

Bentonite mining lease 70/738 at Gunyidi, Coorow

Western Minerals N. L.

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 659
November 1992**

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's recommendations.

After the appeal period and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the assessment report recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
12th Floor, Dumas House
2 Havelock Street
WEST PERTH WA 6000

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on 4 December 1992

ISBN 0 7309 4686 X
ISSN 1030-0600
Assessment Number 706

Contents

	Page
Summary and recommendation	i
1 Introduction	1
2 The proposal	1
2.1 Existing environment	1
3 Environmental issues and management	3
3.1 Conservation values of Lake E	3
3.2 Rehabilitation strategy	4
3.3 Control of dieback disease, weeds, feral animals and fire	4
3.4 Management of the national park	4
3.5 Groundwater hydrology of the lake	5
3.6 Other issues	5
4 Conclusions and recommendation	5
4.1 References	6
Figures	
1 Regional and site location	2
Appendices	
1 Western Minerals N. L. Environmental Management Commitments	
2 Western Minerals N. L. Response to Issues	
3 List of submitters	

Summary and recommendation

Western Minerals N. L. (the proponent) have identified a bentonite clay resource in a series of lake beds in the Watheroo area, some 250km north of Perth. Approval for mining of all but one of the deposits has already been obtained and approval for processing the ore material is pending normal processes under the Mining Act.

One of the lakes, called Lake E, was within the Watheroo National Park and, under the provisions of the Government's Resolution of Conflict policy, an area including Lake E has been excised from the national park and declared as a C Class reserve, vested with the Executive Director of the Department of Conservation and Land Management, for the purposes of Conservation and Resource Management. The Environmental Protection Authority has formally assessed the proposal to mine this lake bed as part of the proponent's Watheroo Bentonite Project.

The mining proposal is to scrape the clay from the bed of Lake E and transport it to the processing plant. The mining and transport operation will be fenced off for environmental and mining management purposes from the reserve and the adjacent farming property. The conservation values of Lake E have been investigated and the Environmental Protection Authority concluded that they are well represented within the national park and the loss of the lake bed of Lake E is not environmentally significant.

The proponent has made appropriate environmental management commitments to address the key issues: an appropriate rehabilitation strategy, control of dieback disease, weeds, feral animals and fire and groundwater hydrology of the lake. The Environmental Protection Authority makes the following recommendation:

Recommendation

The Environmental Protection Authority concludes that the proposal to mine Lake E and transport the ore to a processing plant is environmentally acceptable subject to the proponent's environmental management commitments. In reaching this conclusion, the Environmental Protection Authority identified the main environmental issues as:

- conservation values of Lake E;
- rehabilitation strategy to an appropriate end land use;
- control of dieback disease, weeds, feral animals and fire;
- management of the national park; and
- groundwater hydrology of the lake.

The Environmental Protection Authority considers that these and the other issues have been adequately addressed, and, accordingly, recommends that the proposal could proceed subject to the proponent's environmental management commitments listed in Appendix I.

1. Introduction

Western Minerals N. L. (the proponent) have identified a bentonite clay resource in a series of lake beds in the Watheroo area, some 250km north of Perth. Approval for mining of all but one of the deposits has already been obtained and approval for processing the ore material is pending normal processes under the Mining Act. One of the lakes, called Lake E, was within the Watheroo National Park and, under the provisions of the Government's Resolution of Conflict policy, an area including Lake E has been excised from the national park and declared as a C Class reserve, vested with the Executive Director of the Department of Conservation and Land Management, for the purposes of Conservation and Resource Management. The Environmental Protection Authority has formally assessed the proposal to mine this lake bed as part of the proponent's Watheroo Bentonite Project.

The proposal to mine Lake E was assessed at a level of Consultative Environmental Review (CER) and the proponent provided a document for four weeks public review closing on 16th October 1992. Five submissions were received (Appendix 3) which raised several environmental issues/questions that required a response from the proponent (Appendix 2).

Two submissions raised a policy issue about the principle of mining in national parks. This issue is discussed in Section 3.1 in relation to the conservation values of Lake E.

2. The proposal

The regional and site location of Lake E is shown in Figure 1. The proponent had to initially apply for Exploration Licence 70/591 to hold the area while the excision was done, and has since applied for Mining Lease 70/738 which covers Lake E within the new C Class reserve 42209. The grant of the mining lease has been held pending the recommendations in this assessment of the environmental acceptability of the mining proposal.

The mining proposal is to extract the clay from the lake bed during the dry seasons of the year using scraper equipment, and to truck it on a dedicated haul road 1.8km to the processing plant. The clay orebody to be extracted occurs in the generally barren centre of the lake to a depth of two to three metres. The orebody and haul road will be fenced for environmental and mining management purposes. The mining operation will affect only the lake bed and will result in a depression over much of the lake bed which would be two to three metres deeper than at present.

The mining operation is expected to take up to twenty years, depending on market demand, and the lake will be progressively rehabilitated for the purpose of inclusion of the C Class reserve into Watheroo National Park. The Environmental Protection Authority notes that the approval of the Minister for Mines for the grant of Mining Lease 70/738 is required and that the approval of the Executive Director, Department of Conservation and Land Management, for mining in reserve 42209 is also required; specific conditions which address both operational and environmental matters would be set as part of those approvals. In addition, Licencing for the processing plant would be required under Part V of the Environmental Protection Act, 1986; Works Approval for the processing plant has already been granted.

A full description of the mining proposal is contained in the Consultative Environmental Review.

2.1 Existing environment

Lake E is a playa lake similar to numerous others in the region which occur in depressions in a discontinuous internal drainage system on the Dandaragan Plateau. The playa lakes contain deposits of bentonitic clays, specifically saponite clays, which are geologically unique in not being derived from the weathering of volcanic ash. Instead, the saponite is believed to be developed as an alteration product formed by the reaction of magnesium-rich saline waters with either devitrified glass from the Moora Group or with poorly crystalline kaolinite. The saponite deposit in Lake E is the purest and, therefore, is more valuable than similar deposits in other lakes.

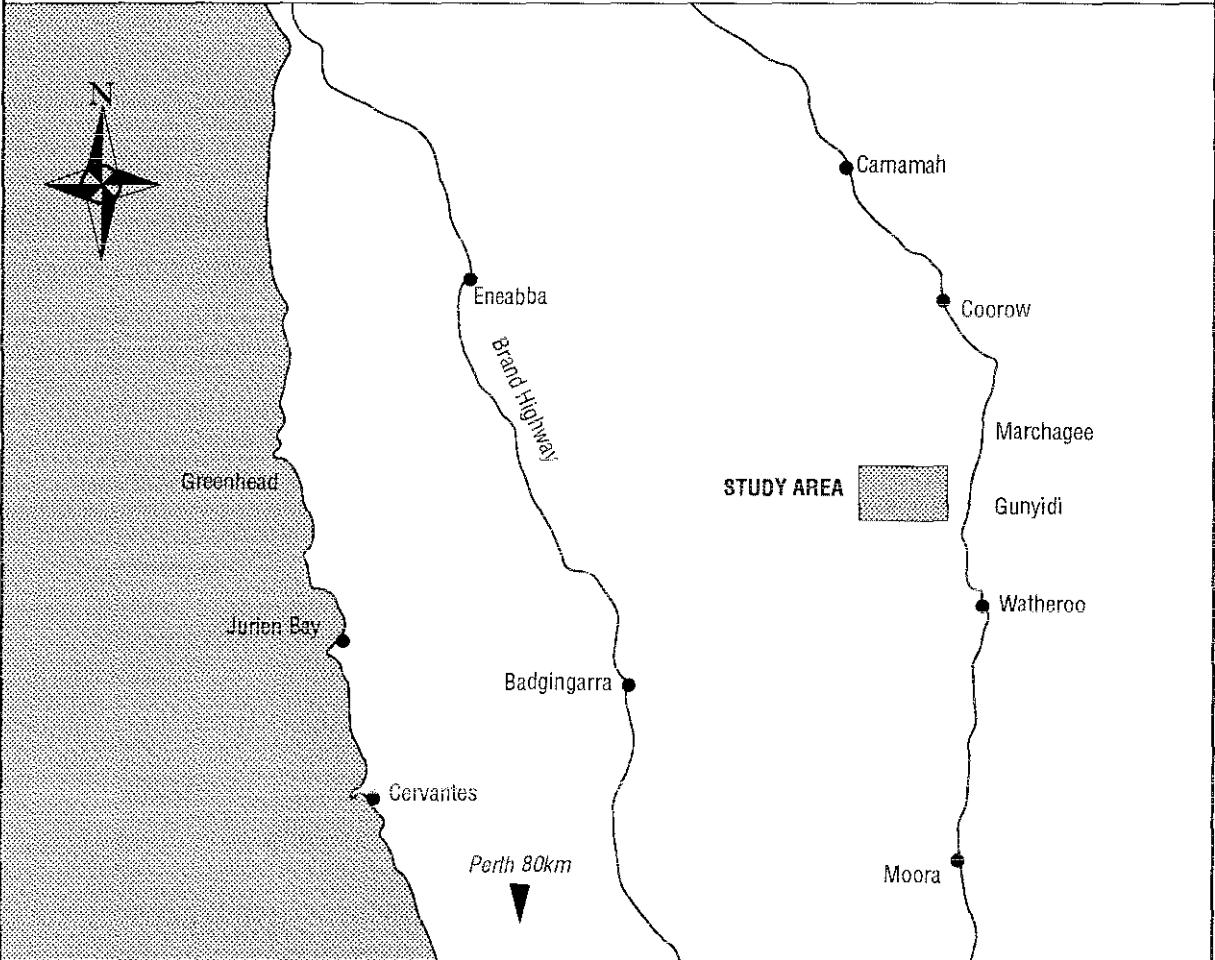
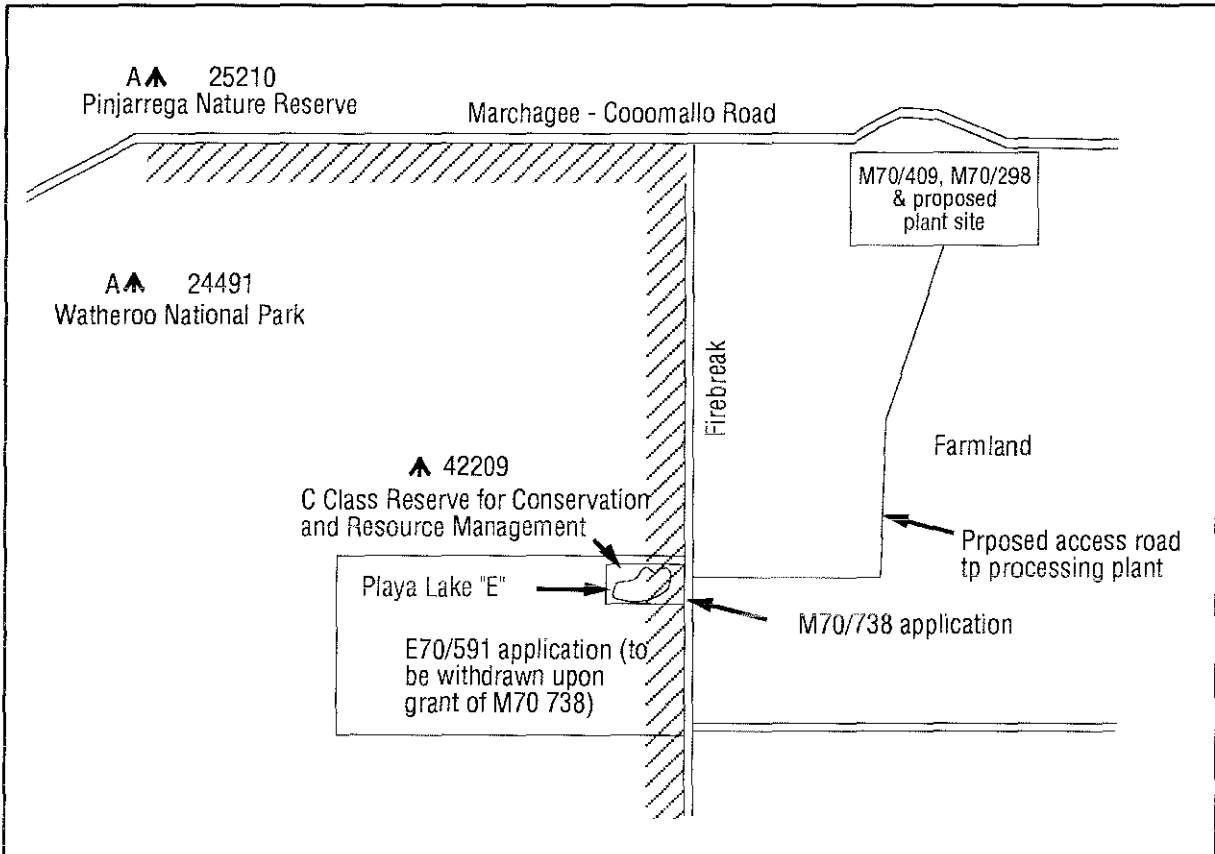


Figure 1: Regional and site location

Lake E and the other lakes in the region are typically bare with only a simple vegetation restricted to seasonal herbs and a few shrubs around the edges. A flora survey of the lake beds of twelve lakes including Lake E concluded that there were no rare or unusual species and that disturbing the lake bed is "unlikely to be a major loss to the conservation estate" (Griffin E. A., 1991).

The fringing vegetation around Lake E will not be disturbed by the mining activity except for the slight widening of a current access road onto the lake bed. The area surrounding the lake has previously been cleared and farmed to some extent, though it has since regenerated with the formation of Watheroo National Park.

A comprehensive description of the existing environment of the area is included in the Consultative Environmental Review.

3. Environmental issues and management

The key environmental issues raised during the assessment process were:

- conservation values of Lake E;
- rehabilitation strategy to an appropriate end land use;
- control of dieback disease, weeds, feral animals and fire;
- management of the national park; and
- groundwater hydrology of the lake.

These and other environmental issues have been discussed in the Consultative Environmental Review or in the proponent's Response to Issues (Appendix 2). The assessment and management of the issues is discussed below.

3.1 Conservation values of Lake E

An issue raised in two public submissions was the policy issue of whether mining should be allowed in national parks because of its impact on the conservation estate. The issue of mining, including exploration, in national parks has been intensely debated in public forums over the years. The most recent policy position adopted by the Government is that there should be no mining in national parks. The current Government policy, "Resolution of Conflict", released on 13th November 1990, adopted this principle with the proviso that the conflict, in terms of future land use, between mineral resource values and the conservation values for five of Western Australia's national parks would be resolved by various mechanisms prior to the full implementation of the principle.

The mechanism to resolve the conflict for Watheroo National Park was that 40 hectares covering the known mineral resource would be excised and that compensating land would be incorporated into the conservation estate. When mining is complete, the area would be assessed for incorporation back into the national park.

The Environmental Protection Authority concludes that the Government has already adopted a policy on the issue of mining in national parks and considers that no further policy advice would be provided to Government within the context of the assessment of this proposal.

The conservation values of Lake E were assessed by the proponent's consultants and it was concluded that there were no rare or unusual flora species and no other values which would be impacted by the mining operation. The proponent's conclusion that disturbing the lake bed is unlikely to be a major loss to the conservation estate has not been contradicted by any advice to the Environmental Protection Authority.

With regard to compensating the State's conservation estate, the Department of Conservation and Land Management are negotiating, in collaboration with the proponent, to acquire a suitable area of land to add to the conservation estate. The land might not adjoin Watheroo National Park but its conservation values would be assessed to ensure they are sufficient to compensate the conservation estate to the satisfaction of the National Parks and Nature Conservation Authority.

The Environmental Protection Authority considers that the issues related to the conservation values of Lake E are being adequately addressed.

3.2 Rehabilitation strategy

The Resolution of Conflict policy states that when mining is complete the C Class reserve, including the mined area, will be assessed for reincorporation into Watheroo National Park. Hence the designated end land use may be for conservation purposes and for addition to the national park. Until that time the reserve will remain vested with the Executive Director, Department of Conservation and Land Management, and the area outside the mining area would be managed by the Department of Conservation and Land Management for conservation purposes.

The proponent's rehabilitation strategy is that the mining area would be progressively rehabilitated by suitable contouring of the depression formed after mining, and allowed to naturally regenerate with the annual flora which currently colonise the lake bed. At the completion of mining the haul road would be ripped, the roadbase removed and native seed spread to assist regrowth. This is the proponent's basic rehabilitation strategy and it has made a commitment that it would refine the strategy in consultation with the Department of Minerals and Energy and the Department of Conservation and Land Management prior to productive mining commencing.

The Environmental Protection Authority considers that the issue of the rehabilitation of Lake E has been adequately addressed.

3.3 Control of dieback disease, weeds, feral animals and fire

The mining operation could have the potential to introduce dieback disease, weeds and feral animals into the conservation estate and, also, to be a source of wildfire, if it was not properly managed or the proponent failed to take precautions. The proponent has acknowledged this situation and has made appropriate commitments to address these issues as described in the CER.

The mining operation is on the edge of the national park and will be fenced off from the surrounding C Class reserve, with the only access being from adjacent farm land along a fenced haul road. Mining will only occur for two or three months annually and mining personnel will be required to adhere to park management regulations with regard to firearms, pets, litter and fires.

A dieback survey was conducted and no isolations of *Phytophthora* species were identified at the site or in the region. Nonetheless the proponent has committed to implementing a dieback management strategy in consultation with the Department of Conservation and Land Management.

Weed control will be mainly achieved by the provisions for regularly cleaning the vehicles under the dieback management strategy; in addition, the fenced haul road will be kept free of weeds. There are some infestations of weeds in the reserve surrounding the proposed mining operation, probably as a result of previous clearing and farming activity. These will be controlled if the infestations encroach onto the fenced mining area.

The Environmental Protection Authority considers that the issues of the control of dieback disease, weeds, feral animals and fires have been adequately addressed by the proponent's environmental management commitments.

3.4 Management of the national park

There is currently no management plan for Watheroo National Park and there is little public use, mainly because of a lack of access or other developed facilities. Public access into the reserve or national park through the mining operation will not be permitted, and the Department of Conservation and Land Management has no current plans to provide public access to the side of the park near the mining operation.

Hence, being fenced off from the reserve and park, the mining operation will be effectively isolated from any activities in the park. **The Environmental Protection Authority considers that the mining operation should not have a significant impact on the management or the amenity of users of the national park.**

3.5 Groundwater hydrology of the lake

Limited information is currently available about the groundwater hydrology of Lake E. Local knowledge records that it has never flooded, which is understandable because its catchment is less than 2 km². Groundwater occurs at a depth of 3m and is saline as evidenced from a shallow auger hole.

There is some potential, in the long term, for saline groundwater to accumulate in the depression left after mining gets below about 2m, and this situation has implications for the end land use of the area. The proponent has committed to carrying out a study of the groundwater in consultation with the Hydrogeology Section of the Department of Minerals and Energy

The Environmental Protection Authority concludes that the issue of the lack of knowledge of groundwater hydrology of Lake E is adequately addressed by the proponent's environmental management commitment.

3.6 Other issues

Other issues/questions raised during the assessment process include noise, dust, Aboriginal concerns, transport routes and the need for the mining of Lake E. The proponent addressed the issues of noise, dust and Aboriginal concerns in the Consultative Environmental Review and, in the case of dust control, made further statements in the Response to Issues.

The Shire of Coorow raised the issue of the impact of the transport operations on the Shire roads, specifically Martins Road. The issue is not related to the proposal being assessed but is part of the processing operation of the Watheroo Bentonite Project. The issue was passed on to the proponent for direct liaison with the Shire.

The question of the need for the mining of Lake E when there are numerous other lakes in the area with similar deposits was answered by the proponent with the information that the Lake E saponite deposit is the purest and, therefore, is most suitable for value added processing; it ensures the viability of the project.

The Environmental Protection Authority considers that these issues have been adequately addressed by the proponent's environmental management commitments and Response to Issues.

4. Conclusions and recommendation

The Environmental Protection Authority considers that the proposal, as described in the Consultative Environmental Review, is environmentally acceptable subject to the proponent's environmental management commitments. The Authority notes that the approval of the Minister for Mines for the grant of Mining Lease 70/738 is required and that the approval of the Executive Director, Department of Conservation and Land Management, for mining in reserve 42209 is also required; specific conditions which address both operational and environmental matters would be set as part of those approvals. In addition, Licencing for the processing plant would be required under Part V of the Environmental Protection Act, 1986; Works Approval for the processing plant has already been granted.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to mine Lake E and transport the ore to a processing plant is environmentally acceptable subject to the proponent's environmental management commitments. In reaching this conclusion, the Environmental Protection Authority identified the main environmental issues as:

- conservation values of Lake E;
- rehabilitation strategy to an appropriate end land use;
- control of dieback disease, weeds, feral animals and fire;
- management of the national park; and
- groundwater hydrology of the lake.

The Environmental Protection Authority considers that these and the other issues have been adequately addressed, and, accordingly, recommends that the proposal could proceed subject to the proponent's environmental management commitments listed in Appendix 1.

4.1 References

Griffin, E. A. and Associates, 1991, Flora and Vegetation of Watheroo Bentonitic Lakes for Bentonite (Australia) Pty. Ltd., unpublished report.

Appendix 1

Western Minerals N. L.

Environmental Management Commitments

WATHEROO CLAY PROJECT - LAKE E
REVISED COMMITMENTS - NOVEMBER 1992

COMMITMENT 1: End Land Use.

Following the final assessment of ore reserves and prior to productive mining the company will, in conjunction with the Department of Minerals and Energy and to the requirements of the Department of Conservation and Land Management, develop a management strategy that will permit the reinstatement of the mined area into the Watheroo National Park following the cessation of mining.

COMMITMENT 2: Flora.

Following mining consent, Western Minerals will install a plain wire fence to clearly define the approved mining area and access roads, thereby providing a physical barrier and restricting access for vehicles so as to control unnecessary disturbance to vegetation and fauna habitats. This will be located and constructed to the requirements of the Department of Minerals and Energy on advice from the Department of Conservation and Land Management.

Commitment 3: Fauna

The company undertakes to;

- enforce restrictions on the use of firearms,
- exclude domestic animals from its operations,
- ensure the mine is kept free of rubbish,

to the requirements of the Department of Minerals and Energy

COMMITMENT 4: Dieback & Weed Management.

Western Minerals will implement a dieback management strategy as detailed in Appendix 2 of the CER. Key points include:

- . restrict vehicles to designated roads and work areas
- . keep vehicles and machinery clean,
- . operate under dry soil conditions,
- . construct roads from local limestone material,

. fence laneway and mining area,
to the requirements of the Department of Minerals and
Energy on advice from the Department of Conservation and
Land Management.

COMMITMENT 5: Fire.

The company undertakes that:

- . no fires will be permitted by operations personnel on the mining lease;
- . all vehicles will be fitted with regulation mufflers;
- . support will be provided to the volunteer bush fire fighters and C.A.L.M. in the event of fires in the region;

to the requirements of the Department of Minerals and Energy, on advice from the Department of Conservation and Land Management and the local shire councils.

COMMITMENT 6: Water

The proponent undertakes to:

- . ensure that no activity shall be conducted that will cause pollution to the ground or surface water.
- . monitor ground and surface water quality and quantity during mining operations

to the requirements of the Department of Minerals and Energy.

COMMITMENT 7: Noise

All mining vehicles will be fitted with approved and serviceable silencers that conform to the Mines Regulation Act as directed by the Department of Minerals and Energy.

COMMITMENT 8: Rehabilitation

Following the final assessment of ore reserves and prior to productive mining the proponent will, in conjunction with the Department of Minerals and Energy and to the requirements of the Department of Conservation and Land Management, develop a rehabilitation strategy conducive to the designated end land use. The strategy will be implemented progressively during the life of the mine.

Appendix 2

Western Minerals N. L.

Response to Issues

WATHEROO CLAY PROJECT - LAKE E
CONSULTATIVE ENVIRONMENTAL REPORT

Response by WESTERN MINERALS NL to issues raised from submissions to the Consultative Environmental Report.

1.0 HYDROLOGY

1.1 What is the Hydrology of the lake area upon which the conclusions are based that the pit would not hold water for long and that there would be no detriment to wildlife?

Three key factors were reported in the CER that substantiate this conclusion: average yearly rainfall for the area is in the order of 423 millimetres; annual evaporation is approximately 2000 millimetres; and the drainage catchment area for the playa is small and therefore resulted in no recorded flooding in the past 40 years. This situation will continue to be monitored throughout the life of the project and remedial action taken if and when required.

1.2 The Department of Minerals and Energy recommend that a shallow piezometer bore be installed, cased off to the bottom of the bentonite layer, in order to provide information about the hydrology and the long term effects of the hypersaline groundwater known to occur in the area. Does the proponent plan to do this?

More geological information is required to fully identify the mineral resource of Lake E. An important factor to be determined is the potential for salt contamination of the ore body from ground water. Western Minerals NL therefore are committed to undertake further hydrological studies.

2. DUST

2.1 What dust control measures are specifically planned for the mining of Lake E?

The natural feature of the clay is its hygroscopic nature and moisture retention capabilities, even in seemingly dry

atmospheric conditions. Experience from previous ore handling and mining in the area has produced minimal dust and suggests that no special effort will be required for Lake E. The use of a truck mounted water spray will dampen any wind blown surface dust should the situation arise.

3. TRANSPORT

3.1 What impact is expected to be placed on local shire roads from truck movements, particularly Martins Road if that is to be used?

The subject of road transport (and use of other amenities) was not assessed as an environmental consideration for this project and is outside the scope of the CER. It was raised as an issue in the Notice Of Intent (1991) for M70/409 which included the mining of ten lakes and an associated treatment plant which form the major part of the Watheroo Bentonite Project. Road usage is expected to be minimal, particularly in the early years of the project. Western Minerals NL do however undertake to negotiate with local authorities on appropriate road maintenance requirements.

4. FIRE CONTROL

4.1 Considering the nearest fire fighting unit is 35km away from the mine site, what on-site equipment and staff training would be required? Will this be provided? Vehicles should be equipped with appropriate fire extinguishers.

Fire control is recognised by Western Minerals NL as a significant management requirement. Commitments included in the CER focus on fire prevention through substantial firebreaks and operational management practice.

In recognition of concerns for fire fighting support, Western Minerals undertake to consult further with the local Volunteer Bush Fire Brigade, the District Manager for CALM and the shires of Coorow and Carnamah to determine specific requirements and involvement.

5. ACCESS

5.1 There must be no access through the Park. To ensure this, the access road and the minesite must both be fenced, to the requirements of both Department of Mineral & Energy (DOME) and the Department of Conservation and Land Management (CALM). Gates will be required on the Park boundary for CALM access through the laneway.

Western Minerals endorses restriction of access to the National Park and commitments 2, 3 and 4 in Appendix 3 of the CER support this statement. Western Minerals NL see however, that commitments should be to the satisfaction of one authority, on advice from other interests.

Appendix 3

List of submitters

Appendix 3

List of submitters

1. Australian Conservation Foundation, 79 Stirling Street, Perth 6000
2. Conservation Council of WA Inc., 79 Stirling Street, Perth 6000
3. Coorow Shire Council, PO Box 42, Coorow 6515
4. Department of Minerals and Energy, Plain Street, East Perth 6004
5. Department of Conservation and Land Management, Hackett Drive, Crawley