

# **Mineral sands mine, Dardanup - Extension of time limit**

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**ISK Minerals Pty Ltd**

**Section 46 Report and recommendations  
of the Environmental Protection Authority**

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 898  
June 1998**

## **Summary and recommendations**

ISK Minerals Pty Ltd wishes to extend the time limit of environmental approval for its proposed Mineral Sands Mine at Dardanup for a further two years. This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors, conditions and procedures relevant to the proposal.

Section 46 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on whether or not the proposed changes to conditions and procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

### **Relevant environmental factors**

It is the EPA's opinion that the following are the environmental factors relevant to the proposal, which require detailed evaluation in the report:

- a) extension to the time limit of approval; and
- b) changes to other environmental conditions.

### **Conclusion**

The EPA has considered the proposal by ISK Minerals Pty Ltd to extend the time limit of environmental approval for the Dardanup Mineral Sands Mine and has concluded that a two-year extension should be allowed.

The EPA believes that the period since the Dardanup Mineral Sands Mine was originally assessed has not given rise to any changes which would cause the EPA to reconsider its previous assessment of the project or its previous recommendation as to the environmental acceptability of the project.

In addition to reporting on an extension of the time limit, the EPA considers that conditions attaching to the environmental approval should be updated. It has therefore reported also on the updating of conditions.

### **Recommendations**

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

1. That the Minister notes that this report is pursuant to Section 46 of the *Environmental Protection Act 1986* and thus is limited to consideration of proposed changes to the original proposal.
2. That the Minister notes that the proposed change is an extension of time for implementation.
3. That the Minister notes that the EPA has concluded that:
  - the extension of time limit of approval for another two years is acceptable; and
  - the Ministerial Conditions of environmental approval should also be updated to reflect current practice.
4. That the Minister imposes the conditions and procedures set out in Appendix 4 of this report.

## Conditions

The EPA recommends that the following conditions, which are set out in detail in Appendix 4, be imposed if the proposed time limit extension for the Dardanup Mineral Sands Mine of ISK Minerals Pty Ltd is approved:

1. The existing Ministerial Conditions applied to the project (Ministerial Statement 239 dated 8 April 1992), subject to modifications necessary to:
  - extend the time limit of environmental approval;
  - update the statement into the current format; and
  - ensure compatibility with current environmental protection regulations.
2. Additional conditions which are now routinely applied to mining operations of this type and size, namely:
  - requirement for an environmental management system for the project;
  - requirement for an Environmental Management Program for the project;
  - requirement for an environmental performance review after three years;
  - requirement for periodic environmental auditing.

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## **1. Introduction and background**

ISK Minerals Pty Ltd wishes to extend the time limit of environmental approval for its proposed Mineral Sands Mine at Dardanup for a further two years.

The project was assessed by the Environmental Protection Authority in 1991 at the level of a Consultative Environmental Review. The Minister for the Environment gave environmental approval for the project, subject to conditions, on 8 April 1992. Condition 8 of the Minister's statement of approval (Appendix 3) set a time limit for commencing the project of five years. After this, any extension to that time limit would have to occur via a request to change the condition under Section 46 of the *Environmental Protection Act 1986*.

In accordance with Condition 8, ISK Minerals Pty Ltd has requested that the time limit of approval be extended for a further two years via a Section 46 change to conditions. This request was made on 10 March 1997, prior to the expiration date referred to in Condition 8.

Further details of the proposal are presented in Section 2 of this Report. Section 3 discusses environmental factors relevant to the proposal. Conditions and procedures to which it should be subject if the Minister determines that it may be implemented are set out in Section 4. Section 5 presents the EPA's conclusions and Section 6 the EPA's recommendations.

A list of people and organisations that made submissions is included in Appendix 1. References are listed in Appendix 2, environmental conditions currently applying to the proposal are contained in Appendix 3, and recommended conditions and procedures are provided in Appendix 4.

The DEP's summary of submissions and the proponent's response to those submissions has been published separately and is available in conjunction with this report.

## **2. The proposal**

### **Approved proposal**

The proposed mineral sands mine is located on the foothills of the Darling Scarp between Burekup and Dardanup. It comprises a low grade deposit covering an area about 5 kilometres long and ranging in width from 0.5 to 1.5 kilometres (Figure 1).

Under the original proposal, this resource would be mined by sluice or dry methods over a minimum ten-year timeframe at a rate of about 40 hectares per year. Primary separation of ore would occur on site prior to transport of the resulting concentrate to the Company's Picton dry separation plant via an extension of Dowells Road to the South West Highway.

Areas to be mined would be mainly cleared farmland. These would be rehabilitated with the objective of reinstating agricultural productivity to at least pre-existing levels, at the same time including some native vegetation to replace existing trees and to assist management of high water tables. Thickened clay tailings, solar-dried clay tailings, sand tailings and overburden returned to mined areas would optimise soil conditions for this rehabilitation.

Water would be provided by extraction from the mining path, supplemented, as necessary, by pumping from deep bores. Any excess water would be diverted to the Collie River via an adjacent irrigation channel.

It was intended that ore supplied to the Picton plant from the Dardanup mine would progressively replace ore supplied by the Company's Waroona mine. The Waroona mine closed, however, in September 1992, and the Picton plant followed suit in March 1993 without the Dardanup operation commencing.

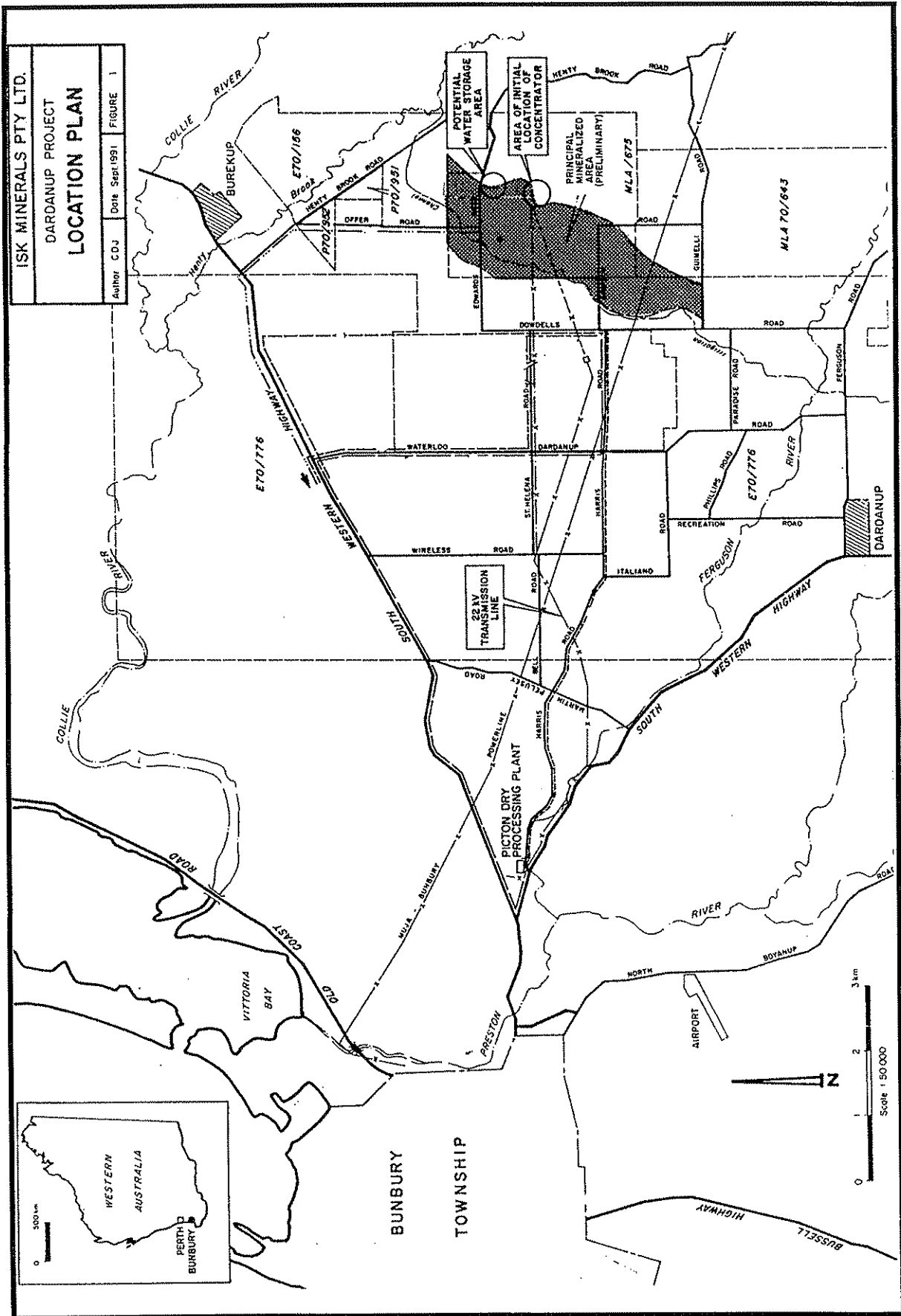


Figure 1. Location map for the proposal.

A more detailed description of the original proposal is contained in the EPA's previous assessment of that proposal (EPA, 1991) and in the 1991 Consultative Environmental Review (ISK Minerals Pty Ltd, 1991).

### **Proposed changes to environmental conditions**

ISK Minerals Pty Ltd wishes to extend the time limit of environmental approval for this proposal by two years. The project has not yet commenced, having been placed on hold owing to a downturn in the mineral sands' market. Continued weakness in this market has not permitted start-up to date, but a feasibility study scheduled for completion in the third quarter of 1998 is examining opening the Dardanup mine and re-opening the Picton dry plant within the next two years.

In accordance with Condition 8, ISK Minerals Pty Ltd has requested that the time limit of approval be extended for a further two years via a Section 46 change to conditions. This request was made on 10 March 1997, prior to the expiration date referred to in Condition 8.

## **3. Environmental factors**

### **3.1 Relevant environmental factors**

Section 46 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

The relevant environmental factors identified in the EPA's previous (1991) assessment of the proposal were:

- surface water and groundwater management;
- rehabilitation of the mine site; and
- impacts associated with dust and noise.

The EPA's assessment of these factors has not changed as a result of the proponent's current proposal to extend the time limit of environmental approval. The EPA's assessment of the proposal has therefore not given rise to any changes which would cause the EPA to reconsider its previous assessment of the project and, in particular, its previous recommendation as to the environmental acceptability of the project. The only new issue raised in public submissions related to the availability of the management plans for review by key stakeholders. This has been incorporated in the updated conditions.

It is the EPA's opinion that its inquiry into the proposed time limit extension should address the following issues:

- a) whether the requested extension to the time limit should be approved; and
- b) what other changes to the existing environmental conditions might be required should an extension be granted.

These issues are discussed in Sections 3.2 and 3.3 of this report.

### **3.2 Extension of the time limit of approval**

#### **Description**

Approval for this project was initially limited to five years recognising that over time the predicted environmental impacts and their considered significance may change. Over five years, knowledge of the receiving environment may increase as a result of further studies, and the anticipated impacts on this environment may change as a result of increased understanding

of interaction between the environment and the proposal. In addition, environmental regulations, standards, guidelines and accepted practices may also change.

There have been no changes in the understanding of the receiving environment or revisions to the predicted impacts from those originally presented by the proponent and assessed by the EPA in 1991.

One Government agency submission on this proposal was neutral, one advised of changes to community structure which warranted wider consultation on the project, and the Local Government was supportive of the project and of an extension to the time limit on its approval. Public submissions queried the status of rehabilitation planning and water monitoring, sought wider public consultation, and raised concerns about the social and tourism impacts of the project.

The proponent has responded to each of the concerns raised in submissions. The DEP's summary of submissions and the proponent's response to those submissions has been published separately and is available in conjunction with this report.

### **Assessment**

Environmental standards have changed over the past five years. Changes which are applicable to this proposal include changes to the State's noise regulations and adoption by the EPA of a number of standard environmental conditions which are now routinely applied to large mining and processing operations. None of these changes significantly affects the proposal as described in the 1991 Consultative Environmental Review document, but only result in changes to limits which must be met, and some additional reporting requirements. These can be accommodated through recommended changes to the environmental conditions which are described in Section 3.3.

Having particular regard to:

- a) the fact that the predicted environmental impacts of the proposal have not changed; and
- b) changes in environmental standards that can be addressed through amendments to the conditions and procedures of environmental approval,

it is the EPA's opinion that the requested extension of the time limit of environmental approval should be allowed.

### **3.3 Changes to other environmental conditions**

#### **Description**

Assessment of this proposal under Section 46 of the *Environmental Protection Act 1986* allows the EPA the opportunity to amend other environmental conditions in addition to the time limit condition (Condition 8, Appendix 3). The environmental conditions currently applicable to the Dardanup Mineral Sands Mine are contained in Appendix 3.

#### **Assessment**

The EPA has taken the opportunity to review the environmental conditions set on this proposal with a view to:

- a) updating the statement into the current format;
- b) ensuring compatibility with current environmental protection regulations; and
- c) applying additional conditions which are now routinely applied to mining operations of this type and size, namely:
  - requirement for an environmental management system for the project;
  - requirement for an Environmental Management Program for the project;



- requirement for environmental performance reviews every three years;
- requirement for periodic compliance auditing.

The EPA's proposed changes to the existing conditions are set out in greater detail in Table 1 below. This table should be examined in conjunction with the original environmental conditions in Appendix 3 and the recommended draft conditions in Appendix 4.

It should be noted that the proponent's environmental management commitments as shown in Appendix 3 and updated in the proponent's response to submissions are not included with the recommended draft conditions (Appendix 4).

The recommended draft conditions provide for adequate protection of the environment and for efficient and effective environmental auditing of compliance. The EPA recognises that the modified proponent commitments identified in Table 1 reflect the proponent's intent to manage the impacts of its proposal in a responsible manner. However, the inclusion of proponent commitments, the intent of which can be adequately met through implementation of the recommended draft conditions or through other statutory approvals processes, is no longer required.

Changes are indicated in greater detail in Table 1 below. This table should be examined in conjunction with the original proponent commitments in Appendix 3 and the modified commitments in Appendix 4.

#### **4. Conditions**

Section 46 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The EPA acknowledges the proponent's intent behind the commitments, however the recommended draft conditions in this case supersede the requirement for any additional commitments.

The EPA recommends that the following conditions, which are set out in formal detail in Appendix 4, be imposed if the proposed time limit extension for the ISK Minerals Pty Ltd Dardanup Mineral Sands Mine is approved:

1. The existing Ministerial Conditions applied to the project (Ministerial Statement 239 of 8 April 1992), subject to modifications necessary to:
  - extend the time limit of environmental approval;
  - update the statement into the current format; and
  - ensure compatibility with current environmental protection regulations.
2. Additional conditions which are now routinely applied to mining operations of this type and size, namely:
  - requirement for an environmental management system for the project;
  - requirement for an Environmental Management Program for the project;
  - requirement for environmental performance reviews every three years; and
  - requirement for periodic compliance auditing.

**Table 1. Proposed changes to Environmental Conditions**

Original Condition or Commitment No.	Requirements (summarised)	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
<b>Environmental Conditions</b>				
1	Fulfil commitments	Wording changed to reflect no need for proponent commitments	2	<p><b>2 Proponent Commitments</b></p> <p>2-1 The proponent shall implement any environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.</p>
2	Implement the proposal as described	Wording changed to recast condition into contemporary format	1	<p><b>1 Implementation</b></p> <p>1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.</p> <p>1-2 Where, in the course of implementing the proposal, the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.</p>
3	Prepare and implement water management and monitoring plans	Wording changed to recast condition into contemporary format	5	<p><b>5 Surface Water and Groundwater Monitoring and Management Plan</b></p> <p>5-1 Prior to commencing mining, the proponent shall prepare a Surface Water and Groundwater Monitoring and Management Plan, in consultation with neighbouring landowners to the mine, Agriculture Western Australia, the Water and Rivers Commission, the South West Irrigation and the Dardanup LCDC, to the requirements of the Department of Environmental Protection.</p> <p>This plan shall include:</p> <ul style="list-style-type: none"> <li>• hydrological and technical studies to facilitate prediction of impacts of mine dewatering on local and regional hydrology;</li> <li>• regional monitoring of water bores; and</li> <li>• strategies to be implemented in the event of a deterioration of water quality in the monitored areas.</li> </ul> <p>5-2 The proponent shall implement the Surface Water and Groundwater Monitoring and Management Plan required by condition 5-1.</p>

Original Condition or Commitment No.	Requirements (summarised)	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
4	Prevent excessive noise levels and conduct noise monitoring	Acceptable noise limits determined by the noise control regulations.	8	<p><b>8 Noise Limits</b></p> <p>8-1 The proponent shall conduct operations so that noise emissions do not unreasonably impact on people in the vicinity, including residents.</p> <p>8-2 The proponent shall ensure that noise emissions meet the requirements of the noise control regulations applying from time to time under the Environmental Protection Act.</p> <p>8-3 The proponent shall conduct noise surveys (including baseline measurements) and assessments (including the impact of tonal noise) at the Dardanup site to meet the requirements of the Department of Environmental Protection.</p>
5	Develop and implement a progressive rehabilitation plan.	Wording changed to recast condition into contemporary format	6	<p><b>6 Rehabilitation Management Plan</b></p> <p>6-1 Prior to commencing mining, the proponent shall develop a progressive rehabilitation plan, in order to rehabilitate the mine site to an environmentally stable condition, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy, the Water and Rivers Commission, the owners of land on which mining takes place and Agriculture Western Australia.</p> <p>6-2 The proponent shall implement the plan required by condition 6-1.</p> <p>Note: The final land use after mining will be determined between the land owners and the proponent.</p>
6	Prepare and implement a decommissioning and final rehabilitation plan	Wording changed to recast condition into contemporary format	7	<p><b>7 Decommissioning Management Plan</b></p> <p>7-1 At least six months prior to decommissioning, the proponent shall prepare a Decommissioning Management Plan to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection and Department of Minerals and Energy.</p> <p>This Plan shall address:</p> <ol style="list-style-type: none"> <li>1 removal or, if appropriate, disposal on-site of plant and infrastructure;</li> <li>2 rehabilitation of all disturbed areas to agreed final land use(s); and</li> <li>3 identification of contaminated areas, including provision of evidence of notification to relevant statutory authorities.</li> </ol> <p>7-2 The proponent shall implement the Decommissioning Management Plan required by condition 7-1.</p>

Original Condition or Commitment No.	Requirements (summarised)	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
7	No change of proponent without approval by the Minister for the Environment.	Wording changed to recast condition into contemporary format	10	<p><b>10 Proponent</b></p> <p>10-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.</p> <p>10-2 Any request for the exercise of that power of the Minister referred to in condition 10-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.</p> <p>10-3 The proponent shall notify the Minister for the Environment of any change of proponent contact name and address within 30 days of such change.</p>
8	Project to be commenced within 5 years or the approval shall lapse and be void.	Requested time limit extension granted. Project to be commenced within two years of the Section 46 statement.	11	<p><b>11 Commencement</b></p> <p>11-1 The proponent shall provide evidence to the Minister for the Environment within two years of the date of this statement that the proposal has been substantially commenced.</p> <p>11-2 Where the proposal has not been substantially commenced within two years of the date of this statement, the approval to implement the proposal as granted in statement no. 239 shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.</p> <p>11-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond two years from the date of this statement.</p> <p>11-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.</p>

Original Condition or Commitment No.	Requirements (summarised)	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
	Environmental Management System	New condition - reflects current expectation that all major developments should have an Environmental Management System	3	<p><b>3 Environmental Management System</b></p> <p>3-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to the start of mining, the proponent shall demonstrate to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection that there is in place an environmental management system which includes the following elements:</p> <ol style="list-style-type: none"> <li>1 environmental policy and commitment;</li> <li>2 planning of environmental requirements;</li> <li>3 implementation and operation of environmental requirements;</li> <li>4 measurement and evaluation of environmental performance; and</li> <li>5 review and improvement of environmental outcomes.</li> </ol> <p>3-2 The proponent shall implement the environmental management system referred to in condition 3-1.</p>
	Environmental Management Program	New condition - reflects current expectation that all major developments should have an Environmental Management Programme	4	<p><b>4 Environmental Management Program</b></p> <p>4-1 Prior to commencement of ground-disturbing activities, the proponent shall prepare an Environmental Management Program to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy, Agriculture Western Australia, the Water and Rivers Commission and the owners of land on which mining takes place.</p> <p>The Program shall consist of the following environmental management plans:</p> <ol style="list-style-type: none"> <li>1 Surface Water and Groundwater Monitoring and Management Plan (see condition 5);</li> <li>2 progressive Rehabilitation Management Plan (see condition 6); and</li> <li>3 Decommissioning Management Plan (see condition 7),</li> </ol> <p>and shall include the following elements:</p> <ol style="list-style-type: none"> <li>1 construction of facilities and stockpiles with consideration to visual impact on public and private locations;</li> <li>2 limit clearing and land disturbance to that required for safe operation; and</li> <li>3 consultation with Western Power and relevant landowners to determine the most acceptable means of extending the existing 22 kV agricultural supply transmission line to the mining area.</li> </ol> <p>4-2 The proponent shall implement the Environmental Management Program required by condition 4-1.</p>

Original Condition or Commitment No.	Requirements (summarised)	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
	Performance review	New condition - reflects current expectation that all major developments should review long-term environmental performance and implement continuous improvement	9	<p>9-1 Within three years following the commencement of mining, the proponent shall submit a Performance Review to evaluate the environmental performance relevant to:</p> <ol style="list-style-type: none"> <li>1 environmental objectives reported on in Environmental Protection Authority Bulletins 605 and 898;</li> <li>2 the fulfilment of conditions and procedures in this statement;</li> <li>3 environmental management system environmental management targets;</li> <li>4 Environmental Management Programs and Plans; and</li> <li>5 environmental performance indicators,</li> </ol> <p>to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.</p> <p>Note: The Environmental Protection Authority may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review.</p>
	Compliance auditing	New condition - reflects current expectation that all major developments should undertake periodic audits	12	<p><b>12 Compliance Auditing</b></p> <p>12-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.</p> <p>12-2 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.</p> <p>12-3 Where compliance with any condition or procedure is in dispute, the matter will be determined by the Minister for the Environment.</p>

Original Condition or Commitment No.	Requirements	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
<b>Proponent's Commitments</b>				
1	Consult with landowners, Agriculture Western Australia, Water and Rivers Commission, South West Irrigation and the Dardanup LCDC to ensure that operations at Dardanup do not unreasonably affect agricultural enterprises on neighbouring properties, especially in relation to surface and ground waters.	Commitment is included in Condition 5 - Surface water and Groundwater Monitoring and Management Plan	5	see Condition 5
2	Continue hydrogeological and technical studies, including regional monitoring of water bores, to facilitate pre-emptive prediction of impacts of mine dewatering on local and regional hydrogeology.	Commitment is included in Condition 5 - Surface water and Groundwater Monitoring and Management Plan	5	see Condition 5
3	Dispose of excess water in a manner agreed in consultation with Agriculture Western Australia, Water and Rivers Commission and South West Irrigation.	This commitment has been made redundant by Condition 5 that requires a Surface water and Groundwater Monitoring and Management Plan to be prepared and implemented.	5	see Condition 5
4	Ensure that backfilled mine areas have the capacity to transmit water from east to west in a fashion similar to that which currently occurs.	This commitment has been made redundant by Condition 5 that requires a Surface water and Groundwater Monitoring and Management Plan to be prepared and implemented.	5	see Condition 5
5	Rehabilitate land disturbed by mining activities to restore agricultural productivity to levels at least equal to those which currently exist.	Commitment is included in Condition 6 - Rehabilitation Management Plan	6	see Condition 6
6	Consult with Agriculture Western Australia, Water and Rivers Commission and landowners to include native vegetation in rehabilitation strategies, with a view to contributing to the management of the localised and regional hydrogeological problems of high water tables and salinity.	This commitment has been made redundant by Condition 6 that requires a Rehabilitation Management Plan to be prepared and implemented.	6	see Condition 6
7	Construct facilities, stockpiles and the like with consideration to visual impact from both public and private locations in the area and region.	Commitment is included in the Environmental Management Program required by Condition 4	4	see Condition 4
8	Minimise clearing and land disturbance, consistent with safe and efficient operations.	Commitment is included in the Environmental Management Program required by Condition 4	4	see Condition 4

Original Condition or Commitment No.	Requirements	Evaluation	New Condition or Commitment No.	New Condition or Commitment Text
9	License all bores and other water supply and water management facilities in accordance with the requirements of the relevant legislation, particularly the <i>Rights in Water and Irrigation Act, 1914</i> .	Regulated through existing licences or other statutory mechanisms.	WRC licence required	N/A
10	Consult with Western Power and relevant landowners to determine the most acceptable means of extending the existing 22 kV agricultural supply transmission line to the mining area.	Commitment is included in the Environmental Management Program required by Condition 4	4	see Condition 4
11	Enrich and establish native vegetation alongside existing permanent public roads and roads developed or disturbed as a result of project activities.	This commitment has been made redundant by Condition 6 that requires a Rehabilitation Management Plan to be prepared and implemented.	6	see Condition 6



## 5. Conclusions

The EPA has considered the proposal by ISK Minerals Pty Ltd to extend the time limit of environmental approval for the proposed Dardanup Mineral Sands Mine and has concluded that a two-year extension should be allowed.

The EPA believes that the period since the proposed Dardanup Mineral Sands Mine was originally assessed has not given rise to any changes which would cause the EPA to reconsider its previous assessment of the project and, in particular, its previous recommendation as to the environmental acceptability of the project.

In addition to the request on extension of the time limit, the EPA considers that the conditions of the environmental approval should be updated, and accordingly has also reported on the additional changes required.

## 6. Recommendations

Section 46 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

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

1. That the Minister notes that this report is pursuant to Section 46 of the *Environmental Protection Act 1986* and thus is limited to consideration of proposed changes to the original proposal.
2. That the Minister notes that the proposed change is an extension of time for implementation.
3. That the Minister notes that the EPA has concluded that:
  - the extension of time limit of approval for another two years is acceptable; and
  - the Ministerial Conditions of environmental approval should also be updated to reflect current practice.
4. That the Minister imposes the conditions and procedures set out in Appendix 4 of this report.

## **Appendix 1**

### **List of submitters**

## **List of organisations and individuals who made submissions**

### Organisations:

Agriculture Western Australia  
Australian Heritage Commission  
Shire of Dardanup

### Members of the public:

Dr Christine Sharp MLC  
B J & P J Depiazzi  
Mr R Davies  
H & D Simpson  
Mr & Mrs G Simpson

## **Appendix 2**

### **References**

ISK Minerals Pty Ltd (1991). *Dardanup Mineral Sands Project Consultative Environmental Review*. ISK Minerals Pty Ltd.

Environmental Protection Authority (1991). *Mineral Sands Mine, Dardanup: Report and recommendations of the Environmental Protection Authority*. Bulletin 605, Environmental Protection Authority, Perth, Western Australia.

## **Appendix 3**

**Statement of conditions of approval (8 April 1991)**



WESTERN AUSTRALIA  
MINISTER FOR THE ENVIRONMENT

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

MINERAL SANDS MINE, DARDANUP (624)

ISK MINERALS PTY LTD

This proposal may be implemented subject to the following conditions:

**1. Proponent Commitments**

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. (A copy of the commitments is attached).

**2. Implementation**

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. Surface water and groundwater**

Surface water and groundwater quality and levels require monitoring and management in order to mitigate impacts on neighbouring properties.

3-1 Prior to mining, the proponent shall prepare an Environmental Management Programme to monitor and manage surface water and groundwater in the mining area, to the satisfaction of the Minister for the Environment on advice of the Environmental Protection Authority and the Water Authority of Western Australia. This Programme shall include, but not necessarily be limited to the proponent's commitments for monitoring and reporting and strategies to be implemented in the event of a deterioration of water quality in the monitored areas.

3-2 The proponent shall subsequently implement the Environmental Management Programme required by condition 3-1, to the satisfaction of the Environmental Protection Authority.

**4. Noise limits**

The noise generated by the mining operations should be kept within environmentally acceptable levels. Noise impacts on nearby residents should be mitigated as the proposed mine site is in a rural area and in close proximity to a number of residences.

4-1 The proponent shall ensure that the noise emissions from the project do not cause or contribute to noise levels in excess of:

- 50db(A) slow from 7am to 7pm Monday to Saturday inclusive, but excluding gazetted public holidays;
- 40db(A) slow from 10pm to midnight and from midnight to 7am every day;
- and
- 45db(A) slow at all other times;

when measured:

- (1) at any point on or adjacent to other premises not occupied by the proponent and used for residential or other noise-sensitive purposes; and
- (2) at a height between 1.2 and 1.5 metres above ground level and at a distance greater than 3.5 metres from any reflecting surface other than the ground.

4-2 Where the combined level of the noise emissions from the project and the normal ambient noise exceeds the levels specified in condition 4-1, this condition shall be considered to be contravened only when the following criteria are also met at the measurement point:

- the noise emissions from the premises are considered by the Environmental Protection Authority to be audible and contributing significantly to the measured noise levels; and
- the noise emissions from the premises are identifiable by the Environmental Protection Authority as emanating from the project.

4-3 Noise emissions shall not include tonal or impulsive components or other characteristics which make the noise more annoying than it would be in their absence. These characteristics will be assessed by the Environmental Protection Authority.

4-4 The proponent shall conduct noise surveys to the satisfaction of the Environmental Protection Authority.

## **5. Rehabilitation**

Rehabilitation is an integral part of the project and requires management throughout the life of the proposal. The final land use after mining will be determined between the land owners and the proponent.

5-1 In order to rehabilitate the mine site to an environmentally stable condition, prior to commencing mining, the proponent shall develop a progressive rehabilitation plan in consultation with the owners of land in which mining takes place and the Department of Agriculture, to the satisfaction of the Minister for the Environment on advice of the Environmental Protection Authority.

5-2 The proponent shall implement the plan required by condition 5-1 to the satisfaction of the Environmental Protection Authority.

## **6. Decommissioning**

The proponent is responsible for decommissioning and removal of the plant and installations and rehabilitation of the site and its environs.

6-1 At least six months prior to commencing decommissioning, the proponent shall prepare a decommissioning and final rehabilitation plan to the satisfaction of the Environmental Protection Authority.

6-2 The proponent shall implement the plan required by condition 6-1, to the satisfaction of the Environmental Protection Authority.



**7. Proponent**

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. Time Limit on Approval**

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).

**Procedure**

This project will also be subject to Works Approval and Licence provisions under Part V of the Environmental Protection Act.

Bob Pearce, MLA  
MINISTER FOR THE ENVIRONMENT

1 8 APR 1992

## ***SUMMARY OF ENVIRONMENTAL COMMITMENTS***

As described in the previous sections, ISK Minerals is committed to responsible management of the environmental affairs of the Dardanup Mineral Sands Project.

The major environmental commitments by the company are as follows:

- (1) Consult with landowners, the Department of Agriculture and the Water Authority of Western Australia to ensure that operations at Dardanup do not unreasonably affect agricultural enterprises in neighbouring properties, especially in relation to surface and groundwater.
- (2) Continue hydrogeological and technical studies, including regional monitoring of water bores, to facilitate pre-emptive prediction of impacts of mine dewatering on local and regional hydrogeology.
- (3) Dispose of excess water in a manner agreed in consultation with the Water Authority of Western Australia and the Department of Agriculture.
- (4) Ensure that backfilled mine areas have the capacity to transmit water from east to west in a fashion similar to that which currently occurs.
- (5) Rehabilitate land disturbed by mining activities to restore agricultural productivity to levels at least equal to those which currently exist.
- (6) Consult with the Department of Agriculture, the Water Authority of Western Australia and landowners to include native vegetation in rehabilitation strategies, with a view to contributing to the management of the localised and regional hydrogeological problems of high water tables and salinity.
- (7) Construct facilities, stockpiles and the like with consideration to visual impact from both public and private locations in the area and region.
- (8) Minimise clearing and land disturbance, consistent with safe and efficient operations.

- (9) Licence all bores and other water supply and water management facilities in accordance with the requirements of the relevant legislation, particularly the Rights in Water and Irrigation Act 1914.
- (10) Consult with the State Energy Commission of Western Australia and relevant landowners to determine the most acceptable means of extending the existing 22 kV agricultural supply transmission line to the mining area.
- (11) Enrich and establish native vegetation alongside existing permanent public roads and roads developed or disturbed as a result of project activities.

## **Appendix 4**

### **List of recommended Ministerial Conditions**

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL  
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)**

**MINERAL SANDS MINE, DARDANUP**

- Proposal:** The mining of mineral sand as documented in schedule 1 of this statement.
- Proponent:** ISK Minerals Pty Ltd
- Proponent Address:** Lot 7 Harris Road, PICTON WA 6229
- Assessment Number:** 1138
- Previous Assessment Number:** 624
- Previous Statement Number:** Statement No. 239 published on 8 April 1992
- Report of the Environmental Protection Authority:** Bulletin 898
- Previous Report of the Environmental Protection Authority:** Bulletin 605

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is now subject to the following conditions and procedures which replace all previous conditions and procedures:

**1 Implementation**

- 1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.
- 1-2 Where, in the course of implementing the proposal, the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

**2 Proponent Commitments**

- 2-1 The proponent shall implement any environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.

### **3 Environmental Management System**

3-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to the start of mining, the proponent shall demonstrate to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection that there is in place an environmental management system which includes the following elements:

- 1 environmental policy and commitment;
- 2 planning of environmental requirements;
- 3 implementation and operation of environmental requirements;
- 4 measurement and evaluation of environmental performance; and
- 5 review and improvement of environmental outcomes.

3-2 The proponent shall implement the environmental management system referred to in condition 3-1.

### **4 Environmental Management Program**

4-1 Prior to commencement of ground-disturbing activities, the proponent shall prepare an Environmental Management Program to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy, Agriculture Western Australia, the Water and Rivers Commission and the owners of land on which mining takes place.

The Program shall include:

- 1 construction of facilities and stockpiles with consideration given to visual impact on public and private locations;
- 2 limit clearing and land disturbance to that required for safe operation; and
- 3 consultation with Western Power and relevant landowners to determine the most acceptable means of extending the existing 22 kV agricultural supply transmission line to the mining area,

and shall consist of the following environmental management plans:

- 1 Surface Water and Groundwater Monitoring and Management Plan (see condition 5);
- 2 Rehabilitation Management Plan (see condition 6); and
- 3 Decommissioning Management Plan (see condition 7).

4-2 The proponent shall implement the Environmental Management Program required by condition 4-1.

### **5 Surface water and Groundwater Monitoring and Management Plan**

5-1 Prior to commencing mining, the proponent shall prepare a Surface Water and Groundwater Monitoring and Management Plan, in consultation with neighbouring landowners, Agriculture Western Australia, the Water and Rivers Commission, the South West Irrigation and the Dardanup Land Conservation District Committee, to the requirements of the Department of Environmental Protection.

This plan shall include:

- 1 hydrological and technical studies to facilitate prediction of impacts of mine dewatering on local and regional hydrology;
  - 2 regional monitoring of water bores to facilitate prediction of impacts of mine dewatering on local and regional hydrology; and
  - 3 strategies to be implemented in the event of a deterioration of water quality in the monitored areas.
- 5-2 The proponent shall implement the Surface Water and Groundwater Monitoring and Management Plan required by condition 5-1.

## **6 Rehabilitation Management Plan**

- 6-1 Prior to commencing mining, the proponent shall develop a progressive rehabilitation plan, in order to rehabilitate the mine site to an environmentally stable condition, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy, Agriculture Western Australia, the Water and Rivers Commission and the owners of land on which mining takes place.
- 6-2 The proponent shall implement the Rehabilitation Management Plan required by condition 6-1.

Note: The final land use after mining will be determined between the land owners and the proponent.

## **7 Decommissioning Management Plan**

- 7-1 At least six months prior to decommissioning, the proponent shall prepare a Decommissioning Management Plan to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection and the Department of Minerals and Energy.

This Plan shall address:

- 1 removal or, if appropriate, disposal on-site of plant and infrastructure;
  - 2 rehabilitation of all disturbed areas to agreed final land use(s); and
  - 3 identification of contaminated areas, including provision of evidence of notification to relevant statutory authorities.
- 7-2 The proponent shall implement the Decommissioning Management Plan required by condition 7-1.

## **8 Noise Limits**

- 8-1 The proponent shall conduct operations so that noise emissions do not unreasonably impact on people in the vicinity, including residents.
- 8-2 The proponent shall ensure that noise emissions meet the requirements of the noise control regulations applying from time to time under the Environmental Protection Act.

- 8-3 The proponent shall conduct noise surveys (including baseline measurements) and assessments (including the impact of tonal noise) at the Dardanup site to meet the requirements of the Department of Environmental Protection.

## **9 Performance Review**

- 9-1 Within three years following the commencement of mining, the proponent shall submit a Performance Review to evaluate the environmental performance relevant to:

- 1 environmental issues and objectives reported on in Environmental Protection Authority Bulletins 605 and 898;
- 2 the fulfilment of conditions and procedures in this statement;
- 3 environmental management system environmental management targets;
- 4 Environmental Management Programs and Plans; and
- 5 environmental performance indicators,

to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Note: The Environmental Protection Authority may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review.

## **10 Proponent**

- 10-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.
- 10-2 Any request for the exercise of that power of the Minister referred to in condition 10-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.
- 10-3 The proponent shall notify the Minister for the Environment of any change of proponent contact name and address within 30 days of such change.

## **11 Commencement**

- 11-1 The proponent shall provide evidence to the Minister for the Environment within two years of the date of this statement that the proposal has been substantially commenced.
- 11-2 Where the proposal has not been substantially commenced within two years of the date of this statement, the approval to implement the proposal as granted in statement no. 239, published 8 April 1992, shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.



- 11-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond two years from the date of this statement.
- 11-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

## **12 Compliance Auditing**

- 12-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.
- 12-2 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.
- 12-3 Where compliance with any condition or procedure is in dispute, the matter will be determined by the Minister for the Environment.

### **Note**

- 1 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.

## Schedule 1

### The Proposal

ISK Minerals Pty Ltd proposes to mine mineral sands from a low grade deposit covering an area about 5 kilometres long and ranging in width from 0.5 to 1.5 kilometres located between Burekup and Dardanup, in the Shire of Dardanup. Following primary separation on site, the heavy mineral concentrate is to be trucked to the Proponent's nearby Picton dry separation plant for separation of the primary minerals.

The main aspects of the proposal are summarised in the table below.

### Key characteristics table

Element	Description
Life of project	15 years
Area of disturbance: <ul style="list-style-type: none"> <li>• size of orebody</li> <li>• mining of orebody</li> <li>• water storage dams</li> <li>• tailings pond</li> </ul>	<ul style="list-style-type: none"> <li>• 5 kilometres by 0.5-1.5 kilometres</li> <li>• 40 hectares per year</li> <li>• 5 hectares</li> <li>• 80 hectares</li> </ul>
Mining method	Dry or sluice mining
Processing	Wet separation on-site, dry separation at Picton plant
Ore mining rate (maximum)	200 000 tonnes per year, Heavy Mineral Concentrate production
Overburden (maximum)	2.5 million tonnes per year
Rehabilitation: <ul style="list-style-type: none"> <li>• Topsoil</li> <li>• Hydrology</li> <li>• End use</li> </ul>	<ul style="list-style-type: none"> <li>• Respread direct or from stockpiles.</li> <li>• Adopt mechanisms to reinstate acceptable hydrological regime.</li> <li>• Restore agricultural production at least to current level, and plant trees to replace and augment existing trees.</li> </ul>
Area of influence on groundwater	500 metre radius around mining
Water supply	Dewatering (up to 1,700 cubic metres per day), plus stormwater and tailings decant, supplemented by deep bore.
Energy	Upgrade and extend existing 22 kV line west of site.
Transport	Operating supplies by different roads, depending on source. Product to Picton Plant via Dowells Road extension to South West Highway.

Figure 1: Location of Proposal (attached)

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