

Heavy mineral sands exploration, Bremer Bay

Placer Pacific Ltd and Eucla Mining N/L

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

**Environmental Protection Authority
Bulletin 494
January 1991**

Heavy mineral sands exploration, Bremer Bay

Placer Pacific Ltd and Eucla Mining N/L

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

ISSN 1030-0120

ISBN 0 7309 3444 6

Assessment No 247

Contents

	Page
Summary and recommendations	i
1. Background	1
2. Proposal synopsis	2
3. Environmental issues and assessment	2
3.1 Exploration programme	2
3.2 Future land use	5
3.3 Biological impacts	5
3.4 Land capability	5
3.5 Water supply potential	6
3.6 Dieback disease	6
3.7 Biosphere reserve status	6
4. Conclusions	6
Table	
1. Agencies consulted for comment on the Consultative Environmental Review	1
Figure	
1. Location of exploration licence application area	3
Appendices	
1. Proponent's environmental commitments	8
2. Department of Mines' proposed Schedule of Conditions	12
3. Class assessment process	16

Summary and recommendations

Placer Pacific and Eucla Mining have applied for an exploration licence (EL 70/729) and propose to explore for heavy mineral sands in a coastal area north-east of Bremer Bay. Most of the area is currently an unvested reserve for Government Requirements and includes two reserves for water; the south-eastern portion of the licence application area is a Crown Grant freehold title block. The licence area adjoins the Fitzgerald River National Park to the north and west.

The area has previously been the subject of a System recommendation (Red Book Recommendation 3.2, EPA, 1976) by the Environmental Protection Authority which proposed it for addition to the National Park. The future vesting and purpose of the land is uncertain at present, prior to the area being further considered for addition to the National Park or for other uses. The maintenance of the existing conservation and landscape values is therefore considered essential to retain the maximum range of options for future use, pending future resolution of any multiple land use proposals.

With the licence application, the proponents have submitted an exploration programme which involves an initial low impact phase, possibly followed by successive phases, depending on the results. Adequate environmental conditions to cover the initial phase have been drafted by the Department of Mines on the advice of the Department of Conservation and Land Management and the Environmental Protection Authority. These conditions provide for assessment by all three agencies of each successive phase and additional conditions can be imposed then, if required.

The Environmental Protection Authority concludes that the granting of the licence itself will not have any adverse environmental impacts. The effects of ground disturbance during the first phase of actual exploration activity are regarded as sufficiently manageable to ensure that unacceptable environmental impacts are not likely.

At the same time however, the Environmental Protection Authority recognises that there are existing conservation and landscape values in the area. Hence, the recommendations in this report on the environmental acceptability of the proposed exploration programme do not, therefore, pre-empt any future decisions on actual mining, which would be subject to further detailed environmental assessment.

Considering the current status of the area, the need to retain conservation values to cater for future multiple land use options, and the Environmental Protection Authority's conclusion that adequate environmental conditions can be incorporated into the first phase of the exploration programme, the following recommendations are made.

Recommendation 1

The Environmental Protection Authority has concluded that the proposal for the granting of the exploration licence and Phase One exploration as modified by the process of interaction between the proponent, the Environmental Protection Authority and the public and government agencies consulted, is environmentally acceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- potential spread of dieback disease;
- potential water supply;
- buffering capacity for Fitzgerald River National Park;
- intrinsic conservation value;
- wetlands; and
- retaining options for possible future additions to the Fitzgerald River National Park.

The Environmental Protection Authority notes that these environmental factors have been addressed adequately by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposed exploration licence could be granted, and Phase One exploration carried out, subject to:

- the proponent's commitments (Appendix 1);
- the Department of Mines' proposed Schedule of Conditions (Appendix 2); and
- the Environmental Protection Authority's recommendations in this report.

Recommendation 2

The Environmental Protection Authority recommends that no further Phase Two or subsequent exploration activities involving ground surface disturbance should be carried out on any environmentally sensitive area unless or until the approval of the Environmental Protection Authority has been obtained for the exploration programme. It is further recommended that the Environmental Protection Authority may set additional conditions on the exploration programme under any approval issued by the Minister for the Environment. In the event of any disagreement with such conditions by the proponent, it is recommended that the Minister for the Environment's determination shall be final.

Recommendation 3

The Environmental Protection Authority recommends that the following procedures for obtaining the approval of the Environmental Protection Authority for approval for to Phase Two or subsequent phases of the exploration programme be implemented:

- (a) the licensee supplies the State Mining Engineer with a detailed exploration programme;
- (b) the State Mining Engineer evaluates the exploration programme and reports on its environmental impacts and their management to the Environmental Protection Authority; and
- (c) the Environmental Protection Authority determines whether the programme is or is not environmentally acceptable, consulting the public where appropriate, and may set conditions in accordance with Recommendation 2. The Environmental Protection Authority then advises the licensee and the State Mining Engineer accordingly.

Any significant modification to the exploration programmes for the licence should be processed in accordance with these procedures.

Recommendation 4

The Environmental Protection Authority recommends that any environmentally sensitive areas where the ground is disturbed by the exploration activities should be rehabilitated to the satisfaction of the Environmental Protection Authority upon advice from the Department of Mines. In this case, the whole of the licence application area is designated as environmentally sensitive.

1. Background

The Department of Mines is processing an application for an exploration licence over an old coast line and coastal dunes to the north-east of Bremer Bay. The area is bounded by Fitzgerald River National Park to the north and west, Bremer Bay to the south and the ocean to the east. The majority of the application area lies within Reserve No 32666 which is reserved for "government requirements".

The exploration licence application was referred to the Environmental Protection Authority because it covers an area subject to a Red Book recommendation for inclusion into the Fitzgerald River National Park (Red Book Recommendation 3.2, EPA, 1976). The Environmental Protection Authority decided that the application by Placer Pacific Ltd and Eucla Mining N/L required formal assessment. The level of assessment was set at Consultative Environmental Review (CER). The proponent submitted the Consultative Environmental Review in December, 1989, and further information in February, 1990, in response to issues raised during the assessment. A copy of the Consultative Environmental Review is held in the Environmental Protection Authority library. The government and public agencies consulted for comment on the CER are listed in Table 1.

The exploration licence application covers an unvested C Class reserve (No 32666) for government requirements. Two C Class reserves (Nos 2524 and 2507) for water, one of which is vested with the Water Authority of Western Australia (No 2524), are contained within the boundary of Reserve No 32666 (Figure 1). The application area also covers part of Crown Grant 1325.

The original EPA Red Book recommendation regarding Reserve No 32666 was reviewed by the Department of Conservation and Land Management and further proposals were outlined in, firstly, the draft South Coast Region Management Plan and, secondly, the draft Fitzgerald River National Park Management Plan. Neither plan has been approved by Government but the intent of the National Parks and Nature Conservation Authority, that the area should be held as a Class 5g reserve and managed by the Department of Conservation and Land Management pending resolution of multiple land use proposals, has been made clear to the Authority. The Shire of Jerramungup made comments on the draft Fitzgerald River National Park Management Plan and the draft South Coast Region Plan and proposed that the reserve be vested with the Shire.

The exploration licence area lies on the boundary between the higher inland areas and the more recent coastal dunes. The coastal units consist of dunes and winter-wet swales mainly vegetated by heathlands and low open woodlands. The higher inland areas are sand plains overlying weathered silty sediments mainly vegetated by mallee-heathlands, heathlands and woodlands.

Table 1: Agencies consulted for comment on the Consultative Environmental Review

Agency	Status
Conservation Council of WA Inc	Public
Fitzgerald River National Park Association Inc	Public
National Parks and Nature Conservation Authority	Advisory to Government
Department of Conservation and Land Management	State Government
Western Australian Museum	State Government
Water Authority of Western Australia	State Government
Shire of Jerramungup	Local Government
Shire of Ravensthorpe	Local Government

The issues raised by these agencies have been resolved during the assessment process, and are discussed in Section 3.

2. Proposal synopsis

The applicants propose, upon grant of the tenement, to undertake a phased exploration programme for heavy mineral sands following the indications of mineral sands on prospecting licence 70/444 and their possible extension into the exploration licence application area (Figure 1). PL 70/444 is now subject to an application for a mining lease (ML 70/620).

Phase One of the programme involves the following. Firstly there will be a limited survey on foot using hand-held magnetometers and this may also involve the collection of surface soil samples. This would be followed by drilling of about 17 transects, with up to six holes per transect, using a light Toyota mounted rig. Access to and along each transect will involve either using existing tracks or rolling over the vegetation with limited hand cutting. No ground surface clearing by heavy equipment will be undertaken. Drilling will use compressed air without chemical additives and the holes will be backfilled. Restoration of the drill sites and access tracks will be designed to leave no permanent evidence of the exploration activity.

If the results of the Phase One exploration programme are encouraging, further phases of exploration involving more intensive drilling may be proposed over smaller areas. These successive exploration phases would be described in detail at the appropriate stage and would be subject to additional review and conditions. Further information on the general exploration proposal is contained in the Consultative Environmental Review.

The original exploration licence application was modified by the proponents, on request by the Departments of Mines and Conservation and Land Management, to excise areas to the north-east and west which overlapped the boundaries of the Fitzgerald River National Park as proposed in the Draft Management Plan. A further area south of Gordon Inlet was excluded from exploration in recognition of the sensitivity of that area and exploration sites were relocated to avoid the vested water reserve (C2524) and Tooregullup Swamp (Figure 1).

3. Environmental issues and assessment

The Authority has developed a class assessment process for exploration tenement applications as is outlined in Appendix 3. This proposal differs slightly from the usual in that the proponent has already formulated an exploration programme and submitted a CER. This assessment therefore addresses both the granting of the licence and the acceptability of the Phase One exploration programme.

The assessment of the Consultative Environmental Review by the Authority identified the range of issues set out below. Further information was requested from the proponent on some of these issues. The Authority's final assessment and conclusions on the proposal are discussed below.

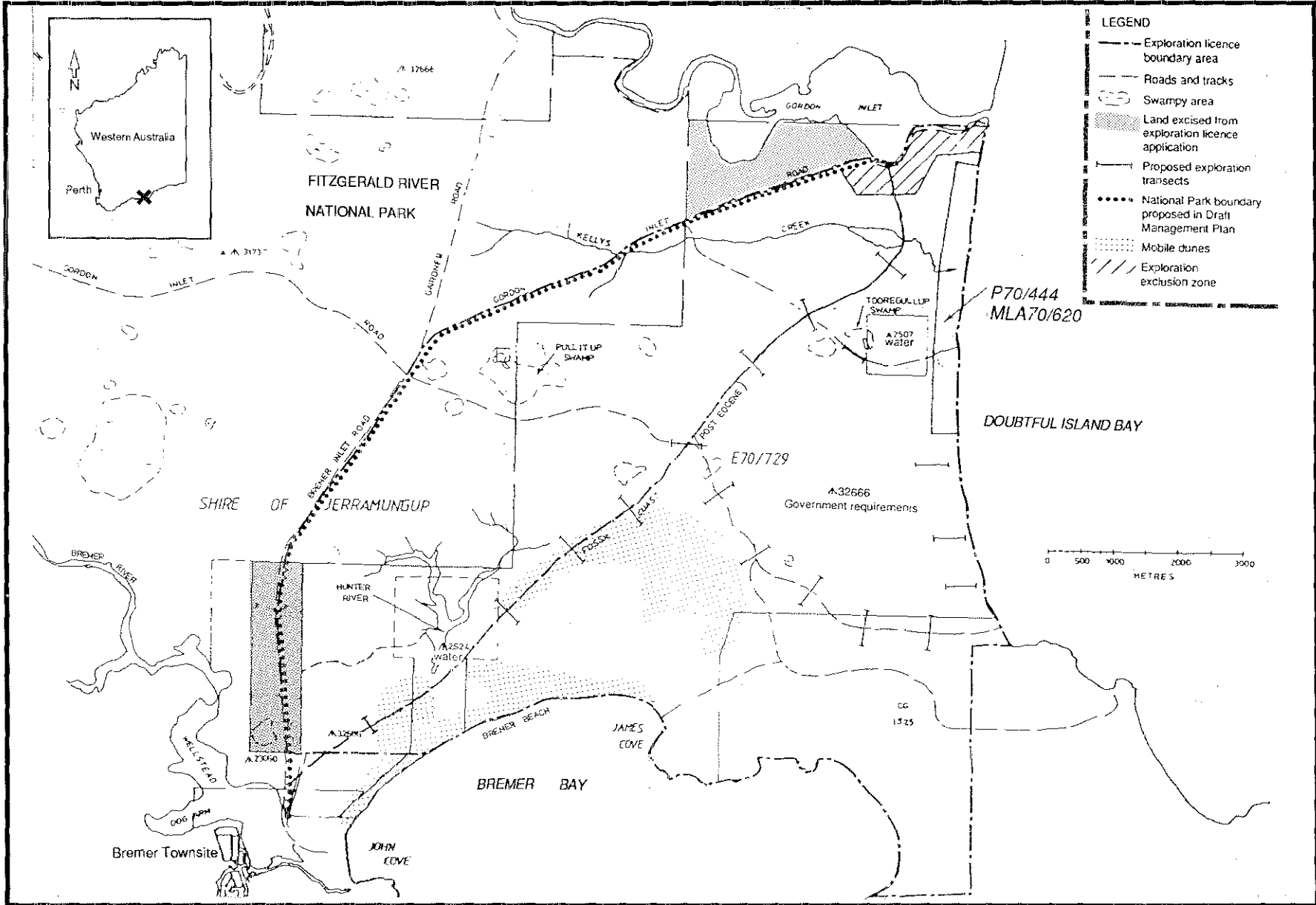
3.1 Exploration programme

The exploration programme involves a number of successive phases which have increasing potential environmental impacts. The progression to the next phase is dependent on the results of the preceding phase, which may conclude that no further work is required. Therefore, the Environmental Protection Authority considers it appropriate to assess each phase of the programme when the proponent expresses a wish to proceed by submitting detailed programmes for these subsequent phases.

The Consultative Environmental Review and subsequent information provided sufficient detail of Phase One of the programme for the Environmental Protection Authority to conclude that it is environmentally acceptable subject to the conditions listed in Appendix 2.

The Departments of Mines and Conservation and Land Management liaised with the Environmental Protection Authority to develop a comprehensive set of conditions which address the environmental issues. Each phase of the exploration programme requires review by the Regional Manager, Department of Conservation and Land Management, and the Environmental Protection Authority, in consultation with the State Mining Engineer.

Figure 1 - Location of exploration licence application area.



Recommendation 1

The Environmental Protection Authority has concluded that the proposal for the granting of the exploration licence and Phase One exploration as modified by the process of interaction between the proponent, the Environmental Protection Authority and the public and government agencies consulted, is environmentally acceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- potential spread of dieback disease;
- potential water supply;
- buffering capacity for Fitzgerald River National Park;
- intrinsic conservation value;
- wetlands; and
- retaining options for possible future additions to the Fitzgerald River National Park.

The Environmental Protection Authority notes that these environmental factors have been addressed adequately by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposed exploration licence could be granted, and Phase One exploration carried out, subject to:

- the proponent's commitments (Appendix 1);
- the Department of Mines' proposed Schedule of Conditions (Appendix 2); and
- the Environmental Protection Authority's recommendations in this report.

Recommendation 2

The Environmental Protection Authority recommends that no further Phase Two or subsequent exploration activities involving ground surface disturbance should be carried out on any environmentally sensitive area unless or until the approval of the Environmental Protection Authority has been obtained to the exploration programme. It is further recommended that the Environmental Protection Authority may set additional conditions on the exploration programme under any approval issued by the Minister for the Environment. In the event of any disagreement with such conditions by the proponent, it is recommended that the Minister for the Environment's determination shall be final.

Recommendation 3

The Environmental Protection Authority recommends that the following procedures for obtaining the approval of the Environmental Protection Authority to Phase Two or subsequent phases of the exploration programme be implemented:

- (a) the licensee supplies the State Mining Engineer with a detailed exploration programme;
- (b) the State Mining Engineer evaluates the exploration programme and reports on its environmental impacts and their management to the Environmental Protection Authority; and
- (c) the Environmental Protection Authority determines whether the programme is or is not environmentally acceptable, consulting the public where appropriate, and may set conditions in accordance with Recommendation 2. The Environmental Protection Authority then advises the licensee and the State Mining Engineer accordingly.

Any significant modification to the exploration programmes for the licence should be processed in accordance with these procedures.

Recommendation 4

The Environmental Protection Authority recommends that any environmentally sensitive areas where the ground is disturbed by the exploration activities should be rehabilitated to the satisfaction of the Environmental Protection Authority. In this case, the whole of the licence application area is designated as environmentally sensitive.

3.2 Future Land Use

The bulk of the licence area covers an unvested reserve which, therefore, has no formal management controls at present. It has not been decided whether the reserve will eventually be vested with the National Parks and Nature Conservation Authority or the Shire of Jerramungup. However, it is likely that the existing conservation and landscape values will be important elements of any future use and that the management of the area should be in sympathy with the adjacent Park, which is managed by the Department of Conservation and Land Management. Accordingly, these values should be maintained to provide for the maximum range of future land use options and it is appropriate that the Department of Conservation and Land Management have the opportunity to be involved in the management of the proposed exploration activity in the interim. This is catered for in the proposed Schedule of Conditions (Appendix 2).

3.3 Biological impacts

The exploration activity for the phases after Phase One could involve more substantial impacts upon the flora and fauna of the area because of the more intensive vehicular movements and off-road activity. The impact of Phase One is considered environmentally acceptable because the work will be largely on existing tracks, with only limited off-road activity, and will be subject to strict dieback control. No ground clearing is proposed in this phase; rather, vehicles will drive over the vegetation such that it will be able to quickly regenerate from rootstock or seed. Some limited hand cutting of vegetation may be required.

The biological values of the area are not well known but there is enough data from both the adjacent Fitzgerald River National Park and within the area to infer that there may be sensitive species and habitats which need protection. The Hunter River Reserve (No 2524) and the Tooregullup Swamp area have been identified as having high biological value and are, therefore, to be specifically excluded from exploration activity. The entire licence application area is designated as being environmentally sensitive for the purpose of recommendations 2, 3 and 4.

For any exploration phases after Phase One, it will be important for the flora and fauna of the area to be surveyed for rare and high priority species. The habitats will also require survey and an assessment of the appropriate protection strategies will be required on a site specific basis. Provision of an on-site Environmental Officer is recommended to provide for adequate management of these environmental issues during subsequent phases. If successive phases of exploration were to occur after Phase One, the Environmental Protection Authority would propose that the licensee should appoint an Environmental Officer to be on-site with adequate authority and opportunity to control the environmental aspects of field activity in the licence area.

3.4 Land capability

The area consists mainly of old coastal dunes and winter wet areas vegetated with heath and is regarded as vulnerable to erosion if the vegetative cover is permanently destroyed. However, the area has been subjected to considerable off-road activity, presumably by recreational vehicles, and as long as only a few vehicle movements are made along the same tracks, the vegetative cover is unlikely to be destroyed to the extent that erosion would become a problem.

For the later phases of exploration when the clearing of vegetation is proposed, the erosion potential must be assessed and appropriate protection measures must be formulated. This aspect is included in the proposed Schedule of Conditions (Appendix 2).

3.5 Water supply potential

The licence area covers two water reserves (Nos 2524 and 2057), the former being vested with the Water Authority and the latter being unvested. The Water Authority has indicated that the water supply potential of the entire area is significant and that protective measures should apply throughout the area and not just in the water reserves. This applies to both surface and groundwater resources and appropriate conditions, as specified by the Water Authority, are included in the proposed Schedule of Conditions (Appendix 2).

3.6 Dieback disease

Dieback disease is a major concern in the region and requires stringent precautions to minimise its spread. Concern has been expressed that the pattern of rainfall is such that satisfactory dry field conditions may not be achieved, which could lead to a risk of spreading any dieback currently in the area. However, confining activities to the dry summer and autumn months and ensuring that no soil is transported between drill sites appears to be appropriate to address this concern.

Current activities in the reserve are uncontrolled with regard to dieback because there is no land manager to administer any control conditions. The most stringent conditions would be those in force for access within Fitzgerald River National Park, administered by the Department of Conservation and Land Management. The Environmental Protection Authority considers that it would be appropriate if these conditions, along with any others required by the Department of Conservation and Land Management, are applied to activities on the licence area and this has been included in the proposed Schedule of Conditions (Appendix 2).

3.7 Biosphere reserve status

The licence application area is within the buffer zone for the Fitzgerald Biosphere Reserve which includes the Fitzgerald River National Park as its core. There are no defined management prescriptions for the buffer zone and the general objective of land use decisions for these areas is to ensure that the activity does not affect the core area of the Biosphere Reserve, nor detract from its value in any way.

The proposed exploration activity is a minimum of 1.5 km from the boundary of the National Park and is generally over 3 km away. The initial phase involves limited vegetation disturbance and a drilling programme which would last between two and three weeks. It is considered that there would be no impact from this activity upon the core area of the Biosphere Reserve, particularly as the drainage is away from the core area.

Detailed assessment of the proposed programme for any future phases of exploration work will allow specific conditions to be formulated to avoid any impact upon the core area. The buffer area may be an important source of animals and plant propagules for the recolonisation of the recently burnt sections of the National Park. Properly managed, the limited scope and duration of activity proposed in Phase One is unlikely to compromise this function.

4. Conclusions

The Environmental Protection Authority has assessed the proponents' exploration programme as part of their application for an exploration licence. A range of environmental issues were identified and discussed in the previous section.

The Environmental Protection Authority adopts the view that the conservation and landscape values of the land should not be compromised pending the resolution of a number of land use and tenure

proposals for the area. The area can be regarded as part of the buffer zone for the Fitzgerald Biosphere Reserve and various land uses, including mineral exploration, can be permitted providing there is no impact upon the core area of the Biosphere Reserve and no unacceptable environmental impact on the subject land. This does not, however, pre-empt any future decisions on the acceptability or otherwise of mining, which would be subject to further stringent environmental review.

The Department of Mines has, in consultation with the Department of Conservation and Land Management and the Environmental Protection Authority, developed a schedule of conditions which adequately address the environmental issues. Together with the commitments made by the proponent in the Consultative Environmental Review and related documentation, it is considered that all the issues can be managed such that there will be no significant environmental impact.

The Environmental Protection Authority concludes that the proposals to grant the exploration licence and conduct the Phase One exploration programme described in the Consultative Environmental Review are environmentally acceptable subject to the recommendations in this report.

Appendix 1

Proponent's environmental commitments

The exploration will be carried out under the following conditions:

1. The work will be conducted so that there will be no long term environmental impact upon completion of exploration activities. If the prospect is ultimately abandoned there should be no sign that the work took place. This is significant in the light of the future conservation status of the reserve.
2. The work will be carried out in dry soil conditions and under dieback quarantine. All vehicles and machinery will be thoroughly cleaned on arrival. This will be done dry or wet, using compressed air or water and suitable brushes and rods. The washing down will be carried out where the effluent will not infect native vegetation. The beach at Bremer Bay would be a suitable site, with the aid of a fire fighting pump and tank. It can be assumed that vehicles will not become infected driving on public roads and dry tracks leading to the site. The washing down should be repeated during drilling if vehicles or machinery pick up soil or roots during drilling. This wash down can be repeated before leaving the site if necessary, such that soil and the effluent remains.
3. Access should be from existing tracks as much as possible. The tracks are currently used by professional and amateur fishermen and campers with little impact. The impact from the passage of 4WD exploration vehicles will also be minimal.
4. Where access is required through native vegetation, this should be done by four wheel drive vehicles pushing the vegetation down. No track clearing should be necessary except possibly hand cutting in a few places. If track clearing is found to be necessary, it should be done using a tractor with a blade or bucket held slightly off the ground. The rolled vegetation will protect the soil surface and prevent deep rutting.
5. The points where new access tracks leave existing tracks or roads should be selected carefully so that the new tracks are as inconspicuous as possible while they are in use.
6. Wet areas and other areas prone to deep rutting should be avoided. The coastal dunes are prone to deep rutting because they are very sandy, but they also recover rapidly because the soil is more mobile. These dune areas are also the least prone to dieback and they should always be considered as high priority access routes. Access to drill sites should be from Doubtful Bay Beach and Bremer Beach via existing access tracks.
7. New tracks should be rehabilitated if necessary. No rehabilitation work should be necessary unless deep rutting has occurred or if the vegetation has been lost completely or if severe compaction has occurred. A small amount of tractor work or ripping should be adequate to deal with these problems. Careful selection of the access routes and good management of the traffic should mean that little or no rehabilitation is necessary.
8. The origins of the new tracks from existing roads and tracks should be prevented from developing into public tracks after they are abandoned. This can be done by filling in wheel ruts and covering them with mulch such as cut brush for a sufficient distance. The tracks will eventually regrow completely if vehicles are kept off them.
9. All sites should be left completely clean of litter and no rubbish or materials such as oils should be disposed of by burying on-site.
10. Field staff will attend instructions on environmental conditions at CALM regional offices if required.
11. At completion of the programme, the District Mining Engineer and the Regional Manager of CALM will be advised of completion. They will both be advised at least 7 days prior to its start and would be welcome to attend during and after the programme. The geologist would maintain regular contact on progress. At completion, a report will be submitted to the Department of Mines.
12. Regulations relating to National Parks will be observed.
13. Particular care should be taken in relation to fire control.
14. Drilling crews and field personnel will be made aware of the environmental commitments and be required to comply with them.
15. Schedule A of the Water Authority's "Standard Conditions To Be Imposed On Exploration Licences In Respect Of Existing And Potential Water Sources, Catchment Areas And Works" will be observed.

16. The applicants will ensure all vehicles and equipment entering the reserve are free of soil and plant propagules and will adhere to such conditions as specified by the Regional Manager, CALM, for the prevention of the spread of soil borne diseases.
17. The Regional Manager, CALM, will be supplied with an itinerary and programme of the locations of operations on the licence area and informed at least seven days in advance of any changes to that itinerary.
18. The applicants will make provisions to prevent spillage of fuel and discharge of pollutants generally and for all exploration sites being kept free from any rubbish and left in a clean and tidy state.
19. No soap, detergent or other foaming agent will be used in any water course or rockhole nor any rubbish or other polluting materials will be deposited in any water course or rockhole.
20. Domestic animals or firearms will not be taken onto the Reserve.
21. Such further conditions for protection of the land environment and rehabilitation of the land as the Minister for Mines may from time to time impose.
22. The applicants will not establish any camp, base works or area, fuelling depot or similar establishment on the licence area unless the site and access has received prior approval of the Regional Manager, CALM.
23. Access to and from and the movement of vehicles within the licence area will be restricted to roads and tracks approved under the programme or otherwise agreed by the Regional Manager, CALM.
24. We confirm that there is a need for a land capability assessment of the impact areas of later exploration phases and the proponent has made a commitment to provide this.
25. The proponent agrees to exclude exploration from Reserve 2524.
26. The proponent understands that a full vegetation survey will be required to identify vegetation communities of particular importance and to locate rare or priority species. The proponent will provide this prior to later phases.
27. The proponent is committed to providing a survey of fauna prior to later stages of exploration.
30. The proponent is committed to providing a survey of possible dieback presence and distribution. No exploration is planned for conditions in which significant or unacceptable soil moisture is present. The extent to which vehicle washdown is undertaken will be reflected by the soil moisture conditions. The aim of the hygiene programme is to ensure vehicles are not transferring soil from suspect areas. Washdown sites have been suggested and further sites will be nominated if required in consultation with CALM.
31. Due to recent fires in the area north of Kelly's Creek, the proponents have amended their exploration programme to exclude this area.
32. The proponent confirms that no exploration activities will be performed within 100m of the edge of the water bodies of Torregullup Swamp.
33. The CER states that temporary access tracks should exit existing tracks at oblique angles. Local land managers prefer such tracks to exit at right angles and then quickly turn to an oblique angle and this technique will be employed during exploration activities.
34. The proponent accepts that the WAWA conditions Schedule A (CER, Section 8) should apply to the entire licence application area due to the extent of the potential water resources. In addition, the proponent will provide to the Water Authority all data collected on groundwater in the area. This will be done in conjunction with the Department of Agriculture, Jerramungup.

Appendix 2

**Department of Mines' proposed Schedule of Conditions -
Exploration Licence 70/729**

1. Compliance with the provisions of the Aboriginal Heritage Act, 1972, to ensure that no action is taken which would interfere with or damage any Aboriginal site.
 2. All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe after completion.
 3. All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the District Mining Engineer, Department of Mines. Backfilling and rehabilitation being required no later than six months after excavation unless otherwise approved in writing by the District Mining Engineer.
 4. All waste material, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of the exploration programme.
 5. Unless the written approval of the District Mining Engineer, Department of Mines, is first obtained, the use of scrapers, graders, bulldozers, backhoes or other mechanised equipment for surface clearing or the excavation of costeans is prohibited. Following approval, all topsoil being removed ahead of mining operations and separately stockpiled for replacement after backfilling and/or completion of operations.
 6. No mining on Trig Station Reserve No 11975 and within a 500 m radius of the Gordon Inlet without the prior written consent of the Minister for Mines.
 7. The grant in respect of all private land, other than Kent Locations 1306 and 1325, being confined to below a depth of 30 m from the natural surface.
 8. The complete excision of Prospecting Licence 70/444 with rights of ingress to and egress from the ground comprised therein being at all times preserved to the licensee thereof.
 9. No interference with Geodetic Survey Station Bremer Bay 13 and mining within 15 m thereof being confined to below a depth of 15 m from the natural surface.
- Consent to mine on Government Requirements Reserve 32666 and Water Research 2507 and 2524 given by the Minister for Mines subject to:
10. Prior to any ground surface disturbance, the licensee preparing a detailed programme for each phase of proposed exploration for approval of the State Mining Engineer in consultation with the Regional Manager, Department of Conservation and Land Management, and the Environmental Protection Authority. Any exploration involving ground surface disturbance to be in accordance with such an approved programme. This programme to include:
 - (a) maps and/or aerial photographs showing the proposed locations of all access tracks, camps, drill sites, costeans and other disturbances;
 - (b) the purpose, specifications and life of such tracks and other disturbances;
 - (c) descriptions of all vegetation types, flora (including any declared rare flora), fauna (including any geographically restricted fauna), landforms and any unusual features potentially impacted upon by the exploration activity; the scope of the descriptive work being prepared in agreement with the Regional Manager, Department of Conservation and Land Management.
 - (d) an assessment of the impact of the proposed exploration upon the environment and management strategies to mitigate the potential impact;
 - (e) techniques, prescriptions and target dates for rehabilitation of all proposed disturbances;
 - (f) details of any water requirements from within the reserves;
 - (g) details of refuse disposal; and
 - (h) a field operations manual containing the environmental commitments and proposals for training and supervision of field staff with respect to the environmental conditions.
 11. The licensee, at his expense, rehabilitating all areas cleared or otherwise disturbed, to the satisfaction of the State Mining Engineer in consultation with the Regional Manager, Department of Conservation and Land Management.
 12. Prior to the cessation of exploration activity, the licensee notifying the State Mining Engineer and the Regional Manager, Department of Conservation and Land Management, and arranging an inspection as required.
 13. At agreed intervals not greater than annually, the licensee reporting in writing to the State Mining Engineer and the Regional Manager, Department of Conservation and Land Management, on the progress of the exploration programme and the rehabilitation work.

14. The licensee complying with and ensuring that all persons under its control operating in the licence area are aware of, and comply with, the provisions of:
 - (a) the Conservation and Land Management Act, 1984, and the Regulations thereunder;
 - (b) the Bush Fires Act, 1954-77, and the Regulations thereunder; and
 - (c) the Wildlife Conservation Act, 1950, as amended, and the Regulations thereunder (excepting Regulations 46 a, b, c, d, g, l, L and O, in so far as non-compliance occurs as an unavoidable incident or reasonable consequence in the performance of the approved exploration programme).
15. The licensee ensuring all vehicles and equipment entering the reserve are free of soil and plant propagules and the licensee adhering to such conditions as specified by the Regional Manager, Department of Conservation and Land Management, for the prevention of the spread of soil borne diseases.
16. The Regional Manager, Department of Conservation and Land Management, being supplied with an itinerary and programme of the locations of operations on the reserves and informed at least seven days in advance of any changes to that itinerary.
17. The licensee making provisions to prevent spillage of fuel and discharge of pollutants generally, and for all rubbish to be removed from the reserves and all disturbed sites to be left in a clean and tidy state.
18. No soap, detergent or other foaming agent being used in any water course or rockhole nor any rubbish or other polluting material being deposited in any water course or rockhole.
19. Domestic animals, firearms and traps not being taken onto the reserves.
20. Such further conditions for protection of the land environment and rehabilitation of the land as the Minister for Mines may from time to time impose.
21. The grant of this licence not inferring automatic approval to mine or the subsequent grant of a mining lease in accordance with Section 75 of the Mining Act.
22. The licensee not establishing any camp, base works or area, fuelling depot or similar establishment on the reserves unless the site and access has received prior written approval of the Regional Manager, Department of Conservation and Land Management.
23. Access to and from and within the reserves being restricted to tracks and routes approved under the programme or otherwise agreed in writing by the Regional Manager, Department of Conservation and Land Management.
24. No activities being carried out that will adversely affect waters from surface and underground sources.
25. Cancellation without compensation upon notice in writing from the Minister for Mines that the ground within the proposed Damsite, or any portion thereof, is required for construction of water supply works or that mining operations thereon will, in his opinion, be detrimental to existing or proposed water supplies.
26. The provisions of the Rights in Water and Irrigation Act 1914 as amended. (Pumping of underground water may only be undertaken with approval of the Minister for Water Resources in proclaimed groundwater control areas. Works in water courses and diversion of streamflow may only be undertaken with approval of the Minister for Water Resources in surface water control areas).
27. The rights in ingress to and egress from any mining operation being at all reasonable times preserved to the authorised officers of the Water Authority for inspection purposes.
28. Tailings dams, disposal areas and dumps being sited so as to pose no threat to water course stability or to groundwater and surface water quality, and being constructed so as to be stable on decommissioning.
29. The provisions of the Country Areas Water Supply Act 1947, as amended, and regulations where applicable.
30. Blasting practice being such that the ground vibrations obtained at any point on the Reserves are within the limits set by the Standards Association of Australia, Code AS CA 23 1967.

Appendix 3

The class assessment process for exploration tenement applications

The Environmental Protection Authority has developed a formal assessment process for a class of referrals which generally involve the same potential environmental impacts and the same recommendations and conditions. The class includes those exploration tenement referrals (exploration and prospecting licences) which impinge upon environmentally sensitive areas, such as proposed conservation reserves, as identified by both the Authority and the Department of Conservation and Land Management (CALM), and including significant wetlands, islands and coastal zone features.

Exploration tenement referrals over such areas are assessed formally because of public expectation and the need to ensure the highest level of protection under both the Environmental Protection Act as well as the Mining Act. The former Act provides for more public involvement and for the Minister for the Environment to set conditions.

1. Granting of an exploration tenement

The granting of an exploration tenement confers certain rights and conditions on both the licensee and the Department of Mines, as described below.

1.1. Granting exploration/prospecting licences

An exploration licence is described in Part IV, Section 57 to 70 of the Mining Act, 1978. It is granted for five years and allows the holder, subject to the Mining Act and in accordance with conditions placed on the licence by the Minister for Mines, to:

- (a) enter the licence area with such agents, employees, vehicles, machinery and equipment as is necessary to explore for minerals in or under the land;
- (b) explore for minerals and to carry out such operations which are necessary for that purpose, including digging pits, trenches and holes, and sinking bores and tunnels in, on or under the land;
- (c) extract and remove from the licence area for sampling a prescribed amount of ore; and
- (d) take or divert water from the licence area and to use it for any purpose in connection with exploration.

A prospecting licence is described in Part IV, Section 40 to 56 of the Mining Act, 1978. It is granted for a period of two years and allows the holder, subject to the Mining Act and in accordance with conditions placed on the licence to also do the above items.

The granting of the licence by the Minister for Mines provides the holder of the licence with security of tenure and the right to enter the licence area to conduct exploration in accordance with conditions placed on the licence. On grant of the licence the Department of Mines has regulatory power and requires a security to ensure that rehabilitation is completed to an acceptable standard.

At the stage of granting the exploration tenement, a full formal environmental assessment of the licence application is generally not necessary nor practical because:

- (a) at the time of applying for an exploration tenement the proponent often has not formulated an exploration programme, which means insufficient information is available to assess the potential environmental impacts of exploration; and
- (b) numerous tenement applications are never granted, for reasons other than environmental considerations, so detailed environmental assessment at the early stage can be premature and unnecessary.

It is at the exploration stage that environmental impacts will actually occur. Therefore, unless major environmental issues are identified which would cause the Minister for the Environment to recommend the refusal of the licence, the licence may be granted first with provision for more specific later assessment of the actual exploration programme at a later stage.

For the above reasons the Environmental Protection Authority has developed a simplified procedure for the assessment of applications for exploration and prospecting licences. This assessment procedure enables the Minister for the Environment to place legally binding conditions on the proponent under the Environmental Protection Act.

2. Assessment procedures

The assessment procedure used for exploration tenement referrals depends on the land tenure and environmental sensitivity of the area covered by the licence application, and these procedures are discussed below.

- (a) Applications for exploration tenements in existing national parks or nature reserves are formally assessed according to Government Policy on exploration and mining in national parks and nature reserves (outlined in the Government's brochure 'Balancing the Scales').
- (b) Applications which impinge on proposed conservation reserves or other environmentally sensitive areas are formally assessed at the level of Consultative Environmental Review, using the class process outlined below.
- (c) Applications occurring outside existing or proposed conservation reserves which are referred to the Environmental Protection Authority are usually assessed informally with public advice.

Applications which involve no existing or proposed conservation reserves or other areas of known environmental significance are not normally referred to the Environmental Protection Authority; these are assessed by the Department of Mines.

2.1 Class assessment process

The class assessment process relates to applications in class (b) and is in two stages.

Stage 1 - Granting an exploration licence

The Environmental Protection Authority, after receiving a referral of an exploration or prospecting licence application which impinges on an environmentally sensitive area, such as a proposed conservation reserve, sets a formal level of environmental assessment at Consultative Environmental Review (CER). The public may register an interest in the proposal in response to the advertisement of the level of assessment in *The West Australian* on Saturdays. The public may also appeal against the level of assessment to the Minister for the Environment.

The Authority, in consultation with a number of agencies, identifies the environmental issues involved with the proposal. It is determined through investigations of the environmental issues and the conservation values of the area that either;

- (a) exploration is environmentally unacceptable; in which case the Authority would recommend refusal of the licence; or
- (b) environmental issues are of sufficient significance for the Authority to require more specific information on the exploration programme to determine whether exploration is likely to be environmentally acceptable; the Authority seeks this information by issuing guidelines for a CER and a normal assessment procedure is followed; or
- (c) exploration under appropriate conditions is likely to be environmentally acceptable; in this case the Authority will conduct a class CER assessment of the application and report to the Minister for the Environment recommending that standard Ministerial Conditions be placed on the proposal.

Option (c) is the most common conclusion and the following four draft recommendations, which reflect the standard Ministerial conditions, are presented in an assessment report to the Authority.

Draft recommendation 1

The Environmental Protection Authority has concluded that the proposal for the granting of the exploration tenement, as modified by the process of interaction between the proponent, the Environmental Protection Authority and the public and government agencies consulted, is environmentally acceptable.

in reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as --.

The Environmental Protection Authority notes that these environmental factors have been addressed adequately by either the recommendations in the report or --. Accordingly, the Environmental Protection Authority recommends that the proposed exploration tenement could be granted subject to --.

Draft recommendation 2

The Environmental Protection Authority recommends that no exploration activities involving ground surface disturbance should be carried out on any environmentally sensitive area unless or until the approval of the Environmental Protection Authority has been obtained to the exploration programme. It is further recommended that the Environmental Protection Authority may set additional conditions on the exploration programme under any approval issued by the Minister for the Environment. In the event of any disagreement with such conditions by the proponent, it is recommended that the Minister for the Environment's determination shall be final.

Stage 2 - Assessment of a proposed exploration programme

If the licence is granted by the Minister for Mines and the licensee wishes to proceed with ground-disturbing exploration, the licensee is required to submit an exploration programme to the Department of Mines. Ground-disturbing activity is described as any activity which exceeds the following - vehicular access along existing roads, tracks and fencelines, use of hand-held, non-powered equipment for sampling and the removal of more than 3kg of material per sample.

The exploration programme report should include a description of the proposed exploration activity and its likely environmental impacts and guidelines for the report will be supplied to the licensee by the Department of Mines in consultation with the Environmental Protection Authority. The Department of Mines will assess the potential environmental impacts of the proposed exploration programme and recommend modifications to the programme and conditions suitable for the protection of the environment.

The Department of Mines will forward its report, containing the exploration programme as an appendix, to the Environmental Protection Authority. This report will be made available for public information and review by the Authority. The Authority will liaise with the Department of Mines over any further modifications or conditions and finally advise them of the environmental acceptability or otherwise of the programme. Any disagreement regarding the decision or conditions required by the Environmental Protection Authority should be determined by the Minister for the Environment.

These procedures will form part of the Ministerial statement issued by the Minister for the Environment on the initial granting of the exploration licence. The Department of Mines will monitor and control the activity of the licensee, with the Environmental Protection Authority being responsible for the auditing of the conditions set by the Minister for the Environment.

3. Management of the environmental impacts

The Environmental Protection Authority considers that the environmental impact of any ground-disturbing exploration activities in the environmentally sensitive areas should be stringently controlled by assessing any proposed exploration programme and imposing appropriate conditions on exploration. Once a tenement is granted, a licensee's exploration programme may involve several stages of activity. The first phase may not involve any activity on the ground and consequently would not involve any adverse environmental impacts. Non ground-disturbing activities which are permitted in the environmentally sensitive areas are specified as follows:

- (a) use of a four-wheel-drive vehicle for access along existing tracks;
- (b) use of small hand-held, non-powered equipment for sampling; and
- (c) removal of material up to 3 kg/sample.

However, any exploration programme that involves ground-disturbing activity has potential environmental impacts. Activities such as the use of machinery or drill rigs, off-road access, clearing and bulk sampling are considered ground disturbing. Their acceptability can only be determined by an assessment of a detailed exploration programme submitted by the licensee when ready to proceed with on-ground exploration.

The Environmental Protection Authority believes that the environmental impacts and the acceptability or otherwise of exploration activities in the environmentally sensitive areas can only be assessed, and appropriate management recommendations made, at the stage when a proponent has a defined exploration programme. The following recommendations, coupled with the preceding two recommendations, form the set of standard recommendations for the class assessment process.

Draft recommendation 3

The Environmental Protection Authority recommends that the following procedures for obtaining the approval of the Environmental Protection Authority to the exploration programme be implemented:

- (a) the licensee supplies the State Mining Engineer with a detailed exploration programme;
- (b) the State Mining Engineer evaluates the exploration programme and reports on its environmental impacts and their management to the Environmental Protection Authority; and
- (c) the Environmental Protection Authority determines whether the programme is or is not environmentally acceptable, consulting the public where appropriate, and sets conditions in accordance with recommendation 2. The Environmental Protection Authority then advises the proponent and the State Mining Engineer accordingly.

Any significant modification of the exploration programmes for the licence should be processed in accordance with these procedures.

Draft recommendation 4

The Environmental Protection Authority recommends that any environmentally sensitive areas where the ground is disturbed by the exploration activities should be rehabilitated to the satisfaction of the Environmental Protection Authority. In this case, the environmentally sensitive area is designated as --.