

Harriet Gas Field Pipeline

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

**Environmental Protection Authority
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**Pipeline, Harriet Gas Field to
Dampier-Wagerup Pipeline, Dampier**

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Background

Hadson Australia Development Pty. Ltd., on behalf of a group of joint venturers, proposes to develop a gas field which is near the Harriet Oil Field on the North West Shelf, 20 km northeast of Barrow Island. This will involve a gas pipeline to collect the gas from four small gas fields and bring it to Varanus Island where it will be treated at an already approved gas processing facility before being piped to the mainland and connected to the State Electricity Commission of Western Australia's (SECWA) Dampier-Wagerup pipeline.

The gas processing facility will augment the oil processing facility currently operating on the island for which an environmental management plan is functioning satisfactorily.

The proposal

Gathering facilities consisting of three small platforms, each with well heads, and two pipelines, which will be laid on the ocean floor from the gas fields to the northeast of Varanus Island, will gather the gas and bring it ashore on Varanus Island along an approved, existing easement used for the oil pipelines from the Harriet Oil Field. The gas will be refined to SECWA specifications at an LPG facility on Varanus Island which has previously been considered by the Environmental Protection Authority but not implemented.

The processed gas will then be transmitted via pipeline across 70 km of open ocean to the coast and then 29 km onshore to SECWA Compressor Station No 1, located on Mardie Station. The pipeline will be buried for the onshore section, but will be laid on the ocean floor for the offshore section; a protective coating and anchoring system will be used as required.

The preferred route for the pipeline was chosen from a number of alternatives and is superior with regard to the engineering, economic and environmental aspects of pipeline construction and operation.

Existing environment

The project impacts upon the northwest shelf marine environment, Varanus Island (a C Class reserve for the conservation of flora), a mangrove belt up to 300 m wide within an intertidal zone and a broad, flat coastal plain comprised of red earths typical of the Pilbara. The marine shelf in the project area comprises undulating sands over a limestone pavement with sporadic coral "bommies", which can easily be avoided during the laying of the pipeline.

Part of Varanus Island is leased to the joint venture by the Department of Conservation and Land Management and the facility operates under a licence granted under the Petroleum Pipelines Act, 1969. Environmental management conditions are included under the lease and licence provisions.

Assessment and conclusions

The main environmental issues involved with the project are related to:

- protection of the important marine reef communities;
- temporary impacts during construction of the pipeline ; and
- effect upon the prawn fishery from the proposed Marine Exclusion Zone.

Important marine reef communities have been identified at Jackson Reef, Meda Reef, Passage Island and Angel Island and it is considered that the pipeline laying operations may have significant impacts if they are too close or at critical times of the year, for example, during the spawning season. The temporary impacts derived from the construction of the pipeline are related to barge-laying operations, blasting, dredging, trenching, disposal of hydrotest water and general disturbance by the

construction activity. The impacts are localised and temporary and all significant conservation and biological sites will be avoided. Close liaison with the pastoralist on Mardie Station will occur during the on-shore construction activity.

Pipeline construction methods and procedures are well known from the experience of other pipelines constructed in the Pilbara and northwest shelf regions. Satisfactory environmental controls and rehabilitation standards have been achieved and will be applied to this project.

The effect on the prawn fishery relates to the loss of approximately 10 % of the area of the active fishing zone due to the necessity to operate a Marine Exclusion Zone along the pipeline route, whether the pipeline is buried or not. It is not possible to predict whether this loss of access to the area will result in a lower catch but it will certainly involve modifications to the trawl fishing patterns within the fishing zone. The Exclusion Zone should function as a refuge and regeneration area for the fishery which should prove beneficial both environmentally and for the prawn fishery in the long term.

Negotiations between the proponent and the fishing industry are attempting to find ways to minimise the disruption whilst ensuring the integrity of the pipeline. Various options are being considered including the option of burying the pipeline through the fishing zone. This involves a significant amount of blasting and dredging in some parts of the route where the sand blanket is thin. The economic, engineering and environmental impacts associated with the possible burial of the pipeline within the fishing zone are considered significant. Burial in this zone should not proceed without specific advice from the Authority.

The life of the project is presently projected to be 10 to 12 years. The decommissioning of the pipeline is controlled under the Petroleum (Submerged Lands) Act 1982 and the Petroleum Pipelines Act 1969. If monitoring of the catch from the Fishing Zone shows that there has been an adverse effect upon the prawn fishery, various options to restore access to the area of the Exclusion Zone would be considered, including removing the pipeline.

Recommendations

Recommendation 1

The Environmental Protection Authority has concluded that the proposal to construct gas pipelines to gather gas and transmit it to the Dampier-Wagerup pipeline, as modified by the process of interaction between the proponent, the Environmental Protection Authority, the public and the government agencies that were consulted, is environmentally acceptable, and recommends that the proposal could proceed subject to :

- **the proponent's commitments; and**
- **the Environmental Protection Authority's recommendations in this report.**

The Environmental Protection Authority considers that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

The Authority notes that during the detailed implementation of proposals, it is often necessary or desirable to make minor and non-substantial changes to the designs and specifications which have been examined as part of the Authority's assessment. The Authority believes subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

Recommendation 2

The Environmental Protection Authority recommends that the proponent should develop a rehabilitation plan for the onshore pipeline route, including the mangrove zone, at least six months prior to the commencement of the construction phase to the satisfaction of the Environmental Protection Authority.

Recommendation 3

The Environmental Protection Authority, noting that the objectives for rehabilitation of disturbed onshore areas are to prevent erosion, avoid invasion of weed species and to leave the area in an environmentally stable condition with revegetation of indigenous species, recommends that the proponent should obtain the advice of the Agriculture Protection Board on the recognition and control of noxious weeds in areas disturbed by the project to the satisfaction of the Environmental Protection Authority.

The Environmental Protection Authority considers that the temporary impacts from the construction of the pipeline near the more important reef communities may be significant if the pipeline route is either too close or at a critical time in the life cycle of the marine organisms. The following recommendations address the issue.

Recommendation 4

The Environmental Protection Authority recommends that, in order to protect the more important marine reef communities, a minimum distance of 600 metres be maintained between the pipeline route and the periphery of the reef communities of Jackson Reef, Meda Reef, Passage Island and Angel Island, and a monitoring programme be developed to the satisfaction of the Environmental Protection Authority and implemented prior to the commencement of construction.

Recommendation 5

The Environmental Protection Authority recommends that, prior to the commencement of the pipeline laying operations in the vicinity of the marine reef communities of Jackson Reef, Meda Reef, Passage Island and Angel Island, the proponent develop a construction programme to the satisfaction of the Environmental Protection Authority regarding the timing of the construction activity in relation to the marine life cycle.

Recommendation 6

The Environmental Protection Authority recommends that the proponent should conduct the offshore pipeline construction operations which involve blasting or dredging to the satisfaction of the Environmental Protection Authority, on advice from the Department of Mines.

Recommendation 7

The Environmental Protection Authority recommends that, prior to the installation of navigation beacons on any islands, the proponent consult with the Departments of Conservation and Land Management and Marine and Harbours regarding the management strategy for such operations, to the satisfaction of the Environmental Protection Authority.

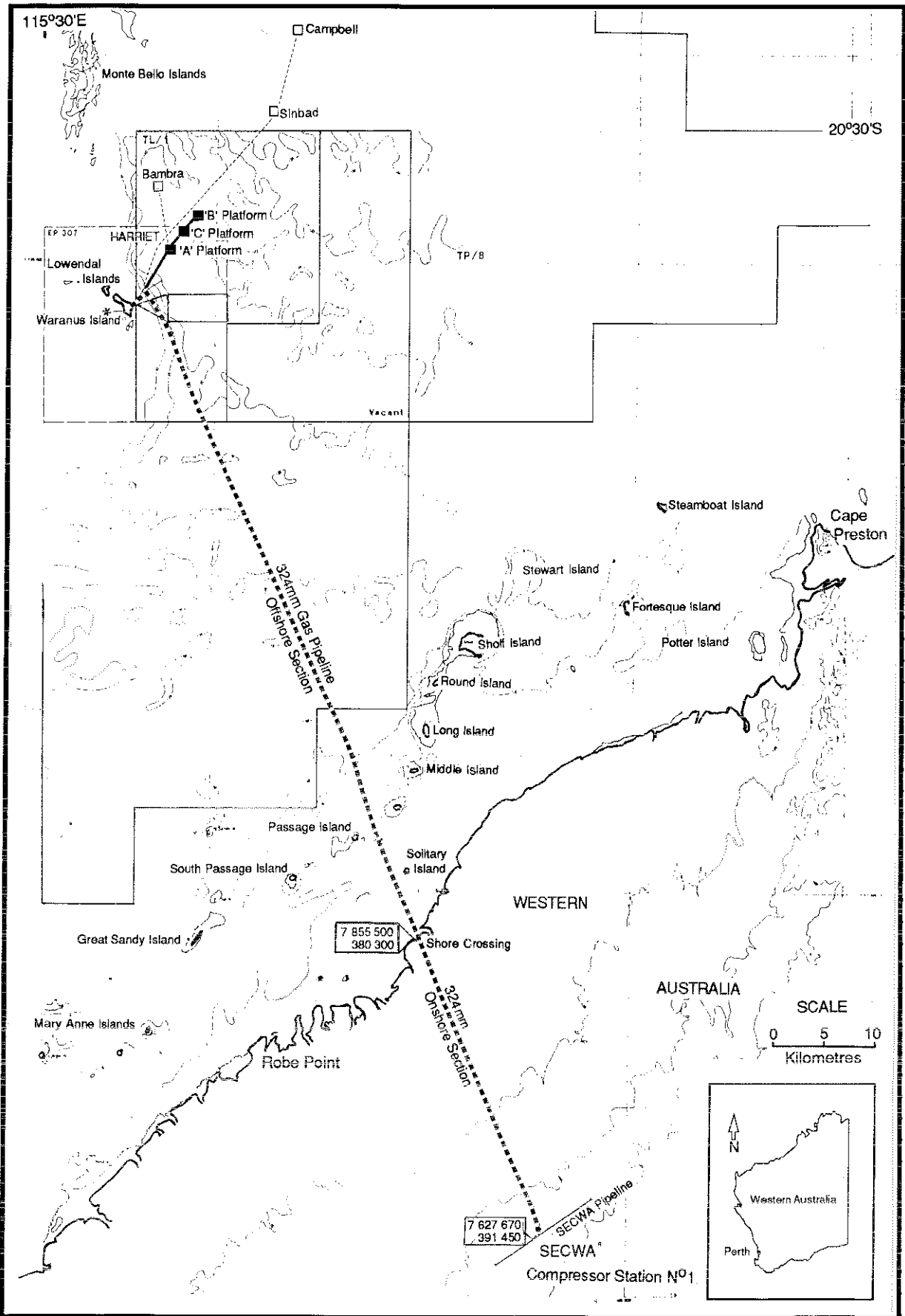


Figure 1: Proposed pipeline route

Appendix 1

Commitments by the proponent

The following commitments have been made by the proponent in this CER, if the Harriet Gas Project proceeds:

1. The proponent intends to undertake the project as described in this CER.
2. The pipeline, gathering lines and processing plant will not be constructed through significant archaeological and environmentally sensitive sites, except where this is unavoidable, for example, in the mangal/salt flat zone. In such cases, the least destructive or impactful technology will be used.
3. Construction/installation of the gathering lines and transmission pipeline in both offshore and onshore areas will aim to:
 - maintain pipeline integrity at all times;
 - stabilise both pipelines and trenches;
 - avoid erosion and changes in hydraulic and sediment conditions;
 - minimise damage to mangroves and other ecosystems;
 - restore the environment to a stable ecosystem.
4. Firefighting facilities will be available during construction on access roads and on utilised sites near to right-of-way.

Firefighting facilities will be available during operation, both within the plant and lease boundary and at the metering station.
5. Waste disposal will be as for the current Harriet oil field operations or to approved disposal sites.
6. Construction and operations will be monitored by the Operator (Hadson) to ensure compliance with environmental obligations.
7. All personnel employed on the project will be inducted in the environmental management methods outlined in this CER.
8. Penalties for breaching environmental regulations will be included in contracts.
9. Dust and noise emissions from the plant site will comply with EPA standards.
10. Any Aboriginal relics discovered during the work will be treated in accordance with the Aboriginal Heritage Act 1972.
11. Regular inspections of the pipeline route (both subsea and terrestrial) will be carried out. This will also occur after periods of heavy rain or cyclones in order to monitor environmental conditions, pipeline integrity and to initiate repairs where necessary.
12. Vegetation in the terrestrial section of the project will be stripped and windrowed for use in rehabilitation. Topsoil and subsoil will also be stripped and windrowed. Replacement of this soil will be progressive as the installation of the pipeline is completed.
13. Excavations and project-damaged land will be restored to an acceptable condition.
14. Flora and fauna will be protected to the greatest possible extent.
15. All activities on Varanus Island will be in accordance with the existing Environmental Management Plan.
16. Contractors will be prohibited from bringing firearms or pets onto Mardie Station during construction activities and ongoing maintenance.
17. Approval from pastoralists and advice from environmental consultants will be sought if any water from bores is required in the onshore section of the project.
18. Work on Mardie Station will be timed to minimise the impact on station activities as far as possible.
19. A monitoring programme, photographic recording and reporting system will be implemented as outlined in this CER. This will particularly apply to rehabilitation in the onshore section during the first year. Results will be incorporated into the Annual Report to the EPA.