

Mullering 3D Onshore Seismic Survey

Empire Oil Company (WA) Limited

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1266
October 2007**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
7 Dec 2004	Original referral received	
9 Jan 2007	New referral received	
13 Aug 2007	Final draft of the ARI document received	
1 Oct 2007	ARI Level of Assessment set and EPA report to the Minister for the Environment	7

Released: 01/10/07

Appeals Close: 16/10/07 (One extra day due to the public holiday on 01/10)

Contents

	Page
1. Introduction and background	1
2. The proposal.....	1
3. Consultation	2
4. Key environmental factors.....	5
4.1 Direct impacts on flora, vegetation and fauna habitat	5
4.2 Indirect impacts on flora, vegetation and fauna habitat.....	6
4.3 Impacts on fauna.....	7
4.4 Quality and security of seismic line closure and rehabilitation /regeneration	9
5. Conditions.....	11
6. Other Advice	11
7. Conclusions.....	11
8. Recommendations.....	12

Tables

1. Summary of key proposal characteristics	2
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Figures

1. Location and survey boundary area of the Mullering 3D Seismic Survey	
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Appendices

1. References	
2. Recommended Environmental Conditions	

1. Introduction and background

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the proposal to carry out an onshore 3D seismic survey, 20 kilometres west of Brand Highway, northwest of Cataby in the Shire of Dandaragan, by Empire Oil Company (WA) Limited.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out:

- The key environmental factors identified in the course of the assessment; and
- The EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject. The EPA may include in the report any other advice and recommendations as it sees fit.

The proponent has submitted a referral document setting out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts.

The EPA considers that the proposal, as described, can be managed to meet the EPA's environmental objectives, subject to the EPA's recommended conditions being made legally binding.

The EPA has therefore determined under Section 40 of the EP Act that the level of assessment for the proposal is Assessment on Referral Information (ARI), and this report provides the EPA advice and recommendations in accordance with Section 44 of the EP Act.

2. The proposal

The Mullering 3D Seismic Survey will take place within a survey area of 53 square kilometres (5300 hectares). Approximately 345 kilometres of seismic lines will be directly accessed for survey activities. The site is primarily located within Unallocated Crown Land (UCL), with access via Woolka Road and Cooljarloo Road (Figure 1). Other land tenure types include a 'water and stopping place' reserve around the Wooka Wooka Well, which is vested in the Shire of Dandaragan (C Class Reserve 729), and a pastoral lease property.

The survey will involve the 'rolling' of lines of vegetation in a grid pattern. The lines will have a maximum width of four metres running north and south and two metres travelling east and west, with short sections of greater width to provide turning points for survey vehicles.

Vibroseis trucks, carrying impulse generating equipment will drive north and south along the cleared lines and, at 40 metre intervals, will lower their vibration pads to vibrate the ground. Geophones will be laid along the east to west gridlines to acquire seismic data. The survey will also involve drilling of a number of holes (up to 50) of maximum depth 100 metres for data acquisition purposes.

Following the survey, the proponent will undertake line access closure and site rehabilitation / monitoring activities on access lines created by the survey until agreed completion criteria have been achieved.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 3 of the Assessment on Referral Information (ARI) document (Enesar, 2007).

Table 1: Summary of key proposal characteristics

Element	Description
Petroleum Exploration Permit	EP 432
Type of Survey	3D seismic
Duration	Survey ~ 2 months Rehabilitation – until completion criteria achieved
Total length of seismic lines (line kilometres)	Approximately 345 kilometres
Width of line rolling	Source lines: 4 metres maximum Receiver lines: 2 metres maximum N.B. Some ‘turning areas’ (up to 5m by 5m) will be required to reduce the requirement for connecting tracks, facilitate avoidance of environmental constraints and allow for exceptional circumstances (for example tyre repair).
Total land area within survey boundary	5300 hectares approximately
Area of seismic lines to be rolled (i.e. area of source and receiver lines)	No more than 150 hectares
Number of data acquisition holes (up-holes) required	50 approximately
Diameter of data acquisition holes (up-holes)	10 centimetres
Depth of data acquisition holes (up-holes)	100 metres maximum
Plant and equipment	Camp (including office, mess and accommodation. The camp will be located outside of vegetated areas) Up to four truck-mounted source vehicles Three light cable trucks Up to nine camp-based vehicles (including fuel, water and fire trucks)
Number of people involved	50 personnel approximately
Operation Hours	Daylight hours only, seven days a week

3. Consultation

During the preparation of the Assessment on Referral Information (ARI) document, the proponent has undertaken consultation with government agencies and key stakeholders. The agencies, groups and organisations consulted, the comments received and the proponent’s response are detailed in the Assessment on Referral Information (ARI) document (Enesar, 2007).

A number of environmental issues were raised by the stakeholders during the consultation. Table 2 summarises the main issues raised and details the actions taken by the proponent to address the issues.

Table 2: Summary of issues raised during stakeholder consultation

Issue raised	Stakeholder	Response
Some areas in the region, particularly claypans, are likely to support Threatened Ecological Communities (TECs).	EPA Service Unit	Flora surveys conducted for the project show no known Threatened Ecological Communities (TECs)
Potential impacts to surface hydrology due to the passage of heavy vehicles	EPA Service Unit	The survey is scheduled to take place in dry conditions when the potential for soil compaction is at its lowest. Post survey inspections will identify any soil compaction and initiate active rehabilitation
Prevention of third party access to the seismic lines for recreational use post closure	DEC, DoIR, WA Conservation Council and WA Wildflower Society	Closure of Seismic lines will occur as soon as practicable after data acquisition and no later than one month after the completion of the survey. All intersections of seismic with public roads will be disguised to prevent 3 rd party access.
Ongoing rehabilitation of seismic lines	WA Conservation Council and WA Wildflower Society	A post survey inspection will be carried out to determine if there is any need for rehabilitation. Rehabilitation methods will be on a case by case basis and will be carried out immediately.
Management of impacts to DRF and Priority Flora species	DEC and DoIR	A buffer of 50m will be maintained around all known sites where DRF occur. Areas of high environmental sensitivity will be avoided.
Appropriate weed and dieback hygiene management	DEC and DoIR	Hygiene stations will be positioned in several locations on Woolka Road. All vehicles entering must follow hygiene procedures. Weed hygiene stations will be positioned in areas leaving weed infested areas
Contingency planning for major storm or flooding events	DEC and DoIR	Vehicles will not traverse soft or boggy ground as far as practicable. Hygiene stations and points will be used as wash down stations. Consideration will be given to hand carrying cables and geophones along previously cleared tracks
Use of suitable completion criteria	DEC and DoIR	The Environmental Manager will conduct audits of operation to ensure compliance with agreed EMPs

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

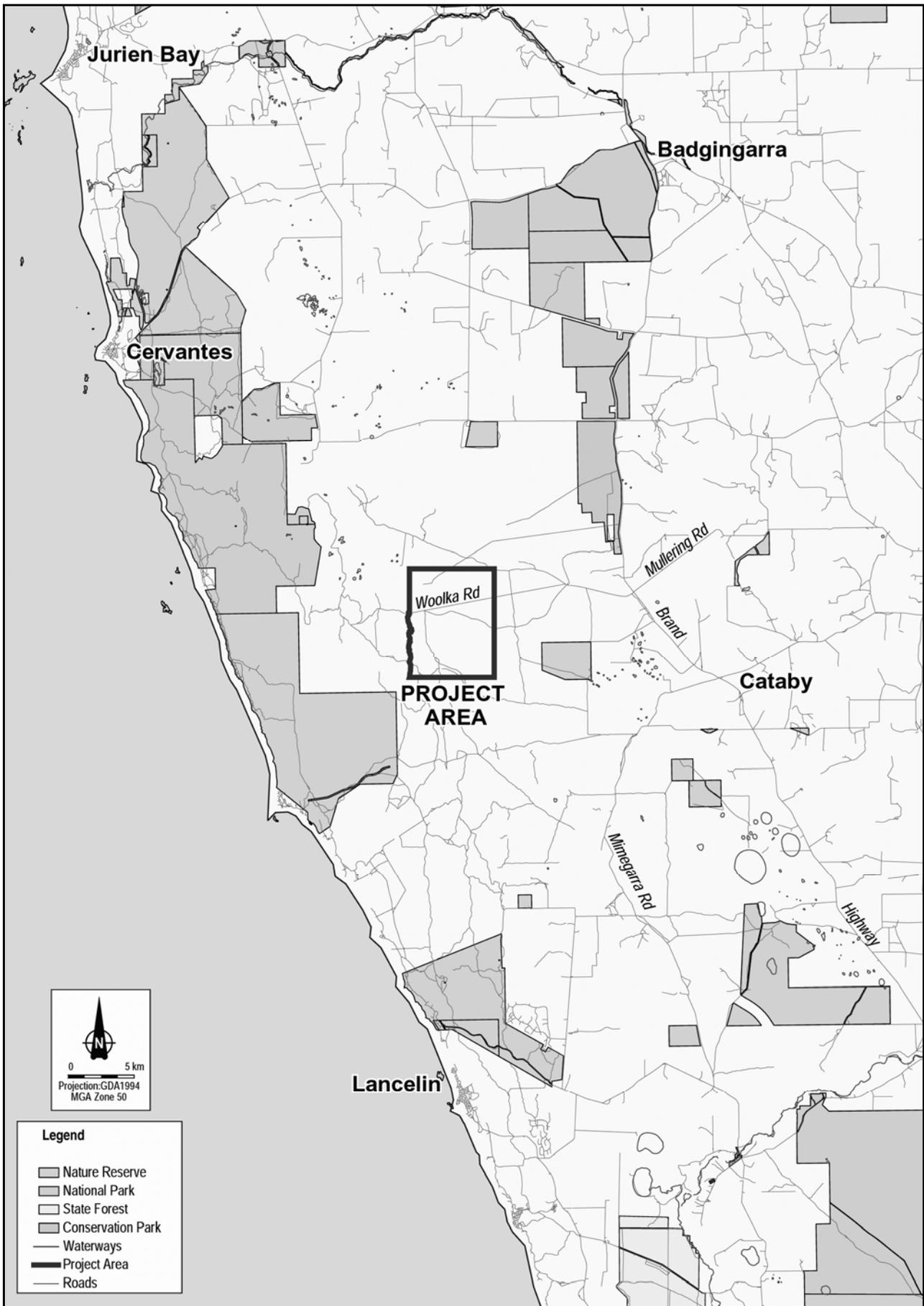


Figure 1: Location and survey boundary area of the Mullering 3D Seismic Survey

4. Key environmental factors

It is the EPA's opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

- (a) Direct impacts on flora, vegetation and fauna habitat;
- (b) Indirect impacts on flora, vegetation and fauna habitat;
- (c) Impact on fauna; and
- (d) Quality and security of seismic line closure and rehabilitation / regeneration.

The key environmental factors are discussed in Sections 4.1 – 4.4. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Direct Impacts on flora, vegetation and fauna habitat

Description

The Mullering 3D seismic survey will lead to significant disturbance of vegetation, in an area long recognised as an extremely species rich region (Griffin et al. 1990). A detailed flora, vegetation and dieback assessment was carried out by Woodman Environmental Consulting Pty Ltd in September and November of 2005 and May and October 2006.

The flora and vegetation survey (Woodman Environmental Consulting 2006) identified three declared rare flora (DRF), thirteen priority species and no Threatened Ecological Communities (TEC) in the survey area. The DRF species are *Andersonia gracilis*, *Anigozanthos viridis* ? *subsp.terraspectans* and *Macarthuria keigheryi*. *Macarthuria keigheryi* is locally common and unable to be completely avoided within the survey. Seismic lines have been planned to avoid major populations, however, it is estimated that approximately 1.8% of the total potential habitat of *M. keigheryi* will be affected by the project. A permit to take for *M keigheryi* has been obtained by the proponent.

Assessment

The EPA's environmental objective for this factor is:

- to maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

The EPA accepts that the impact of disturbance created by the rolling of vegetation for seismic lines has much less impact than for clearing and notes that the proponent intends to avoid impacts on significant flora and vegetation by:

- Creating a 50 metre buffer around Declared Rare Flora (DRF);
- Flagging priority species which are within 30 metres of the seismic lines;
- Creating a 10 metre buffer around DEC monitoring plots;
- Avoiding slow growing species;
- Avoiding trees larger than 3 metres and branches will be hand trimmed;
- Avoiding wetlands and riparian zones;

- Using existing tracks where possible; and
- Hand cutting paths for the laying of receiver lines by personnel on foot in certain vegetation types.

The EPA is aware that rolled vegetation in this area typically recovers within a few years. Where there are bends and turning points created for vehicle access, greater disturbance and damage to root stock occurs due to vehicles breaking up the ground. These areas require additional rehabilitation.

The EPA notes that the DRF species *M. keigheryi* is locally common in the survey area and cannot be completely avoided by the survey; however, the taking of DRF requires authorisation under the *Wildlife Conservation Act 1950* and a permit to take *M. keigheryi* has been obtained by the proponent.

The proponent has provided a Flora and Fauna Management Plan, a Wetland Management Plan and a Rehabilitation Management Plan in its Assessment on Referral Information (ARI) document to address the impacts caused by the seismic survey. On advice from DEC, the EPA considers that implementation of these plans would allow the proposal to be managed to meet the EPA's objective for this environmental factor. However, the EPA considers that in order for the plan to be successfully implemented, a full time environmental co-ordinator would need to be employed by the proponent to supervise on-site activities.

Summary

Having particular regard to the:

- temporary nature of impacts on vegetation due to rolling of the seismic survey lines;
- the proponent's permit to take *M. keigheryi* under the *Wildlife Conservation Act 1950*; and
- the proponent's Flora and Fauna Management Plan which sets out avoidance criteria and rehabilitation requirements.

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor provided that conditions are imposed requiring:

- employment of an Environmental Coordinator, to ensure that the seismic survey is carried out in accordance with the Management Plans;
- implementation of the Flora and Fauna Management Plan;
- implementation of the Wetland Management Plan; and
- implementation of the Rehabilitation Management Plan.

4.2 Indirect impacts on flora, vegetation and fauna habitat

Description

The seismic survey has the potential to cause indirect impacts on flora, vegetation and fauna habitat through factors such as fire and the spread of weeds and dieback disease.

Although there are currently no areas within the project area identified as displaying symptoms of *P. cinnamomi* infestation (Dieback disease), dieback disease has the potential to cause the death of many flora species that are present in the project area. The project area is relatively weed free. Thirty two introduced (weed) flora species were recorded in the project area during flora surveys, with weed densities representing less than 1% of the total foliage in most instances.

The key risk factor for the introduction and spread of *P. cinnamomi* and weeds is the transport of soil and plant material from infected to uninfected areas. The potential impacts of spreading or introducing weeds into the project area include the displacement of many native species which could lead to a reduction in biodiversity, lowered erosion resistance and reduced habitat and food resource for fauna.

Assessment

The EPA's environmental objectives for this factor are:

- to ensure that plant pathogens and weed species (either noxious or environmental weeds) are not introduced or spread within areas of native vegetation; and
- to protect native vegetation from fire.

The EPA notes that the proponent intends to manage the movement of people and vehicles through the survey site in order to reduce the risk of spreading dieback and weed infestation and decrease the risk of wild fires. Key actions identified in the proponents Weed and *Phytophthora cinnamomi* Management Plan are:

- carry out survey in dry conditions;
- locate wash down stations at entry points on Woolka Road; and
- locate weed control stations on each seismic line on exit from an area that contains weeds.

In order to reduce the risk of fire the proponent plans to carry out the following actions which are to be managed by the Department of Industry and Resources (DoIR):

- Implement a high level of preparedness in the event of a fire;
- No petrol vehicles will be used in the survey area;
- Inspect all vehicles for vegetation build up daily prior to commencement of operation; and
- Ensure a fire truck and light tankers are on site at all times.

Summary

Having particular regard to the proponent's plans for:

- weed and dieback management as outlined in the proponent's Weed and *Phytophthora cinnamomi* Management Plan; and
- fire prevention and management which is to be managed by the Department of Industry and Resources (DoIR).

it is the EPA's opinion, on advice from the Department of Environment and Conservation (DEC), that the proposal can be managed to meet the EPA's environmental objectives for this factor provided that condition 9, which requires the implementation of the Weed and *Phytophthora cinnamomi* Management Plan is implemented.

4.3 Impacts on fauna

Description

There are 35 fauna species of conservation significance that may occur in the project area (M.J and A.R Consulting Ecologists, 2006). Fauna species that could be significantly affected by the proposal are:

- Carpet Python (*Morelia spilota*), which is listed under the *WA Wildlife Conservation Act 1950* as specially protected fauna (schedule 4). This species is vulnerable to road kill, due to being large and slow moving;
- Rainbow Bee-eater (*Merops ornatus*), which is a listed migratory species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This species is vulnerable to predation and the crushing of nesting burrows by vehicles, as this migratory bird constructs nesting burrows under the ground in sandy habitats, usually in areas affected by human disturbance. Breeding and nesting is usually from early October to mid December but can vary slightly depending on rainfall;
- Brush Wallaby (*Macropus irma*), which is listed as priority 4 by DEC, which indicates that this species is not considered threatened but is subject to a specific conservation program, the cessation of which would result in the species becoming threatened. This species is vulnerable to road kill due to increased traffic in the area and also to predation; and
- Ground Parrot (*Pezoporus wallicus*), which is listed as Endangered under the EPBC Act and is listed under the *WA Wildlife Conservation Act 1950* as fauna that is rare or likely to become extinct (schedule 1). This species is vulnerable to fire and predation.

Assessment

The EPA's environmental objective for this factor is:

- to maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

The EPA notes that in order to reduce the direct impact of the seismic survey on fauna the proponent has prepared a Flora and Fauna Management Plan in consultation with DEC. Key management actions of the plan are listed below:

- conduct the survey during daylight hours;
- have speed restrictions on Woolka Road and within the survey area for traffic related to the proposal;
- use existing tracks;
- report any injury of or mortality of vertebrate fauna;
- ensure all seismic survey up-holes will be re filled immediately after drilling;
- placement of brush (harvested from nearby vegetation) over seismic lines to discourage the movement of native and introduced fauna; and
- use vermin proof bins on camp site.

The DEC has advised that the seismic work will open a series of tracks in a high biodiversity area. This will increase the tracks for feral activity such as the fox to traverse and predate along. Although this area is part of the Western Shield baiting area, the greater access may increase fox numbers.

The EPA considers that it is imperative that the rolled seismic survey lines are rehabilitated promptly and third party access prevented so that further degradation is avoided. The proponent has addressed these issues in the Rehabilitation Management Plan.

The DEC has advised that the Rainbow Bee-eater may be particularly vulnerable during its breeding season (early October to mid December) due to it constructing nesting burrows in sandy

habitats, near areas of human disturbance. The EPA therefore considers that if the seismic survey is to commence prior to 15 December, the proponent will need to carry out a bird survey from October and prior to commencement of the seismic survey, to identify nesting locations of Rainbow Bee-eater species. The proponent should relocate seismic lines to avoid nesting locations and carry out a survey immediately after the passage of seismic vehicles in order to assess the impact of the seismic survey on the Rainbow Bee-eater breeding process. The proponent should produce a report of the results and findings of this survey to be submitted to DEC.

Summary

Having particular regard to:

- the potential for increased predation (particularly by foxes) due to easier access along the rolled survey lines;
- the Rainbow Bee-eaters' vulnerability during its breeding season due to it constructing nesting burrows;
- proposed rehabilitation of the seismic survey lines as outlined in the Rehabilitation Management Plan including prompt filling of drill holes; and
- proposed fauna management as outlined in the Flora and Fauna Management Plan.

it is the EPA's opinion, that the proposal can be managed to meet the EPA's environmental objective for this factor providing that conditions are imposed requiring:

- implementation of the Flora and Fauna Management Plan;
- survey and management of impacts on Rainbow Bee-eaters'; and
- implementation of the Rehabilitation Management Plan.

4.4 Quality and security of seismic line closure and rehabilitation / regeneration

Description

Vegetation impacted by the rolling of seismic lines would be expected to recover in the medium term from the disturbance caused by the survey; however, there is a risk that, if public access to the seismic lines is not prevented, vegetation may not fully rehabilitate and the lines may become long term or permanent pathways for degrading processes.

Third party access onto the rolled seismic lines would lead to soil erosion and compaction, loss of seed stock, degraded soil conditions, potential spread of weeds and *Phytophthora cinnamomi* and possible direct impacts to fauna. These impacts would result in loss of vegetation, habitat and biodiversity in the areas of cleared seismic lines with little chance of revegetation.

Assessment

The EPA's environmental objective for this factor is:

- to maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

In order to reduce the impact of the seismic survey the proponent has prepared a Rehabilitation Management Plan in consultation with DEC. Key management actions listed in the plan are:

- close off seismic lines as soon as possible, and not later than two weeks of completion of the survey;
- position the camp lay-down area so it will not be visible from the road;
- disguise survey line intersections from public roads;
- remove all camp infrastructure on completion of survey;
- ensure no drill stockpiles, open holes or sumps will be left after the survey;
- ensure that any vegetation pushed to the side will be pulled back over the lines;
- carry out a post survey inspection; and
- carry out additional closure activities where necessary.

The EPA considers that the rehabilitation of seismic lines should be carried out so as to leave no bare patches on the seismic lines longer than 10 metres in any 100 metres of rolled lines after 12 months. To ensure adequate completion, the proponents Rehabilitation Management Plan specifies that rehabilitation monitoring will be carried out by a qualified botanist using a quadrat based assessment. The botanist will monitor the percentage cover and distribution of weeds, total vegetation percentage cover, the presence of keystone flora species, any evidence of erosion, soil compaction, disruptions to surface water drainage, any evidence of *P. cinnamomi* and any evidence of third party access to the seismic lines. The proponent will then monitor the lines again within 6 months, after the winter rain and then annually for at least three years or until Government has signed off on the completion criteria.

The EPA considers that successful rehabilitation is of such importance that a rehabilitation performance bond to the value of \$70,000 should be imposed in case the proponent is unable, for financial or other reasons, to fulfil commitments to undertake work required to achieve the completion criteria specified in the Rehabilitation Management Plan. This value has been determined following advice from DEC and the Department of Industry and Resources.

Summary

Having particular regard to the:

- potential for the proponent's survey lines becoming long term or permanent pathways for ongoing degradation processes if public access is not prevented and rehabilitation is not successfully completed; and
- the proponent's Rehabilitation Management Plan that has been developed in consultation with DEC.

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor provided that conditions are imposed by the Minister requiring:

- a rehabilitation performance bond; and
- implementation of the Rehabilitation Management Plan.

5. Conditions

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Empire Oil Company (WA) Ltd for the Mullering 3D onshore seismic survey is approved for implementation. These conditions are presented in Appendix 2.

6. Other Advice

Other Approvals

The proposal will also require approvals by the Department of Industry and Resources (DoIR) under the *Petroleum Act 1967*. A Fire Management Plan will be provided to and dealt with by DoIR.

7. Conclusions

The EPA has considered the proposal by Empire Oil Company (WA) Limited to carry out a 3 dimensional onshore seismic exploration survey covering approximately 53 square kilometres in the Shire of Dandaragan with 345 kilometres of survey lines where vegetation is to be rolled to allow access.

Having considered the proponent's referral information and the advice of DEC, the EPA notes that:

- the area in which the seismic survey has been proposed is native bush land that has long been recognised for its biodiversity values. It contains three Declared Rare Flora (DRF) and thirteen priority species. There are thirty five fauna species of conservation significance. In particular the Rainbow Bee-eater is especially vulnerable due to it constructing nesting burrows in sandy habitats, often close to human disturbance; and
- vegetation on the seismic lines is to be rolled rather than cleared and is expected to recover within a few years. Prevention of third party access during this time is critical to prevention of ongoing degradation.

The EPA considers that the proposal can be managed to meet the EPA's environmental objectives, provided that conditions 5 to 11 are implemented. These conditions require:

- the provision of a Rehabilitation Performance Bond, to ensure the seismic survey area is rehabilitated to an acceptable level;
- the employment of an Environmental Coordinator, to ensure that the seismic survey is carried out in accordance with the Management Plans;
- implementation of the proponent's Flora and Fauna Management Plan;
- implementation of Rainbow Bee-eater Avoidance Survey;
- implementation of the proponent's Weed and *Phytophthora cinnamomi* Management Plan;
- implementation of the proponent's Wetland Management Plan; and
- implementation of the proponent's Rehabilitation Management Plan.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2.

8. Recommendations

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

1. That the Minister notes that the proposal being assessed is for a 3D onshore seismic survey covering approximately 53 square kilometres in the shire of Dandaragan with 345 kilometres of survey lines where vegetation is to be rolled to allow access.
2. That the Minister considers the report on the key environmental factors as set out in Section 4;
3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

Bancroft, W. and Bamford, M. 2006. *Fauna values of Empire Oil's Mullering prospect EP 432*. Report prepared by W. Bancroft and M Bamford of M.J. and A.R. Bamford Consulting Ecologists, Kingsley, WA, for Woodman Environmental Consulting, Applecross, WA.

Enesar (2007). *Mullering 3D Onshore Seismic Survey – Assessment on Referral Information*

Environmental Protection Authority (EPA) (2000). *Environmental Protection of Native Vegetation in Western Australia*. EPA Position Statement No 2. Perth, December 2000

Woodman Environmental Consulting .2006. *Mullering Onshore 3D Seismic Survey: flora, vegetation and Pytophthora cinnamomi*. Unpublished report prepared for Empire Oil Company (WA) Ltd, Nedlands, Western Australia

Appendix 2

Recommended Environmental Conditions and Proponent's Consolidated Commitments

RECOMMENDED ENVIRONMENTAL CONDITIONS

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

MULLERING 3D SEISMIC SURVEY:
WITHIN PETROLEUM EXPLORATION LEASE EP432
LOCALITY OF CATABY, SHIRE OF DANDARAGAN

Proposal: The preparation of seismic lines, including related flora, vegetation and fauna survey activities, deployment and use of seismic impulse generation and reception equipment, acquisition of seismic data, and access line closure and rehabilitation, as documented in schedule 1 of this statement.

Proponent: Empire Oil Company (WA) Limited

Proponent Address: Suites 7 and 8
154 Hampden Road
NEDLANDS WA 6009

Assessment number: 1699

Report of the Environmental Protection Authority: Bulletin 1266

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 In addition to any other reporting requirements under this statement, the proponent shall submit to the CEO an environmental compliance report within three months after completion of the seismic survey.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.

The environmental compliance reports shall:

1. be endorsed by signature of the proponent's Executive Director or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's Executive Director;
2. state whether the proponent has complied with each condition and procedure contained in this statement;
3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;
4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;
5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;
6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance; and
7. review the effectiveness of all corrective and preventative actions taken.

4-3 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO.

5 Rehabilitation Performance Bond

5-1 As security for the due and punctual observance and performance by the proponent of the requirements of condition 11 to be observed, conformed and complied with, the proponent shall lodge with the CEO on demand prior to commencement of vegetation rolling, an irrevocable Performance Bond as nominated and approved by

the CEO in his sole unfettered discretion to a cash value and in a form acceptable to the CEO (“the Security”) which Security at the date hereof being \$70,000.

5-2 The CEO may review the Security required by condition 5-1 at any time or times and if, on such review, the CEO considers that a security has ceased to be acceptable to the CEO, then the CEO may, with the approval of the Minister for the Environment, require the proponent to furnish replacement or additional security for performance by the proponent of its obligations regarding rehabilitation under condition 11.

5-3 The proponent shall within 14 days after written request by the CEO furnish replacement or additional security in such sum as the CEO shall nominate, in a form and upon terms and conditions approved by the CEO, which approval shall not be unreasonably withheld. On receipt of approved replacement security the CEO shall release and discharge the original security.

Note: In the preparation of advice to the CEO in relation to conditions 5-1, 5-2 and 5-3, the Environmental Protection Authority expects that the advice of the following agency will be obtained:

- Department of Industry and Resources.

6 Environmental Coordinator

6-1 Prior to commencement of vegetation rolling, the proponent shall appoint and employ a full-time professional Environmental Coordinator to the requirements of the Minister for the Environment on advice of the CEO.

The qualifications of the Environmental Coordinator shall include:

1. a tertiary degree in Environmental Science, Environmental Engineering, Land Management or other appropriate discipline; and
2. a minimum of five years’ professional experience relevant to environmental management of exploration projects.

The duties of the Environmental Coordinator shall include the following:

1. surveillance of the initiation of all vegetation rolling actions and supervision of works to ensure best practice environmental performance;
2. monitoring and preparation of reports on matters of potential environmental concern;
3. liaison with relevant State Government professionals of the Department of Industry and Resources, the Department of Water and the Department of Environment and Conservation;
4. communication of potential or perceived environmental problems to the project manager;
5. notification of appropriate government agencies of any environmental problems; and
6. enhancement of environmental knowledge of employees generally at the project site by means of talks, discussions, seminars, brochures, operational methods and training.

7 Flora and Fauna Management

- 7-1 Prior to commencement of vegetation rolling, the proponent shall implement the Flora and Fauna Management Plan contained within the proponent's Assessment on Referral Information document submitted for the proposal.
- 7-2 The proponent shall report from the commencement of vegetation rolling to the Department of Environment and Conservation, any unauthorized clearing of vegetation and any serious injury or mortality of fauna listed in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Wildlife Conservation Act 1950* or on the DEC Priority fauna list.

This report shall include:

1. The type and amount of unauthorised vegetation cleared;
2. The type and amount of Declared Rare Flora (DRF) or priority flora cleared;
3. The number and species of fauna killed which is listed under statutory protection or on the DEC priority fauna list;
4. The number of and species of bird nests/eggs destroyed which is listed under statutory protection or on the DEC priority fauna list ;
5. The number and species of fauna injured that are listed under statutory protection or on the DEC priority fauna list;
6. Time, date and location of incidents; and
7. Management actions taken to mitigate/reduce the unauthorised clearing of flora and the death and injury of fauna.

Reporting shall conclude when the requirements of condition 11-2 have been fulfilled.

- 7-3 The proponent shall impose speed limits of 40 kilometres per hour for all vehicles within the project area and 60 kilometres per hour on Woolka Road.

8 Rainbow Bee-eater Avoidance Survey

- 8-1 In the event that the proposal will commence prior to 15 December in any year, the proponent shall conduct a survey of Rainbow Bee-eaters (*Merops ornatus*) in the seismic survey area from the start of October to 15 December in the relevant year and prior to commencement of vegetation rolling. This survey shall be carried out by a suitably qualified person (see note 4 below) to determine the presence of Rainbow Bee-eaters (*Merops ornatus*) in the seismic survey area.
- 8-2 The proponent shall locate seismic survey lines to avoid Rainbow Bee-eater nesting locations.
- 8-3 Following the passage of survey vehicles in the vicinity of Rainbow Bee-eater nesting locations, the proponent shall carry out a follow-up survey to determine the impacts of the seismic survey on the breeding of the Rainbow Bee-eater.
- 8-4 Within three months following the survey required by condition 8-3, the proponent shall provide to the CEO a report on the data and findings of the survey on the impacts of the seismic survey on the breeding of the Rainbow Bee-eater species.

9 Weed and *Phytophthora cinnamomi* Management

9-1 Prior to commencement of vegetation rolling, the proponent shall implement the Weed and *Phytophthora cinnamomi* Management Plan contained within the proponent's Assessment on Referral Information document submitted for the proposal.

9-2 The proponent shall report from the commencement of vegetation rolling activity to the Department of Environment and Conservation, any non-compliance with the Weed and *Phytophthora cinnamomi* Environmental Management Plan.

This report shall include:

1. Time, date and location of incidents;
2. Management actions taken to mitigate/reduce the non-conformance of hygiene procedures;
3. Any sightings of the Cape Tulip (*Moraea flaccida*) and other noxious and environmental weeds; and
4. Management actions taken to mitigate/reduce the movement of the Cape Tulip or its seeds and any other noxious and environmental weeds.

Reporting shall conclude when the requirements of condition 11-2 have been fulfilled.

9-3 The proponent shall ensure that all vehicles are washed down on entry to the project site and that all vehicles and footwear are cleaned to a satisfactory standard at each weed hygiene station.

10 Wetland Management Plan

10-1 Prior to commencement of vegetation rolling, the proponent shall implement the Wetland Management Plan contained within the proponent's Assessment on Referral Information document submitted for the proposal.

10-2 The proponent shall report from the commencement of vegetation rolling to the Department of Environment and Conservation, any non-compliance with the Wetland Environmental Management Plan.

This report shall include:

1. Time, date and location of incident;
2. Management action taken to mitigate/reduce the non-conformance of Wetland Management procedures;

Reporting shall conclude when the requirements of condition 11-2 have been fulfilled.

11 Rehabilitation Management Plan

11-1 The proponent shall implement the Rehabilitation Management Plan contained within the proponent's Assessment on Referral Information document submitted for the proposal and released on 13 August 2007.

The Rehabilitation Management Plan shall contain provision for update and review.

11-2 The proponent shall implement the Rehabilitation Management Plan referred to in condition until such time as the Minister for the Environment determines, on advice of the CEO, that the proponent's rehabilitation responsibilities have been fulfilled.

Notes

1. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.
2. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.
3. Compliance and performance reporting will endeavour to be in accord with the timing requirements of the *Petroleum Act 1967*.
4. In condition 8, a suitably qualified person means a person qualified in ornithology or as otherwise acceptable to the CEO.

The Proposal (Assessment No. 1699)

General Description

The Mullering 3D Seismic Survey will take place within a survey area of 53 square kilometres (5300 hectares). Approximately 345 kilometres of seismic lines will be directly accessed for survey activities. The site is primarily located within Unallocated Crown Land (UCL), with access via Woolka Road and Cooljarloo Road. Other land tenure types include Vacant Crown Land (VCL), a ‘water and stopping place’ reserve around the Wooka Wooka Well, which is vested in the Shire of Dandaragan (C Class Reserve 729), and a pastoral lease property.

The survey will involve the ‘rolling’ of lines of vegetation in a grid pattern. The lines will have a maximum width of four metres running north and south and two metres travelling east and west, with short sections of greater width to provide turning points for survey vehicles.

Vibroseis trucks, carrying impulse generating equipment will drive north and south along the cleared lines and, at 40 metre intervals, will lower their vibration pads to vibrate the ground. Geophones will be laid along the east to west gridlines to acquire seismic data. The survey will also involve drilling of a number of holes (up to 50) of maximum depth 100 metres for data acquisition purposes.

Following the survey, the proponent will undertake line access closure and site rehabilitation / monitoring activities on access lines created by the survey until completion criteria agreed by the Department of Environment and Conservation have been achieved.

The proposal is described in the following document – Assessment on Referral Information Mullering 3D Onshore Seismic Survey (version 5, August 2007).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

Table 1 – Summary of Key Proposal Characteristics

Element	Description
Type of survey	3D seismic
Duration	Survey ~ 50 days Rehabilitation – until completion criteria achieved
Total length of Seismic lines (line kilometres)	Approximately 345 kilometres
Width of line rolling	Source lines: 4 metres maximum Receiver lines: 2 metres maximum N.B. Some ‘turning areas’ (up to 5m by 5m) will be required to reduce the requirement for connecting tracks to facilitate avoidance of environmental constraints, and to allow for exceptional circumstances (for example tyre repair).
Total land area within survey boundary	5300 hectares approximately
Area of seismic lines to	Not more than 150 hectares

Element	Description
be rolled (i.e. area of source and receiver lines)	
Number of data acquisition holes (up-holes) required	50 approximately
Diameter of data acquisition holes (up-holes)	10 centimetres
Depth of data acquisition holes (up-holes)	100 metres maximum
Plant and equipment	Camp (including office, mess and accommodation) Up to four truck-mounted source vehicles Three light cable trucks Up to nine camp-based vehicles (including fuel, water fire trucks)
Number of people involved	50 personnel approximately
Operation Hours	Daylight hours only, seven days per week

Figures

Figure 1 – Location and survey boundary area of the Mullering 3D Seismic Survey (see figure 1 page 4 above)