

Windimurra Vanadium Project: Land Clearing and Mining Below the Base of Weathering

Environmental Protection Statement

Prepared for:

Windimurra Vanadium



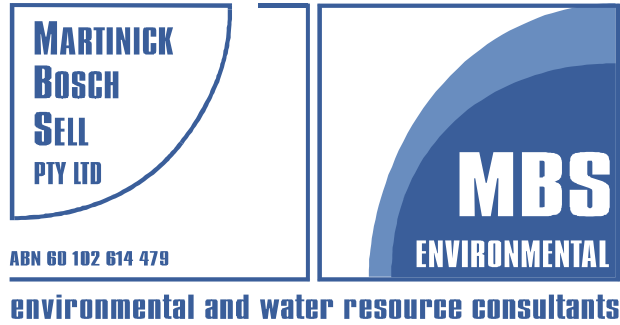
April 2008

Prepared by:

Martinick Bosch Sell Pty Ltd
4 Cook Street
West Perth WA 6005

Ph: (08) 9226 3166
Fax: (08) 9226 3177
Email: info@mbsenvironmental.com.au
Web: www.mbsenvironmental.com.au

MBS
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WINDIMURRA VANADIUM PROJECT:
LAND CLEARING AND MINING BELOW THE BASE
OF WEATHERING
ENVIRONMENTAL PROTECTION STATEMENT

PREPARED FOR

WINDIMURRA VANADIUM

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This report has been checked and released for transmittal to **Windimurra Vanadium**.

PREPARED BY:

Lisa Boulden
Environmental Scientist

Signature:

Date: 30.04.08

CHECKED BY:

Kristy Sell
Director – Environmental Science

Signature:

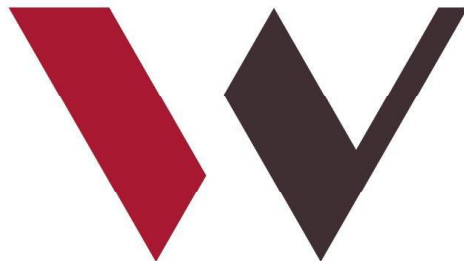
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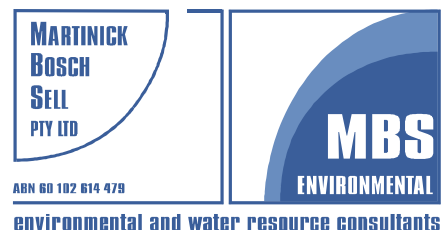


**WINDIMURRA
VANADIUM**

BY

MBS ENVIRONMENTAL

4 Cook Street
West Perth WA 6005
Australia
Telephone: (618) 9226 3166
Facsimile: (618) 9226 3177
Email: info@mbsenvironmental.com.au



EXECUTIVE SUMMARY

BACKGROUND

The Windimurra Vanadium Project and the remaining associated infrastructure are situated some 600 kilometres northeast of Perth in Western Australia. The deposit is approximately 80 kilometres southeast of Mount Magnet, the closest town, in the Murchison region of Western Australia. There is access to natural gas from a 365 kilometre long spur pipeline, which was originally built specifically for the project.

In 1991, Precious Metals Australia Ltd (PMA) referred to the Environmental Protection Authority (EPA) a proposal to develop a vanadium mine and process plant at Wago Hills (Windimurra), approximately 80 kilometres south-east of Mt Magnet. PMA prepared a Public Environmental Review (PER) which was released for public review in January 1992. After extensive public consultation, the Minister for the Environment approved the proposals on 16 September 1992. The project was however deferred in 1992 due to low metal prices. In 1997/8, PMA reviewed the project and decided to proceed to implementation.

In 1997, in order to keep the project active, PMA applied to the Minister for the Environment under the provisions of Section 46 of the *Environmental Protection Act 1986*, to extend environmental approval for a further two years. A Section 46 application for amendment to the environmental approval was submitted in February 1998 for an amendment of the Ministerial Conditions, as contained in the 1992 Ministerial Statement.

A statement that the proposal may be implemented pursuant to the provisions of the *Environmental Protection Act 1986* was issued by the Minister for the Environment on 9 July 1998 (Ministerial Statement 481). Accompanying this statement was an amended set of Ministerial Conditions and a list of consolidated commitments for the project.

The Windimurra Vanadium Project originally commenced operations in November 1999 under ownership by Xstrata PLC (Xstrata) and PMA under the proponent, Vanadium Australia Pty Ltd (Vanadium Australia), which was a joint venture between PMA and Xstrata. During the first 12 months of its operation, the project was impacted by a number of commissioning delays, forcing PMA to sell its participating interest in the project to Xstrata at the end of 2000. Xstrata continued to operate the mine until April 2003 when it was placed on care and maintenance and ultimately closed permanently in 2004. Following closure, PMA commenced legal action against Xstrata which was settled in April 2005. During 2004, significant amounts of infrastructure, particularly ore processing equipment were removed from the site.

In 2005 Vanadium Australia submitted a Performance and Compliance Report to the Department of Environment (now the Department of Environment and Conservation (DEC)) that covered the years 2002 – 2004. A Conceptual Closure and Rehabilitation Plan was submitted to the EPA by Xstrata in August 2005, following a Notification of Non-Compliance issued to Xstrata for Closure from the EPA. PMA were advised by DEC that this Notice would be lifted following approval of project re-commissioning.

On 30 May 2005, the Minister for State Development consented to transfer of all Windimurra mining tenements from Xstrata to PMA and on 5 August 2005, the Minister for Environment consented to nomination of PMA as the Proponent under the *Environmental Protection Act 1986*, replacing Vanadium Australia. Following grant of these approvals, PMA became the sole owner of the Windimurra Site from 9 August 2005.

The Windimurra Vanadium Project design as described in this document incorporates largely the same process as operated previously. A number of potential improvements were recognised during project operation and recommissioning of the project has provided PMA with the opportunity to incorporate these improvements into the design. A Section 45C application submitted to the EPA on 27 September 2007 seeking approval for non significant changes to the approved project was approved on 22 October 2007.

[Note: On 19 December 2007, PMA changed its name to Windimurra Vanadium Limited (WVL). For consistency with previous documentation the previous name, PMA, has been retained throughout this document. WVL and PMA have the same ABN and are essentially the same legal entity.]

KEY PROJECT CHARACTERISTICS

A summary of the key project characteristics is produced below.

Proposal Characteristics	Units	Ministerial Statement 481	Approved September 2007 Amendment	EPS 2008
Life of mine production	years	>15	>20	>20
Pit Depth	metres			90
Area of tenement	hectares	988	Unchanged	Unchanged
Area of disturbance	hectares	120	705	650

OVERVIEW OF THE PROPOSAL

Land Clearing

This proposal relates to land clearing required for re-commencement of an approved mining project (Ministerial Statement 481). The initial project approval allowed for 120 hectares of clearing. However, the total amount of land clearing undertaken until the end of 2002 was reported as being 350 hectares in that year's Annual Environmental Report (AER). Additionally, plans provided to the Department of Environmental Protection (now DEC) as part of Works Approval documents submitted in August 1999, suggest that land disturbance for the plant area and pit is about 140 hectares while land disturbance for the non-magnetic Tailings Storage Facility is about 510 hectares.

The land clearing outlined in this EPS is required to construct waste disposal facilities and allow mining of additional vanadium resources identified by mineral exploration undertaken by PMA since cessation of mining in 2003. Land clearing required for re-commencement of the project is about 300 hectares of which about 28 hectares has previously been cleared. This comprises:

- Construction of a new Barren Liquor Disposal Evaporation Pond (BLP) – 15 hectares.
- Movement of the existing Non-magnetic Tailings Storage Facility (TSF) – 86 hectares.
- Development of the open pit to the north and south and widening of the existing pit – 81 hectares.
- Development of four small waste rock stockpiles – 81 hectares.
- Extension of the Calcine Waste Disposal Facility (CWDF) – 5.3 hectares.
- Expansion of the mine village to accommodate an increased workforce – two hectares.
- Clearing around infrastructure i.e. power lines, water supply lines – 30 hectares.

Clearing would commence on receipt of all project approvals. This is anticipated to be in the first quarter of 2008. Clearing for the BLP, mine village and infrastructure will occur within the first year of re-commencement of the project. Clearing for the open pit extension, waste rock stockpiles and TSF will occur over the projected 20 year life of the project.

Groundwater and Mining Below the Base of Weathering

Previous mining operations progressed to about 35 to 40 metres in depth along the 1,000 metre length of the pit which is some two to five metres below the base of weathering. Inflow water was successfully managed through construction of sumps within the pit floor. Water was either re-used within operations or evaporated.

Mining operations are now proposed to occur to a maximum of 90 metres in depth. 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, with the inflows being the result of secondary permeability caused by geological structures. To date no large structures have been intercepted that are likely to result in significant inflows.

Low levels of ground water are likely to be intersected from the base of weathering (35 metres) to depths of about 80 metres. Based on previous hydrological investigations and records of water encountered during mineral exploration, static water levels will be 30 - 35 metres below ground level. The aquifers likely to be encountered are in fractured rock and are unconfined in nature. Estimates of water supply likely to be possible from this aquifer are in the order of 1.2 to 2.3 litres per second (Rockwater, 1991a). Water quality analysis indicates salinities of 900 to 1,400 milligrams per litre Total Dissolved Solids (TDS).

Preliminary hydrological investigations do not indicate the need for installation of production bores to dewater ahead of mining activities below the base of weathering. Groundwater when encountered will be managed in the same manner as used by previous operations by directing it into sumps within the pit where it will be removed for re-use by portable pumps. If larger

volumes are encountered than can be re-used within mining operations, water will be re-used within ore processing operations and abstraction from the bore field will be reduced to compensate.

SUMMARY OF ENVIRONMENTAL COMMITMENTS

A large number of commitments to prevent or minimise adverse environmental impacts have been made throughout this document. These are summarised below with the commitment number referencing the section of the document in which they are made.

Commitment Number	Commitment
Soil and Landform	
5.1.2-a	Clearing of vegetation will be minimised consistent with safe and efficient operations and in accordance with the recommendations of the Flora Management Plan.
5.1.2-b	Work will be carefully planned to ensure construction immediately follows clearing wherever possible.
5.1.2-c	Land clearing and/or topsoil removal will not be conducted during adverse weather conditions (e.g. during periods of high wind or intense rainfall).
5.1.2-d	Topsoil stockpiles will be as low as possible (up to two metres) with a large surface area for the preservation of seed stock.
5.1.2-e	Topsoil stockpiles will be stabilised using brush from cleared vegetation to reduce the erosion potential, discourage weeds and maintain soil microbes.
5.1.2-f	Topsoil will be used as soon as possible after collection.
5.1.2-g	Investigate opportunities later in the project life to dispose of non magnetic tailings and waste rock within completed sections of the open pit.
Vegetation and Flora	
5.2.2-a	Prior to clearing, the area to be cleared will be clearly delineated.
5.2.2-b	Use of disturbed areas in preference to requiring additional land clearing.
5.2.2-c	Clearing for re-instatement of the powerlines will be conducted using a bulldozer with a raised blade
5.2.2-d	Location of project infrastructure where possible to avoid impacts on populations of flora of conservation significance.
5.2.2-e	Where removal of priority flora species can not be avoided in approved areas, DEC will be advised of the removal of the plants.
5.2.2-f	The Calytrix erosipetala located near the western edge of the Southern Pit will be flagged as a no-go area during clearing and construction of the abandonment bund.
5.2.2-g	All heavy earthmoving equipment moving from a known weed area to a weed free area within the site will be cleaned prior to entry to site to remove weed seeds and plant pathogens.
5.2.2-h	Inclusion of flora and fauna information in project inductions for all employees and contractors. This includes information on weed identification and reporting and priority flora.
5.2.2-i	Targeted surveys for Grevillea inconspicua and Calytrix erosipetala will be undertaken prior to clearing.

Commitment Number	Commitment
5.2.2-j	Existing fences for protection of <i>Grevillea inconspicua</i> and <i>Calytrix erosipetala</i> will be repaired and new fences installed as shown in Figure 7 to assist with protection of these species from adverse impacts associated with mining.
5.2.2-k	Regular inspections will be undertaken of the fence (and signage) around the protection areas to ensure that unauthorised access, and hence unnecessary disturbance to the remaining populations of <i>Grevillea inconspicua</i> and <i>Calytrix erosipetala</i> , does not occur.
5.2.2-l	Photographic monitoring sites for <i>Grevillea inconspicua</i> and <i>Calytrix erosipetala</i> will be established within the protection areas. Monitoring will be conducted annually in spring with the results reviewed by a qualified botanist.
5.2.2-m	Investigate the potential for propagation of <i>Grevillea inconspicua</i> and <i>Calytrix erosipetala</i> and their potential for inclusion in rehabilitation strategies.
Fauna	
5.3.2-a	An internal Vegetation Clearing Permit will be completed, and the appropriate signatures obtained, prior to the commencement of any clearing activities. Specific project related management practices will be determined for each application and listed on the form.
5.3.2-b	Cleared vegetation will be stockpiled in a designated area and retained for rehabilitation purposes to provide habitat for fauna.
Surface and Groundwater	
5.4.2-a	Construction of diversion channels adjacent to infrastructure to divert clean water in ephemeral watercourses around the facilities.
5.4.2-b	Construction of drains and sumps within the pit floor to direct any groundwater and rain water inflows to points where it can be re-used for dust suppression or ore processing purposes.
Air Quality	
5.5.2-a	Water trucks will be used to prevent excessive dust emissions during earthworks operations and from use of roads.
5.5.2-b	To assist in the capture of CO ₂ , all completed areas will be rehabilitated with local provenance species as soon as practicable.
Rehabilitation and Closure	
6.1.2-a	Rehabilitation of disturbed areas will be undertaken on a progressive basis throughout the life of the project.
6.1.2-b	Prior to undertaking these works, a final landform and long term land use must be agreed upon for the disturbed area and the rehabilitation program designed to achieve these objectives.
6.1.2-c	Areas of disturbance to be rehabilitated will be surveyed and the size and location recorded on a site plan for future monitoring.
6.1.2-d	Areas undergoing rehabilitation will be clearly signed (e.g. “ <i>Area under rehabilitation</i> ”) to notify site personnel. Fencing may be required to prevent vehicle access and browsing by native fauna and stock.
6.1.2-e	Access to areas undergoing rehabilitation can only be obtained with permission from the site Environmental Manager.

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