

## Appendix A

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**GUIDELINES FOR THE PREPARATION OF A  
PUBLIC ENVIRONMENTAL REPORT  
DARWIN 10 MTPA LNG FACILITY  
AT WICKHAM POINT**

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## **INTRODUCTION**

The purpose of the Public Environmental Report (PER) is to provide the Government with concise and comprehensive information regarding the design, construction and operation of the proposed expansion of the liquefied natural gas (LNG) plant at Wickham Point. Wickham Point Pty Ltd, a subsidiary of Phillips Petroleum Company, the original proponent, proposes to install two 5 million tonnes per annum (MTPA) trains increasing production to 10 MTPA.

The PER should contain sufficient information to enable understanding and assessment of the scope and environmental implications of the proposal. The PER should clearly identify the main environmental impacts associated with the proposed expansion and should contain a management strategy to minimise these impacts.

The description of the proposal and its environmental impacts should be in terms of the changes to the proposal as it was originally described in the Environmental Impact Statement (EIS) and Supplement of 1997.

Information should be presented in a concise format, using maps, overlays, tables and diagrams where appropriate to clarify the text.

The justification of the project in the manner proposed should be consistent with the principles of ecologically sustainable development. For the purpose of these Guidelines, the “principles of ecologically sustainable development” are as follows:

- the precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- inter- and intra-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations;
- conservation of biological diversity and ecological integrity and improved valuation and pricing of environmental resources.

## **CONTENTS OF THE PER**

### **1 Executive Summary**

The Executive Summary is to include a brief outline of each section within the Public Environmental Report (PER) using text and dot points. It is recommended that the Executive Summary be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read or purchase the entire PER.

The summary should be a concise outline of the matters discussed in the main body of the document, to allow the reader to quickly obtain a clear understanding of the

proposal, its environmental implications and management objectives. The summary should include:

- the title of the proposal;
- name and address of the proponent,
- a brief description of the background to the proposal, including the previous environmental assessment;
- justification of the need for the proposal;
- a statement of the objectives of the proposal;
- a brief description of the proposal;
- possible future expansion in terms of LNG production and/or other products and the suitability of the site for any additional expansion;
- feasible alternatives that may have emerged since the conclusion of the previous assessment;
- a brief description of the existing environment;
- a brief summary of the principal potential and anticipated environmental impacts;
- a statement of the proposed environmental management principles and monitoring procedures;
- a brief explanation of the structure and scope of the PER and its legislative basis; and
- a description of the studies / surveys / consultations conducted in developing the proposal and preparing the PER (results of studies and detailed comments resulting from the consultation should be included as appendices).

## **2 Description of the proposal**

This section should describe the development in sufficient detail to provide an adequate understanding of infrastructure design and engineering, and all stages of construction. Aspects to be covered include, but should not be limited to:

### ***2.1 Background***

- Location and changes to site boundaries and layout as described in the EIS and Supplement of 1997.
- History of the project.
- Changes to the project as described in the EIS and Supplement of 1997, including increases in shipping movements and possible size of the vessels.
- Land tenure and planning issues.

### ***2.2 Design Details***

- Describe the design of any new components to the proposal.
- Describe the design of any components that have been changed or altered in any way from those described in the EIS and Supplement of 1997.

### 2.3 *Construction Phase*

- Give a brief summary of the construction activities as described in the EIS and Supplement of 1997.
- Describe any new or changed construction activities.

### 2.4 *Operational Phase*

- Give a brief summary of the operational activities as described in the EIS and Supplement of 1997.
- Describe any new or changed operational activities.

## 3 **Existing Environment**

Summarise the description of the existing environment as given in the EIS and Supplement of 1997. Highlight the main features of the environment likely to be affected by the proposed expansion, in particular the Darwin Region airshed and Darwin Harbour. Provide any new information or data that has been obtained or has become available since the completion of the assessment of the 3MTPA plant in 1998, eg information from the geotechnical survey work and archaeological surveys recently carried out on site.

## 4 **Environmental Impacts**

### 4.1 *Potential and Anticipated Environmental Impacts*

This section of the draft PER should clearly identify, qualify and quantify, where appropriate, the potential environmental impacts expected to result from the proposed expansion

The potential impacts of all aspects of the proposed expansion that has not already been assessed should be discussed. All potential impacts on the existing environment (including atmospheric, terrestrial and marine, social and heritage) should be assessed for all relevant stages of the project (including construction, operation, decommissioning, incidents and accidents). Socio-economic impacts on existing services in the region should also be considered.

Anticipated and potential environmental effects of the project should be discussed and quantified where possible. Similarly, the extent to which any relevant impacts are likely to be unknown, unpredictable or irreversible. The possibility of remediation should also be discussed. Performance indicators for all potential impacts and remediation efforts should be identified. The nature of effects should be characterised by the following qualities:

- direct/indirect
- short-term/ medium-term/ long-term
- adverse/beneficial

The section should also include an assessment of the level of significance of the impact, be it global, regional or local (eg. global and national implications of greenhouse gases). The vulnerability of key habitats and species to potential impacts should be assessed, as should visual impacts of the proposed development. Cumulative impacts should also be discussed. The reliability and validity of forecasts and predictions, confidence limits and margins of error should be indicated as appropriate. Interactions between impacts on the biophysical, cultural and socio-economic environments, both individually and collectively, should be covered.

Amongst the matters to be addressed should be:

- visual aspects including structures and plumes;
- noise;
- odours;
- air emissions;
- cultural heritage resources as identified in the previous assessment and any new such resources;
- confirm that the boundaries conform with the Authority Certificate previously issued by the Aboriginal Areas Protection Authority.

#### **4.2 Hazard/Risk to Humans and Facilities**

The PER should include a preliminary hazard analysis and assessment of the risks to people, the environment and nearby facilities from potential accidents associated with the construction, operation and maintenance of the various components of the LNG plant, storage and transport of materials to and from the plant, including shipping of product. This analysis should focus on the risks associated with the increased production and storage of the LNG. The preliminary hazard analysis and risk assessment should outline and take into account emergency plans that detail strategies, procedures and staff responsibilities in the event of an emergency or accident. Issues such as cyclones, storm surge, bush fires and lightning strikes as well as human factors should be included. Contingency plans for dealing with spillage of any hazardous materials should be detailed.

It is recommended that a proven methodology such as AS/NZ 4360 should be followed for the risk assessment.

The previous assessment included a preliminary hazard and risk analysis with an undertaking to carry out detailed analysis at the design stage. The undertaking included a Hazard and Operability Study (HAZOP) followed by a Quantitative Risk Assessment as well as a Detailed Safety Report. The PER should include progress on these undertakings and how the risks and hazards are increased or reduced by the proposed expansion. The detailed analysis needs to consider the plant and its location in relation to Darwin, Palmerston and the surrounding population as well as the expected increase in shipping movements in Darwin Harbour.

## **5 Environmental Safeguards and Management**

The proponent is required to achieve a level of environmental management and performance (consistent with ecological sustainable development, best practice environmental management, national and international standards and statutory obligations) during its pursuit of sound business and financial objectives. The most economically effective, environmentally sound technology and procedures should be incorporated into the design of the project. The adoption of such a strategy should ensure optimal management of all emissions, discharges and waste. A similar approach is to be adopted for all procedures involving the management of inputs, outputs and the production process itself.

This section should provide information on environmental management practices and safeguards proposed to prevent, minimise or ameliorate environmental impacts both onshore and offshore. A summary table listing undertakings and commitments to mitigate environmental impacts made in the PER, including cost estimates where practical and performance indicators, with cross referencing to the text of the report should be provided.

### ***5.1 Construction Phase***

Provide a brief summary of the environmental safeguards and management arrangements developed for the construction phase as an outcome of the previous assessment. Detail any changes to these as a result of the proposed expansion and associated changes.

### ***5.2 Operational Phase***

Provide a brief summary of the environmental safeguards and management arrangements developed for the operational phase as an outcome of the previous assessment.

Detail the environmental controls, safeguards, design features and management arrangements for the:

- increases and changes to the emissions to air, including greenhouse gases;
- increases in the solid and liquid wastes, including oils and sludges; and
- increases in the waste water caused by increased water requirements.

### ***5.3 Monitoring***

Detail any changes to the monitoring program outlined in the previous assessment, in particular monitoring of air emissions.

### ***5.4 Environmental Management Programme***

Indicate any changes to the Preliminary Environmental Management Programme for the 3 MTPA plant that has been submitted and accepted but not yet finalised and approved. Particular reference should be made to the following sections of the

Programme: LNG Plant Environmental Plan; Emergency Response Manuals; and Oil Spill Contingency Plans.

## **6 Glossary**

A glossary defining technical terms and abbreviations used in the text should be included to assist the general reader.

## **7 References**

The reference list or bibliography should be accurate and concise.

## **8 Appendices**

Information relevant to the PER but not suitable for inclusion in the main text should be included as appendices, for example detailed technical or statistical information, maps, baseline data, supplementary reports etc.

## **9 Administration**

The Project Officer is Helge Pedersen of the Environment and Heritage Division, Department of Lands, Planning and Environment and can be contacted on phone (08) 8924 4138 or fax (08) 8924 4053

One copy of a "preliminary" draft PER should be lodged with the Environment and Heritage Division for internal review prior to its release for public and advisory body comment.

Once this internal review is finalised, 20copies of the PER together with 2 CD rom copies should be lodged with the Department of Lands, Planning and Environment for distribution to government advisory bodies. CD rom copies should be in ADOBE® \*.pdf format for placement on the Internet.

Arrangement for the public display, review and purchase of the PER, including locations and number of copies will be made at the time when the preliminary copy of the draft PER is reviewed.



## **APPENDIX**

# **TECHNICAL FRAMEWORK FOR ASSESSMENT OF GREENHOUSE GAS EMISSIONS RELATED TO MAJOR PROJECTS**

The Commonwealth seeks transparent and accurate information to support decision-making and to ensure that the best commercially available technologies are deployed in Australia. This framework is provided to assist proponents in detailing the greenhouse implications of development proposals. To aid assessment of greenhouse gas emissions resulting from the proposed project development, the following information is required:

### **1. Inventory of annual emissions**

The proponent must provide data on maximum annual emissions of the six greenhouse gases listed in the *Kyoto Protocol* (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). This includes both emissions on-site and upstream, such as from the production and supply of natural gas to the proposed development. The inventory should include:

- (a) an estimate of emissions on a gas by gas and process by process basis,
- (b) a summary table of emissions on a gas by gas basis;
- (c) a summary table listing emissions on a carbon dioxide equivalent basis; and
- (d) a table which includes gross emissions, emission reduction due to both offsets and mitigation, and net emissions.

### **2. Methodologies**

The proponent must identify, in a transparent manner, the methodology used in making the estimate. In preparing estimates:

- (a) the most recent *National Greenhouse Gas Inventory* (NGGI) methodology should be used (<http://www.greenhouse.gov.au/inventory/index.html>);
- (b) if the relevant industry is not covered by the NGGI methodology, *Intergovernmental Panel on Climate Change* (IPCC) methodology should be substituted (<http://www.ipcc.ch/pub/guide.htm>); or
- (c) if no methodology exists in either format, a methodology reflecting the principles of the NGGI and IPCC will be developed and agreed by the proponent and the *Australian Greenhouse Office*.

### **3. Supporting Data**

The following supporting data must be provided:

- (a) the proponent must provide details on the emission factors used, and an explanation where a proponent chooses to use alternative emission factors to that provided in the methodology.
- (b) the project's emission factors need to be compared with similar projects, including both Australian and international best practice. This analysis should include benchmarking against projects that use alternative fuel sources, processes, and technologies.

#### **4. Mitigation**

The proponent must include a full description of mitigation measures, including analysis of a full range of alternatives to the proposed project. This should include methods by which greenhouse gas emissions could be mitigated, including:

- (a) analysis of the likely greenhouse gas reductions as a result of mitigation efforts (to the same level of detail as described in inventory section above);
- (b) analysis of costs, both financial and output related, of mitigation; and
- (c) identification of any relevant voluntary partnerships between government and the proponent, such as *Greenhouse Challenge*, and their links to mitigation.

#### **5. Offsets**

The proponent should provide information on the range of offsets (eg sinks or off-site energy efficiency measures) that may be pursued. The following information should be provided:

- (a) likely greenhouse gas reductions as a result of the offsets (to the same level of detail as described in the inventory section above);
- (b) description of proposed offsets and a qualitative assessment of their impact on other matters of environmental, economic, or social significance; and
- (c) analysis of costs, both financial and other related to offsets.