

DAMPIER - PERTH NATURAL GAS PIPELINE
STATE ENERGY COMMISSION OF WESTERN AUSTRALIA

REPORT AND RECOMMENDATIONS
by the
ENVIRONMENTAL PROTECTION AUTHORITY

November 1979

Department of Conservation and Environment
Western Australia

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1. INTRODUCTION AND SUMMARY

The two proposals to develop the North West Shelf natural gas deposits and to transport the gas by underground pipeline from Dampier to Wagerup, south of Perth, are among the largest and most expensive in Australia. However, in both instances, the environmental assessments have not proved particularly difficult.

This Report is concerned only with the State Energy Commission of Western Australia's proposal to construct and operate the nearly 1500 km long pipeline. The SEC prepared a Draft Environmental Review and Management Programme (ERMP) which the Environmental Protection Authority has considered along with public and State Government departmental comments received during an eight week public review period.

The EPA has concluded that the Draft ERMP has addressed the major areas of environmental impact and is an acceptable document. The Authority believes that there are no environmental factors to cause the State to unfavourably consider the project.

In reaching this conclusion, the EPA found that the approach taken by the SEC in using environmental criteria as a basis for planning the project greatly simplified the environmental assessment and reduced potential conflicts of interest.

Some environmental aspects concerning the project have been identified in the EPA's assessment and from public and State Government departmental comments. These are detailed at Appendix 1.

CONCLUSION

The EPA considers that the project is environmentally acceptable and it endorses the preferred pipeline route. The Authority recommends that the project proceeds in accordance with the provisions for environmental monitoring and management outlined in the Draft Environmental Review and Management Programme.

2. THE PROPOSAL

The State Energy Commission of Western Australia will be responsible for the marketing of natural gas from the North West Shelf Joint Venture project throughout Western Australia except for major industrial users in the Pilbara.

The North West Shelf Joint Venture project aims to extract natural gas initially from the North Rankin gas field which lies below about 125 m of water and 3 km below the sea floor, some 130 km north west of the Dampier Archipelago. The project was the subject of a separate Environmental Review and Management Programme on which the EPA has already reported.

The SEC plans to initially purchase 8.5 million cubic metres per day of gas and proposes to construct a high pressure steel pipeline from Withnell Bay near Dampier which is the receiving point for the offshore gas, to Wagerup, south of Perth, for reticulation to customers. The buried pipeline of approximately 1500 km length will be constructed within a 30 m dedicated easement. This width allows for a duplicate pipeline option.

The project is seen as long term with an estimated pipeline lifetime greater than 50 years. The SEC has undertaken to purchase gas for 20 years, but it is hoped that further gas discoveries will extend this period.

In its justification for using a pipeline as the transport mode, the SEC concluded that it would be more efficient, safer, cheaper and have greater environmental acceptability than the alternative of liquifying the gas and transporting it by sea, road or air.

The preferred pipeline route was selected from five other options on a wide range of environmental and engineering factors including avoidance of built-up areas, avoidance of National Parks and Conservation Reserves, access, the possibility of paralleling existing service corridors including the Dongara-Perth line and the possibility of using the Dongara field for storage in the future.

The pipeline will be constructed through a dedicated 30 m easement, in accordance with the SAA Gas Pipeline Code AS1697-1975. The easement will be negotiated between the SEC and the affected landowner and will cover such things as permitted activities and compensation. The coated pipeline will be buried and the easement restored according to detailed procedures.

Termination will be in accord with the SAA Gas Pipeline Code.

3. ENVIRONMENTAL ASSESSMENT

Most environmental concerns that could have emerged from the project have been obviated by careful planning and selection

of the preferred route and by considering environmental and conservation aspects at the earliest stage. Because of this approach, the environmental assessment of the project has been greatly simplified.

A number of matters have been raised in comments received during the eight week public review period. These are reviewed at Appendix 1. Summaries of the submissions are at Appendices 2 and 3.

In addition, the Metropolitan Regional Planning Authority referred its Group District Planning Committee's comments and the Town Planning Department's response to these for inclusion in the consideration of the ERMP.

The EPA has considered all these submissions in assessing the Draft ERMP.

The Authority wishes to make the following points relating to the Pipeline Route.

Pipeline Route

The preferred pipeline route was selected in consultation with a number of Government departments and service bodies and was largely based on environmental criteria. There were two specific areas of concern which emerged from public comments received on the project.

Firstly, a number of submissions from residents in the Orange Grove - Maddington area within the City of Gosnells were concerned with the proliferation of service easements and resumptions to which they had been subjected over the years, resulting in divided properties and disrupted lifestyles. Specifically, they objected to the proposed natural gas pipeline easement being added to the Metropolitan Water Supply, Sewerage and Drainage Board's easement containing the Serpentine - Perth water main as well as the Main Roads Department's resumption for the Gosnells - Beechboro controlled access highway. They argued that if the pipeline was constructed along the preferred route in this vicinity, resultant tree removal would create dust and erosion problems, access for inspection during winter months would be impaired and the total service corridor would destroy the rural character of the land. As an alternative, it was proposed that a pipeline reserve be resumed from deferred urban zoned land on the west side of the Beechboro - Gosnells highway.

The EPA examined the issue and decided that the criteria used for selecting the easement through rural land in the Metropolitan Region were sound and therefore the Authority could not recommend that the SEC alter the preferred route in this area. These criteria relate to the management and dual land use of the easement after the pipeline has been constructed. The SEC will encourage a return to rural use as quickly as possible following construction and has undertaken to restore the disturbed land to the landholders individual requirements, or to its previous condition. Details are given in the ERMP, and may include sowing and fertilising of appropriate

pasture species or crops. This will eliminate management problems which would result from a resumed strip of urban deferred land and also allow economic use to be made of the easement. Certain activities will not be allowed within the easement for safety reasons but these do not include normal farming operations.

However, in examining this issue, the EPA recognizes the importance of clumps of trees and bush in small rural locations as wind breaks and for shade, for reducing noise and dust and adding much of the scenic attractiveness and character to the environment. The Authority, therefore, believes that it is important for the SEC to preserve such landscape features wherever possible by only clearing the minimum width necessary for the pipeline.

The second area of concern was with certain locations in and around Kwinana and related to potential land-use conflicts such as tailing ponds, clay extraction and use of existing reserves or easements. The EPA believes that these can best be solved during negotiations between the landholder and the SEC and understands that in most instances, agreement has already been reached.

Despite the public comment period on the Draft ERMP, the EPA recognises that it is unlikely for all conflicts regarding the preferred route to have emerged and been resolved by this time. Many may not emerge until individual landholders are approached by the SEC to secure easement contracts. However, the Authority believes that the preferred route is generally environmentally acceptable.

APPENDIX 1

ENVIRONMENTAL ASPECTS OF CONSTRUCTING, OPERATING AND
MAINTAINING THE DAMPIER-PERTH NATURAL GAS PIPELINE

The following points either emerged from the EPA's assessment of the Draft ERMP or were raised in public submissions.

The Authority recommends that the SEC considers and, where appropriate, acts accordingly on these matters.

1. CONSTRUCTION OF PIPELINE

1.1 Fire Control

Although the Draft ERMP is cognisant of the bushfire risk, the EPA believes that a potential hazard exists should fires start and get out of control both during construction and operation of the pipeline. Furthermore, the risk may not be confined to work activities, but may extend to accidents or carelessness during recreation times for pipeline personnel. Therefore, the Authority considers that not only should procedures be established for taking normal precautions, but contingency plans for controlling such fires be developed as part of operational procedures. These plans should be established in consultation with appropriate bodies including relevant Local Authorities and the Bush Fires Board.

1.2 Erosion

The Draft ERMP identifies the potential for erosion along the pipeline to have a significant environmental impact. The EPA concurs with the restoration techniques outlined in the Draft ERMP aimed at reducing the risk, but suggests that the expertise of the Soil Conservation Service and Rangeland Management Division of the Department of Agriculture be used where appropriate. The EPA also draws attention to the likelihood of some sections of the pipeline not being stabilised by revegetation because completion of construction in some places will follow the end of the growing season in agricultural areas, or in areas of low, erratic rainfall germination will be delayed. Under these circumstances, short term contingency plans for stabilization may need to be prepared. These may include supplementing watering of establishing vegetation in potential problem areas. The possibility of extreme weather events should also be considered.

1.3 Spread of Plant Disease and Weeds

The impact of constructing the pipeline on the vegetation will be temporary since restoration of vegetative cover will be the main soil stabilizing technique used.

However, there is a high risk of spreading the plant disease Phytophthora cinnamomi in certain locations from already infected areas.

There is also a risk of spreading alien plant species along the route. Many of these thrive in disturbed soil and are easily transported by construction machinery. When a plant is declared under the Agriculture and Related Resources Protection Act 1976, the Agricultural Protection Board has the legislative responsibility for its control and the Board's requirements need to be met.

Detailed procedures should be developed and implemented to minimise the risk of the spread of weeds and soil borne plant diseases such as Phytophthora cinnamomi.

1.4 Vermin Proof Fences

The EPA draws attention to the need for the requirements of the Agricultural Protection Board to be met where the pipeline will cross the existing and the proposed new No 3 Emu Barrier Fence north west of Geraldton.

1.5 Disposal of Wastes

The disposal of pipeline test water was recognised in the Draft ERMP as a potential source of pollution since corrosion inhibitors may need to be added to it. It is possible that 20 million litres of water may need to be disposed at four sites along the route. The EPA considers it important that procedures are developed and implemented to ensure that such disposal does not cause an adverse environmental impact. It is appreciated that the type and amount of inhibitor (if any) may not be known for some time. Regarding the selection of sites for waste water disposal, the requirements of the Metropolitan Water Supply, Sewerage and Drainage Board in ensuring that the discharge takes place outside the Gnaragara Mound Water Reserve and the Mirrabooka and Jandakot Public Water Supply and Pollution Control Areas need to be met. The procedures should be reviewed by the Department of Conservation and Environment before implementation.

Disposal methods for sewage and waste need normal relevant Local Authority approvals.

1.6 Road and Rail Crossings

Where the pipeline route crosses main roads and railway lines, the requirements of the Main Roads Department and Westrail, respectively, need to be met.

2. RESTORATION AND REHABILITATION

The EPA endorses the principles of restoration and rehabilitation of the easement following construction of the pipeline contained in the Draft ERMP and believes that when implemented, they will not result generally in unacceptable environmental impact.

However, the Authority wishes to emphasise the following points:

2.1 Timing of Restoration and Rehabilitation

The initial success of the restoration and rehabilitation programme is likely to depend upon the timing of the operation with respect to seasonal conditions. Within engineering constraints, this should be a significant factor in setting up the timescale of the operation's programme. For example, if construction were completed in wheatbelt areas prior to winter seeding operations, the restoration on the easement could be done in normal farming operations. Similarly, in areas further north that are subject to low, erratic rainfall and have high erosion potential, timing of operations to take rainfall patterns into account could reduce the erosion risk.

2.2 Variation and Experimentation

The Department of Agriculture suggested some alternative methods for restoration and rehabilitation in its submission. The EPA suggests that the SEC takes up the points with that Department.

2.3 Restoration in Agricultural and Pastoral Areas

The Draft ERMP states that in agricultural areas that "in general, no attempt will be made to preserve vegetation within the right-of-way. Exceptions may be made where there are trees and shrubs that landholders wish to be preserved and that are located outside the trench and immediate working area". In this regard, the EPA draws attention to the importance of patches of vegetation in agricultural areas which may provide some of the only remaining examples of the area's flora. In addition, these relics of vegetation can provide corridors or islands for the survival and maintenance of fauna species and therefore the Authority suggests that in these particular situations, rehabilitation by revegetation is warranted.

In country carrying stands of Mulga (Acacia aneura), attention is drawn to the work of Everest in Queensland¹ who noted that Mulga re-generated preferentially on hard packed surfaces. This suggests that it may prove difficult to re-establish Mulga along the disturbed route.

3. CAMPS (TRANSIENT AND PERMANENT)

In addition to the criteria listed in the Draft ERMP for campsite selection, the following points should be noted:

- 3.1 Rubbish and waste disposal should be subject to normal Local Authority clearance.
- 3.2 The potential for soil erosion should be a consideration in site selection.
- 3.3 Although the potential for noise problems from permanent compressor stations is covered in some depth in the Draft ERMP, the EPA believes that very careful consideration needs to be given in the siting of such stations near homesteads and farm houses. In this regard, the experience from the W.A.N.G. pipeline from Dongara to Perth could be useful. Also to reduce noise impact, taking noise specifications for equipment to be used in the compressor stations into account and selecting appropriate anti-vibration mountings for such mechanical equipment could assist, especially where the "minimum desirable distance" criteria detailed in the Draft ERMP cannot be met.
- 3.4 The EPA is concerned with the effect of a large body of men in isolated camps on the environment, both social and physical, for some distance around the camps.

The use of off-road vehicles, the potential for stock interference in pastoral and agricultural areas, the possible impact on flora and fauna by cutting, fires, shooting, etc, and the possible effects on water-holes and river pools are some of the potential impacts.

The Authority considers that no temporary or permanent camps should be established within 500 m of surface water in any river or rock-holes and that the potential impact from off-road vehicles and stock interference should form part of the worker education programme.

4. ON-GOING MONITORING AND MANAGEMENT

Apart from fire control, permanent camps, weeds and plant diseases control and soil erosion control mentioned above, the EPA believes that the following points are important:

¹Everest, S.L. (1949) - 'Mulga (Acacia aneura) in Queensland'.
Q.J. Agric. Sci., 6, 87-139.

- 4.1 There is a need for clarification of the allowable operations within the pipeline easement especially in relation to agricultural operations such as burning-off and fencing.

Following discussions with bodies such as the Department of Agriculture, a comprehensive check list of allowable and non-allowable operations within the pipeline easement should be drawn up for circulation to affected landholders.

- 4.2 The EPA considers that procedures for ongoing monitoring and management and commitment to those procedures is a most important part of an ERMP.

Therefore, the Authority believes that the SEC should undertake the environmental monitoring and management programme outlined in the Draft ERMP with the addition that inspection of appropriate sections of the pipeline route be carried out following major weather disturbances.

Any proposed major changes to the procedures should be referred to the Department of Conservation and Environment prior to implementation.

APPENDIX 2.

A summary of Public Submissions received on the Dampier-Perth Natural Gas Pipeline.

1. Introduction

The Department of Conservation and Environment received 12 public submissions on the project. Almost all were confined to the potential impact of the pipeline through private property in the Metropolitan Region. There were no submissions opposed to the project as such.

2. Summary of Main Points

2.1. Detailed comment on pipeline easement route through the Metropolitan Region.

Most submissions were concerned either with the route near Maddington-Orange Grove where an alternative was suggested in Submission No. 2 and supported by others, or in areas near Kwinana-Rockingham. All these recommended some alteration to the proposed route and have been dealt with on a case-by-case basis by the SEC with assistance from Government departments and instrumentalities.

2.2. Suggestion for service corridors in the Metropolitan Region.

Four submissions pointed out that it was inefficient to have seemingly random service easements and resumption in the Metropolitan Region and recommended the setting up of service corridors.

2.3. Suggestion for details of easement to be supplied to the Local Authorities.

This suggestion was made because easements do not appear on public plans in Western Australia. The exact location of the pipeline(s) need to be known by Local Authorities for safety reasons.

2.4. Concern for siting of compressor stations in rural areas, especially regarding noise levels.

The author of this submission had had experience with noise from the WANG pipeline from Dongara to Perth and recommended consideration of rural dwellers in selecting compressor sites.

2.5. Concern for the possible spread of plant disease during construction.

This submission criticised the Draft ERMP in its coverage of measures to avoid the spread of Phytophthora cinnamomi during pipeline construction and recommended detailed hygiene measures that should be adopted.

2.6. Effect of pipeline easement on land values in the Metropolitan Region.

A number of submissions expressed concern for the lowering of land values on lots containing the pipeline easement.

2.7. Concern for safety in the vicinity of the pipeline.

One submission was concerned with the safety of persons and property near the pipeline in the Metropolitan Region.

TABLE 1

List of Submissions

<u>Submission No.</u>	<u>Name and Address</u>
1.	Shire of Rockingham P.O. Box 42, Rockingham, 6168.
2.	Messrs. A.W. and R.M. McDowell Lot 424, Staniland Street, Maddington, 6109.
3.	Town of Cockburn P.O. Box 21, Hamilton Hill, 6163.
4.	Town of Kwinana P.O. Box 21, Kwinana, 6167.
5.	Mr. G.C. Rose "Pindaree" Dandaragan.
6.	Alcoa of Australia P.O. Box 161, Kwinana, 6167.
7.	Mr. M.J. Dudzinski P.O. Box 144, Kelmscott, 6111.
8.	MRPA Group "A" District Planning Committee C/- Secretary, P.O. Box 42, Rockingham, 6168.
9.	Messrs. C.D. and P.P. Coles Lot 421, Staniland Street, Orange Grove, 6109.
10.	Messrs. J.A. and W.J. Hughes "By Gum" Jersey Stud, Gosnells Road, Gosnells, 6110.
11.	Mr. W.J. Turner 427 Staniland Street, Orange Grove, 6109.
12.	Messrs. B.C. and P.M. Tapsell 423 Staniland Street, Orange Grove, 6109.

Submission No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Total
Detailed comment on pipeline easement route through the Metropolitan Region.	X	X	X			X		X	X	X	X	X	9
Suggestion for service corridors in Metropolitan Region		X	X	X					X				4
Suggestion for details of easement to be supplied to all affected Local Authorities.	X							X					2
Concern for siting of compressor stations in rural areas, especially regarding noise levels.					X								1
Concern for the possible spread of plant disease during construction.								X					1
Effect pipeline easement on land values in Metropolitan Region.		X	X	X				X		X	X		6
Concern for safety in vicinity of pipeline.											X		1

APPENDIX 3

A Summary of State Government Departmental Submissions on the
Dampier-Perth Natural Gas Pipeline.

1. Aboriginal Affairs Planning Authority.
2. Western Australian Museum - Anthropological and Archeological Aspects.
3. Main Roads Department.
4. Westrail.
5. Department of Agriculture (including Western Australian Herbarium).
6. Treasury.
7. Metropolitan Water Supply, Sewerage and Drainage Board.
8. State Housing Commission.
9. Western Australian Museum - Natural Science Division.
10. Public Health Department.