

ASSESSMENT REPORT — NUMBER 3

**ASSESSMENT REPORT FOR THE
PROPOSED PALM VALLEY GAS
PIPELINE PROJECT**



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ENVIRONMENT UNIT
CONSERVATION COMMISSION OF THE NORTHERN TERRITORY
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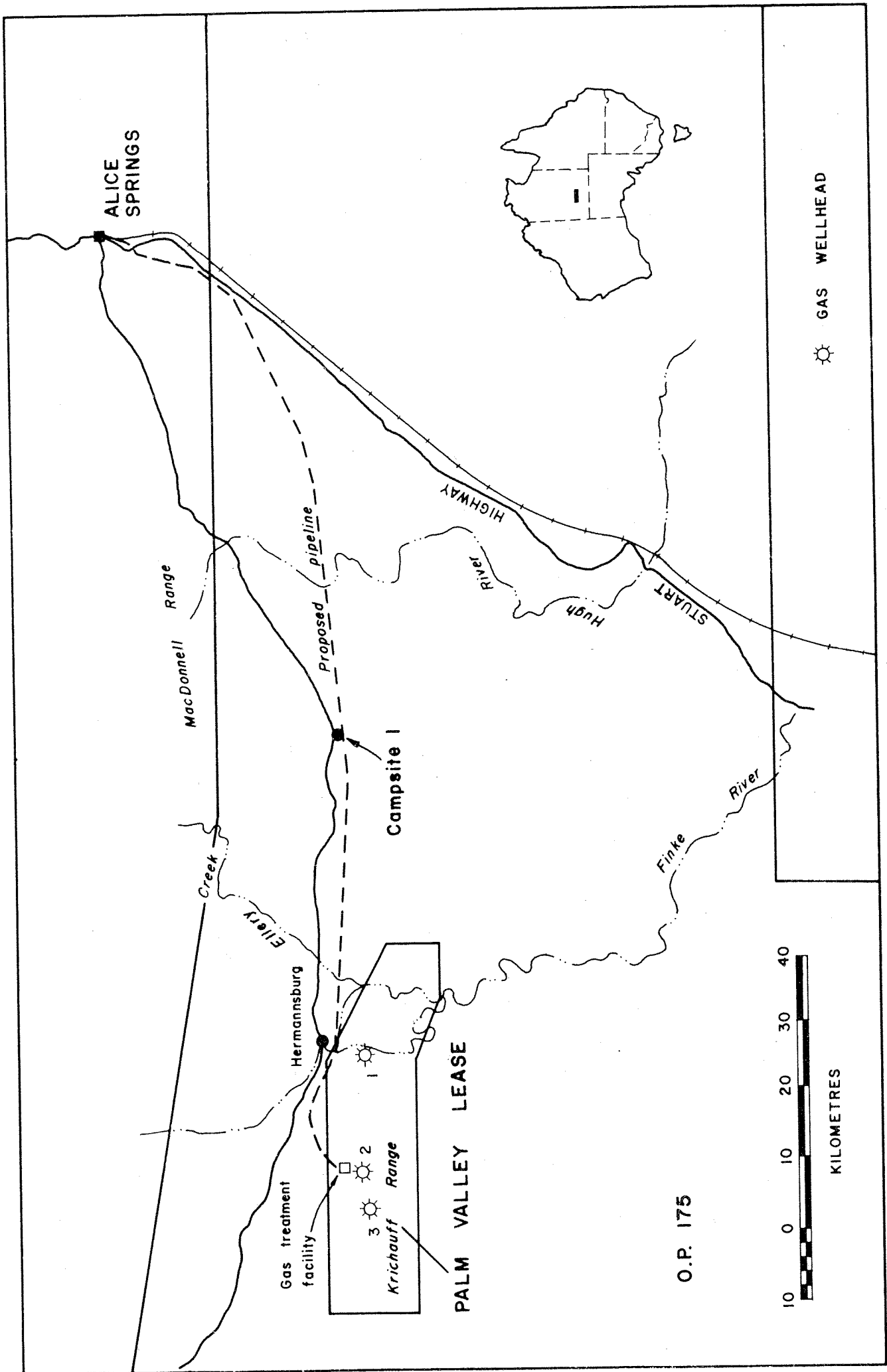


FIGURE 1 LOCATION PLAN OF PALM VALLEY GAS PROJECT

1. INTRODUCTION

The Environmental Assessment and Management Report (EAMR) for the Palm Valley Pipeline Project was submitted by Bulkships Container Pty Ltd, in response to the environmental assessment requirements of the Northern Territory Government. The report was prepared by environmental consultants, Dames and Moore Pty Ltd, of Perth, in accordance with guidelines provided to the proponent by the Conservation Commission of the Northern Territory. An EAMR was required for the project to ensure that emphasis was placed on safeguards to protect significant environmental features and to minimise overall environmental damage, rather than on the detailed research into existing environmental conditions required in a full EIS.

The EAMR was released for public and Government review on 14 December 1982. At the close of the review period on 14 January 1983, one private and nine Government submissions had been received on the Report. Included in the Government submissions were comments from the Commonwealth Department of Home Affairs and Environment which had been involved in initial discussions on environmental assessment procedures for both the Palm Valley gasfield and pipeline projects, during 1982.

Following receipt of public and Government comments Bulkships Container and Dames and Moore responded by clarifying and amending the EAMR as required. On 4 February 1983, the final EAMR was provided to the Conservation Commission, the Government authority responsible for implementing environmental assessment of the project, and circulated to other authorities which had provided comment.

On the basis of amendments and clarifications made by Bulkships Container Pty Ltd, the Commission considers that the environmental impacts associated with development and operation of the pipeline are expected to be acceptable in view of the environmental safeguards and management practises that are to be adopted in relation to the project.

This Report reviews the environmental impacts of the Bulkships Container proposal and examines the adequacy of the EAMR.

2. THE PROPOSAL

In brief, the proposal as outlined in the EAMR involves the design, construction and operation of a 146 km long buried pipeline from the Palm Valley gasfield wellhead treatment plant to the Ron Goodin power station in Alice Springs. The wellhead treatment plant is located in the Krischauff Ranges 20 kms west of Hermannsburg Aboriginal settlement. A map showing the location of the gasfield and the pipeline route is provided at Figure 1. The dry natural gas will be used in the Alice Springs power station for electricity production.

It is proposed that the pipeline will be 200 mm in diameter, polyethylene coated and cathode protected and will be buried along most of its length. The pipeline will operate at a pressure of 7,000 KPa and will have main line valves at 32 km intervals.

Construction of the pipeline will commence at the Alice Springs end. Pipes will be transported to Alice Springs from the place of manufacture by either road or rail, and from there they will be hauled in lengths of 12 to 18 m to the trench excavation site. Existing roads will be used wherever possible, although a track along the pipeline corridor will be used to gain access to the construction site. The process used for laying the pipeline will involve continuous excavation, joining and emplacement of the pipe and backfilling of the

trenches. Trenches will be 1.1 m deep and 600 mm wide, with topsoil from the site being stockpiled adjacent to the trench. Where trenches are excavated through rocky materials, sand or foam padding will be used around the pipe to protect the pipe coating. Sack or foam breakers will also be used in these areas to break up any underground water flow that would otherwise erode soil away from the pipe.

It is estimated in the EAMR that a construction workforce of 65 persons will be required with up to 35 support personnel also available. The workforce will be accommodated in a mobile camp which will have approved sewage disposal systems and adequate fire-fighting equipment, as well as adequate water and power generation facilities. Camps will not be located on Aboriginal land.

Construction of the pipeline will be monitored by the project engineer and relevant inspectors. Non-destructive testing of the pipeline welds will be carried out in the field using radiographic or ultrasonic techniques. Hydrostatic testing of the pipeline will be carried out under the Standards Association of Australia Code. Water for the testing will be obtained from mains supply in Alice Springs or bores at Roe Creek, and is of a suitable quality for testing. After testing the pipeline test water will be discharged into the Todd River where it will have minimal impact.

Care will be taken to ensure that damage to the buried pipeline by property holders or members of the public does not occur. Signposting, protective concrete slabs, and regular patrols will be used to prevent damage.

Some roads will need to be constructed to allow access to the pipeline route, but in general, existing roads will be used. Proposals for rehabilitating damaged areas, including roads, are outlined in the Environmental Management Programme of the EAMR, a summary of which is given in Appendix II of this Report.

A list of the undertakings necessary for protection of the social environment is presented in Appendix III.

The proponents have undertaken to consult with relevant Government authorities, in particular the Conservation Commission and the Central Land Council (CLC), as well as abiding by the requirements of N.T. environmental legislation and Government policies in the event that changes to environmental management safeguards and monitoring programmes are necessary.

3. ENVIRONMENTAL ASSESSMENT PROCEDURE

The level of environmental assessment required for the pipeline project was decided by the Northern Territory Government in consultation with the Commonwealth.

A meeting to discuss environmental assessment procedures was held in Alice Springs on 25 June 1981 and involved representatives of Magellan Petroleum (N.T.) Pty Ltd (lessees of the Palm Valley Gasfield), Dames and Moore (environmental consultants to Magellan), Central Land Council, Department of the Chief Minister (Aboriginal Liaison Unit), and the Conservation Commission (Environment Unit). Representatives of the Department of Mines and Energy and the Commonwealth Department of Home Affairs and Environment were unable to attend the meeting, however, a statement of the Commonwealth position on environmental assessment was presented at the meeting. (Appendix I).

At the time of the meeting it was intended that development of the gasfield and construction and operation of the pipeline would be part of the one project. Government subsequently decided to treat both phases separately and called for tenders for construction of the pipeline. Bulkships Container Pty Ltd, as successful tenderers, were required to present an Environmental Assessment and Management Report along the lines agreed to at the June 1981 meeting. An approach was made by Bulkships Container to Magellan to purchase the EAMR draft that had been prepared by Dames and Moore, on Magellan's behalf.

Although a full EIS was not required for the pipeline project it was decided that the EAMR should be released for public comment. This was

considered to be more in keeping with the intention of the Environmental Assessment Act which was assented to on 8 December 1982, but has not yet commenced.

4. ASSESSMENT OF THE PROPOSAL

The following sections give a detailed assessment of the pipeline proposal. This assessment includes a brief evaluation of the draft EAMR, and consideration of matters raised in Government and public submissions, as well as the additional information supplied by the proponents in response to the submissions. The major impacts of the proposal, identified in the EAMR, are also discussed.

4.1 EVALUATION OF THE EAMR

The successful assessment of environmental impacts of a project depends to a large degree on the standard and quality of the environmental documentation provided by the proponents. In this case the general view of those organisations making submissions on the pipeline proposal was that the EAMR was of a high standard.

4.1.1. Introductory Sections (including Summary)

Adequate information was provided in these sections on the background and objectives of the proposal, and on the background and expertise of the proponents and their specialist consultants. The summary provided a concise account of the proposal, the likely environmental impacts and the safeguards necessary to minimise damage and ensure ongoing environmental monitoring.

4.1.2. Proposed Development Programme

Detailed information was provided on aspects of the project including maps and details of the pipeline route,

procedures to be followed during construction, safety standards to be incorporated into pipeline design and installation and rehabilitation methods. Adequate diagrams were included to demonstrate pipelaying techniques and specialised design features. A description of infrastructure such as camps and access roads was also included. A short section on the disposal of natural gas was provided.

It is considered that sufficient information was given in this section of the EAMR to enable a satisfactory understanding of the project.

4.1.3. Description of Existing Environment

Physical Environment - Comprehensive information was provided on the physical environment of the region, with particular attention given to landforms and soils along the pipeline corridor. The EAMR acknowledged that some minor deviations were made to the pipeline route after some maps and information were prepared. However, the explanation that the deviation did not alter the findings of the report is accepted.

Biological Environment - The vegetation of the Alice Springs region and vegetation associations along the pipeline corridor were described in detail. Less attention was given to fauna, although existing regional information was used, and supplemented by a fauna survey. There was an acknowledged paucity of information on the herpetofauna of the area, and the brief section on aquatic fauna was based on previously published data. Useful and relevant information was included on species used by Aborigines.

For the purposes of assessment of the proposal, coverage by the EAMR of the biological environment was considered

adequate. The point is accepted that no rare or endangered species are expected to be affected by the pipeline project.

Social Environment - The description of the social environment consisted primarily of a description of Aboriginal communities with brief sections on the pastoral industry, archaeology, the Alice Springs urban area and European historic sites. The description of Aboriginal communities included an account of land ownership amongst the Western and Central Arunta speaking people, and an outline of the Aboriginal environment which is centred on Hermannsburg community, (population 300 - 700 people) but includes several small communities located at the Alice Springs end of the pipeline.

4.1.4. Assessment of Impacts

The EAMR highlighted the important link between the type of environmental impact and the different phases of the project and their time spans. Dust was recognised as a major short-term air quality problem caused by vehicular movement and trench excavation during the construction phase. Gas leakage and ignition were outlined as a potential impacts during the life of the pipeline, however, a number of measures were described in the EAMR which should ensure that the likelihood of leaks will be negligible.

Other impacts covered in this section of the EAMR included erosion, noise and vibration, and effects on surface hydrology, Aboriginal communities and sites, flora and fauna, the pastoral industry and transport and communications. Urban, health and employment impacts, and effects on local fuel supply, tourism and recreation, aesthetic effects and European historic sites were also outlined satisfactorily, although with varying degrees of detail.

The major impacts of the project and their proposed management are discussed in more detail in Section 4.3 of this Report.

4.1.5. Environmental Management Programme and Safeguards

This is considered to be the crux of the EAMR, describing as it does the proponent's plans for minimizing damage and implementing safeguards and monitoring programmes. Although some changes resulted from public and Government comments, the programme was largely satisfactory as it appeared in the draft EAMR.

Conditions outlined in this section have been extracted and appear in Appendices II and III as undertakings by the proponent on environmental management of the pipeline project.

4.1.6. Appendices

Nine appendices were included with the EAMR dealing with a variety of related information, including soil analysis, vegetation survey data, fauna survey data, correspondence, glossaries, consultations, diagrams and maps and a report on the effect of the pipeline on Aboriginal people. The appendices were considered a useful part of the total report.

4.2 REVIEW OF SUBMISSIONS

An important part of the environmental assesement process is the provision for seeking public and Government comments on aspects of the environmental documentation supplied by the proponents. Following is an outline of the comments provided on the draft EAMR including a brief summary of the main points of each submission and the proponent's response.

4.2.1 Comments Provided

Aboriginal Sacred Sites Authority

The Authority found that the report 'adequately addresses those aspects of particular concern to this Authority,' and that 'no known reason exists to object to the proposal on cultural environmental grounds'.

The Authority also noted the following:

- The apparent failure of the consultants to indicate an appropriate understanding of Aboriginal concerns was largely overcome by their reliance on the CLC for expert advice.
- Modification to the roles of *kwertengwerle* and *Nyenhenge* in recent times required clarification.
- Naivety was demonstrated in the EAMR by the failure to appreciate that individual plants, rather than the species, may have special significance. Describing a species as being common in the region misses this point.

Department of the Chief Minister

The Department advised that they did not find 'any critical areas which would present a major difficulty in the implementation of the project', however, concern was expressed that the question of responsibility for ensuring compliance with environmental standards and safeguards during the construction and operation of the gas pipeline, did not appear to have been properly addressed.

Department of Primary Production

The Department expressed concern over security at the Bohning trucking yards and advised that in the interests of the Brucellosis and Tuberculosis Eradication Campaign, it could not

agree to the use of the yards as an unloading or camp site. In a similar context, the Department required grid-only access between Owen Springs Station and Hermannsburg.

Attention was drawn to the Department's role in monitoring application of the Noxious Weeds Act 1962.

Department of Transport and Works - Water Division

The Division advised that it was 'satisfied that the report takes appropriate cognizance and proposes adequate measures to protect the water environment.'

It also supplied corrections for the Roe Creek flood discharges and reminded the proponents that close liaison would be necessary during design and construction through the centre of the Roe Creek borefield.

Water Division considered that, rather than truck lubricants and other petroleum wastes to Alice Springs from local dumping pending the construction of a liquid wastes landfill site, it would be more environmentally acceptable to dispose of such wastes at temporary facilities located on site.

Department of Mines and Energy

The Department notified that: 'The EAMR is considered to meet its requirements in a satisfactory manner. No areas of significant impact, as regards the physical aspects of the project, appear to have been over-looked or treated in an incomplete or essentially erroneous manner,' they also commented that the 'proposal to seek management advice from experts on a continuing basis coupled with the controls afforded under various Territory legislation should ensure that the project would not generate unacceptable environmental problems of a physical nature.'

The Department of Mines and Energy emphasised that:

- Rehabilitation procedures for areas disturbed by construction activities be planned on an ongoing basis beginning prior to the inception of each disturbance, and that the planning for such procedures be carried out by experts or their personnel.
- All personnel should be educated on problems associated with land disturbed by the project, the proponent's plans to prevent further degradation and the role of individuals in maximising the success of these plans.
- Environmental inspections should be carried out by an expert officer familiar with the local environment and a critical review of the rehabilitation process carried out with input from experts and the responsible personnel.

Department of Community Development

The Department indicated that there are no known Heritage Sites on the pipeline corridor but counselled that an archaeologist from the Museum and Art Galleries Board should cover this aspect in due course.

As well as offering clarification on some of the anthropological data the Department of Community Development offered its opinion on the lasting effects of the pipeline on the Aboriginal communities in the area. The Department considered these would be minimal because:

- The construction period would be relatively short.
- The construction workforce would be relatively small.
- Construction camps would be within the pipeline easement rather than in an Aboriginal community.
- Long term maintenance would be required at a low level only.

The Department further noted that:

- (i) procedures for implementing the proponent's intention to encourage employment, training and business development among local Aboriginals were absent; and
- (ii) the effects of pipeline workers as tourists and recreators was not considered.

Northern Territory Electricity Commission

The Commission offered clarifying remarks with regard to the role of the dual fuel engines, their replacement rates, their performance under varying loads and on the apparent confusion between these engines and the standard diesel engines in the Alice Spring Power Station.

Commonwealth Department of Home Affairs and Environment

The overall assessment was that 'the environmental safeguards so far proposed by the Company, appear generally adequate to ensure that the project can be carried out without significant adverse impacts. However, some important measures will only be developed at the detailed design stage'. .

Specific comment included the following:

- A separate map detailing the Heavitree Gap - Alice Springs approaches would have facilitated understanding of local construction implications. General maps would have been improved by the inclusion of recognisable landmarks i.e. Palm Valley, Finke and Telegraph Reserves.
- There was no reference to alternative routes.
- The Alice Springs sector contained little detail on receival/storage facilities, the local Alice Springs environment or release rates for the hydrostatic test water into the Todd River.

- Pipeline surveillance and construction camp facilities and operation were sparsely detailed.
- Baseline floral, faunal and habitat data, necessary for proper pre- and post- construction comparison, was of doubtful adequacy (as acknowledged within the EAMR itself). Collecting in limited winter periods no doubt explained the lack of faunal - particularly reptilian - records.
- No data on regional unemployment were given.
- Any special rehabilitation techniques to be utilised for lithosols - alleged to be chemically and physically infertile - were not mentioned.
- The visual impact of ancillary facilities such as communications/telemetry towers was not mentioned.
- Detailed construction impacts i.e. the congestion likely in Heavitree Gap and dust, noise and traffic problems in the Alice Springs environs were inadequately addressed.
- There seemed to be some disparity between the CLC Consultant's report and the EAMR with respect to the importance and current vigour of Aboriginal traditional life in the region. It was noted that most of the measures proposed by the CLC to ameliorate social impacts (e.g. alcohol and related problems) had been incorporated in an agreement between the proponent and the CLC and in the EAMR.
- Hazard analysis with respect to pipeline rupture could have received greater attention.

Mr Howard Pearce, (Private Submission - Victoria)

Mr Pearce submitted comments concerned with the need to provide protection for those European historic sites of cultural significance located in close proximity to the proposed gas pipeline corridor.

The sites specified were:

1. Hermannsburg Mission buildings and structures including the Kaporilja pipeline alignment.
2. Ellery Creek Old Station ruins.
3. Boggy Hole police camp ruins.
4. Old Owen Springs homestead ruins.
5. Owen Springs proper.

The prime concern of Mr Pearce was the question of the workforce's recreational activities which he considered to be inadequately covered in the EAMR. Mr Pearce pointed out that the advanced state of decay of these historic sites rendered them extremely vulnerable to the effects of uncontrolled recreational activity.

Museums and Art Galleries Board

The Board advised that they had no comments on the EAMR.

The above comments were communicated to TNT Australia by the Conservation Commission either directly or in summary form where areas of overlap occurred. Specific comments by the Commission were forwarded on 14 January 1983 and are reproduced at Appendix V.

4.2.2. Proponents Response to Comments

The proponent appropriately responded to all typographical/layout/inconsistency errors brought to its attention. Also it is considered that a satisfactory attempt was made to incorporate all relevant suggested changes into the final report.

To assist in the examination of the proponent's response the following matters of concern have been extracted from the submissions:

- . Concern over interaction between the construction workforce and local Aboriginal communities during off-shift periods.
- . The question of local Aboriginal employment.
- . Control over recreational activities of the workforce.
- . Controls on the spreading of noxious weeds/diseases by construction activities.
- . Concern that environmental monitoring be implemented by experts in relevant disciplines familiar with the region and its particular attributes/problem areas.
- . The proponent's failure to illustrate complete empathy and understanding with aspects of local Aboriginal culture.

The proponent's reaction to these problem areas have been as follows:

Cultural interaction:

Interaction between the workforce and local Aboriginal communities would be reduced since the proponents declared that:

- (i) Employees would work a six day week and would be restricted to the area of the casement or the camp during working hours (p136).
- (ii) Time off for employees would be spent outside the Aboriginal Reserve (p.129)
- (iii) Aboriginals would be discouraged from visiting the camp. (p129)

These conditions have been incorporated in the full list of undertakings to protect the social environment, (reproduced in Appendix III of this report). In addition, the proponents have

agreed to consult with the CLC on the necessity for an Advisory Committee which would enable a consistent approach to, and ongoing liaison on, matters of mutual concern.

Local Aboriginal Employment:

The construction contract contains a requirement for the contractor to comply with the requirements as laid out in the tender document issued by NTEC, one of which was that 'the proponents will employ on the project as many local Aboriginals as is practicable, who are capable of carrying out or being trained to carry out, in a satisfactory manner, the particular work required' (p153). This in conjunction with the proposed action of the joint Advisory Committee, should ensure complete utilization of the local, available Aboriginal workforce.

3. *Recreational Activities of the Workforce:*

Areas of concern here revolved around European sites of archaeological significance - Aboriginal sites having been discussed to the satisfaction of all parties in the draft EAMR - and the general availability of recreational facilities for the workforce.

With regard to the European archaeological sites, the proponents have stated that

"The two sites mentioned in Section 3.3.5...." (Hermannsburg Mission and old "Owen Springs" homestead ruins)" will not be adversely affected as the pipeline route is remote from the sites and the workforce, under the contract conditions, are not permitted to leave the lease area or the camp area.' (p140) and further that' Camp site is to be inspected by an archaeologist prior to establishment of the camp." (p159). These restrictions will ensure that sites are not disturbed.

Although not treated as a distinct matter in the EAMR the question of recreation and its impacts are covered by:

- 'Consumption of alchohol on Aboriginal land will not be permitted (p.127).
- 'Vehicle movement will be restricted to the existing tracks and construction areas' (p142).
- 'The construction workforce and associated people will not be permitted to have poisons, firearms, traps or projectile weapons in their possession within the construction area or in the construction camp' (p 148).

It is reasonable to presume that, as a six-day week is to be worked, the recreational activities of the workforce would be restricted to the camp site and easement, established roads and the Alice Springs township, except where specific permission has been sought and granted by the CLC or the joint Advisory Committee.

Spread of Weeds and Disease:

The proponents have undertaken, in addition to the controls mentioned in the draft EAMR, to control the spread of noxious weeds and diseases by hosing down all equipment from outside Alice Springs prior to its transportation into the area (p131).

Environmental Monitoring:

In response to the concern over the need for expertise/local knowledge in environmental monitoring, the proponents, have added to these undertakings, the assurance Magellan's locally-based Scientific (Environmental) Officer will have responsibility for regular inspection of project works. Environmental protection strategies not already operative, will be designed on an 'ad hoc' basis with full co-operation of the Conservation Commission if any unforeseen problems occur.

Empathy with Aboriginals:

It is considered that the proponents have given adequate undertakings for minimising the disruption of Aboriginal culture. They have taken heed of the advice of the Aboriginal Sacred Sites Authority concerning the totemic value of plants and animals (p.126), and acknowledge the influence of European contact on traditions. It must be realised that

while there will be some potential for conflict, ongoing liaison between the proponents and traditional owners may lead to increased empathy during the life of the project.

4.3 MAJOR ENVIRONMENTAL IMPACTS AND THEIR MANAGEMENT

From the evaluation of the EAMR and in the light of submissions made during the review period a number of major environmental impacts can be identified as requiring special mention. Several of these have been touched on briefly in preceding sections, however, as the bulk of comments dealt with minor impacts or errors, the following issues concerning long term or potentially adverse affects on the environment should be emphasised:

4.3.1. Land Disturbance and Erosion

An inevitable and obvious consequence of the project will be the linear extent of land clearance and its associated erosion. Erosion will occur in localised areas along the length of the easement and particularly along access tracks and the back filled trench. While most of the erosion will be minor, specific sections of the easement will be subject to potentially serious erosion problems, such as along the ridge in the vicinity of the gasfield wellhead where unstructured soils (lithosols) of Soil Mapping Unit (b) occur. The banks, beds and floodplains of creeks and rivers over which the pipeline will cross are other areas of concern, and erosion within the pipeline trench, particularly on slopes, is a possibility.

Special attention is given in the EAMR study of soils and landforms and associated conservation works and it is considered that adequate protection measures are outlined to minimise damage and to encourage rehabilitation in high risk areas. Long term monitoring will also be

undertaken to ensure that erosion does not become an unmanageable problem.

The Commission supports the proposed use of its Soil Conservation staff for advice on erosion and rehabilitation matters, however, it should be realised that the availability of staff and advice must depend on staff availability and work priorities.

4.3.2 Gas Leaks and Ignition

The possibility of gas leaking from the pipeline and the associated risk of fire is a problem that will exist throughout the operating life of the pipeline. The circumstances under which gas can escape and ignite are discussed in the EAMR and attention is given to minimising these risks, such as strict adherence to relevant codes covering manufacture, construction and operation of the pipeline. Protective measures such as automatic shutoff valves, signposting and concrete reinforcement of the pipeline where it crosses under roads and river/creek beds, are covered by Australian safety codes and are considered adequate for minimising risks in this project.

It is recognised that there will always be a danger of some accident or deliberate act occurring which could cause leakage or ignition. This is judged to be an acceptable risk associated with the pipeline project.

4.3.3. Impacts on Aboriginal Communities and Sites.

The major social impact of the pipeline will be its effect on the Aboriginal people of the area. Considerable attention was devoted to this aspect of the project in the EAMR with Appendix I containing a report by the CLC on the effects on Aboriginal people, and the

main body of the Report covering both impacts and management safeguards. There is general acknowledgement in the EAMR that the project would cause disturbance to Aborigines.

The presence of machinery and a construction workforce, despite all measures to reduce impacts, will effect Aborigines use of areas of their land. However, it is unlikely that there will be serious long term adverse effects and neither the traditional owners nor the CLC and their environmental consultants have raised serious objections to commencement of the project. There are a number of beneficial impacts of the project to Aborigines and the rest of the Central Australian community which are considered to outweigh the adverse impacts. These are briefly discussed in the following section.

4.3.4. Beneficial Impacts

The pipeline will have a number of beneficial impacts on the Central Australian region and the Northern Territory. The benefits of having a local indigenous fuel supply are reported in the EAMR as: the cost saving associated with using local fuel compared to railed diesel fuel, security of supply, royalties for Aborigines and the Government, and profits for the proponents and the circulation of part of these profits to the local economy.

Direct and indirect employment opportunities will result from the project. It is estimated in the EAMR that up to 100 people will be involved in various aspects of the project, and that local people, including Aborigines, may be employed for some of the available jobs. Multiplier effects will see the benefits of employment spread throughout the Territory and Australia.

4.3.5. Spread of Weeds and Disease

A potentially serious impact that was raised during the review of the EAMR concerned the possibility of construction activities inadvertently introducing new weeds and diseases to Central Australia. It is well-known that diseases such as Phytophthora are spread by earth moving equipment and although there is some doubt that the disease would become established in an arid area, precautions must be taken to avoid this possibility. To ensure minimisation of this risk the proponents have undertaken to hose down all equipment prior to its transportation to Alice Springs and to liaise with the Department of Primary Production on weed and disease matters.

5. CONCLUSIONS

Assessment of the Palm Valley pipeline project indicates that the project should not have unacceptable environmental impacts. The Commission considers that sufficient safeguards are included in the proposal, as outlined in the EAMR, to ensure that environmental impacts are minimised, controlled and monitored.

It is apparent that the pipeline will have significant impacts on the social and natural environment. While some impacts will be detrimental, positive benefits will flow to the people of Central Australia and the Northern Territory and it is obvious that benefits will outweigh the social and natural environmental costs.

Social impacts will mainly effect the Aboriginal Communities on whose land the pipeline will cross. Construction activities in particular will disrupt Aboriginal use of some areas of land, and the very presence of the completed pipeline will have an adverse influence on traditional landuse in the area. These impacts are adequately treated in the EAMR and a range of undertakings have been proposed by the proponents to minimise disturbance to Aboriginals and their culture.

Ongoing liaison between Bulkships Container, the CLC and traditional owners, possibly through the auspices of an Advisory Committee, should ensure satisfactory relations between all parties during construction and operation of the pipeline.

Some disruption will also be caused to other land holders and landusers along the pipeline corridor and liaison will be required to avoid minor conflicts. However, it is accepted that the Community benefits, in terms of employment, the establishment of a local fuel supply for electricity generating, and the boost to the local economy, will be appreciable.

Damage to the natural environment will occur in localised areas along the length of the pipeline. Erosion will result from land disturbance during construction activities, and will be potentially serious on ridgelines, in areas of lithosols, and on the banks and floodplains of creeks and rivers. The susceptibility of these areas to erosion has been recognised in the EAMR and measures have been included to minimise damage and rehabilitate where necessary.

The risk of rupture of the pipeline and ignition of escaping gas will be a potential hazard throughout the life of the pipeline, however this risk will be reduced to an acceptable level by the proponent's adherence to strict safety codes and approved protective actions that have been set out in detail in the EAMR.

The Commission is satisfied that the EAMR covers the environmental management of the project in an acceptable manner. It is noted that significant use will be made by the proponents of Government advice and expertise on a range of environment matters and while this is encouraged, overall responsibility for the sound environmental management of the project remains with the proponents.

APPENDICES

APPENDIX I

COMMONWEALTH POSITION ON ENVIRONMENTAL ASSESSMENT
OF PALM VALLEY PROJECT

1. The Commonwealth had proposed to attend meeting and apologises for their non-representation.
2. In the event that an environmental assessment by means of an E.I.S., was required for Commonwealth purposes, it would customarily be carried out concurrently with the Northern Territory Government's environmental assessment. It is understood that the latter is expected to take place within the next few months. The Commonwealth Environment Protection (Impact of Proposals) Act is unlikely to be applied to the Palm Valley proposal for the following reasons -
 - given the current status of the Hermannsburg land, the Minister for Aboriginal Affairs will not be required to make a decision relating to it, within an appropriate time frame vis-a-vis project development; and
 - the only Commonwealth decision likely to be required on the proposal in the near future, is that under foreign investment policy. The Treasurer, whose portfolio includes responsibility for the Foreign Investment Review Board, is therefore the only Commonwealth Minister in this instance, who could trigger the Administrative Procedures under the Act within the required time frame. As a rule, the Treasurer is reluctant to take initiating action (viz. designation of a proponent in terms of the Act) in respect of any but very major projects.
3. It is the preliminary view of the Department of Home Affairs and Environment that it would be unlikely to recommend the E.I.S. procedures given:-

- a. the project is probably not highly significant;
 - b. that the Northern Territory will require the equivalent of an environmental assessment and management report;
 - c. that the Northern Territory will ensure that any necessary environmental conditions are enforced;
 - d. that the C.L.C. will be closely consulted and take part in the assessment process including preparation of guidelines, review of final report etc; and
 - e. that the proponents are showing a willingness to undertake appropriate environmental studies.
4. Despite the advice contained in 2. above, Magellan could, if it wished, cover itself completely against any future legal action over non-application of the Act, by requesting designation as proponent from the Treasurer. In the event that a designation was made, allowing formal involvement of the Department of Home Affairs and Environment, it is highly unlikely on the information now available to us that an E.I.S. would be required for Commonwealth purposes. The Department would be pleased to provide an appropriate form of words for such a request to the Treasurer, or any other assistance which may be required.

(Confirmed by letter on 23 June 1981).

APPENDIX II

UNDERTAKINGS FOR PROTECTION, MANAGEMENT AND

MONITORING OF THE NATURAL ENVIRONMENT

The proponents of the Palm Valley pipeline project have agreed to implement the following environmental programme. Changes to this programme are only to be made after prior consultation and clearance by the Conservation Commission of the Northern Territory.

1. Flora and Fauna Protection

. Vehicle movement will be restricted to the existing tracks and construction areas.

. Destruction and removal of vegetation will be kept to a minimum.

. Legal requirements (codes) will be exercised in the use of fuels, lubricants and other liquids that might cause damage to flora and fauna if spilled.

. The construction workforce or associated people will not be permitted to have poisons, firearms, traps or projectile weapons in their possession within the construction area or in the construction camp.

. All domestic pets will be banned from the project camps and construction areas.

. Personnel working on the project will be informed of the restrictions and the reasons for and importance of adhering to them.

- . Protection of river red gums in the Todd River will be undertaken by the preservation of trees at all times and the planting of seedlings.
- . Siting of main line valves and construction camps will be carried out by the proponent's Scientific (Environmental) Officer.

2. Dust control during construction

- . A maximum speed limit of 15 km/hr will be imposed within 300 m of construction camp buildings.
- . Dust suppression using low salt content water will be practised around high usage areas of camps and on access roads as required.
- . Water spraying will be minimal and of short duration.

3. Erosion Control Methods

- . Effective soil erosion control will be based on the identification of eroded areas, the identification of predisposing mechanisms and removal of the mechanisms.
- . Drainage and erosion control along the pipeline easement will be undertaken by:
 - Minimisation of disturbance. This will include clearing along the pipeline route only where necessary for construction, the use of the existing access tracks, and the location of facilities on existing disturbed land.
 - Re-profiling to near original surface levels.
 - Root stock retention.
 - Cultivation of compacted areas parallel to contours.
 - Restoration of vegetation.

- Construction of earth contour banks to control surface runoff. Detailed design information applicable to each individual location will be given continuously by an experienced soil conservation specialist.
- Erection of sheet piling, rock mattresses or gabions in areas likely to be subject to excessive scour and use of sack-breakers, foam or equivalent to control along-trench scour.

Site specific soil erosion control works will include:

Mitre banks to control the cross-slope and down-slope component of overland flow.

The installation of sack-breakers, foam or equivalent to minimise sub-surface flow along the trench line. Sack breakers and mitre banks will be used in a complimentary manner so that each mitre bank crossing the excavation has a sack-breaker below it.

Pierced mounding on the trench to allow for subsidence and prevent runoff being channelised along the excavation.

4. Rehabilitation Programme

4.1 Bushland Areas

The following procedures will be applied:

Retention of Root Stock. On the working area, vegetation will be cut at or above ground level. Regeneration from root stock remaining in the ground is expected to be an important factor in rapid re-establishment of vegetation in bushland areas.

Replacement of Stockpiled Vegetation. All cleared vegetation will be stockpiled on both sides of the

easement. Following construction, backfilling and topsoil replacement, the vegetation will be respread over the disturbed area. Any branches and logs removed during clearing will also be returned to the disturbed area where they will be located to control vehicular movement and to provide refuge for fauna. Seed shed in vegetative stockpiles will, consequently be adjacent to the disturbed areas.

Separate Stripping, Stockpiling and Replacement of Topsoil. Wherever excavation takes place in soil, the layer of topsoil immediately over the pipeline site, will be removed, separately stockpiled adjacent to the excavation and, after laying of the pipe and backfilling of the trench with subsoil materials, and construction of soil conservation earthworks this surface layer will be replaced. This procedure will normally be carried out whether or not there is a distinct, recognisable topsoil. In most areas a surface layer 150 mm thick will be removed and replaced. However, this thickness may be varied from one location to another depending on conditions. Reprofilng of the surface will be undertaken where necessary.

Loosening of Compacted Areas. In many soil types, particularly silty or clayey soils, access tracks alongside the pipeline, the construction camp sites hardstand areas, and other vehicle usage areas, will become compacted by construction traffic. In these situations, ripping or harrowing will be carried out to loosen the soil in the compacted area once the construction period has ended. Harrowing will be carried out in such a way that it does not lead to erosion. Where necessary, earth contour banks will be installed to control surface runoff.

Disposal of Excess Material. Where sand padding is introduced to the pipeline trench, the excess soil will require disposal. As padding would normally be required in rubbly or rocky areas, the excess material is likely to consist partly of rock fragments. Where necessary these materials would be used to build temporary causeways across stream-beds or to divert drainages away from the pipeline right-of-way. Otherwise, they would be distributed over the easement where they will assist in stabilisation and may provide shelter for small animals or they may be disposed in borrow pits.

The use of fertilisers to encourage regrowth will be used as a last resort and then only under supervision of the Conservation Commission. (Note: variations to the above procedures will be made where appropriate.)

4.2 Improved Pasture Areas

The following procedures will be applied in the Alice Springs dust control project area:

Vegetation. In general, pasture growth will be treated as part of topsoil. Trees will be removed but exceptions may be made where there are trees or shrubs that the landholders wish to be preserved and that are located outside the trench and immediate working area.

Topsoil Treatment. Topsoil will be separately stripped to a depth of 150 mm, stockpiled and subsequently replaced over the entire working area of the easement. It is important that topsoil be stripped, stockpiled and replaced onto the soil surface in the Alice Springs urban area because of the saline nature of the A₂ and B soil horizons.

Cultivation. A cultivator or scarifier will be used to break up compacted soils beneath working areas and to produce a suitable seed bed. In cases of severe compaction, deep chisel ploughing will be carried out prior to resspreading of topsoil. If specifically requested by the Conservation Commission a tyne pitter will be used in place of the other implements.

Seeding. Generally, Buffel grass will not be sown over the disturbed areas as the Conservation Commission has advised that there should be an adequate seed source in the stockpiled topsoil. However, the requirements of the Conservation Commission relating to dust control works will be followed

4.3 Borrow Pits

Existing borrow areas will be used as a source of gravel.

All temporary tracks used for borrow pits will, when no longer required, be rehabilitated by deep ripping.

Rehabilitation of borrow pits will be based on regulations in the licence, and on the minimum standards outlined in 4.1 above.

When gravel extraction has been completed, any overburden stockpile will be replaced and excess rock material from the pipeline corridor disposed in the pit and the whole of the disturbed area reshaped to conform as closely as possible to the surface contours prior to disturbance. Edges of pits will be graded to shallow angles to prevent collapse and leave depressions where shallow water can accumulate.

If the disturbed area is extensive consideration will be given to planting native tree and shrub species to aid in

rehabilitation. However, in general this is expected to be achieved by return of the topsoil and vegetal material.

4.4 Camp Site and Hardstand Areas

The following rehabilitation measures will be undertaken at the camp after construction is completed:

- Reprofiling of the ground surface to near that existing prior to camp installation.

- Wastes from materials introduced to the site as a result of the construction programme will be regularly removed from the site and disposed of at Hermannsburg or Alice Springs garbage tip. Such material will include camp refuse, oil drums, and machinery and engine debris. All waste fuels will be transported to the Alice Springs dump.

- The disturbed area will be ripped to the depth necessary to break up preferentially compacted areas resulting from vehicular movements. Where a ground surface slope is present, deep ripping will be carried out on the contour with rip lines at 0.5m centres.

- The previously removed vegetation and topsoil, where present, will be respread over the area. This material will be respread to achieve as uniform a distribution as possible.

4.5 Pipeline Right-of-way

Follow-up treatments after completion of construction will include, (as required):

- . Control of noxious weeds.
- . Overseeding of bare areas with appropriate seed mixtures and fertilizer (following consultation with the Conservation Commission).
- . Provision of additional brush cover in areas susceptible to wind erosion.
- . Repairs where signs of water erosion are evident.

5. Siting and Stability of Tracks and Roads

The following management standards will apply:

- . Initial track formation to remove vegetal cover will be carried out by grader, bulldozer or front-end loader.
- . the track will be formed where necessary to allow adequate drainage.
- . A surface gravel course will be used in those sections of the track where upgrading is necessary.
- . Intercepted drainage lines will be crossed by cut-in techniques with a stable bed crossing constructed on the floor of the drainage line. Where it is impracticable to use cut-in techniques, temporary culverts will be installed.
- . Temporary culverts used in drainage line crossings will be of adequate dimensions to carry the expected discharge during the period of time when the track will be in use.
- . Where the track intercepts the direction of overland flow and re-directs this flow to a non-natural drainage line, erosion control works will be installed.

- . Temporary tracks will be rehabilitated as outlined in Section 4.3 above.

6. Feral Animal Control

Consultation with the Conservation Commission will be undertaken with regard to feral animal control within the pipeline corridor.

7. Siting of Construction Facilities

The following conditions will be included in contract specifications for the location of the camp site and other facilities.

- . The camp site will not be located on the floodplain of a stream or river.
- . The camp site will be adjacent or close to an existing road.
- . The Camp site will not be located in areas of woodland if development of the site will require felling of trees.
- . The camp site or other temporary facilities are to be located away from all permanent residences wherever this is possible.
- . Other things being equal, preference is to be given to a site that:
 - has a soil suitable for sewage effluent disposal;
 - does not involve any excavation in development of the site;
 - have already been degraded in some way;
 - have minimal visual impact;

8. Aesthetic considerations

The following actions will be taken to minimise the visual impact of works and facilities undertaken or erected for this project:

- . Siting of temporary works in areas that utilise natural features to minimise visual impact and to maximise shelter and scenic attraction for camp residents.
- . Planting of screening vegetation where there are permanent above ground facilities. The vegetation used will comprise local, native species.
- . Removal of all evidence of occupation of the construction camp site, when no longer required.
- . Where possible, painting of cladding material so that it will be sympathetic with the environment.

9. Protection of Water Quality

Normal standards of sanitation and hygiene will be required of contractors at the construction camps and enforced by personnel supervising construction. Such procedures will include:

- . Hygienic disposal of sewage using septic tanks.
- . All oils and fuels will be stored according to the requirements of the N.T. Inflammable Matter Regulations enforced under the Fire Brigades Act, 1956-80 and as advised in S.A.A. Codes.
- . Trucking of lubricants and other petroleum wastes to Alice Springs to be disposed of initially at the local refuse dump and then at a later date at the liquid wastes landfill site to ensure that the liquid wastes will not pollute local aquifers.
- . Areas of minor spillage of lubricating and sump oil will in most instances be contained within a bund and will then be broken up by ripping during site rehabilitation to assist the oil to biodegrade. In the unlikely event that a large area becomes covered by spillage, the contaminated soil and spill would be removed from the site and disposed of in a manner similar to lubricants as detailed above.

- Other procedures to ensure the maintenance of water quality will involve the construction of various erosion control measures, as listed previously, to minimise soil erosion and sediment yield.
10. Safety of Project Works. The following summary outlines the standards and safety measures to be applied to pipeline construction and operation:
- the pipeline will be manufactured in accordance with A.P.I. 5LX procedures and will comply with SAA Gas Pipeline Code AS 1697-1981.
 - Construction will be monitored by the managing engineer's pipeline inspectors and the Northern Territory Department of Mines and Energy.
 - In the field, all lengths of pipe will be jointed together by welding or mechanical jointing (where bolted flanges are necessary), thus forming a continuous tube. Non-destructive testing, including a radiographic inspection of welds, will be carried out. This will ensure weld quality (at least equal to the parent material) to the satisfaction of inspectors of the proponents and the Department of Mines and Energy.
 - The finished pipeline will receive an external homogeneous protective coating against corrosion. As a further safeguard there will be a complete cathodic protection system, automatically activated and regularly monitored to ensure its satisfactory operation.
 - The finished line, after backfill, will be proven to be leakproof by a 24 hour hydrostatic proof test to well above the maximum allowable operating pressure. Disposal of the test water will be carried out in a manner designated by the Water Division of the Transport and Works Department. Disposal of test water is proposed in the Todd River. There will be no adverse impact caused by the disposal of the test water (Code AS 1978-1979).

- . Temperature, pressure and gravity measurements for the gas will be recorded at both ends of the pipeline. Any anomalies occurring will result in immediate implementation of procedures to locate the cause. A fail safe pressure relief system will prevent overstressing of the pipeline. The line will be controlled by automatic line-break valves in case of rupture.
- . A reliable voice channel communications system will be installed to cover the entire pipeline. This will enable 24 hour contact to be maintained. This system will utilise existing towers in the region.
- . Third party damage to the buried gas pipeline will be prevented, through proper dissemination of information defining the exact location of the pipeline on all Government and Local Authority registered drawings and documents covering the area, and marker signs indicating the presence of the pipeline positioned in suitable locations, especially at intersections of the pipeline with roads and railway crossing. The buried pipeline will have regular patrols to check the operation of the pipeline and reduce the possibility of third party damage. Concrete shielding of the pipe will be used at Heavitree Gap and other high risk areas.
- . Aerial surveys along the pipeline corridor will be assisted by the use of aerial markers spaced along the route.
- . Safety from bushfire will be ensured by the pipeline being buried. All above ground facilities will be protected from bushfire by appropriate fire precaution methods formulated through discussion with officers of the Bush Fire Council and local Fire Brigade.
- . The pipeline will be buried to a minimum depth of 1500 mm across watercourses. Methods will be finalised during the final design phase to ensure that negative buoyancy is maintained during peak flow periods in the streams and the line will be armoured to prevent wash.

Contamination of local water resources will not result from this project due to the stringent design, construction and operational standards which will be used. At the gas meter station at the power station, hydrates will be collected in a tank. The tank will have a volume of approximately 132m³ and be enclosed with a bund with a capacity of 1.1 times the tank volume. The bund will be constructed from cemented concrete blocks.

In the highly unlikely event of an accidental leak, the ground local to the puncture will initially freeze with the considerable temperature drop resulting from the local reduction in gas pressure. In such an event main line valves are closed upstream and downstream of the leak effectively isolating the damaged section. The area will then be effectively safeguarded until repairs are carried out.

All valve sites will be securely fenced to prevent third party incursion.

A contingency programme will be drawn up at the detailed design stage and made available to all operating personnel. Procedures will be regularly reviewed and updated so that improvements in technology or practice can be implemented.

11. Bushfire Control

The following procedures will be followed:

All personnel will be advised of the necessity of preventing fires. Normal precautions to be implemented by the contractor will include a ban on open fires during the fire risk season, the use of guards around welding and grinding operations, and the provision of fire-fighting equipment, including extinguishers in vehicles. All fixed engines operating at the camp sites will be fitted with adequate spark arrestors and emergency shut-down devices. Safe herbicides (such as glyphosate) will be used, as well as manual removal, to prevent vegetation growth inside main-line valve enclosures and at the metering station.

- . The minimum fire-fighting equipment that the contractors should have to ensure adequate fire fighting capability will be formulated through consultation with the Bush Fire Council.
- . All above ground facilities with gas contact will be located in security fenced areas cleared of surface vegetation. No other firebreaks will be required. Emergency shutdown devices will be installed. Warning signs and fire fighting equipment will be prominently displayed in accordance with good petroleum industry practice and the appropriate code.
- . Close communication will be maintained with Bush Fire Council officers and other local fire authorities in the formulation of all fire control activities.

12. Security

The following action will be taken to minimise accidental damage to the pipeline:

- . Posting permanent warning signs wherever the pipeline route crosses a road or track, watercourse, or property boundary, and at regular intervals along the right-of-way.
- . The establishment of communications with all appropriate government departments, local people and authorities along the route to ensure that the location of the pipe is well-known and that it is marked on all appropriate maps and plans.
- . Patrol of the pipeline route at regular intervals. Any signs of activity or encroachment near the pipeline would be followed up by ground inspection and the necessary action to protect the pipeline would be taken.
- . Public access along the pipeline route, which could lead to damage or removal of warning signs and markers, will be

discouraged by rehabilitation of the right-of-way, and the establishment of laterally displaced locked gates where the pipeline is crossed by fences.

All above ground facilities with gas access will be protected by security fencing, the effectiveness of which will be regularly checked.

Concrete slabbing will be used at Heavitree Gap and other high risk areas.

13. Environmental Monitoring

The following programme of environmental monitoring is envisaged, but this may be increased or decreased depending on requirements, and following consultation with the Conservation Commission:

Prior to construction, inspection personnel will be briefed on environmental aspects of the project and, in particular, on anticipated problems and corresponding mitigating techniques. Environmental practices will be included in the construction specifications, and the inspection staff will be responsible for enforcement of these specifications.

Appropriately qualified government or consultant specialists will be assigned to overview construction and to advise the proponents on matters pertaining to their areas of expertise, especially through fragile, important or sensitive areas.

Environmental personnel appointed or retained by the proponents will check on the construction and assist the inspection staff with specific environmental problems and will also ensure the implementation of the environmental controls and restraints provided for in the construction contracts.

Inspection by environmental personnel will be maintained at intervals through the commissioning stage and at least until

satisfactory rehabilitation has been achieved. Environmental Consultants will be retained; the proponents intend that these consultants will be involved in the ongoing environmental review. The results of all inspections will be recorded to provide useful data for future projects. In particular, a pictorial record showing selected locations at different stages of rehabilitation will be maintained by the proponents and their consultants.

To ensure that the project will not create excessive adverse impact to flora, fauna or habitats, regular inspection of the project works will be undertaken by a Scientific (Environmental) Officer employed by Magellan. If habitats are observed to be adversely affected, a monitoring programme will be designed to determine the specific effects of the disturbance on the flora, the fauna, and their habitats. Environmental protection measures will be formulated for any future effects identified by such a monitoring programme. The Conservation Commission and all relevant authorities will be notified of all changes in the programmes to gain the necessary approval before implementation.

APPENDIX III

UNDERTAKINGS FOR THE PROTECTION AND MANAGEMENT OF THE SOCIAL ENVIRONMENT

1. Protection of Aboriginal Culture

The following declarations have been made to assist or protect Aboriginal culture:

Employment and Training

It is a condition of the construction contract for the contractor to comply with the requirements as laid out in the tender document issued by N.T.E.C. This document states that the proponents will employ on the project as many local Aboriginals as is practicable, who are capable of carrying out or being trained to carry out, in a satisfactory manner, the particular work required.

Local Business Development

Where practicable, the proponents shall support, encourage and advise local Aboriginals desirous of establishing enterprises and businesses for the purpose of providing goods and services to the proponents. This condition is included in the construction contract.

Safety and Health

The proponents agree to comply with all the requirements of the N.T. Energy Pipeline Act, 1981 and any other regulations in force from time to time regulating the development, construction and maintenance of a natural gas pipeline and associated facilities. The proponents shall furnish such medical care, treatment and attention to all Aboriginal employees of the project, their sub-contractors and agents working in the project areas, as is

available to other employees of the same employers on the project.

. Advisory Committee

Consultation will be held with the CLC on the necessity to form an Advisory Committee comprising representatives of traditional owners of the pipeline route.

. Rights of Traditional Owners

The proponents shall take all necessary steps to ensure that the traditional Aboriginal owners of land in the project area have the right:

- To move freely throughout the project area, except where their presence causes or will cause real danger to health or safety.
- To pursue customary and traditional activities in the project area except where this results or will result in a real danger to health and safety.

. Protection of Sacred Sites

The proponents may, upon giving notice to the CLC of proposed operations in a specified portion of the project area, request the CLC to arrange for the identification of all sacred sites or sites of significance within such portions of the project areas.

The proponents shall take any action requested by the CLC, to ensure the protection of the sites of significance in the project area which may in any way be affected by the project. Such action may include:

- Posting of appropriate notices.
- Erection of fences or other barriers.
- Diversion of roads.
- Notification and protection of sites and other procedures in accordance with the Aboriginal Sacred Sites Act.
- Minimisation of activities on Hermannsburg Special Purpose Lease (now five Land Trusts).
- Keeping the location of sites confidential, except for sites that would be obvious to construction personnel.

Control of Liquor

The proponents shall take all steps practicable to ensure that, except with written approval from the CLC, no liquor is brought onto, or sold, or consumed within Hermannsburg land by project personnel.

The proponents shall take the necessary action to bring to the attention of all its employees and its sub-contractors and their employees the restrictions concerning the sale, consumption and supply of liquor on Hermannsburg land and as outlined in the new law on alcohol consumption in a public place.

Removal of Employees

The proponents will ensure that they and their agents and sub-contractors immediately remove from the project area and take all reasonable steps to ensure the removal from Aboriginal land, any employee, agent or sub-contractor or dependent thereof, unless the CLC agrees that such person should not be removed, if that person is found:

- To be trespassing on or in any way interfering with any sacred site, unless, the person concerned had taken all reasonable steps to ascertain the location and extent of the sacred sites on any part of the Aboriginal land likely to be visited by him and had no reasonable grounds for suspecting that the land concerned was a sacred site.

- To be violating any of the entry conditions imposed by the proponents by the contractual agreement.
- To be behaving in a manner demonstrating disrespect for Aboriginal culture and tradition or in a manner offensive to the Aboriginal people.
- To have brought liquor onto the Hermannsburg land.

Instruction in Aboriginal Culture

The proponents shall encourage, among non-Aboriginals employed by them or by their contractors or sub-contractors, a knowledge, understanding, and respect for the traditions, languages and culture of the Aboriginal people.

The proponents state that:

- All their non-Aboriginal employees shall be given appropriate instruction on aspects of Aboriginal history and culture by way of background and orientation.
- All their non-Aboriginal 'on-site' supervisory staff shall be given an initial course and periodic refresher course of a more appropriate and advanced nature than the instruction envisaged above.

2. Enhancement of Local Community Relations

A small number of landholders will be affected by the installation of the pipeline, especially during the construction phase. The following actions will be taken to protect the landholder's property and to maintain good relations with the community:

- Maintenance of communications between the proponents and landholders to ensure that all proposed activities and schedules are understood.

- . Details of construction scheduling and deployment of personnel and equipment to be arranged in consultation with landholders to ensure minimal disruption.
- . Permission will, in all instances, be sought from the landholder before use of any facilities on his land.
- . Stringent adherence by the contractors to agreements reached on landholder's conditions relating to property management.
- . Rehabilitation of the land surface except where precluded by the terms of the easement document or environmental factors.
- . Repair by the contractor of any damage to fences, bores, windmills or other facilities.
- . Limitation of the length of pipeline trench that can remain open at any particular time to 10 km, and limitation of the time span from clear and grade to backfill to two months wherever practicable.
- . Provision of an adequate number of cross-overs to enable traffic and stock to pass over the trench and around spoil piles during construction.
- . Adoption of safeguards for fire protection.

APPENDIX IV

SUBMISSIONS RECEIVED DURING PUBLIC REVIEW PERIOD

(15 December 1982 - 14 January 1983)

Department of the Chief Minister

Department of Transport and Works

Department of Mines and Energy

Aboriginal Sacred Sites Authority

Department of Lands

Department of Primary Production

Department of Community Development

Northern Territory Electricity Commission

Commonwealth Department of Home Affairs and Environment

Mr Howard Pearce (Private submission)

APPENDIX V

COMMENTS BY THE CONSERVATION COMMISSION ON THE

PALM VALLEY GAS PIPELINE (DRAFT) EAMR

The Report has been reviewed by officers of various Units of this Commission and overall it is considered that the EAMR is well presented and adequately addresses the environmental implications of the gas pipeline project, and also proposes the necessary safeguards to minimise environmental damage. There are, however, a few issues which require clarification, and a number of inconsistencies that are brought to your attention in the interests of accuracy of the report.

Page 1 (paragraph 6). The CLC advised the Commission of their acceptance of the guidelines by telephone on 13 January 1982, not by letter on 15 January. Magellan Petroleum (NT) were advised by the Commission of the CLC decision by letter on 15 January.

Page 5. The pipeline operating pressure design of 7000 kPa is inconsistent with the design pressure of 9932 kPa given in the summary (pg. xi).

Page 22. (paragraph 4). Here, and elsewhere, the Company explains its intention to carry out patrols and surveillance along the pipeline route. Some indication should be given of how often such patrols will occur.

Page 114. (Figure F). Land Conservation Unit officers advise that the photograph depicts opposed disc ploughing not tyne fitting.

Page 117 and 142. The Report's recognition of erosion as one of the more serious impacts of the project is acknowledged, and sufficient detail appears to be given to soil conservation in the management programme. Your attention is drawn to the need for strict enforcement of a minimum width disturbance along the pipeline route. The Report states that approximately 8 metres of ground disturbance will occur, with 20 metres being required

for overall pipe laying operations. Wherever possible all operations and vehicular movement should be restricted within the 20 metre corridor and personnel should be directed not to drive vehicles outside this area.

Constraints placed on construction personnel at Yulara Tourist Village have significantly minimised environmental damage and demonstrated the practical feasibility of such controls. While we do not suggest that the same degree of protection is required for this pipeline project, the principle of limiting environmental damage by strictly controlling vehicle movement and land clearance still applies and should be enforced along the pipeline.

Pages 125 and 140. Concern has been expressed by Wildlife Officers that open sections of the trench may act as pitfall traps to nocturnally active wildlife. It could be expected that without precautions being taken a variety of animals, from snakes to small marsupials, could be found in the trenches during the construction period.

Pages 128 and 129. It is noted that personnel will be restricted from Aboriginal camps, and from areas outside existing public roads and the pipeline easements. There will need to be enforcement of this condition to avoid unnecessary disruption to land surrounding the easements, including fauna, flora and sacred sites. Recreation opportunities for the workforce should be briefly explained, in view of restrictions outlined in the EAMR.

Page 131 (Section 4.9.5). While it is agreed that there is no simple solution to the spread of weeds by construction activities, the threat of the introduction of noxious weeds from interstate can be lessened by hosing-down vehicles prior to their removal to the Alice Springs area. Such action is easily implemented and is considered to provide a fair degree of protection against weed and disease spread (e.g. phytophthora).

(Section 4.11). The impact of the pipeline on the urban environment, particularly the Heavitree Gap area, will be greater than described. Pipeline construction through the Gap will now not coincide with road upgrading, and further disruption to traffic movement can be expected to cause adverse public reaction. It is appreciated that this is unavoidable.

Page 146. It is not considered necessary for rehabilitation proposals in pasture areas to include fertilising and seeding. It is expected that there will be enough seed available in disturbed areas to establish a suitable stand of buffel grass, provided there is adequate rain. Nitrogenous fertilisers and super phosphate will also not be required in these areas (and could lead to weed growth). Consultation with Land Conservation Unit officers in Alice Springs is encouraged.

Appendices H and I have been confused in the compilation of the Report.