occurring within the water table, as the water table is forced below the gabbro rock.

**Existing approvals under s45C for this mine**

The Windimurra Vanadium Mine operated from November 1999 to April 2003, when it was placed on care and maintenance, and closed permanently in 2004. An application to recommence and extend the mine was approved under section 45C of the EP Act on 22 October 2007.

The section 45C approval related to an increase of:
- rate of extraction of ore;
- clearing to 705 hectares;
- life of mine;
- Vanadium Pentoxide production;
- a new product of Ferrovanadium;
- emissions
- water use;
- use of resources and reagents;
- waste, accommodated in:
  - 4 new waste rock stock piles;
  - A new barren liquor disposal evaporation pond;
  - Extension of Calcine waste disposal facility;
  - Movement of tailing storage facility.

The key components of the proposal are summarised in Table 1 below:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of Pit</td>
<td>4,000 metres x 290 metres</td>
</tr>
<tr>
<td>Depth of Pit</td>
<td>90 metres</td>
</tr>
<tr>
<td>Total Area of disturbance</td>
<td>Not more than 622 hectares (includes 350 hectares already cleared for the original mine)</td>
</tr>
</tbody>
</table>

The potential impacts of the proposal are discussed by the proponent in the EPS document (*MBS Environmental, 2008*).
3. Consultation

During the preparation of the EPS, the proponent has undertaken consultation with government agencies and key stakeholders. The agencies, groups and organisations consulted, the comments received and the proponent’s response are detailed in the EPS (MBS Environmental, 2008).

No environmental issues were raised by the stakeholders in relation to additional clearing and mining below the base of weathering.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

4. Key environmental factors

It is the EPA’s opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

(a) Vegetation; and
(b) Mine Closure and Rehabilitation.

The key environmental factors are discussed in Sections 4.1 – 4.2 of this report. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Vegetation

Description

The proposal has the potential to impact flora and vegetation by direct loss due to clearing and indirect loss due to the spread of weeds, dust and human impacts. The vegetation system of the Windimurra mine site is in the Austin Botanical District, within the Eremaean Province.

The six vegetation types that will be impacted by the project are Mulga Thicket on slopes and uplands, Mulga scrub on plains, Acacia xanthocarpa Thicket on slopes, Mixed low Shrub lands on plains, Mulga low woodland on plains and Mulga Shrub land on plains. All of these vegetation associations are considered to be locally common and widespread (Paul Armstrong and Associates, 2007). The project area is located on an operational pastoral lease, occupied by sheep and goats.

The proponent commissioned Paul Armstrong and Associates to undertake two recent surveys over the project area. The first survey, a vegetation and flora, Declared Rare Flora (DRF) and Priority Flora search, was carried out in April, May, October and December 2006 and July 2007. The second, vegetation and flora, Declared Rare Flora (DRF) and Priority Flora search was carried out in February 2008.
The flora and vegetation surveys identified no Declared Rare Flora (DRF), two priority species and no Threatened Ecological Communities (TEC’s). The two priority species, which will be impacted are *Calytrix erosipetala* (P3) and *Grevillea inconspicua* (P4).

Priority 3 taxa are classed as poorly known taxa and are described as taxa which are known from several populations and are not believed to be under immediate threat. Such taxa are under consideration for declaration as ‘rare flora’ but are in need of further study. Priority 4 taxa are classed as Rare taxa and are described as taxa that are considered to have been adequately surveyed and which are not currently threatened by any identifiable factors.

183 recorded plants of *Calytrix erosipetala* were observed within the project area. It is expected that 45 plants will be impacted by the extension of the mine pit, equating to 24.6% of the local population. 435 recorded plants of *Grevillea inconspicua* were observed within the project area. 41 plants are expected to be directly impacted by clearing, 21 in the northern population will be impacted by the clearing for the extension to the calcine waste storage facility and 20 plants in the southern population will be impacted by waste rock stockpile 1A and 1B. This equates to 9.43%. (Figure 3).

*Calytrix erosipetala* has also been recorded at Hillview Station, Lake Barlee, Mt Keith, Mt Magnet and Wildara Pinnacle. *Grevillea inconspicua* has also been recorded at Cue, Leinster, Meekatharra, Melrose, Mt Magnet, Sandstone and Yakabindie.

Six species of introduced weeds were recorded from existing or proposed areas during the vegetation surveys in 2006 and 2007. The species were *Acetosa vesicaria* (Ruby Dock), *Carthamus lanatus* (Saffron thistle – Declared Plant), *Cucumis myriocarpus* (Paddy melon- Pest Plant), *Nicotiana glauca* (Tree tobacco), *Sisymbrium orientale* (Indian hedge mustard), and *Solanum nigrum* (Black berry nightshade). The proponent currently has a Weed Management Plan to control and eradicate weeds in the existing project area.

Waste rock stock piles have been positioned to reduce the impact on *Grevillea inconspicua*. The proponent proposes to manage potential impacts to biodiversity by implementing the following actions:

- Using existing access tracks where possible;
- Carrying out progressive rehabilitation of impacted areas;
- Carrying out targeted surveys of *Calytrix erosipetala* and *Grevillea inconspicua* prior to clearing;
- Improving and extending existing fences to protect *Grevillea inconspicua* and *Calytrix erosipetala* population where adjacent to specific project activity areas in the northern and southern population adjacent to the processing plant (figure 4);
- Ensuring that any cleared brush from the *Grevillea inconspicua* and *Calytrix erosipetala* population will be placed inside the fenced area to promote local seed capture;
- Establishing photographic monitoring sites for *Grevillea inconspicua* and *Calytrix erosipetala* in the protection areas. Monitoring will be conducted annually in spring and results will be reviewed by a Botanist.
Figure 3: Location of DEC Priority Flora
Figure 4: Proposed fences around Flora protection areas
• Investigating the potential for propagation of *Grevillea inconspicua* and *Calytrix erosipetala* and their potential for inclusion in rehabilitation strategies;
• Flagging the *Calytrix erosipetala* located near the western edge of the southern pit as a no go area during clearing and construction of the abandonment bund;
• Inducting all employees on flora information, including information on weed identification and reporting and priority flora; and
• Cleaning any earth moving equipment moving from a known weed areas to weed free areas.

**Assessment**

The area considered for assessment of this factor is the mine site including pit extension, tailings and calcine waste storage, waste rock stockpiles, Barren liquor disposal evaporation pond, accommodation village and infrastructure.

The EPA’s environmental objective for this factor is:

• To maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

This proposal for the commencement and expansion requires 300 hectares of land. 272 hectares will be new clearing and 28 hectares will be on previously cleared land.

All vegetation complexes are locally common and widespread; however a total of 9.43% of priority flora *Grevillea inconspicua* (P4) and 24.6% of *Calytrix erosipetala* (P3) are proposed to be removed.

The EPA notes that the priority flora proposed to be impacted from clearing are in the following areas:

• Mine pit extension – 45 plants of *Calytrix erosipetala* (24.6% of total population);  
• Extension of the calcine waste disposal facility – 21 plants of *Grevillea inconspicua* (4.83% of total population); and  
• Waste rock stock pile 1A and 1B – 20 plants of *Grevillea inconspicua* (4.6% of total population).

These figures are based on two surveys carried out by Paul Armstrong and Associates. The first survey was a vegetation and rare flora search which took place in April, May, October, December 2006 and July 2007. The second survey was carried out in February 2008 to assess the impacts on the vegetation, flora and rare flora due to changes in the proposed mine and infrastructure layout since the initial report was prepared. The EPA considers that these surveys were carried out in accordance with EPA Guidance Statement 51.

The Department of Environment and Conservation has advised that the clearing is unlikely to have a significant impact on *Grevillea inconspicua* (P4) and *Calytrix erosipetala* (P3), particularly as these species are not significantly geographically restricted in extent and small in population size.
The EPA considers that waste rock stockpile 1A and 1B can be relocated to avoid the impact on *Grevillea inconspicua*, reducing the impact of this species from 9.43% to 4.83%. The EPA considers that the taking of 4.83% of the total local population of *Grevillea inconspicua* (P4) and 24.6% of *Calytrix erosipetala* (P3) during clearing is environmentally acceptable providing that the proponent incorporates measures to protect the remaining population of these species.

The EPA notes that the proponent has provided the following management measures to avoid potential impacts to biodiversity:

- repositioning of waste rock stockpiles;
- use of existing access tracks where possible;
- improving and extending existing fences adjacent to the mine; and
- flagging the presence of *Calytrix erosipetala* (P3) near the western edge of the southern pit.

The EPA considers that because the *Grevillea inconspicua* (P4) and *Calytrix erosipetala* (P3) species are not restricted to Windimurra mine site and are present in other locations in extent and population size, the potential impact to these species is not considered to be significant.

The EPA considers that with the implementation of Condition 6, which allows the taking of *Grevillea inconspicua* from the calcine waste disposal facility extension area and *Calytrix erosipetala* from the area west and south of the pit, the monitoring of the remaining project area and reporting to the CEO of DEC, the potential impact to vegetation can be managed in an environmentally acceptable manner.

**Summary**

Having particular regard to the:

- presence of vegetation complexes in and external to the mine area;
- advice from the Department of Environment and Conservation that the clearing is unlikely to have a significant impact on *Grevillea inconspicua* (P4) and *Calytrix erosipetala* (P3); and
- the proponent’s proposed measures to protect *Grevillea inconspicua* (P4) and *Calytrix erosipetala* (P3) from direct and indirect impacts;

it is the EPA’s opinion that the proposal can be managed to meet the EPA’s environmental objective for this factor provided that the management measures detailed in the Environmental Protection Statement (EPS) document and Condition 6, which limits the number of priority species to be removed by clearing, is implemented.

### 4.2 Mine Closure and Rehabilitation

**Description**

The proposal to recommence and extend the mine requires 300 hectares of cleared land. 272 ha will be new clearing and 28 ha will be on previously cleared land (Figure 2).

There is potential for unstable landforms, erosion, contamination, altered ground and surface water regimes and loss of landscape values to result due to this disturbance.
The proponent currently has an existing Rehabilitation Management Plan and Conceptual Closure Plan for the existing mine, which has been developed in accordance with the Australian and New Zealand Minerals and Energy Council (ANZMEC)/Minerals Council of Australia (MCA), (Aug 2000) Strategic Framework for Mine Closure and the Chamber of Minerals and Energy Mine Closure Guidelines for Minerals Operations in Western Australia. This outlines the procedures for closure and rehabilitation on the Windimurra Vanadium mine site to best practice industry standards.

The proponent’s mine closure objectives are to minimise:

- Potential for erosion;
- Impacts on natural drainage; and
- Potential for contamination of surface and groundwater systems.

The long term objective of the rehabilitation plan will be to re-establish a stable, productive land surface that requires minimal ongoing maintenance and management. This is likely to involve the revegetation of disturbed areas with a self sustaining system on native mulga scrub, and associated woodland species that are similar in diversity, density and cover to pre-mine conditions.

At the cessation of mining and following rehabilitation, the permanent loss of vegetation will be reduced from 300 hectares to 114 hectares, due to the final surface expression of the pit. The final dimensions will be approximately 4,000 metres in length, 290 metres in width and a depth of 90 metres. Some shaping of the pit walls may be required to reduce the slope angle to a stable and safe landform. If it is not practical to reshape the pit walls then a combination of safety berms, fencing and signage would be used to restrict access into the pit in order to minimise safety risks.

12 million cubic metres of waste rock will be generated over the life of the project. Excess rock will be stored in 4 waste stockpiles of about 3 million cubic capacity. Each waste stockpile has been designed to be 15 metres above natural surface with a five metre wide berm located 10 metres above natural surface. Batters will be designed to be no steeper than 15 degrees. Geochemical characterisation undertaken by Graham Campbell and Associates indicates that potentially acid forming (PAF) waste is not present.

The proponent intends to manage rehabilitation and mine closure as follows:

- Rehabilitation of all disturbed areas will be undertaken on a progressive basis throughout the life of the mine;
- Prior to undertaking works, a final landform and long term land use must be agreed upon for the disturbed area and the rehabilitation program. The preferred objective of the post-operational rehabilitation is to re-establish a productive land surface to allow rangeland grazing for the pastoralist;
- Culverts and drains will be removed and the roads re-contoured to reinstate the natural drainage patterns. Moonscaping techniques may also be required to prevent erosion from occurring;
- Topsoil will be respread; the surface profile deep ripped and direct seeding carried out;
• Areas of disturbance to be rehabilitated and the size and location will be recorded on a site plan for future monitoring;
• Areas under rehabilitation can only be accessed with permission from the Environmental Manager;
• All infrastructure from the plant and village, including underground cabling that is no longer required will be removed off-site;
• Direct seeding will be used for rehabilitation purposes, and sowing will take place immediately prior to the winter rainfall. The seed mix will include native grasses, indigenous plants with nitrogen fixing capabilities and species consistent with the original vegetation in the area; and
• Rehabilitating areas will be monitored and any areas requiring remedial work will be identified and maintenance procedures carried out where necessary.

Assessment

The area considered for assessment of this factor is the mine site including pit extension, tailings and calcine waste storage, waste rock stockpiles, barren liquor disposal evaporation pond, accommodation village and infrastructure.

The EPA’s environmental objectives for this factor are to:

• Maintain landscape and landform integrity, ecological functions and environmental values;
• Ensure that closure and rehabilitation achieves stable, non polluting and functioning landforms which are consistent with the surrounding landscape and other environmental values;
• Ensure that self-sustaining native vegetation communities are returned after mining, which, in species composition and ecological function are close as possible to naturally occurring analogue sites; and
• Protect landforms or geological features of heritage significance or of outstanding scenic or scientific value.

The EPA notes that rehabilitation of disturbed areas will be undertaken on a progressive basis throughout the life of the project and that all areas of disturbance will be surveyed and the size and location recorded on a site plan for future monitoring.

The EPA notes that the proponent will decommission and rehabilitate all areas of the mine except the 114ha covered by the pit. The pit will not be backfilled but will be made safe and stable using best practice in accordance with Australian and New Zealand Minerals and Energy Council (ANZMEC)/Minerals Council of Australia(MCA), (Aug 2000) Strategic Framework for Mine Closure and the Chamber of Minerals and Energy Mine Closure Guidelines for Minerals Operations in Western Australia.

At closure of mining the four waste rock stockpiles would have a combined footprint of 81ha and a maximum height of 15 metres. The geochemical characterisation undertaken by Graham Campbell and Associates does not indicate the presence of any potentially acid forming (PAF) waste.
The EPA notes that areas undergoing rehabilitation will be clearly signed ‘Area under rehabilitation’ to notify site personnel and that access into the area can only be obtained with permission from the site environmental manager.

Monitoring of rehabilitated areas will be undertaken and any areas requiring remedial work will be identified and maintenance procedures carried out where necessary.

The EPA considers that with the implementation of Condition 7, which addresses mine closure and rehabilitation, the mine can be managed in an environmentally acceptable manner.

Summary
Having particular regard to the:
- existing rehabilitation management plan and conceptual closure plan for the existing mine; and
- the proponent’s mine closure and rehabilitation management measures detailed in the EPS document and in accordance with ANZMEC standards;

it is the EPA’s opinion that the proposal can be managed to meet the EPA’s environmental objective for this factor provided that the management measures detailed in the Environmental Protection Statement (EPS) document and Condition 7, which addresses mine closure and rehabilitation for this proposal, is implemented.

5. Other Advice
The impact of mining below the base of weathering was also assessed during this assessment. A water survey was conducted by Rockwater in 2008. It was found that rock fractures or vugs are absent from the rock at the Windimurra pit. Minor groundwater was reported in 3 of the 21 drill holes, indicating that the groundwater is confined, i.e. submerged beneath impermeable confining material such as clay and unfractured rock, and there is no water table as occurs in unconfined aquifers. Minor faulting is apparent in the current pit wall that may yield small amounts of groundwater if encountered below the base of weathering. The magnetite hosting gabbro rock has extremely low primary porosity and permeability and it is expected that 1.2 to 2.3 litres per second of water will enter the pit.

Investigations indicate that there is no need for installation of production bores to dewater ahead of mining activities. Groundwater in the pit will be directed into sumps within the pit where it will be removed for reuse by portable pumps. If larger quantities of water are encountered it will be re-used within the ore processing operations. It was therefore concluded and confirmed by Department of Water that mining to 90 metres would not have a significant impact on groundwater.

6. Conclusions
The EPA has considered the proposal by Windimurra Vanadium Limited to recommence and extend the mine which requires 300 hectares of cleared land. 272 ha will be new clearing and 28ha will be on previously cleared land. The EPA has also considered that mining will occur below the base of weathering.
The EPA considers that because the *Grevillea inconspicua* (P4) and *Calytrix erosipetala* (P3) species are not restricted to Windimurra mine site and are present in other locations in extent and population size, the potential impact of taking 21 plants of *Grevillea inconspicua* and 45 plants of *Calytrix erosipetala* is unlikely to cause a significant impact to vegetation.

The EPA considers that with the implementation of Condition 6, which allows the taking of *Grevillea inconspicua* from the calcine waste disposal facility extension area and *Calytrix erosipetala* from the area west and south of the pit, the monitoring of the remaining project area and reporting to the CEO of DEC, the potential impact to vegetation can be managed in an environmentally acceptable manner.

The EPA notes that the proponent will progressively rehabilitate disturbed areas to protect habitat. The EPA acknowledges that the proponent has an existing Rehabilitation Management Plan and Conceptual Closure Plan to minimise the impact of the mine and its operations.

The EPA has therefore concluded that the proposal can be managed to meet the EPA’s environmental objectives, provided there is satisfactory implementation by the proponent of their management procedures and the recommended conditions set out in Appendix 2.

### 7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the clearing of 300 hectares of land (272ha will be new clearing and 28ha will be on previously cleared land) and mining below the base of weathering for the recommencement and extension of the mine;

2. That the Minister considers the report on the key environmental factors as set out in Section 4;

3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA’s environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2; and

4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.
Appendix 1

References


Appendix 2

Recommended Environmental Conditions and Proponent’s Consolidated Commitments
RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)

WINDIMURRA VANADIUM PROJECT: LAND CLEARING & MINING
BELOW THE BASE OF WEATHERING
80 KILOMETRES SOUTH-EAST OF MOUNT MAGNET
SHIRE OF MOUNT MAGNET

Proposal: The proposal involves land clearing and mining below the base of weathering for the recommencement and extension of the Windimurra Vanadium Mine which ceased operations in 2004. The mine and associated infrastructure are located approximately 80 kilometres south-east of Mount Magnet, in the Shire of Mount Magnet.

An additional 272 hectares of land will be cleared, beyond the 350 hectares already cleared for the original mine, and open pit mining will take place to a pit depth of 90 metres. Processing of approximately 3.9 million tonnes per annum of ore will produce approximately 10,500 tonnes per annum of vanadium pentoxide flake and ferrovanadium.

Proponent: Windimurra Vanadium Limited

Proponent Address: Level 4, 76 King’s Park Road, WEST PERTH WA 6005

Assessment Number: 1743

Report of the Environmental Protection Authority: Bulletin 1288

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in schedule 1 of this statement subject to the conditions and procedures of this statement.
2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer (CEO) of the Department of Environment and Conservation of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO of the Department of Environment and Conservation with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO of the Department of Environment and Conservation environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO of the Department of Environment and Conservation to report more frequently.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO of the Department of Environment and Conservation and shall be prepared and submitted in a format acceptable to the CEO of the Department of Environment and Conservation.

4-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent’s Managing Director or a person, approved in writing by the CEO of the Department of Environment and Conservation, delegated to sign on behalf of the proponent’s Managing Director;

2. state whether the proponent has complied with each condition and procedure contained in this statement;

3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;

4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;
5 provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

6 identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

7 review the effectiveness of all corrective and preventative actions taken; and

8 describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO of the Department of Environment and Conservation.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO of the Department of Environment and Conservation Performance Review Reports at the conclusion of the first, third, fifth, seventh and ninth years after the start of implementation of the proposal and then, at such intervals as the CEO of the Department of Environment and Conservation may regard as reasonable, which address:

1 the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to the management of the major risks and impacts;

2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and

3 significant improvements gained in environmental management which could be applied to this and other similar projects.

6 Vegetation

6-1 In implementing the proposal, the proponent may take the gazetted priority species Grevillea inconspicua and Calytrix erosipetala, which have been recorded or are likely to occur as shown in Figures 4, 5 and 6 (attached), and delineated by AMG coordinates listed in schedule 2.

6-2 The proponent shall monitor flora and vegetation outside the areas of permitted removal referred to in condition 6-1. This monitoring is to be carried out to the satisfaction of the CEO of the Department of Environment and Conservation.

6-3 The proponent shall submit the results of monitoring referred to in condition 6-2 to the CEO of the Department of Environment and Conservation at times determined by the CEO of the Department of Environment and Conservation.
6-4 The proponent shall immediately provide proposed management measures to the CEO of the Department of Environment and Conservation in the event that the requirements of condition 6-1 are not met or are not likely to be met.

7 Mine Closure and Rehabilitation

7-1 Prior to the commencement of productive mining, the proponent shall conduct surveys of the proposal area to collect baseline information on the following:

1. pre-mining soil profiles;
2. groundwater levels;
3. surface water flows;
4. vegetation complexes; and
5. landscape and landforms.

7-2 As mining progresses, the proponent shall commence rehabilitation of the mine site area in accordance with the following:

1. Re-establishment of vegetation in the rehabilitation area to be comparable with that of the pre-mining vegetation such that the following criteria are met within four years following the cessation of productive mining:

   (1) flora and vegetation are re-established with not less than 70 percent coverage (not including weed species); and

   (2) weed coverage less than 10 percent.

2. A schedule of rate of rehabilitation acceptable to the CEO of the Department of Environment and Conservation.

7-3 The proponent shall ensure that the final pit lake does not cause significant environmental impacts arising from groundwater pollution or through attracting native fauna which may subsequently be harmed.

7-4 In liaison with the Department of Environment and Conservation, the proponent shall monitor progressively the performance of rehabilitation against the criteria in condition 7-2 based on annual reporting in spring.

7-5 The proponent shall submit annually a report of the rehabilitation performance monitoring required by condition 7-4 to the CEO of the Department of Environment and Conservation.
Windimurra Vanadium project: Land clearing and mining below the base of weathering (Assessment No. 1743)

General Description

The proposal involves land clearing and mining below the base of weathering for the recommencement and extension of the already approved Windimurra Vanadium mine. The life of the mine will be more than 20 years.

An additional 272 hectares of land will be cleared and open pit mining will take place to a pit depth of 90 metres. Processing of approximately 3.9 million tonnes per annum of ore will produce approximately 10,500 tonnes per annum of vanadium pentoxide flake and ferrovanadium.

The proposal is described in the following document – MBS Environmental: Windimurra Vanadium Project: Land clearing and mining below the base of weathering – Environmental Protection Statement, Draft 5, April 2008.

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of pit</td>
<td>Not more than 4,000 metres x 290 metres</td>
</tr>
<tr>
<td>Depth of pit</td>
<td>Not more than 90 metres</td>
</tr>
<tr>
<td>Total area of disturbance</td>
<td>Not more than 622 hectares (includes 350 hectares already cleared for the original mine)</td>
</tr>
</tbody>
</table>

Figures (attached)

Figure 1 – Location Plan
Figure 2 – Land Clearing Requirements
Figure 3 – Location of Priority Flora
Figure 4 – Calcine Waste Disposal Facility extension Grevillea inconspicua boundary
Figure 5 – West of pit Calytrix erosipetala boundary
Figure 6 – South of pit Calytrix erosipetala boundary
Figure 1: Location Plan
Figure 2: Land Clearing Requirements
Figure 3: Location of DEC Priority Flora
Figure 4: Calcine Waste Disposal Facility extension Grevillea inconspicua boundary
Figure 5: West of pit Calytrix erosipetala boundary
Figure 6: South of pit Calytrix erosipetala boundary
Windimurra Vanadium project: Land clearing and mining below the base of weathering (Assessment No. 1743)

AMG coordinates for *Grevillea inconspicua* and *Calytrix erosipetala* in areas of permitted removal delineated by figures 4, 5 and 6.

<table>
<thead>
<tr>
<th>Name</th>
<th>Easting</th>
<th>Northing</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWDF Extension</td>
<td>650292.1029</td>
<td>6870286.2220</td>
</tr>
<tr>
<td>Perimeter of <em>Grevillea inconspicua</em></td>
<td>650190.4869</td>
<td>6870042.4737</td>
</tr>
<tr>
<td></td>
<td>650515.8994</td>
<td>6870036.5960</td>
</tr>
<tr>
<td></td>
<td>650473.4322</td>
<td>6870156.1522</td>
</tr>
<tr>
<td></td>
<td>650437.2235</td>
<td>6870214.3705</td>
</tr>
<tr>
<td></td>
<td>650357.0802</td>
<td>6870276.6467</td>
</tr>
<tr>
<td></td>
<td>650311.5422</td>
<td>6870292.9767</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Easting</th>
<th>Northing</th>
</tr>
</thead>
<tbody>
<tr>
<td>West of Pit</td>
<td>12755.3761</td>
<td>16846.3309</td>
</tr>
<tr>
<td>Perimeter of <em>Calytrix erosipetala</em></td>
<td>12755.3761</td>
<td>16832.0150</td>
</tr>
<tr>
<td></td>
<td>12785.2835</td>
<td>16793.0362</td>
</tr>
<tr>
<td></td>
<td>12799.5994</td>
<td>16793.0362</td>
</tr>
<tr>
<td></td>
<td>12799.4576</td>
<td>16807.2103</td>
</tr>
<tr>
<td></td>
<td>12769.9755</td>
<td>16846.3309</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Easting</th>
<th>Northing</th>
</tr>
</thead>
<tbody>
<tr>
<td>South of pit</td>
<td>13109.1533</td>
<td>16189.2580</td>
</tr>
<tr>
<td>Perimeter of <em>Calytrix erosipetala</em></td>
<td>13109.1533</td>
<td>16203.5437</td>
</tr>
<tr>
<td></td>
<td>13123.4390</td>
<td>16203.5437</td>
</tr>
<tr>
<td></td>
<td>13123.4390</td>
<td>16189.2580</td>
</tr>
</tbody>
</table>