

Yakabindie nickel project - change of condition due to modification to location of facilities

Dominion Mining Limited

**Report and recommendation of the
Environmental Protection Authority**

**Environmental Protection Authority
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Proposal to modify Condition 1 of Ministerial Statement - Yakabindie Nickel Project - location of facilities

Pursuant to Section 46(1) of the Environmental Protection Act, the Minister for the Environment has requested the Environmental Protection Authority to inquire and report on the modifications to the proposal for the Yakabindie Nickel Project.

Dominion Mining Limited submitted a Consultative Environmental Review for the Yakabindie Nickel Project to the Environmental Protection Authority in April 1990. Following assessment of the Consultative Environmental Review by the Environmental Protection Authority, the Minister for the Environment issued a statement "that the proposal may be implemented" on 29 November 1990 (Appendix 1). This statement contains a copy of the proponent's commitments which remain applicable to the modified proposal.

Further studies carried out by the proponent on the location of facilities at the site have resulted in modifications, and hence have changed the proposal as covered by Condition 1 of the Ministerial approval.

The modifications to the proposal are as follows:

1. Relocation of the concentrator from the western side of Jones Creek to the eastern side.
2. Relocation of the tailings dam from the western side of Jones Creek to a new catchment area to the south-east, which does not form part of the Jones Creek catchment.
3. Relocation and amalgamation of the northern and eastern waste dumps into a new dump to be located on the site previously occupied by the tailings dam.

Figures 1 and 2 show the old and the new locations of facilities at the Yakabindie minesite.

The Environmental Protection Authority has assessed the modifications to the original proposal and regards them as having the potential to reduce the environmental impact of the proposal in comparison to the previous location of the facilities.

Recommendation 1

The Environmental Protection Authority regards the changes to the location of facilities for the Yakabindie Nickel proposal as being environmentally acceptable and recommends that Condition 1 should be amended to read "In implementing the proposal (including the documented modifications of 20 February 1991) the proponent shall fulfil the commitments....."

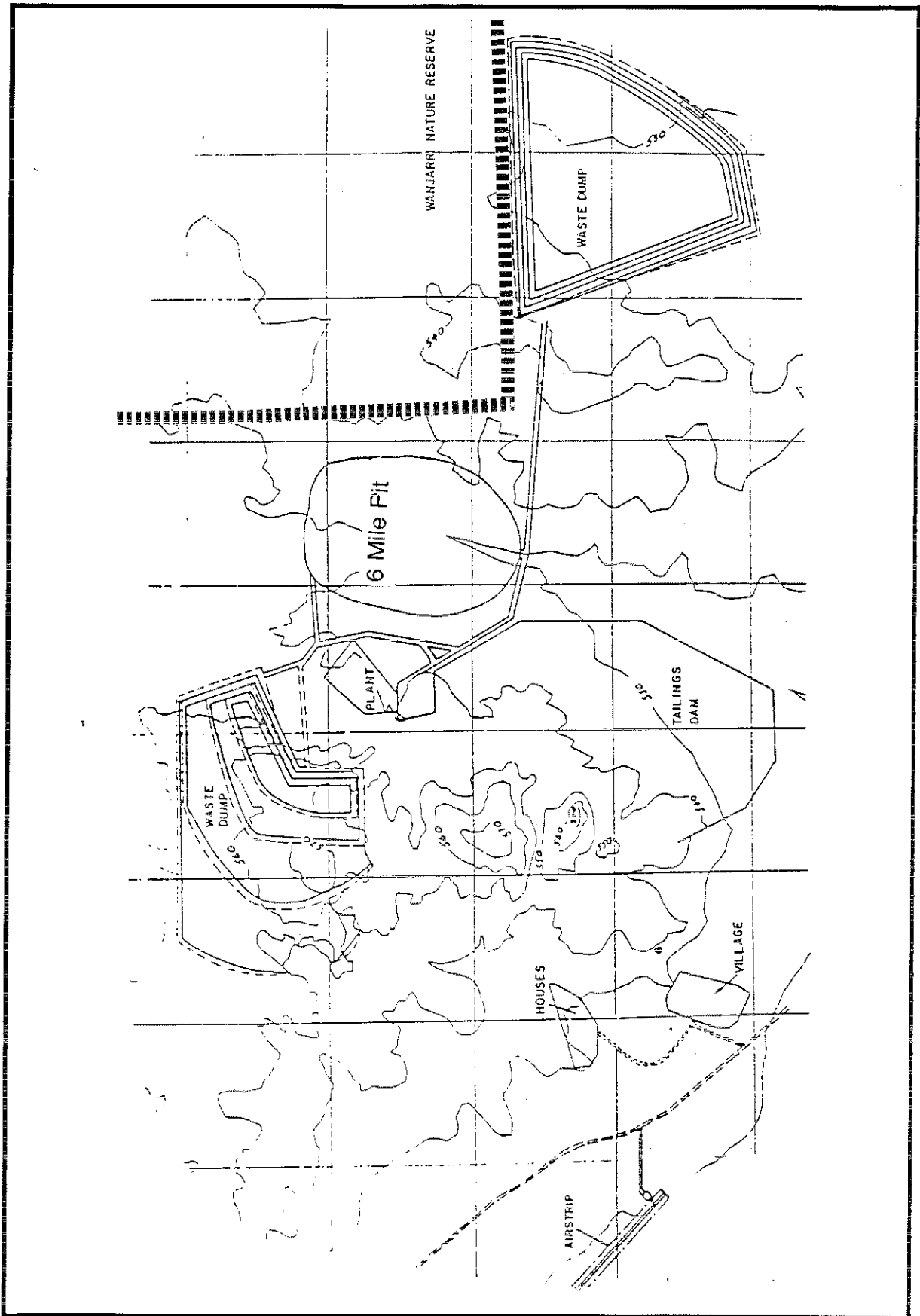


Figure 1: Proposed developments for the Yakabindie Nickel Project - initial proposal, April 1990

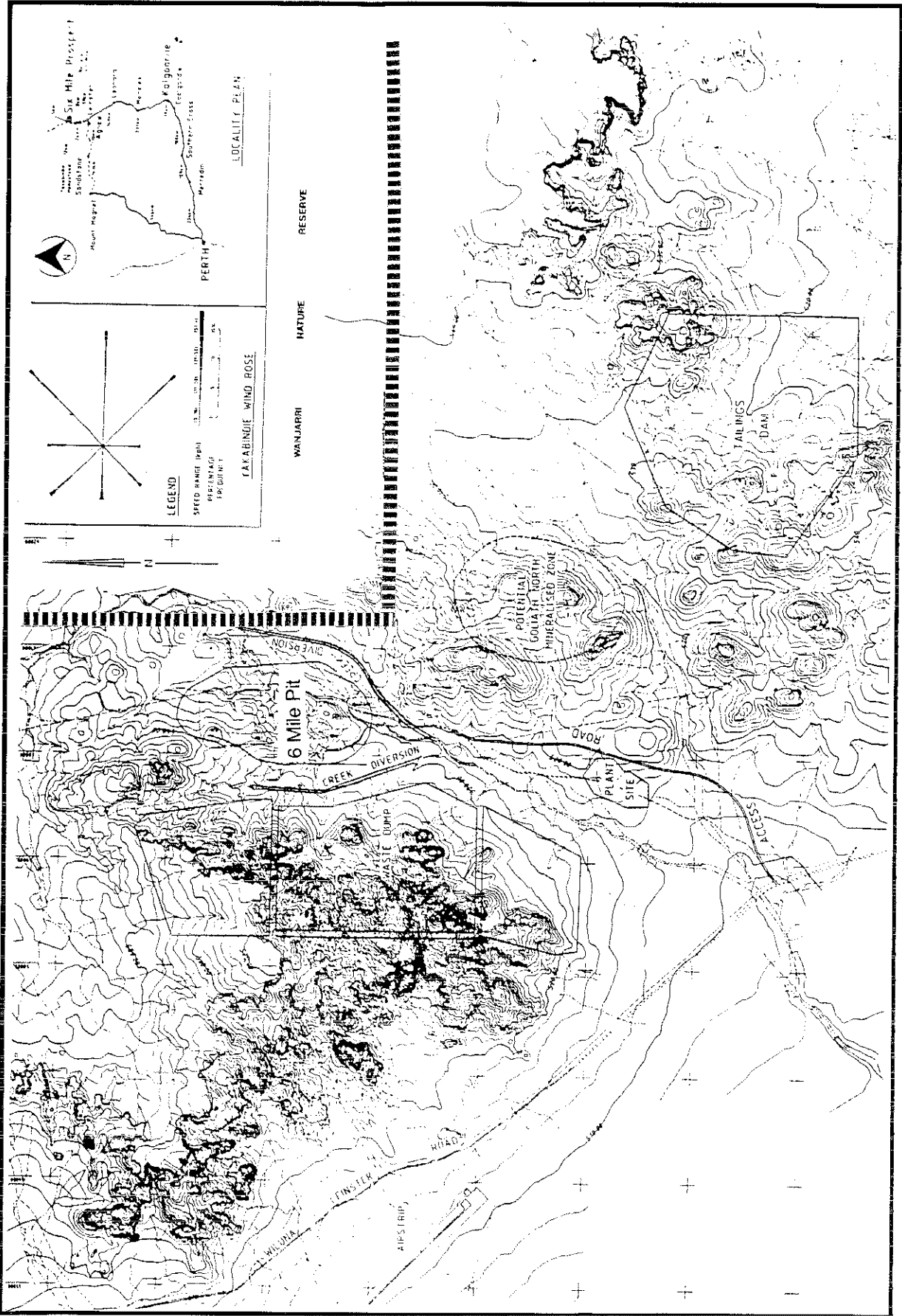


Figure 2: Changes to location of facilities - revised proposal, March 1991

Appendix 1

Ministerial statement that a proposal may be implemented



WESTERN AUSTRALIA
MINISTER FOR THE ENVIRONMENT

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

YAKABINDIE NICKEL PROJECT AT LEONORA

This proposal may be implemented subject to the following conditions:

1. In implementing the proposal, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Consultative Environmental Review and in Appendix 1 of the Environmental Protection Authority Bulletin 444 which consolidates responses to issues during the assessment. (A copy of the commitments is attached).
2. Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.
3. Prior to the commencement of productive mining, the proponent shall prepare and implement a drainage management programme to include drainage of the waste dumps, ore stockpiles, processing plant and the tailings dam, to the satisfaction of the Minister for the Environment on the advice of the Environmental Protection Authority in consultation with the pastoral lessee. This programme shall ensure that drainage does not unacceptably affect vegetation of the site and its environs or the quality of water in Jones Creek.
4. Prior to undertaking work for the diversion of Jones Creek, the proponent shall propose a design for the diversion to the satisfaction of the Minister for the Environment on the advice of the Environmental Protection Authority and the Department of Mines. The design shall be prepared in consultation with the pastoral lessee regarding historical information on local flood heights of Jones Creek. The proponent shall subsequently implement the design to the satisfaction of the Environmental Protection Authority and the Department of Mines.
5. Within six months following project commissioning, the proponent shall prepare and implement ongoing rehabilitation plans to the satisfaction of the Environmental Protection Authority upon advice from the Department of Mines. These plans shall be made available for review by the Environmental Protection Authority.
6. The proponent shall be responsible for decommissioning and removal of the plant and installations and rehabilitating the site and its environs to the satisfaction of the Environmental Protection Authority. At least twelve months prior to decommissioning, the proponent shall prepare and subsequently implement a decommissioning and rehabilitation plan to the satisfaction of the Environmental Protection Authority upon advice from the Department of Mines. This plan shall ensure the stability of the site in the long term with particular reference to drainage.

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7. No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.
8. If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority).



Bob Pearce, MLA
MINISTER FOR THE ENVIRONMENT

29 NOV 1990

Appendix 1
Yakabindie Nickel Project
Summary of proponent's commitments

1.0 Introduction

Reference should be made to the Consultative Environmental Review document for a detailed understanding of project and the environmental monitoring and management programmes planned by the proponents.

2.0 Commitments

Dominion undertakes to fulfil the following commitments to protect the environment and public during the life of the Yakabindie Project from commitment to proceed with the project to decommissioning following the completion of mining, and while ever Dominion holds the leases on which project activities have been undertaken.

2.1 Government acts and regulations

- Comply with the requirements of all applicable Acts and Regulations.

2.2 Environmental Officer

- Appoint a Project Environmental Officer prior to the commencement of construction whose duties include:
 - (i) environmental impact assessment and monitoring of project activities;
 - (ii) design and implementation of the progressive rehabilitation programmes including research activities associated;
 - (iii) establish fauna monitoring programmes in consultation with CALM;
 - (iv) establish feral animal eradication programmes in consultation with CALM and the APB;
 - (v) liaise and report to Government Departments as required in relation to environmental matters;
 - (vi) act as an honorary warden for the Wanjarri Nature Reserve;
 - (vii) Set up an educational programme as part of the site induction of employees for the protection of the Wanjarri Nature Reserve and areas surrounding the project;
 - (viii) obtain the appropriate licence from CALM for seed collection activities associated with rehabilitation.

2.3 Environmental management programme

2.3.1 Baseline studies

- Carry out a baseline survey of Jones Creek aquatic biology and water quality as soon as possible prior to commencement of construction;
- Carry out a baseline groundwater quality survey as soon as possible prior to the commencement of construction downstream of the tailings dam and in the borefield areas.

2.3.2 Monitoring and inspection programmes

- Monitor groundwater levels and groundwater quality immediately downstream of the tailings dam on a regular weekly basis;
- Carry out daily inspections of the tailings dam;
- Monitor water quality of Jones Creek during the life of the project;
- Monitor groundwater resources (water quality and water levels) in the borefields and pastoral wells at Miranda, Paddy's Knob, Townsend and Henry Wells and pit dewatering, and evaluate extent and depth of drawdowns;
- Carry out regular inspections of the water pipeline from the borefields;
- Monitor noise levels to ensure compliance with Government Acts and Regulations.

2.3.3 Operational management procedures

2.3.3.1 Dust Control

- Establish dust suppression programmes to comply with Mines Department Regulations and minimise dust pollution of the project area and adjacent nature reserve through the following procedures:
 - (i) minimise clearing of land by staging clearing works and keeping clearing to the minimum for essential use consistent with safe and efficient operations;
 - (ii) fencing off areas not to be disturbed by the project;
 - (iii) limiting development of tracks and roads to essential requirements;
 - (iv) damping haul roads and plant roads with low salinity water when available;
 - (v) carry out trails with dust suppressant materials (enzymes) mixed with water to assist with dust suppression;
 - (vi) progressive rehabilitation of tailings dam and waste dumps;
 - (vii) cover the side slopes and upper surfaces of the tailings dam and waste dumps with rock to prevent wind erosion and dust formation.
 - (viii) - Dominion will control dust on roads to the tip face using water carts (similar to elsewhere on the lease)
 - The northern and easterly faces of each dump lift will be rehabilitated early in the life of the Eastern Waste dump, and paddock dumping will occur in a southerly direction to reduce the chance of dust impact further.

2.3.3.2 Noise

- Where possible, minimise blast noise impact by scheduling blasting during optimal meteorological conditions.

2.3.3.3 Rehabilitation and decommissioning

- Carry out progressive rehabilitation of the waste dumps and tailings dam embankments and rehabilitate the project area to the level of the existing land use in accordance with the rehabilitation programme. This programme will be planned and carefully implemented from the commencement of mining to ensure it becomes part of the operational procedures of the project ensuring its cost effectiveness. Developments in rehabilitation techniques will be incorporated into the rehabilitation programme as appropriate.

- (i) Vegetation and topsoil salvage
 - in areas to be disturbed, all vegetation litter and topsoil (where present) will be salvaged by progressive removal in front of advancing waste dumps and immediately redeployed, where possible, to conform to natural thickness.
 - Where redeployment is not possible, material will be stockpiled in areas specifically reserved for this purpose adjacent to redeployment areas for short term storage, these stockpiles will be surface ripped, seeded and fertilised.
- (ii) Waste dumps
 - are designed and will be constructed to blend into the existing topography such that visual impact from the main roads is minimised.
 - will be constructed with overall 20 degrees overall slopes, in 10 metre high lifts, with a 5 metre wide berm for rehabilitation access separating each lift, with dumping to commence from the outside of the dumps and each lift built to full height before dumping in the centre is commenced.
 - Tops of the dumps will be sloped towards the centre of the dump, ripped on completion of construction and windrows constructed at the edge of each terrace.
 - Outer faces will be moonscaped and covered with fresh rock.
- (iii) Open Pit
 - On completion of mining the pit will be left in accordance with the details as laid out in the Department of Mines interim guidelines on safety bund walls around abandoned open pits.
- (iv) Tailings Dam
 - Will be constructed and operated to maximise water return and tailings density, by collection of water through the central decant and upstream toe drain, with return water being re-used in processing.
 - Will be constructed with 20 degrees overall slopes in 10 metre high lifts with a 5 metre wide berm for rehabilitation access separating each lift.
 - The tailings dam will be covered with a layer of waste rock on completion of mining.
 - Outer slopes will be moonscaped and covered with fresh rock.
 - The tailings lines will be located on the rebated upstream side of the embankment, and a downstream bund will be constructed to contain spills from water return lines which will be fitted with pressure transducers for automatic shut off and one way valves to limit drainage of these lines.
 - Bunds will be constructed between the plant and downstream toe drain to contain any pipeline breakages between the plant and tailings dam.
 - Decant systems will be left open on completion of mining to assist drainage, with any toxic leachates neutralised by passive methods or directed by pipeline into the abandoned open pit.
 - In the event of adverse groundwater quality changes detected by groundwater monitoring a recovery bore or seepage trench system will be installed alternative tailings disposal techniques investigated or an alternative tailings disposal site will be considered.
- (v) Support facilities
 - establishment and re-introduction of local native flora will be carried out and co-ordinated by the environmental officer in the village area.

- sewage disposal will be carried out in a purpose built treatment plant for the main village and by septic tank and leach drain as appropriate for the houses and main offices.
- all domestic waste will be buried within the waste dump.
- to minimise clearing requirements powerlines, water lines and associated access roads will be constructed in one corridor.
- on completion of mining all buildings and equipment including water pipelines and power transmission lines will be removed. All pipes and boreholes will be capped, costeans backfilled and the ground ripped and seeded. All sites will be left clean and tidy.

2.3.3.4 Surface water

- Install silt traps to collect run-off from roads, waste dumps and tailings dam and prevent sediment from entering the drainage channels in accordance with the management plan for drainage to be provided to the Mines Department prior to commencement of construction;
- Disruption of overland water flow will be minimised by placing the maintenance road adjacent to the pipeline on the same level as the existing ground and raising the pipeline as appropriate to the topography and at least every 50 metres to permit free passage of run-off.
- In the unlikely event that the existing design of the eastern waste dump has not fully obviated the chance of ponding of water during an extraordinary rainfall event leading to flooding of part of the southern areas of the reserve, further suitable earthworks would be performed at that time to overcome such a problem.

2.3.5 Groundwater

- A groundwater management programme will be adopted to balance project requirements from the borefields with the quantities of water recovered from the tailings dam and mine dewatering;
- Pipelines from the borefields will be fitted with a series of one way valves at strategic locations to limit draining of pipes in the event of pipeline failure or for maintenance requirements.

2.3.3.6 Hazardous substances

- Transportation, storage and handling of hazardous substances will be in accordance with the appropriate regulations.
- Waste oils will be combined with fuel for the power station. Waste grease will be collected and transported off site for recycling.

2.3.3.7 Nature Reserve

- Provide new access to the Wanjarri Nature Reserve complete with gate and appropriate fencing.
- Institute education programmes as part of the site induction of employees for the Wanjarri Nature Reserve.

2.3.3.8 Pastoral activities

- Erect fencing as agreed with relevant parties around some or all parts of the development.

- Provide additional stock watering points where wells are affected by project dewatering.

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2.3.3.9 Fire control

- Maintain strict fire control procedures.

2.3.3.10 Access to the project

- Restrict human and non avian faunal access to potentially hazardous areas by fencing if required.
- Signs, fences and gates will be installed where necessary to prohibit public access to the mine site and village.

2.3.3.11 Aboriginal interests

- Submit an application to the WA Museum for Aboriginal artefact sites which are to be disturbed.

2.3.3.12 Conditions of employment

- Recreational activities such as off road driving, hunting, etc, will not be permitted by employees.
- Keeping of domestic animals (dog, cats, etc) will be prohibited on the project.

2.4 Environmental management reports

- Submit an annual report of environmental management and monitoring programmes to an agreed format and content with State Authorities.