



**GUIDELINES FOR AN
ENVIRONMENTAL IMPACT STATEMENT
ON THE PROPOSED SUNRISE GAS PROJECT
(NORTHERN AUSTRALIAN GAS VENTURE)**

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INTRODUCTION

These Guidelines have been developed to assist Woodside Energy Limited (WEL) in preparing a draft Environmental Impact Statement (EIS) for the Sunrise Gas Project, (formerly known as the Northern Australian Gas Venture), in accordance with Clause 8 of the Administrative Procedures of the *Environmental Assessment Act (1982)* of the Northern Territory and Paragraph 4.1 of the Administrative Procedures under the *Environment Protection (Impact of Proposals) Act 1974* of the Commonwealth.

The Sunrise Gas Project comprises:

- construction and operation of offshore production facilities, production wells and subsea infrastructure in the Timor Sea;
- construction and operation of a pipeline from the offshore facilities to a new gas processing facility in the vicinity of Glyde Point, on the Gunn Point Peninsula, 35 km north east of Darwin, NT;
- construction and operation of a domestic gas plant and supply pipeline to the existing domestic gas network;
- a jetty for loading of products for export;
- a jetty for unloading and loading of materials; and
- an area for pipe preparation during the construction phase of the project.

The draft EIS aims to provide:

- a source of information from which individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment that it would affect, the impacts that may occur and the measures taken to minimise those impacts;
- a basis for public consultation and informed comment on the proposal; and
- a framework against which decision makers can consider the environmental aspects of the proposal, set conditions for approval to ensure environmentally sound development and recommend an environmental management and monitoring programme.

In accordance with the principles contained in the “Intergovernmental Agreement on the Environment” and the Australian and New Zealand Environment and Conservation Council (ANZECC) “Basis for a National Agreement on Environmental Assessment”, the proposal will be jointly assessed by the Northern Territory Government and the Commonwealth Government. The Environment and Heritage Division of the NT Department of Lands, Planning and Environment will take the lead role in the assessment process in consultation with the Environment Protection Group, Environment Australia.

The object of these guidelines is to identify those matters that should be addressed in the draft EIS. The guidelines are based on the initial outline of the proposal in the Notice of

Intent. Not all matters indicated in the guidelines may be relevant to all aspects of the proposal. Only those matters that are relevant to the proposal should be addressed. The guidelines should, however, not be interpreted as excluding from consideration any matters which are currently unforeseen, which may arise during ongoing scientific studies or which may arise from any changes in the nature of the proposal during the preparation of the draft EIS, including the public consultation process.

The draft EIS should be a self-contained and comprehensive document written in a clear, concise style that is easily understood by the general reader. Cross referencing should be used to avoid unnecessary duplication of text. Text should be supported where appropriate by maps, plans, diagrams or other descriptive material. Detailed technical information and baseline surveys should be included as appendices or working papers.

The justification of the project in the manner proposed should be consistent with the principles of ecologically sustainable development. Assessment of the environmental impacts of the proposal and alternatives should consider the life-cycle impacts, from cradle-to-grave, including sourcing of materials, operational impacts and decommissioning. 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 DRAFT EIS

The draft EIS should include the following sections, but need not be limited to these sections or inferred structure.

1 EXECUTIVE SUMMARY

The Executive Summary should include a brief outline of the Sunrise Gas Project and each chapter of the draft EIS, allowing the reader to obtain a clear understanding of the proposed project, its environmental implications and management objectives. The Executive Summary should 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 draft EIS as a whole.

The summary should include:

- the title of the project;
- name and contact details of the proponent, and a discussion of previous projects undertaken by the proponent and their commitment to effective environmental management;
- a concise statement of the aims and objectives of the project;
- the legal framework, decision-making authorities and involved agencies;
- a discussion of the background to and need for the project, including the consequences of not proceeding with the project;
- a discussion of the alternative options considered and reasons for the selection of the proposed development option;
- a brief description of the project and the existing environment, utilising visual aids where appropriate; and
- an outline of the principal environmental impacts predicted and proposed, environmental management strategies (including waste minimisation and management) and commitments to minimise the significance of these impacts.

2 INTRODUCTION

The introduction should include:

- a brief explanation of the structure of the document;
- an outline of the environmental assessment processes under the relevant NT and Commonwealth legislation;
- reference to initial investigations and feasibility studies;
- relevant Territory, Commonwealth and International policies, legislation, and treaties; and
- planning issues such as land tenure, zoning, timeframes, potential for additional development and the lifetime of the project.

3 OBJECTIVES AND BENEFITS OF THE PROPOSED PROJECT

The draft EIS should discuss the social and financial benefits and impacts of the project. This should include:

- socio-economic objectives and impacts, including reference to local and global markets, impacts on other economic activities in the affected area (e.g. commercial fisheries), foreign trade objectives, occupational health and safety objectives and benefit to the local workforce;
- production objectives (e.g. predicted volume of product and proportion of market demand to be met by output); and

- local, regional and global environmental objectives (e.g. reference to the environmental policies of the joint venture partners and the implications of the project with respect to the National Greenhouse Strategy).

4 ALTERNATIVES

Alternative proposals for the project should be discussed, detailing reasons for the selection and rejection of particular options. Where alternatives are available, which may still allow the objectives of the project to be met, the existing environment in these areas should also be addressed to a similar level of detail. The selection criteria for the onshore and offshore facilities should be discussed, and the advantages and disadvantages of preferred options and alternatives detailed.

Alternatives should include:

- not proceeding with the project;
- alternative development scenarios/strategies for the natural gas resource;
- alternative sites and pipeline routes for the project;
- alternative process technologies considered, such as storage and offloading arrangements; and
- alternative environmental management technologies considered, such as treatment and disposal of discharges.

5 PROJECT DESCRIPTION

The draft EIS should describe the project in sufficient detail to allow an appreciation of the construction and operation timeframes and processes, and assist in determining the potential environmental impacts of the project. Key decision-making processes (such as risk assessment) should be detailed. Where appropriate, relevant Northern Territory and Commonwealth Government legislation, strategies and policies as well as international and national standards should be considered. Relevant NT Government environmental and construction guidelines should also be considered during the design phase of the project.

The use of a table describing the key characteristics of the project and a description of the phases of the proposal, including the nature and extent of proposed works likely to involve environmental impacts, may be an appropriate means of summarising this information.

The project description should consider the following, as a minimum, for all aspects and components of the project:

5.1 Location and Design Details

5.1.1 Offshore Facilities (platform/s, subsea wells)

- location/s and site selection criteria;
- seabed envelope/s (footprint/s and buffer zone/s);
- infrastructure and service requirements (berthing facilities for support vessels, heliport, accommodation, power and water supply, sewage and other waste treatment and disposal, fuel handling and storage, workshops, communications, pollution control etc.);
- power requirements/sources of supply;
- water requirements in terms of quantity and sources for cooling, fire fighting and domestic uses;
- existing or proposed sea area usage (such as recreation, commercial and recreational fishing, shipping and Department of Defence training);
- design standards and limitations imposed by site characteristics, storm surge, climate, weather (e.g. cyclones), possible sea level rise and other climatic conditions associated with global climate change;
- alternative technologies to minimise greenhouse gas emission levels, and flexibility of design for future mitigation. Identify which technologies will be used and the rationale for their selection;
- disposal options for greenhouse gas emissions. Identify the options proposed for implementation and discuss the rationale for their selection;
- options for offsetting greenhouse gas emission through either sink enhancement (e.g. land rehabilitation, forestry, industrial feedstock) or mitigation of emissions from other parties. Identify the options proposed for implementation and discuss the rationale for their selection;
- construction locations (if different from location of offshore facility); and
- construction material, types, sources and quantities.

5.1.2 Natural Gas Pipeline

- selection criteria for the pipeline route;
- description of the preferred alignment of the pipeline, illustrated with maps, nautical charts and diagrams to clearly show the pipeline corridor both offshore and onshore;
- the preferred route with respect to other development (e.g. subsea cables), industry, national and marine parks and reserves, sites on the Register of the National Estate, declared Beneficial Uses, World Heritage Areas, historic sites, archaeological/anthropological (including marine archaeological) sites, landforms and seabed features, other environmental features or constraints;
- land requirements, land tenure, acquisition requirements (including permits and rezoning), description and justification of easement widths and access requirements along the route;

- existing or proposed sea area usage (such as recreation, commercial and recreational fishing, shipping and Department of Defence training);
- description of the location, nature and appearance of all infrastructure requirements associated with the pipeline, including access points and roads, markers and warnings;
- design parameters, criteria and standards, including brief description of the product expected to be transported, pipeline capacity and expected lifetime, options for future extensions, environmental and safety arrangements (including a contingency and response plan to deal with rupture of the pipeline, or other relevant incident), and joint use with future developments of other gas fields;
- construction material, types, sources, quantities;
- details of the pipe coating and laydown areas; and
- design limitations imposed by site characteristics such as storm surge and cyclones.

5.1.3 Domestic Gas Plant (Onshore)

- location and design criteria for the plant, the loading jetty and the materials jetty and access points and routes;
- requirements and specifications for connection to the national domestic gas supply grid;
- land requirements, land tenure, acquisition requirements (including permits and rezoning), dredging and reclamation requirements;
- infrastructure requirements and specifications (berthing facilities, handling facilities, breakwaters, roads and access tracks, drainage, easements, fire breaks, fencing, areas of hard stand, water and power supply, sewage and waste treatment and disposal, equipment buildings, fuel handling and storage, pollution control etc.);
- power sources;
- water sources for cooling, fire fighting and domestic uses as well as opportunities for recycling;
- buffer zone requirements;
- design standards and design limitations imposed by site characteristics, storm surge, climate, weather (e.g. cyclones), possible sea level rises and other climatic conditions associated with global climate changes etc.;
- provide information on alternative technologies to minimise greenhouse gas emission levels, and flexibility of design for future mitigation. Identify which technologies will be used and the rationale for their selection;
- discuss disposal options for greenhouse gas emissions. Identify the options proposed for implementation and discuss the rationale for their selection;
- discuss options for offsetting greenhouse gas emission through either sink enhancement (e.g. land rehabilitation, forestry, industrial feedstock) or mitigation of emissions from other parties. Identify the options proposed for implementation and discuss the rationale for their selection;
- construction material, types, sources and quantities;

- access requirements (both land and marine); and
- proposed environmental and safety management arrangements including contingency and response plans in case of rupture of tanks or pipelines, and risk assessment of the above).

5.2 *Details of Construction Phase*

- describe temporary and permanent facilities;
- describe methods of construction and installation of offshore facilities;
- describe design and location of pipeline installation including pipeline coating and laydown areas;
- describe methods of construction and installation of onshore facilities;
- describe timing of construction operations and shift patterns;
- provide details of accommodation and infrastructure requirements of workforce for all construction options;
- describe design, location and a discussion of alternative methods for earthworks (including land reclamation, land capabilities, surface drainage and borrow pits), subsea works, and methods to be used;
- describe measures to minimise the potential to create biting insect breeding sites especially in tidal areas;
- describe design, location and a discussion of alternative methods for dredging, including containment and disposal of dredged spoil;
- identify location and methods of haulage and, including prime movers, barges and supply ships;
- indicate size and location of construction camps;
- identify sources of construction and marine workforce;
- describe waste minimisation and management arrangements including a discussion of alternative methods; and
- provide details for the decommissioning of temporary facilities.

5.3 *Details of Operational Phase*

- description of processes both offshore and onshore (including shipping);
- description of management structure and interaction with Government (NT and Commonwealth) of the port facility (including navigational aids, survey work, pilotage, exclusion zones, and shipping routes);
- arrangements for transfer and storage of product and dangerous chemicals;
- shipping routes, standby anchorage locations and navigation obstructions;
- annual throughput of products and dangerous chemicals at offshore and onshore facilities, including National Pollutant Inventory listed substances;
- details of all dangerous goods;
- project and reservoir lifetimes;

- limitations on operation (such as cyclonic and storm surge periods);
- maintenance operations such as floating hose inspection, dredging, shutdown programme and inspections;
- energy usage;
- atmospheric emissions management, such as flaring, venting and greenhouse gas issues including an estimation of gas emissions (e.g. emissions from power generation and use and leakage);
- discharge management, including produced water, deck waters, ballast water, cooling waters, sewage and surface water drainage;
- likelihood and requirements for facility and process upgrade;
- product loading methods;
- size and origins of workforce;
- workforce shift patterns;
- accommodation and transport of workforce, including fixed wing, rotary wing, boat and vehicle; and
- infrastructure and support arrangements.

5.4 *Details of Decommissioning Phase*

- outline appropriate decommissioning and rehabilitation commitments (for both temporary and permanent facilities), including waste management and pollution control.

6 EXISTING ENVIRONMENT

The draft EIS should include an in-depth description of the areas potentially impacted by the project. These areas should include:

- areas affected by extraction of construction material (including off site);
- terrestrial construction sites, lay-down areas, corridors and buffer zones;
- offshore construction locations including processing and loading facilities;
- pipeline corridors; and
- operation and maintenance areas, such as dredging and discharge assimilation zones, and tanker routes.

Seasonal and diurnal meteorological changes, and any significant trends (e.g. flood, cyclone frequency), should be indicated where appropriate. Areas of environmental sensitivity should be identified and the scope of investigations fully discussed. Where areas of environmental sensitivity have been identified the inter-relationship between sensitive areas and other areas should be discussed. Sites and species of special conservation status should be identified and described (e.g. RAMSAR wetlands, endangered, protected or migratory species).

Studies to describe the existing environment should be of a scope and standard sufficient to serve as a benchmark against which the impacts of the project may be assessed over an extended period. Control areas not impacted by the project should be included in studies and long term monitoring locations established.

Description of those areas potentially impacted by the project should, as a minimum, include:

6.1 Physical Environment

6.1.1 Terrestrial and Marine (including intertidal zone)

- relevant climatic and atmospheric conditions (precipitation, evaporation, wind, temperature, seasonal variability, flooding, cyclonic storms, storm surge) and anticipated changes (e.g. due to climate change);
- geology, geomorphology (e.g. soil horizons, cheniers), seismic stability;
- geotechnical information (soils and marine sediments) such as potential and actual acid sulfate soils, background contaminant concentrations and physical characteristics;
- air quality and dispersion studies; and
- ambient light and noise levels.

6.1.2 Terrestrial

- topography and land systems;
- relevant soil characteristics (erodibility, compaction, etc.);
- hydrology and hydrogeology (surface and groundwater systems, catchment and drainage regime, flow and discharge rates, flooding, water quality, beneficial uses);
- existing fire regime; and
- existing levels of soil erosion (water, wind).

6.1.3 Marine (including intertidal zone)

- marine hydrography, seabed morphology and depth contours/bathymetry;
- dredging areas and potential spoil disposal areas;
- oceanography including tides, currents, wave action; and
- hydrodynamics, including modeling of the area between Melville Island and Gunn Point/Glyde Point and possibly between Cape Don and Soldier Point depending on the determined risk of an oil spill, scouring effects, accretion rates, erosion rates and dispersion.

6.2 *Biological Environment (terrestrial and marine including intertidal zone)*

- major habitats, communities, and flora/fauna species (both vertebrates and invertebrates) including endangered or threatened taxa, migratory species and species of commercial importance. The draft EIS should include interpreted results from detailed surveys of the marine and terrestrial fauna and flora in and around the region to be impacted. This should include more remote areas that may be impacted by prevailing currents and tidal influence transporting impacts downstream;
- ecological relationships, including habitat requirements, dispersal abilities, growth patterns, an assessment of species decline or recovery from natural disturbance (e.g. cyclone), life histories, key components of ecosystems, wet and dry seasonal variability, etc. (Note: the Glyde Point area is known to contain a number of important rainforest patches. These areas along with associated habitats should be given specific consideration concerning the need for protection/retention);
- conservation status of species/communities/habitats on a local, regional and national level;
- other sensitive environments, areas of significance (breeding, nesting, roosting and feeding sites, etc.);
- extent, representation and protection elsewhere of species/communities/habitats affected by the proposal;
- resilience of species/communities/habitats affected by the proposal;
- obligations/listings under Territory, national and international strategies, registers, conventions, legislation or agreements;

- level of existing vegetation clearance/disturbance;
- status of feral animals, vermin, weeds and plant pathogens; and
- known sites where mosquitoes and other biting insects may be a problem.

6.3 Cultural Environment

- areas nominated for listing or listed on the Register of the National Estate or the Interim list of the Register of the National Estate;
- sacred sites - provide evidence of an Authority Certificate under the Northern Territory *Aboriginal Sacred Sites Act*¹;
- archaeological and heritage places and objects under the *Northern Territory Heritage Conservation Act 1991*;
- historic sites;
- artificial reefs;
- areas with special values (e.g. landscape, visual environment, recreational, commercial, tourism, fisheries, scientific, educational, marine archaeological sites);
- areas of significance to the Aboriginal population and culture; and
- national parks, conservation reserves and wilderness area.

6.4 Socio-economic Environment (terrestrial and marine)

- demographic characteristics in and around the project area;
- social factors (lifestyle and values, existing trends, social issues). These factors could be used as performance indicators to monitor long-term impacts on the socio-economic environment;
- consistency with proposed land use objectives;
- constraints the project may place on other land uses in the area;
- current employment levels and characteristics;
- local and regional economic structure;
- existing land use, tenure and sensitivity;
- native title claims under the *Native Title Act, 1993* and aboriginal land claims under the *Aboriginal Land Rights (Northern Territory) Act 1976.*;
- commercial fisheries activities;
- community services and facilities;
- recreational resources and activities (e.g.. fishing, diving, etc.);
- physical infrastructure (boat landings, roads, airstrips, communications etc.);

1 *The results of an inspection of the Register of Sacred Sites maintained by the Aboriginal Areas Protection Authority, as well as details of an application lodged with the Aboriginal Areas Protection Authority for an Authority Certificate within the meaning of Part 3, Division 1 of the Northern Territory Aboriginal Sacred Sites Act. Also, if practicable, include a copy of the Certificate issued by the Authority as a result of that application containing conditions (if any) relating to the protection of sacred sites on, or in the vicinity, of the project area.*

- transport network and usage (road, air, waterways, traffic volumes);
- mineral and energy exploration;
- impact of biting midges and mosquitoes as pests and vectors of disease; and
- other potentially dangerous fauna and proposed management (e.g. crocodiles, box jellyfish)

7 ENVIRONMENTAL IMPACTS

7.1 Potential and Anticipated Environmental Impacts

This section of the draft EIS should clearly identify, qualify and quantify, where appropriate, the potential environmental impacts expected to result from the project and from any feasible alternatives.

The potential impacts of all aspects of the proposal should be discussed. All potential impacts on the existing environment (including 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. 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 (e.g. global and national implications of greenhouse gases and the localised impact of service roads or artificial water bodies). 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.

7.2 Hazard/Risk to Humans and Facilities

The draft EIS 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 Sunrise Gas Project, storage and transport of materials to and from the Sunrise Gas Project (including pipeline transport and shipping of product). 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 should be considered. Contingency plans for dealing with spillage of any hazardous materials should be detailed.

8 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 made in the draft EIS, including performance indicators, with cross referencing to the text of the report should be provided.

8.1 Safeguards

8.1.1 Construction Phase

Detail environmental controls, safeguards and design features, and describe proposed management arrangements during the construction phase including:

- measures to protect important habitats including seagrass beds, coral reefs, mangroves and rainforest;
- measures to maintain connectivity of important habitats (e.g. wildlife corridors);

- measures to ensure that any seismic activity does not interfere with the migration or breeding of cetaceans or dugongs;
- measures to ensure the protection of threatened and endangered species (if threatened or endangered species are identified, the impacts of the potential loss of a local population on the gene pool of the species should be determined);
- safeguards to minimise noise, dust, vibration, air, land and water pollution, including pollution from shipping (e.g. marine debris, discharge of effluent, antifouling paint);
- safeguards to minimise vegetation disturbance and soil erosion;
- safeguards to minimise the risk of introducing and/or spreading exotic organisms (e.g. from ballast water, hull fouling, other shipping activity) and diseases, including use of 'best practice management' and industry standards etc.;
- measures to protect undisturbed mangrove areas to ensure that they remain as a buffer zone and to minimise erosion;
- measures to manage potential and actual acid sulfate soils;
- measures to prevent the creation of mosquito breeding sites as a result of construction operations both on and off site (in accordance with construction guidelines);
- measures to protect heritage sites, terrestrial and marine archaeological sites and Aboriginal Sacred Sites;
- measures to minimise visual intrusion;
- measures to protect both terrestrial and marine fauna and flora;
- measures to manage construction wastes both in the marine and terrestrial environment, to minimise off site impacts from debris and protect against accidental spillage;
- measures to manage and minimise impacts from dredging and disposal of dredged spoil;
- oil and chemical spill contingency plans should be outlined and the links to Northern Territory and National oil spill contingency plans should be clear;
- measures to ensure employees and construction managers understand and act upon their environmental protection obligations including statutory obligations;
- measures to ensure the safety of the community and the work force during construction and operation of the plant;
- measures to minimise negative social and environmental effects of accommodating and servicing the construction workforce;
- measures to rehabilitate disturbed areas (both terrestrial and marine), including quarries and sand/gravel pits (native species should be used for rehabilitation and landscaping); and
- monitoring to quantify and rectify any impacts on the environment.

8.1.2 Operational Phase

Detail environmental controls, safeguards, design features and proposed management arrangements during the operational phase including:

- safeguards to minimise noise, air, land and water pollution, thermal pollution, soil erosion, introduction and/or spread of exotic organisms (e.g. from ballast water, hull fouling, other shipping activity) and diseases including use of 'best practice management' and industry standards etc.;
- measures to ensure the protection of threatened and endangered species (if threatened or endangered species are identified the impacts of the potential loss of a local population on the gene pool of the species should be determined);
- measures to reduce impacts of light, noise and obstructions (e.g. the loading jetty), resulting from the development, on turtle, bat and migratory bird species;
- risk management and preparation of disaster contingency plans (for: cyclones; storm surge; bush fires; oil spills and chemical spills) and occupational health and safety plan;
- measures to protect identified areas of high biological value;
- an operations maintenance schedule, including the nature and timing of maintenance planned, and an audit, review and revision of the operational phase at regular intervals to ensure the continued safety of the facilities (both onshore and offshore) and surrounding areas;
- a waste management plan placing particular emphasis on waste avoidance, minimisation and recycling, including procedures for evaluating the most appropriate disposal methodologies (incorporating methods to prevent debris entering the marine environment);
- an assessment of the potential to enhance naturally occurring radioactive materials with the transport and concentration of natural gas and the associated waste management and occupational health and safety management issues;
- an energy management plan including plans for maximising energy efficiency, possibilities for co-generation of electricity using coolant water and utilisation of flare gases;
- quantification of annual green house gas emissions (by gas type), including any sinks, over the expected life of the project. The methodology developed by the National Greenhouse Gas Inventory Committee or the methodology used under the Greenhouse Challenge program should be used;
- undertake a comparison of the greenhouse gas efficiency of the project with the efficiency of other (similar) projects to ensure international best practice;
- indicate whether a Greenhouse Challenge agreement either has been entered into, or will be entered into;
- access and security arrangements and management of buffer zones;
- measures to ensure employees and managers understand and act upon their environmental protection obligations;

- measures to manage natural habitats on-site and rehabilitate disturbed areas;
- measures to minimise, rectify or control biting insect populations as a result of operations both on and off site (in accordance with local construction guidelines);
- provisions for continued consultation/liaison with relevant government authorities and community groups and mechanisms for dealing with complaints from the public;
- arrangements for the decommissioning of facilities following cessation of operational activities; and
- monitoring to quantify and rectify any impacts on the environment.

8.2 *Environmental Management Plan*

A draft Environmental Management Plan (EMP) should be provided. The draft EMP should be strategic, describing a framework for environmental management rather than providing specific detailed initiatives. A final EMP would be prepared at the conclusion of the assessment, taking into consideration comments on the draft EIS, the Supplement and incorporating the Assessment Report recommendations. The draft EMP should:

- detail the proposed measures to minimise adverse impacts and the effectiveness of these safeguards (e.g. provide performance indicators by which all anticipated and potential impacts can be measured);
- describe monitoring to allow early detection of adverse impacts;
- describe remedial action for any impacts which are not originally predicted;
- detail how monitoring will be able to determine the differences between predicted and actual impacts; and
- provide for the periodic review of the management plan itself.

Reference should be made to relevant legislation and standards, and proposed arrangements for necessary approvals and permits should be noted. The agencies responsible for implementing and overseeing the management plan should be identified. Proposed reporting procedures in relation to the implementation of the management plan, independent and self-auditing and reporting of accidents should be outlined.

8.3 *Monitoring*

The proposed monitoring programmes, reporting and management arrangements should be detailed. Monitoring programs associated with activities that could significantly impact on the surrounding environment (e.g. land reclamation, dredging, pipeline laying, shipping operations etc.) should be outlined.

Consideration should be given to a baseline biting insect monitoring program over a period of 12 months preceding any initial earthworks due to the expected significant level of biting insects, the sensitivity to disturbance in tidal areas; and the scope for

impounding water as a result of construction and operation of the plant, pipeline and access roads to the facility.

9 PUBLIC INVOLVEMENT AND CONSULTATION

Public involvement and the role of government organisations should be clearly identified. The outcomes of surveys, public meetings and liaison with interested groups should be discussed, and any resulting changes made to the proposal clearly identified. Details of any ongoing liaison should also be discussed.

Negotiations and discussions with local and community government, Territory Government, Commonwealth Government and the ZOCA Joint Authority should be detailed, and any outcomes referenced. Details of any ongoing negotiations and discussion should also be presented.

10 INFORMATION SOURCES AND BIBLIOGRAPHY

The draft EIS should contain a comprehensive reference list. Any source of information such as studies, research, maps and personal communications used in the preparation of the draft EIS should be clearly identified, cited in the text and referenced in the bibliography.

11 GLOSSARY

A glossary should be provided, defining the meaning of technical terms, abbreviations and colloquialisms. (Note: throughout the EIS, technical terms and jargon should be minimised).

12 APPENDICES

Information and data related to the draft EIS but unsuitable for inclusion in the main body of the statement should be included as appendices. This may include detailed analyses, monitoring studies, baseline surveys, raw data and dispersion modeling data. Where necessary, specific guidance should be provided on the most appropriate means of accessing information not appended to the draft EIS.

13 ADMINISTRATION

The Project Officer is Lisa Banks, Environment and Heritage Division, Department of Lands, Planning and Environment. The contact number is (08) 8924 4022 and fax (08) 8924 4053, e-mail lisa.banks@nt.gov.au

“Preliminary” copies of the draft EIS should be lodged with the Environment and Heritage Division of the NT Department of Lands, Planning and Environment and the Environment Assessment Branch of Environment Australia for internal review prior to release for public and advisory body comment.

The number of copies of the draft EIS required for distribution to Territory and Commonwealth advisory bodies will be determined at the review of the ‘preliminary’ draft EIS. The NT will require approximately 20 copies (plus 10 CD rom copies) and the Commonwealth approximately 15 copies. *CD rom copies should be in ADOBE[®] *.pdf format for placement on the internet.* The executive summary should be supplied in HTML 3.2 format with *.jpg graphics files.

Several copies of the draft EIS should also be prepared for distribution to relevant interstate and intrastate Public Libraries for public review. Several copies of the draft EIS should be available for purchase by the public on request. Locations for public review will be determined at the review of the “preliminary ” copies of the draft EIS.