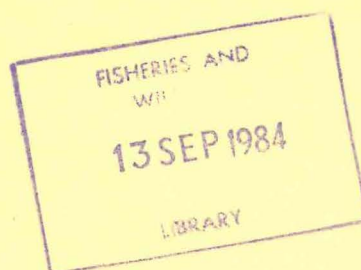


# Dampier — Perth Natural Gas Pipeline

## Proposed Bunbury Extension

State Energy Commission of Western Australia

Report and Recommendations  
by the  
Environmental Protection Authority



Department of Conservation and Environment  
Western Australia

Bulletin No. 148 September 1983

DAMPIER - PERTH NATURAL GAS PIPELINE  
PROPOSED BUNBURY EXTENSION

STATE ENERGY COMMISSION OF WESTERN AUSTRALIA

REPORT AND RECOMMENDATIONS  
BY THE  
ENVIRONMENTAL PROTECTION AUTHORITY

DEPARTMENT OF CONSERVATION AND ENVIRONMENT  
WESTERN AUSTRALIA

BULLETIN No 148    SEPTEMBER 1983



# ENVIRONMENTAL PROTECTION AUTHORITY

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Telephone 322 2477

HON MINISTER FOR THE ENVIRONMENT

Your Ref.

Our Ref. 46/73

My Dear Minister

The Environmental Review and Management Programme prepared by the State Energy Commission for the proposed construction and operation of the Bunbury extension to the Dampier-Perth Natural Gas Pipeline has been considered by the Environmental Protection Authority following submissions received from the public and Government agencies.

Please find attached the Authority's report and recommendations requested through you, under Section 55(1) of the Environmental Protection Act by the Hon Minister for Fuel and Energy. It is the intention of the EPA to have the report and recommendations published and therefore seeks your concurrence to do so.

Would you please convey this report to the Hon Minister for Fuel and Energy.

Yours sincerely

  
A. R. MAIN  
CHAIRMAN

22 September 1983

Att

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## 1. Summary and Conclusions

This report is concerned with the proposal by the State Energy Commission of Western Australia (SECWA) to extend the Dampier-Perth natural gas pipeline from Wagerup to Bunbury with associated laterals.

The environmental aspects of the proposal have been addressed in an Environmental Review and Management Programme (ERMP) prepared by SECWA at the request of the EPA. The ERMP and public comments received during an eight week public review period have been considered by the Authority.

*The EPA has concluded that in general, the ERMP is an acceptable document and recommends that the project proceeds in accordance with the provisions for environmental management contained in the ERMP and subject to the recommendations contained in this report.*

## 2. Background

The State Energy Commission of Western Australia has contracted to purchase 10.9 million cubic metres per day of natural gas from Woodside Offshore Petroleum Pty Ltd's North West Shelf gas field.

The gas will be supplied to customers through a system of underground pipelines, the major section of which will be the Dampier to Perth pipeline presently under construction.

Both Woodside's gas production project and the SECWA's main gas pipeline project have been subject to Environmental Review and Management Programmes. EPA has reported on both (Department of Conservation and Environment Bulletins 69 and 72).

The present proposal is concerned with extending the pipeline from Wagerup to Bunbury with laterals to major customers at Worsley, Capel and Bunbury.

A separate ERMP was prepared by SECWA and consultants. An eight week public review period was held, concluding on 25 July 1983.

## 3. The Proposal

The SECWA proposes to extend the main Dampier-Perth pipeline to the Bunbury region by constructing and operating a 300 mm buried steel pipeline with smaller diameter laterals to the Worsley Alumina Refinery,

Bunbury Power Station and Western Titanium at Capel. Provision will be made for future laterals to the SECWA Town Depot at Withers, La Porte refinery at Australind, and Westralian Forest Products at Picton. The total length of pipeline and laterals will be 124 km and it will be designed to allow a supply of gas between 343 000 cubic metres per day to 800 000 cubic metres per day depending on demand.

The pipeline will be designed and constructed in accordance with the SAA Gas Pipeline Code AS 1697-1981 and be located within a negotiated easement of 16 metres except for the Withers and La Porte laterals which will be located in existing road reserves. The width of the easement will allow the option of constructing a parallel pipeline if justified by future demand. Maximum operating pressure will be 6 895 kPa (1000 psi). The pipeline will be buried to a minimum depth of 750 mm in soil and 450 mm in rock. The control and communication system for the Dampier-Perth pipeline situated at East Perth will be extended to cater for the Bunbury extension.

While the buried pipeline is the major element in the proposal, there will be some permanent above-ground facilities including valve stations, communications equipment and limited access tracks. However, in general, the easement will be restored and no permanent vehicle access maintained except for inspection purposes.

The route will be identified by markers above ground, and 150 mm wide marker tape above the pipeline underground. The route's exact location will be placed on all appropriate plans and drawings.

#### 4. Alternatives

##### 4.1 Alternatives to the project.

Alternatives to the Bunbury extension of the Dampier-Perth natural gas pipeline have been largely pre-empted by the decision to proceed with that pipeline.

A discussion of alternative energy sources and gas transport systems was contained in the ERMP prepared for that project.

The present ERMP assumes that demand for the gas and the necessity to market the quantity to be purchased by SECWA on a 'take-or-pay' contract basis, is sufficient justification for the project to proceed. It also assumes that there is

no practical alternative to transporting the gas other than by a buried steel pipeline. While not adequately addressed in the ERMP, the EPA nevertheless accepts that the SECWA has a responsibility to meet demands for energy and that in this instance, there is no practical means of transporting the gas south of Wagerup other than by pipeline.

The EPA notes that the major potential customer for gas south of Wagerup is the Worsely alumina refinery. The Authority understands that the gas is proposed as replacement for oil in firing the fluid bed calciners which produce anhydrous alumina. This was mentioned in the ERMP for that project.

The Authority believes that any environmental implications, including beneficial effects, can be addressed in the normal annual and triennial reports submitted to the Government by the Company under Section 5A(3) of the Second Schedule of the Alumina Refinery (Worsely) Agreement Act 1973-1978.

#### 4.2 Alternative Pipeline Routes

The ERMP examined a number of alternative routes using criteria which included environmental factors. A basic criterion was the stated preference for paralleling existing service corridors where possible rather than creating a new corridor. The main environmental factors were avoidance where possible of present and proposed conservation areas, avoidance of biologically valuable areas whether or not on private property, and likely success of rehabilitation in relation to soils, land-use and groundwater condition.

The EPA believes that in general terms the selection criteria were sound and the preferred route acceptable. However, it comments further in Section 5.1 of this report.

### 5. Environmental Assessment

#### 5.1 Pipeline Route

5.1.1 Introduction. The EPA considers that the selection of the preferred pipeline route was based on reasonable environmental criteria and in general terms, endorses the preferred route.

However, the Authority is aware that there will undoubtedly be many minor problems

associated with determining the precise alignment of the pipeline and reserves the right to comment further on any proposed deviations to the preferred route. These should be referred to the Department of Conservation and Environment in the first instance.

5.1.2 Service Corridors. The EPA endorses the concept of siting the pipeline parallel to existing services. However, it points out three particular areas of concern raised in public submissions :

- a) Where the lateral South of Bunbury interacts with the proposed Bunbury ring road between the 50 and 60 km points, there is scope for improving the alignment to lessen the impact.
- b) Where the Capel lateral, between the 70 and 75 km points, crosses land associated with mineral sands mining, two public submissions pointed out that the powerline which the preferred route parallels, will be relocated at the cessation of mining. There appear to be advantages in resolving this issue prior to construction.
- c) There is uncertainty about the acceptability of the route of the final two kilometres of pipeline into the mineral sands mining company's operations at the end of the Capel lateral. This was raised by the company in its submission.

#### Recommendation 1

The EPA recommends that the SECWA examines the environmental issues associated with the three areas of concern on the Capel lateral and takes them into account when defining the precise location of the pipeline.

#### 5.2 Construction and Operation

5.2.1 Clearing of vegetation. In the areas traversed by the pipeline all remaining stands of native vegetation have some conservation and/or landscape value on both private and Crown lands. The ERMP recognised this and identified areas of particular concern as :

- . remnant vegetation on Bassendean dunes near Riverdale Road and the Harvey Golf Course



- . vegetation blocks south of Marriot Road
- . vegetation on Karrakatta dunes just east of Bussell Highway on the Withers lateral
- . tuarts in the Stirling forestry block south-west of Capel
- . uncleared areas of State forest, particularly the Brunswick MPA
- . particular blocks of vegetation where restricted or rare species were noted (pp 82-87 of Appendix D of the ERMP).

As well, the following two additional areas are of concern to the EPA :

- . vegetation near Reserve C12049 between the 6.3 to 7.8 km points of the main line

This small reserve is subject to a System 6 Study recommendation and has been studied in some detail by consultants to the Department of Conservation and Environment because of its high conservation value

- . Egret swamp in the south-west corner of the La Porte site

This area has high conservation value and is included in a System 6 Study recommendation.

Within the catchment area for the Harvey Inlet, existing vegetation may play a role in retaining nutrients, particularly phosphorous, which might otherwise end up in the Peel-Harvey estuarine system.

The ERMP points out that restricted and rare plant specimens were found but without surveys during spring and summer, it could not guarantee that no more existed.

Reference was made in the ERMP that cathodic protection parameters would be examined during the detailed design stage to determine whether the pipeline could be placed closer to transmission lines in key areas to minimise vegetation clearing.

Remnant stands of native vegetation are likely to be valuable faunal habitats.

## Recommendation 2

The EPA recommends that as a general principle, minimal clearing of remaining native vegetation should take place during construction and operation of the pipeline. In addition, the Authority recommends :

- a) particular care be taken in the identified areas of high environmental and conservation value;
- b) each of the deviations proposed in Appendix D of the ERMP and in public submissions relating to clearing of native vegetation be considered and implemented where practicable;
- c) where the pipeline parallels an existing transmission line easement through identified areas of high environmental and conservation value, the SECWA investigates the feasibility of increasing cathodic protection measures for the pipeline in order to construct it as close to the transmission lines as safety standards allow, and reports on the results of its investigations to the EPA;
- d) a qualified botanist examines the identified areas of high environmental and conservation value during spring-summer, and if further populations of restricted and rare plant species (as defined in Section 1.33 of Appendix D of the ERMP) are identified, or if they are identified in the course of surveying and constructing the pipeline, then care is taken to avoid disturbing these plants. In the event of this not being practical at any point, then the Department of Conservation and Environment should be advised;
- e) wherever possible, no clearing of native vegetation should take place for siting above-ground facilities for the pipeline or for constructing access roads.

5.2.2 Road and River Crossings. The EPA reaffirms the need for particular care to be taken when crossing rivers to avoid problems with erosion and bank stability. It also points out the need for liaison with the Main Roads Department when crossing main roads. The recommendations in Section 2.522 of Appendix D of the ERMP and the requirements of the PWD should be noted.

5.2.3 The ERMP recognises the potential for soil erosion caused by constructing the pipeline and includes proposed management techniques for minimising this impact. However, the EPA points out two areas identified in public submissions as having potential problems :

- . the Mornington area on the Worsely lateral, and
- . the clay flats north of Capel on the Capel lateral.

The Authority considers that the alignment of the pipeline should be re-examined in these areas with a view to minimising potential erosion problems.

- 5.2.4 Jarrah dieback disease. The EPA considers that the ERMP gives insufficient detail to procedures for minimising the potential spread of Jarrah dieback disease (Phytophthora cinnamomi). A special area of risk has been identified as the "dark gravel" ridge near the Worsely alumina refinery site. The EPA reminds the SECWA that the provisions of the Forests Department's Dieback Policy 1982 apply to operations in State Forest.

### Recommendation 3

The EPA recommends that the SECWA, in consultation with the Forests Department, draws up and implements specific environmental management procedures designed to minimise the potential for spreading Jarrah dieback disease along the route and in particular, making special provisions for the identified areas of high conservation and environmental value, and State Forest especially near the Worsely refinery site.

- 5.2.5 Weeds. The ERMP identifies potential problems with introducing weeds along the pipeline route. The EPA points out that exotic weed species may, under certain circumstances, be shaded out by regeneration of native vegetation which would be preferable to any spraying of herbicides at these sites.
- 5.2.6 Borrow pits. Borrow pits should not be created in State forest or stands of remaining native vegetation. Unless to remain in use, all borrow pits should be rehabilitated.
- 5.2.7 Blasting. If blasting is necessary, the normal rehabilitation techniques of removing and stock-piling any topsoil for subsequent re-spreading should apply.
- 5.2.8 Disposal of test waters. Procedures for disposal of pipeline test waters should be referred to the Department of Conservation and Environment before implementation. Discharge of water from pipe-trench de-watering should be disposed of in an environmentally responsible manner and referred to the Department if potential environmental problems are envisaged.

5.2.9 Rehabilitation. The prescriptions outlined in the ERMP for rehabilitation are environmentally acceptable. The EPA points out the need for particular care in areas of native vegetation and high landscape value such as the scarp face and Mornington area on the Worsely lateral. Any loss of vegetation due to gas leaks should be rehabilitated. During rehabilitation of the pipeline, no stockpiles of unclipped vegetation, topsoil or spoil should be placed in areas of natural vegetation.

### 5.3 Environmental Management and Monitoring

The EPA endorses the general principles described for environmental management and monitoring contained in the ERMP but believes that the monitoring programme should include reporting back to the EPA at appropriate intervals after construction in order that an assessment of the effectiveness of the rehabilitation and management programme can be made. Such reporting could be in the form of a series of photographs taken at certain marked locations and/or taken during aerial inspections of the pipeline, with explanatory notes.

#### Recommendation 4

The EPA recommends that the SECWA reports back to the Authority six months, twelve months and eighteen months after completion of construction of the pipeline with an assessment of the results of rehabilitation and environmental management.

## 6. Public Submissions

### 6.1 Introduction

The Department of Conservation and Environment received 21 public submissions on the project during the public review period. Eleven were from State Government departments and local authorities, eight from individuals or organisations acting on their behalf, one from a conservation group and one from a company (see table).

The EPA considered all submissions as part of its assessment. The Authority recommends that the SECWA considers, and, where appropriate, acts accordingly on points raised in the public submissions not already specifically covered in Section 5 of this report.

### 6.2 Summary of submissions from Government departments and local authorities.

- . No major problems. Four submissions saw no conflict of interest with their responsibilities.
- . Agriculture. The Department of Agriculture requested that as the route passes through the Wokalup Research Station, contact be made with the Department before construction to minimise disruption or damage to experimental programmes. It also pointed out that the Department was eligible for appropriate compensation.
- . State Forest. The Forests Department pointed out the need for early consultation regarding operations in State Forest and Departmental requirements for disease and fire management. It also recommended an early decision on the question of balancing the costs of increased cathodic protection of the pipeline against increased clearing of vegetation particularly in the Brunswick MPA.
- . Main Roads. The Main Roads Department identified some specific areas of potential conflict with main roads and recommended close liaison between SECWA and MRD when determining the precise location of the pipeline.
- . Geological Survey. The Geological Survey recommended disposal of any water from pipe trench dewatering operations be disposed of in an environmentally responsible manner. It commented on pipeline test waters, cathodic protection, soils and made two points in relation to where the proposed route crosses mineral claims : firstly that the Capel lateral crosses mineral claims in four localities

whereas one alternative route crosses mineral claims in one locality, and secondly the Worsely lateral crosses Mineral Lease 1.SA held by Alcoa for bauxite and that Alcoa be approached regarding minimising sterilization of bauxite resources.

- . Museum. The WA Museum requested that it be informed of any aboriginal sites which may be located during development in accordance with the Aboriginal Heritage Act. The Museum expressed disappointment that a better assessment wasn't made of vertebrate fauna.
- . Public Works. The Public Works Department noted that disposal of test waters would require a licence from the Department. It also provided details of its requirements for river crossings and requested details of each crossing be referred for approval. It pointed out that the SECWA would be responsible for relocating the pipeline if enlargements of rivers, channels or drains were required.
- . Shire of Harvey. The Shire pointed out possible conflicts with future road works planned by the MRD particularly near the Australind by-pass and the Collie River crossing. It also requested consideration of reticulating gas to the Harvey townsite.

### 6.3 Summary of Submissions from individuals

All submissions in this category wanted the preferred route altered for various reasons. However, these were confined to the Worsely and Capel laterals. In addition, they made the following points :

- . Soil erosion. A number pointed out potential problems with soil erosion in the Mornington section of the Worsely lateral, and just north of Capel townsite on the Capel lateral.
- . Service corridors. Several persons were concerned with fragmentation of their land by utilities and recommended that the pipeline be located in existing corridors. Two areas of particular interest were where the pipeline interacts with the proposed Bunbury ring road, south-east of Bunbury, and where the pipeline is shown as parallel to an existing SECWA power line when in fact that power line is planned to be relocated back to its original position when mineral sands mining operations have terminated in the area.
- . Compensation for loss of land value. One submission criticised the criteria for compensation in the ERMP as being unsatisfactory and

that they should have individual compensation for loss of value of land and buildings.

#### 6.4 Summary of Submission from AMC Ltd

The mineral sands mining company AMC pointed out that neither of the two alternative routes leading into the company's operations at the end of the Capel lateral may be suitable due to potential mining plans. The company also pointed out that it has yet to negotiate a contract with the SECWA to supply gas.

#### 6.5 Summary of Submission from the Campaign to Save Native Forests (WA)

This submission was the most comprehensive received and made the following points :

- . ERMP. The submission criticised the ERMP saying that there was insufficient detail, particularly in the environmental safeguards section, and that the structure of the document was confusing and difficult to interpret. It also said that recommendations made by consultants in the flora, fauna and landscape appendix were disregarded without adequate explanation. The group made the point that its comments were based on the inevitability of the project proceeding but it in no way endorsed the proposal.
- . Areas of interest. The group identified main areas of interest as the Bassendean dune system, the Harvey golf course and nearby swamp, and the forested sections of the Darling Range particularly along the Brunswick River and Brunswick MPA. It recommended special consideration of these areas in order to uphold their status.
- . Engineering details. The ERMP was criticised for lack of specific engineering details, particularly regarding cathodic protection and the possibility of constructing a parallel pipeline. The submission recommended siting any second pipeline as close as possible to the first and to minimise clearing of vegetation. It also recommended increasing cathodic protection of the pipeline and positioning it as close as possible to power lines through uncleared areas to avoid excessive clearing.
- . Engineering Details. The submission criticised lack of detail in some areas of interest such as dieback spread, weed introduction and fire risk. It recommended that vegetation surveys should be carried out for 12 months and an ecologist be on-site during construction to preclude unnecessary impacts.

- . Energy considerations. The submission was critical that Worsely was the major customer for gas from this project but that the ERMP for the Worsely alumina refinery did not mention it, nor was it justified in the present ERMP under review. It pointed out a discrepancy between SECWA's statement that priority uses of the gas would not include mineral processing.

The submission recommended that the use of natural gas by Wagerup, Worsely, La Porte, Westralian Forests and Western Titanium be the subject of a separate ERMP before further decisions are taken on this project. In addition it recommended a balanced and unbiased study be carried out on markets for natural gas.

- . Specific points. In addition to the above, the submission made a number of specific points and recommendations relating to the provisions of the ERMP, specific locations and the preferred route.

#### 6.6 Referral to SECWA

All public comments have been referred to the SECWA for consideration.



State and Local Government

Department of Agriculture  
Forests Department  
Geological Survey of WA  
Department of Industrial Commercial  
and Regional Development  
Department of Lands and Surveys  
Main Roads Department  
WA Museum  
Public Works Department  
Town Planning Department

Shire of Collie  
Shire of Harvey

Private

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Dr G Kendall  
Wembley WA 6014

Mr H C Mousley  
Picton WA 6229

Mr V H W Norman  
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