

OPTIC FIBRE CABLE MARRAKAI TO KAKADU NATIONAL PARK

ENVIRONMENTAL ASSESSMENT REPORT AND RECOMMENDATIONS

by the
ENVIRONMENT AND HERITAGE DIVISION
DEPARTMENT OF LANDS, PLANNING AND ENVIRONMENT

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EXECUTIVE SUMMARY

This report assesses the environmental impact of a proposal by Telstra Corporation Limited to replace a line of radio repeater stations with an Optic Fibre Cable (OFC) between Marrakai and the boundary of Kakadu National Park, mainly along an existing fenceline. The proposed OFC will significantly upgrade the capacity of the existing radio systems, improve communications quality and increase system reliability.

In addition, the diesel generators, which currently power the radio repeater stations, will be replaced by solar power to power the optical fibre equipment. This equipment requires much less power, thus improving reliability and reducing operational and maintenance costs.

This Report reviews the Statement of Environment Impacts (SEI) prepared by EcOz on behalf of the proponent, Telstra Corporation Ltd.

Environmental impact assessment is the process of defining those elements of the environment which may be affected by a development proposal and of determining the significance, risk and consequences of the potential impacts of the proposal.

Major Issues

The principal environmental issues identified with the proposal to install OFC from Marrakai to the boundary of Kakadu National Park are:

1. Clearing of vegetation associated with the installation of the OFC with consequent impacts on erosion and soil conservation, particularly at creek crossings;
2. Changes to hydrology and impacts on water quality;
3. Spread of weeds along the OFC route;
4. Impacts on National Estate values;
5. Loss of heritage values.

The potential benefits associated with the proposal include:

1. Improved reliability and enhanced communications capacity in the region;
2. Reduced operational costs and need for maintenance;
3. Reduced energy requirements with consequent environmental benefits such as reduction in greenhouse gas emissions, noise, risks associated with the transportation and storage of diesel fuel, and the use of a renewable energy source.

It is considered that all significant environmental issues associated with the proposed project have been adequately identified, although some issues remain to be addressed through implementation of the recommendations in this report.

SUMMARY OF RECOMMENDATIONS

Recommendation 1

The proponent shall ensure that the proposal is implemented in accordance with the environmental commitments and safeguards contained in the SEI and as recommended in this assessment report.

Project management should be in accordance with Telstra's standards and work instructions as detailed in Table 3.5 of the SEI and any other relevant standards as may be developed by Telstra from time to time.

Recommendation 2

The proponent shall provide more details on the following matters to the Department of Lands, Planning and Environment prior to the commencement of construction:

- proposed methods to reinstate drainage and surface profiles along the alignment;
- construction methods and erosion hazard controls for the watercourses;
- a contingency plan in the event of inadequate natural regeneration; and
- proposed monitoring methods for erosion.

Wherever steep slopes (>5%) are encountered, the Natural Resources Division of the Department of Lands, Planning and Environment should be notified so that a site visit can be arranged to assess the situation and provide advice.

Recommendation 3

Details of proposed baseline and ongoing monitoring for surface water hydrology and water quality should be prepared as soon as possible to the satisfaction of the Department of Lands, Planning and Environment.

Recommendation 4

The proponent should submit details of weed management for approval prior to the commencement of construction. The weed management should be based on the principles for management outlined in the SEI, the relevant Telstra Work Instruction(s) and should comply with the Northern Territory Weeds Management Strategy 1996-2005.

Recommendation 5

Telstra shall seek permission under the *Heritage Conservation Act* to disturb the twelve background scatter sites.

Telstra shall clearly mark the location of archaeological sites on all Telstra installation maps and mark the boundary of locations with star pickets. Telstra shall ensure that all staff, including sub-contractors, are aware of the significance of the sites and the necessity to avoid disturbance. Telstra should include heritage issues in staff training programs.

Recommendation 6

Telstra shall liaise with the Parks and Wildlife Commission of the Northern Territory to coordinate the construction of trenches with opportunities for undertaking pit-fall trapping of fauna species.

Construction personnel should be advised that pets of any kind would not be permitted at the construction site or in the construction camp.

Recommendation 7

The proponent should determine fire management requirements in consultation with other landholders and submit this to the Parks and Wildlife Commission for approval.

Recommendation 8

Construction and operation practices must comply with the Territory Health Service Publication "Drainage considerations for mosquito health control".

It is recommended that staff are provided with access to educational material on mosquitoes, mosquito-borne diseases and personal protection measures to avoid mosquito bites.

Recommendation 9

The proponent shall consult with and seek approval from Environmental Health at Territory Health Services for the design and installation of ablution facilities.

Recommendation 10

The workforce should have ready access to appropriate receptacles for waste storage. Waste should be disposed of to a recognised landfill site on a regular basis to prevent odours and health issues occurring.

Recommendation 11

Reporting of any potentially environmentally significant spill shall be made within 24 hours of the event to the Pollution Response Line of the Department of Lands, Planning and Environment and management, monitoring and

remediation carried out at the direction of Department of Lands, Planning and Environment. A written report shall be submitted within 7 days detailing the extent of impact and remedial measures taken.

Recommendation 12

Details of the storage and management of hazardous materials, including oils, fuel and chemicals, are to be provided to the Department of Lands, Planning and Environment. Storage shall be subject to the approval of the Work Health Authority under the *Dangerous Goods Act*.

1. INTRODUCTION AND BACKGROUND

This report assesses the environmental impact of the installation of an Optic Fibre Cable (OFC) between Marrakai and the boundary of Kakadu National Park (Figure 1) as described in the Statement of Environmental Impact (SEI) submitted by Telstra. It is proposed that the existing digital radio system, which is old and weather-affected, will be replaced by the OFC between Darwin and Jabiru along the Arnhem Highway. The alignment of the section between Marrakai and the boundary of Kakadu National Park includes parts of Djukbinj National Park, Mary River National Park and Mount Bundy Training Area as well as private property. The development would involve clearing of native vegetation within an easement of three to six metres wide.

1.1 *Environmental Assessment Process*

Environmental impact assessment is based on adequately defining those elements of the environment which may be affected by a proposed development, and on quantifying the significance, risks and consequences of the potential impacts of the proposal at a local and regional level.

Discussions with the Australian Communications Authority have highlighted legal issues associated with the project. The SEI appears to contain an error. It states that under the *Telecommunications Act* 1997, a carrier is exempt from State and Territory law, including environmental legislation. However, Section 37(1) of Division 3 of the *Telecommunications Act* states

- (1) This clause applies to an activity carried on by a carrier if the activity is authorised by Division 2, 3 or 4.

Division 3, which deals with the exemptions of a carrier from State or Territory laws for installation, does not apply to the current activity. Under section 2.2 of the *Telecommunications (Low-impact Facilities) Determination* 1997, significant parts of the alignment are defined as a heritage area and are therefore not included within the low-impact determination for the installation of the OFC. This is because the OFC is situated within a conservation reserve (Mary River Conservation Area) and contains an area on the Register of the National Estate (Wildman River catchment). The full suite of Northern Territory law, including the *Environmental Assessment Act* and *Heritage Conservation Act*, applies to these sections.

In any case, the provisions of Division 3 specifically “do not apply to a law in so far as the law provides for the protection of places or items of significance to the cultural heritage of Aboriginal persons or Torres Strait Islanders”. The Northern Territory believes that the *Sacred Sites Act* and the *Heritage Conservation Act*, in so far as it applies to Aboriginal heritage, both apply to all Telstra proposals, including low impact activities.

Territory law applies concurrently with procedures under Clause 55 of the *Telecommunications Act*. The clause requires that the carrier provide a written statement about the environmental impact of the installation if one of the conditions under that section is satisfied. The proposal satisfies at least one condition. The Telecommunications (Environmental Impact Information) Regulations specify the details of what is required in a notice under Clause 55 of the Act.

The SEI provides a description of the existing environment in the area and the proposed operations, and evaluates the environmental impacts and proposed mitigating measures to minimise the expected impacts.

This report assesses the adequacy of the document in achieving the above objectives, and evaluates the undertakings and environmental safeguards proposed by the proponent to mitigate the potential impacts.

The safeguards may be implemented at various levels within the planning framework of a project. These include, but are not limited to:

1. Site selection;
2. Design and layout of facilities;
3. Management of construction activities;
4. Processes used in operations and facilities (i.e. inputs and outputs); and
5. Management of operations, processes and facilities.

The contents of this report form the basis of advice on the environmental issues associated with the project.

1.2 Environmental Assessment History

Telstra Network Design and Construction lodged a Notice under Clause 19 of Schedule 3 to the *Telecommunications Act* for the inspection and survey of an OFC alignment between Marrakai and Jabiru on 20 November 1997. It subsequently lodged another Notice on 27 November 1998, proposing to install the OFC from Marrakai to Jabiru. The part of the OFC within Kakadu National Park was subject to assessment by Environment Australia under Commonwealth legislation. The Environment and Heritage Division of the Department of Lands, Planning and Environment considered that the section between Marrakai and the boundary of Kakadu National Park had a number of environmental implications and on 21 December 1998 it advised that an environmental impact assessment should be undertaken. Subsequent discussions with the proponent and its consultant were carried out to determine an appropriate scope for the study and a letter outlining the Division's requirements was forwarded on 30 March 1999. The proponent for the project is Telstra Corporation Limited (Telstra).

On 26 November 1999, Telstra provided the Environment and Heritage Division with a copy of a Statement of Environmental Impact (SEI) prepared in relation to the proposed installation of the OFC.

The legal position relating to the installation of the OFC is complex (Section 1.1) and different legislative regimes apply for different sections of the cable alignment, depending on the presence of areas defined as "heritage areas" under the Telecommunications (Low-impact Facilities) Determination 1997. It is not proposed to formally assess the proposal. However, the SEI has been circulated to the Parks and Wildlife Commission of the Northern Territory and the Natural Resources Division of the Department of Lands, Planning and Environment for comment. These comments, in addition to the Environment and Heritage Division's assessment, will form the basis of recommendations for the project.

Consultation and liaison between the proponent and Commonwealth and Northern Territory Government agencies, the Northern Land Council, the representative body for traditional owners, and the local Jabiru Town Council has been ongoing since November 1997.

1.3 Scope of the Assessment

This report assesses the environmental impacts of the installation of an OFC and associated infrastructure and their ongoing maintenance.

2. THE PROPOSAL

The current provision of telecommunications services along the Arnhem Highway is via a line of radio repeater stations. The proposed OFC will significantly upgrade the capacity of the existing radio systems, improve communications quality and increase system reliability. The new system will involve the following elements:

- Optical fibre cable will consist of 12mm diameter thin glass rods clad in a protective nylon sheath. Marker tape is laid 300 mm above the OFC and 500 marker pegs will be installed along the route at spacing of 200m or less.
- A regenerator station to retransmit the laser light is required every 110 km. The diesel generators, which currently power the radio repeater stations, will be replaced by a solar powered Synchronous Digital Hierarchy (SDH) transmission system with battery backup. The OFC regenerator equipment will be installed at the existing Telstra microwave radio repeater site at Shale Ridge.
- A camp will be established to provide an office for staff and as a place for the storage of machinery and materials during the construction phase of the project. Machinery maintenance may also be undertaken at the camp. Staff (a maximum of 10 full time employees of Telstra) will be accommodated at nearby commercial accommodation establishments.
- The alignment will follow the Arnhem Highway. The cable will be bored under the Arnhem Highway in three locations to allow the cable to be laid in the most favourable location, avoiding creek systems where possible. Where the cable crosses the Mary River, it will be affixed to the side of the bridge by means of a

conduit. The total length of the OFC from the Marrakai to Kakadu National Park boundary is 63 km.

- Installation is scheduled for the 2000 dry season. If construction is not completed during this period, it will be postponed until the following dry season.
- As part of site preparation works, a nominal 6 metre wide easement will be cleared for the first 40 km of the route and an access of 3 m wide will be cleared for the final 21 km along the surveyed and pegged route. Some removal of trees obstructing the solar array may be necessary.
- Following clearing and grading, the cable route will be ripped using one or more passes of a bulldozer equipped with a ripping tyne. Ripping breaks the soil and displaces large buried rocks in a trench 0.4 m wide and 1.2 m deep, providing a zone of "fines" at the bottom of the rip where the cable is placed. The OFC is ploughed in this zone in a smooth and uninterrupted operation. A minimum of three ripping operations is needed to prepare the trench. However, where the route cannot be ripped to the required depth in five or six passes, cross ripping is required.
- Trenching may be required where access for large machinery is difficult. Trenching will be used where the route follows the road verge or where the cable runs near a facility such as the parking bay east of Marrakai. Following trenching, the cable is laid, and the trench is backfilled and reinstated.
- The method of installation at watercourse crossings will be determined by the nature of the crossing and will be conventional direct burial, or trenching and installing a conduit or directional boring where it is considered technically or environmentally undesirable to install the cable by either of the previous two methods. The creek banks will be reinstated following installation to avoid subsequent erosion of the bank.
- Future upgrades will be through the replacement of terminal equipment rather than the cable itself. Cable life is expected to be approximately 40 years.
- Following completion of the installation, Telstra intends to reinstate the terrain to as near as possible to its pre-existing condition, including the reforming of original drains, mounds and bunds. Erosion control measures, including but not limited to earth bunds, contour drains and revegetation will be installed as suitable for the conditions.
- A monitoring program and environmental management system will be established.

3. ENVIRONMENTAL ASSESSMENT

3.1 Introduction

The information provided in the SEI has been assessed and then used, along with comments from advisory bodies, to determine the adequacy of the information provided by the proponent and the accuracy and acceptability of predicted impacts and safeguards. Comments and recommendations are then made.

It is acknowledged that during implementation of proposals outlined in the SEI, flexibility is necessary and desirable to allow for minor and non-substantial changes to

the design and specifications, which have been examined as part of this assessment. It is considered that subsequent statutory approvals for this project could make provisions for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

It is important for interpretation purposes that the recommendations (in **bold**) are not considered in isolation, as the text identifies concerns, suggestions and undertakings associated with the project.

Telstra has a number of standards that are relevant to the environmental management of the installation and ongoing operation of the OFC and associated facilities.

Subject to decisions that permit the project to proceed, the primary recommendation of this assessment is:

Recommendation 1

The proponent shall ensure that the proposal is implemented in accordance with the environmental commitments and safeguards contained in the SEI and as recommended in this assessment report.

Project management should be in accordance with Telstra's standards and work instructions as detailed in Table 3.5 of the SEI and any other relevant standards as may be developed by Telstra from time to time.

3.2 Major Environmental Issues

The principal environmental issues identified with the proposal for installation of an OFC between Marrakai and the boundary of Kakadu National Park and the construction of associated infrastructure to support the project are:

1. Clearing of vegetation associated with the installation of the OFC and consequent impacts on erosion and soil conservation, particularly at creek crossings;
2. Changes to hydrology and impacts on water quality;
3. Spread of weeds along the OFC route;
4. Impacts on National Estate values;
5. Loss of heritage values.

3.2.1 Vegetation clearance, erosion and soil conservation

Nine major and five minor vegetation associations were recorded along the route of the OFC. The SEI states that none is considered to be rare or unusual. However, *Eucalyptus papuana*/*E. polycarpa* woodland with grassland understorey appears to be comparatively poorly represented, both in the Northern Territory and within the Pine Creek-Arnhem bioregion (Connors *et al.*, 1996). In addition, it is not reserved in the bioregion and poorly reserved elsewhere.

No surveys of benthic flora in the streams and wetlands were conducted.

The rehabilitation objectives are not stated in the SEI. These should be included in the contingency plan outlined in Recommendation 2. There is no discussion of what action will be taken if natural regeneration of the OFC corridor is inadequate.

Areas such as hill slopes or stream banks where natural vegetation may be poor or too slow to provide adequate resistance to erosion may require direct seeding to promote rapid revegetation. If such a technique is necessary, advice should be sought from DLPE or the Department of Primary Industry and Fisheries to ensure appropriate species and methods are used.

Soil surveys or samples have not been undertaken, nor has there been any detailed assessment of the erodibility of the various soils along the alignment. Soil erosion and sedimentation and its consequential effect on water quality and benthic flora and fauna is the most significant potential impact of the OFC.

Although the options for installation of the OFC at watercourse crossings have been outlined, no details of preferred options for particular crossings have been given. Based on field inspections carried out in December 1999, it is recommended that consideration be given to attaching the cable to the bridge at Wildman River West to minimise impacts on this listed system. The design of erosion hazard control structures and their constructed form needs to be assessed to ensure effective containment of the erosion hazards.

It is noted that monitoring of erosion is proposed by helicopter. While this is likely to be adequate for the majority of the alignment, sensitive areas such as creek crossings, steep slopes or highly erodible soils may require on ground monitoring. A mechanism for ensuring that monitoring methods are appropriate for each erosion hazard should be determined.

Recommendation 2

The proponent shall provide more details on the following matters to the Department of Lands, Planning and Environment prior to the commencement of construction:

- **proposed methods to reinstate drainage and surface profiles along the alignment;**
- **construction methods and erosion hazard controls for the watercourses;**
- **a contingency plan in the event of inadequate natural regeneration; and**
- **proposed monitoring methods for erosion.**

Wherever steep slopes (>5%) are encountered, the Natural Resources Division of the Department of Lands, Planning and Environment should be notified so that a site visit can be arranged to assess the situation and provide advice.

3.2.2 Hydrology and Water Quality

Several wetlands and rivers of conservation value occur along the alignment of the route. It is noted that no baseline monitoring of water quality was carried out as part of the SEI.

Key issues associated with the surface water runoff are erosion and sediment control. It is considered unlikely that vegetation will have established during the first wet season following installation of the OFC and therefore sedimentation and turbidity may be a significant issue.

There is no proposed monitoring of water quality other than visual inspection between May and July. This may not be adequate to identify potential problems in a timely manner, especially in the absence of baseline monitoring. In addition, May to July is a poor time to undertake monitoring. Monitoring at the start of the wet season, when the first flows have begun, will allow monitoring to detect the initial mobilisation of sediments from construction of the OFC. Provided that adequate baseline monitoring is undertaken at this time of the year, it should be possible to differentiate between natural turbidity and that attributable to the OFC.

It is noted that management to prevent excessive sedimentation and erosion may involve the alteration of natural drainage patterns.

It is suggested that the monitoring program should develop a network of monitoring sites to assess impacts on surface water hydrology and water quality at locations representing each of the installation options at watercourse crossings.

Recommendation 3

Details of proposed baseline and ongoing monitoring for surface water hydrology and water quality should be prepared as soon as possible to the satisfaction of the Department of Lands, Planning and Environment.

3.2.3 Weeds

It is recognised that some of the OFC corridor has been colonised by weeds. However, other areas are comparatively weed-free. It is noted that surveys have found a number of weeds that have the potential to adversely impact on biodiversity.

The SEI states that Telstra's intention is to minimise the introduction and spread of weeds during construction and to ensure that any weeds attributable to Telstra's activities that may be of environmental significance are removed or controlled as appropriate. However, given that no detailed mapping of weed communities or their extent has been undertaken, determination of the source of a weed problem, or whether Telstra's activities have contributed to weed spread, may not be possible. Advice on weed management can be obtained from the Department of Primary Industry and Fisheries.

The draft SEI does not mention the Northern Territory Weeds Management Strategy 1996-2005 released by the NT Government in 1996.

Recommendation 4

The proponent should submit details of weed management for approval prior to the commencement of construction. The weed management should be based on the principles for management outlined in the SEI, the relevant Telstra Work Instruction(s) and should comply with the Northern Territory Weeds Management Strategy 1996-2005.

Telstra's primary strategy to combat weeds is the use of hygiene practices. While this is considered appropriate, there is insufficient attention paid to the role of ground disturbance, such as will occur during vegetation clearance and trenching, in the spread and intensification of weeds.

No details of washdown areas have been provided in the SEI. Information on washdown should be included in the information required for Recommendation 4.

3.2.4 National Estate Values

Part of the project area lies within the Wildman River Catchment and is on the Register of the National Estate based on its natural and cultural values. The principal natural values for which the area is listed are wetlands and rivers and their associated ecosystems.

The SEI states that the alignment occurs along the fenceline in the listed area and therefore the vegetation is already disturbed. However, it does not address the impact of the OFC on the wetlands and rivers and their associated ecosystems.

Indirect impacts on National Estate values, particularly on rivers and wetland ecosystems of the Wildman River Catchment, should be managed through monitoring as outlined in Recommendation 3.

3.2.5 Heritage

An Aboriginal rockshelter site, three artefact scatters, one stone artefact quarry and twelve background scatters of isolated artefacts were recorded along the proposed OFC route. One historic site complex (the Old Mount Bunday Station homestead) was also located during surveys. The archaeological sites are believed to reflect broad scale utilisation of the resources found in the Mary River region by pre-contact Aboriginal people. The historic site is of importance in showing past pastoral and settlement patterns.

Telstra has undertaken to seek permission under the *Heritage Conservation Act* to disturb the twelve background scatter sites.

Telstra has sought permission under the *Heritage Conservation Act* to disturb the artefact scatter designated as Mary River 1.

Telstra has committed to re-routing the OFC alignment to avoid the Mary River 2 site, which is considered to have moderate to high significance.

The other sites will not be affected by the proposed alignment. However, their location will be marked on maps and their boundaries marked with star pickets.

Recommendation 5

Telstra shall seek permission under the *Heritage Conservation Act* to disturb the twelve background scatter sites.

Telstra shall clearly mark the location of archaeological sites on all Telstra installation maps and mark the boundary of locations with star pickets. Telstra shall ensure that all staff, including sub-contractors, are aware of the significance of the sites and the necessity to avoid disturbance. Telstra should include heritage issues in staff training programs.

3.3 Other Issues

3.3.1 Fauna

Several species listed under the Commonwealth *Endangered Species Act* 1992 have been recorded on or near the Arnhem Highway, although no specific surveys were taken as part of the current assessment. Other species of conservation significance may occur along the OFC route.

However, given the localised nature of the impact, and the large areas of intact faunal habitat which occur in the region, it is not expected that there will be any long term impact on terrestrial fauna from the installation of the OFC.

There have been no surveys or discussion of the impact of the construction of the OFC on benthic fauna in the streams and wetlands of the alignment. Siltation of watercourses may pose a significant hazard to benthic flora and fauna. The design of erosion hazard control structures and their constructed form needs to be assessed to ensure effective containment of the erosion hazards.

Parks and Wildlife Commission of the Northern Territory has proposed that the installation of the trenches would provide an opportunity for researchers to undertake pit-fall trapping to better define the faunal species and communities present in the

area. It has requested that Telstra liaise with the Commission to maximise opportunities for pit-fall trapping.

Recommendation 6

Telstra shall liaise with the Parks and Wildlife Commission of the Northern Territory to coordinate the construction of trenches with opportunities for undertaking pit-fall trapping of fauna species.

Construction personnel should be advised that pets of any kind would not be permitted at the construction site or in the construction camp.

3.3.2 Fire

The issue of fire management has not been addressed in the SEI. There is a risk of fire given the presence of machinery and the proposed construction time in the dry season. The cleared vegetation may also constitute a fuel hazard as it dries out.

Recommendation 7

The proponent should determine fire management requirements in consultation with other landholders and submit this to the Parks and Wildlife Commission for approval.

3.3.3 Mosquitoes

Several mosquito species occur which are known to be vectors for human diseases in the Northern Territory.

It is considered that the measures proposed by Telstra are adequate to minimise the creation of mosquito-breeding sites.

The issue of the impact of mosquitoes on the construction and operation workforce has not been addressed in the SEI.

Recommendation 8

Construction and operation practices must comply with the Territory Health Service Publication "Drainage considerations for mosquito health control".

It is recommended that staff are provided with access to educational material on mosquitoes, mosquito-borne diseases and personal protection measures to avoid mosquito bites.

3.3.4 Ablution facilities

There are no details of any proposed ablution/septic systems for construction workers given in the SEI. Details should be provided before construction commences. If septic systems are proposed at the camp, documentary evidence that the proposed sites are suitable for accommodating standard septic tank effluent system is to be provided. This is due to factors such as the presence of creek systems throughout the project area, sheet flooding during the wet season, the close proximity of the water table and the diversity of soil types. The installations of ablution facilities are to be appropriate for the area.

Where commercial systems are proposed, these should be subject to the approval of Territory Health Services.

Recommendation 9

The proponent shall consult with and seek approval from Environmental Health at Territory Health Services for the design and installation of ablution facilities.

3.3.5 Domestic waste management

There is no discussion in the SEI of proposed management of domestic wastes generated during construction.

Recommendation 10

The workforce should have ready access to appropriate receptacles for waste storage. Waste should be disposed of to a recognised landfill site on a regular basis to prevent odours and health issues occurring.

3.3.6 Hazardous materials

It is considered that the monitoring proposed for oil spills may not be adequate, depending on circumstances. It is noted that many of the watercourses and wetlands in the area are of high conservation significance. Sampling of watercourses may need to be carried out as part of monitoring, depending on the location of the spill. All spills of significance should be reported to the Pollution Response Line and management, monitoring and remediation carried out at the direction of Department of Lands, Planning and Environment.

Recommendation 11

Reporting of any potentially environmentally significant spill shall be made within 24 hours of the event to the Pollution Response Line of the Department of Lands, Planning and Environment and management, monitoring and remediation carried out at the direction of Department of Lands, Planning and Environment. A written report shall be submitted within 7 days detailing the extent of impact and remedial measures taken.

No information on materials storage at the camp has been provided in the SEI. In addition, management of activities that may generate oily wastes or other hazardous materials (e.g. machinery maintenance) is not discussed. Storage should comply with relevant Australian Standards and the *Dangerous Goods Act* and include measures such as bunding where appropriate.

Recommendation 12

Details of the storage and management of hazardous materials, including oils, fuel and chemicals, are to be provided to the Department of Lands, Planning and Environment. Storage shall be subject to the approval of the Work Health Authority under the *Dangerous Goods Act*.

4. CONCLUSION

It is considered that all significant environmental issues associated with the proposed project have been adequately identified. Some of these issues have been resolved through the assessment process, while others will be addressed through monitoring and management actions to be detailed before the commencement of construction and subject to review by relevant NT agencies. A contact list for Northern Territory Government Agencies is attached as Appendix A.

Provided that the environmental commitments and safeguards detailed in the SEI are undertaken, the recommendations in this Assessment Report are adopted, and regular compliance auditing and reporting are carried out, long term impacts should be avoided or mitigated.

5. REFERENCE

Connors, Greg, Oliver, Belinda and Woinarski, John (1996). Bioregions in the Northern Territory: conservation values, reservation status and information gaps. Final Report to ANCA National Reserves System Cooperative Program. (Project N607). Parks and Wildlife Commission of the Northern Territory.

Appendix A

Pollution Response Line Freecall number	1800 064 567
Natural Resources Division, Department of Lands, Planning and Environment	8999 3662
Parks and Wildlife Commission of the NT	8999 5511
Work Health Authority	8999 5010
Territory Health Services (Medical Entomology)	8922 8333
Territory Health Services (Environmental Health)	8999 2714
Department of Primary Industry and Fisheries	8999 2287