



**GUIDELINES FOR PREPARATION OF A DRAFT
ENVIRONMENTAL IMPACT STATEMENT**

ON THE PROPOSED

**CONDENSATE PROCESSING FACILITY
EAST ARM, DARWIN**

JUNE 2006

Environment Protection Agency Program



Northern Territory Government
Department of Natural Resources, Environment and the Arts

TABLE OF CONTENTS

INTRODUCTION TO THE DRAFT GUIDELINES	3
1 EXECUTIVE SUMMARY	3
2 THE PROPOSAL	4
2.1 GENERAL INFORMATION	4
2.2 DESCRIPTION OF THE PROPOSAL	4
3 ALTERNATIVES	5
4 EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND ENVIRONMENTAL SAFEGUARDS	6
4.1 PRELIMINARY	6
4.2 LANDFORM FEATURES	6
4.2.1 <i>BASELINE</i>	6
4.2.2 <i>IMPACTS</i>	6
4.2.3 <i>MANAGEMENT</i>	7
4.3 VISUAL AMENITY	7
4.4 WATER	7
4.4.1 <i>BASELINE</i>	7
4.4.2 <i>IMPACTS</i>	7
4.4.3 <i>MANAGEMENT</i>	8
4.5 ECOLOGY	8
4.5.1 <i>BASELINE</i>	8
4.5.2 <i>IMPACTS</i>	9
4.5.3 <i>MANAGEMENT</i>	9
4.6 BITING INSECTS	10
4.7 AIR QUALITY	10
4.7.1 <i>BASELINE</i>	10
4.7.2 <i>IMPACTS</i>	11
4.7.3 <i>MANAGEMENT</i>	11
4.8 NOISE	12
4.8.1 <i>IMPACTS</i>	12
4.8.2 <i>MANAGEMENT</i>	12
4.9 WASTE MANAGEMENT	12
4.9.1 <i>IMPACTS</i>	12
4.9.2 <i>IMPACTS AND MANAGEMENT</i>	12
4.10 GREENHOUSE GAS EMISSIONS INVENTORY AND BENCHMARKING .	13
5 SOCIO-ECONOMIC	13
5.1 USE (LAND AND MARINE)	13
5.1.1 <i>BASELINE</i>	13
5.1.2 <i>IMPACT</i>	14
5.1.3 <i>MANAGEMENT</i>	14

5.2	SOCIAL ENVIRONMENT	14
5.3	ECONOMICS	15
5.3.1	<i>BASELINE</i>	15
5.3.2	<i>IMPACTS AND MANAGEMENT</i>	15
5.4	INFRASTRUCTURE AND TRANSPORT	15
5.4.1	<i>BASELINE</i>	15
5.4.2	<i>IMPACT</i>	16
5.4.3	<i>MANAGEMENT</i>	16
5.5	HISTORIC AND CULTURAL HERITAGE VALUES	16
5.5.1	<i>BASELINE</i>	16
5.5.2	<i>IMPACT</i>	17
5.5.3	<i>MANAGEMENT</i>	17
6	PROJECT ENVIRONMENTAL MANAGEMENT	17
6.1	ENVIRONMENTAL MANAGEMENT SYSTEM	17
6.2	RESOURCING AND POLICIES	18
6.3	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	18
6.4	MONITORING AND REPORTING STRATEGIES	19
7	HEALTH AND SAFETY PROGRAM	19
8	RISK ASSESSMENT AND EMERGENCY MANAGEMENT PLANS	20
8.1	RISK ASSESSMENT	20
8.2	EMERGENCY MANAGEMENT PLAN	20
9	PUBLIC INVOLVEMENT AND CONSULTATION	21
10	ADMINISTRATION	22
10.1	NUMBER OF COPIES	22
10.2	ADVERTISING	22
10.3	CONTACT DETAILS	22
11	BIBLIOGRAPHY	23
12	GLOSSARY	23
13	APPENDICES	23

INTRODUCTION TO THE GUIDELINES

These guidelines have been developed to assist Darwin Clean Fuels Pty Ltd in preparing a Environmental Impact Statement (EIS) for the Condensate Processing Facility (CPF) in accordance with Clause 8 of the Environmental Assessment Administrative Procedures of the *Environmental Assessment Act (1982)* of the Northern Territory. The Northern Territory Government has decided that an EIS must be prepared for the proposal.

Environmental Assessment Administrative Procedures of the *Environmental Assessment Act (1994)* of the Northern Territory state that the Minister will specify the following in the Guidelines:

- Matters relating to the environment which the proponent shall deal with;
- timeframe for submitting the report;
- number of copies of the report to be provided to minister/other agencies; and
- newspapers in which and on occasions when the proponent will publish a notice.

This proposal has been referred to the Australian Government for consideration under the *Environment Protection and Biodiversity Conservation Act (EPBC Act)* and was determined to be a controlled action under that legislation.

These guidelines address the environmental issues to be considered in the EIS. If guidance on the structure of the document is required, the proponent should contact the nominated project officer.

The EIS should contain sufficient information to enable understanding and assessment of the scope and environmental implications of the proposal. The EIS should clearly identify the main environmental impacts associated with the development and should contain management strategies to minimise these impacts.

The EIS should adopt a risk management framework approach, such as that described in AS4360:2004, for all aspects of the proposal including identifying, analysing, evaluating, managing, and monitoring environmental risk.

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

The 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 project and each chapter of the 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 EIS as a whole.

2 THE PROPOSAL

2.1 GENERAL INFORMATION

The EIS must provide detail of the proposed condensate processing facility and surrounding environment and detail all aspects of construction and operation phases of the project and their potential impacts on the environment. As a minimum, the EIS should include the following:

- an explanation of the objectives, benefits and justification for the project;
- meteorological data;
- topography;
- surrounding and proposed land uses (including the location of residential properties, communities, industrial development, port facility, road reserves, etc);
- description of relevant NT and Local Government planning schemes; local laws; Territory, Australian Government and International policies, legislation and treaties; and other applicable policies;
- identification of any development approvals or infrastructure proposals likely to be required or affected by the proposal;
- how the action relates to any other actions that have been or are being taken or that have been approved in the region affected by the action;
- ecological information including flora and fauna in both terrestrial and marine environments potentially impacted upon by the proposal;
- availability of services, infrastructure and accessibility; and
- reference to planning issues such as land tenure, zoning, timeframes, potential for additional development and the lifespan of the project.

2.2 DESCRIPTION OF THE PROPOSAL

The EIS should identify all the processes and activities intended for the proposed CPF during the life of the project. When describing complex processes be mindful of the broad range of stakeholders who will be reading the EIS. Descriptions should use terms that can be easily understood by those who do not possess the relevant technical expertise. This section should include details of:

- the size and type of the operation, the nature of the processes, products and by-products, and quantities and production rates of products and by-products;
- proposed layout for all operations including the CPF, storage tanks, pipelines, furnaces and flare, power station, loading facilities, infrastructure to manage stormwater, waste water and sewage and any other project facilities;

- all associated ancillary activities, including material storage areas, access roads, construction camps, etc;
- all equipment, production processes and methods intended for the development. In particular the proposed equipment to be used to unload condensate and load product to tankers and the efficiency of this equipment, i.e. length of time it would take to unload or load a tanker;
- all chemicals, including fuels to be used and the proposed methods for transportation, storage, use and emergency management of these substances;
- project schedule;
- waste generation, storage, emission and disposal;
- employment opportunities at the different stages of the project (construction and operation), likely sources of the workforce and level of skill required;
- transport systems, methods and routes for delivering construction and maintenance materials and other necessary goods and consumables including a general description of requirements for upgrading existing transport routes. Information on the use of and impact on port, road, air and rail networks is required for the construction and operational phases;
- the use and extent of other infrastructure required for the project, including but not limited to gas, telecommunications, water and power. This includes details of water supply, source, treatment and usage for both the construction and operational workforce; and
- monitoring programs, outlining: the aim, design, timeline, baseline data collection, evaluation and review. Baseline data is necessary to provide a sound basis for comparison with future monitoring.

3 ALTERNATIVES

Alternative proposals, which may still allow the objectives of the project to be met, should be discussed, detailing reasons for the selection and rejection of particular options. The selection criteria should be discussed and the advantages and disadvantages of preferred options and alternatives detailed. The potential beneficial and adverse impacts of the alternatives should also be described. The short-, medium- and long-term advantages and disadvantages of the options should also be considered.

Alternatives to be discussed should include:

- not proceeding with the proposal;
- alternative locations of proposal;
- alternative technology, processes and pollution control equipment; and
- alternative environmental management techniques. Include here a discussion of alternatives for disposal, use or sale of off-gas (rather than production of electricity).

4 EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND ENVIRONMENTAL SAFEGUARDS

4.1 PRELIMINARY

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 sites not impacted by the project should be included in proposed studies, and long-term monitoring locations should be established.

This section of the EIS should include an in-depth description of the areas with the potential to be impacted by the project (or any feasible alternatives) and should clearly identify, qualify and quantify, where appropriate, those potential environmental impacts. The section should also include an assessment of the level of significance of the impacts taking into account the following factors:

- the nature and intensity of impacts (magnitude, duration, frequency and extent);
- the degree of mitigation and management possible;
- the degree of public interest;
- the reliability and validity of forecasts and predictions; and
- the resilience of the biophysical and social receiving environment to cope with change.

Cumulative impacts should also be discussed including the extent to which the environment is already affected by existing developments. Environmental Management Plans (EMPs) will need to be developed in order to minimise and manage impacts associated with the project and should be outlined in the EIS.

4.2 LANDFORM FEATURES

4.2.1 BASELINE

- Provide maps of and interpret the regional topography.
- Provide maps of and interpret the regional geology.
- Provide maps of and interpret the regional geomorphology, including the coastline.
- Discuss the soil types and land unit(s) as well as the potential and actual acid sulfate soils in areas likely to be affected by the proposal.
- Detail the existing level of soil erosion and other disturbances.

4.2.2 IMPACTS

- Detail the extent and implications of possible impacts to landform features/sites from construction of all project components.

- Provide details of limiting properties of soil and substrate types and land units at the site of the facility relating to erosion, rehabilitation, acid generation, land stability, building/construction or specific management requirements. Include a discussion on the facility and infrastructure design in relation to the inherent nature of mangrove muds and the limitation they afford in their low load bearing nature. Include a discussion on the impacts associated with the removal of mangroves in relation to this issue.
- Outline the potential for acid generation in all areas where disturbance will take place.

4.2.3 MANAGEMENT

- Discuss measures taken to avoid or minimise the impacts identified in 4.2.2.
- Provide management plans detailing measures to manage potential environmental impacts arising from landform limitations previously discussed.
- Discuss and detail management and disposal of any excavated acid sulphate soils.
- Describe measures that will be taken to minimise the amount of sediment leaving the site and entering the mangrove environment and waterways.

4.3 VISUAL AMENITY

- Discuss the impacts to visual amenity of the infrastructure associated with the CPF on various nearby localities, which include Darwin City and Mandora. Include a discussion of the options for the flare design.

4.4 WATER

4.4.1 BASELINE

- Describe local and regional tides, current patterns and typical wave magnitudes.
- Provide a general description of the surface water systems and their hydrology that may be impacted by the CPF including stormwater systems; natural and artificial catchment systems, drainage lines, wetlands and waterways; and the directions of overland flows.
- Describe the ground water systems that may be intercepted or potentially impacted by construction of the CPF.

4.4.2 IMPACTS

- Provide information on construction techniques and design for the CPF and the potential impacts on surface and groundwater from construction and installation.
- Discuss the changes in hydrology associated with development of the sites and discuss the impacts on the marine environment associated with these changes.

- Discuss the potential for contamination of surface water due to operational activities conducted at the CPF. Include a discussion of the associated impacts on the the intertidal and marine environment.
- Discuss the potential for groundwater contamination from storage tanks and operational activities conducted at the CPF. Include a discussion of the consequences for mangroves and the marine environment should groundwater contamination occur from the operation of the CPF.
- Detail the options for the source and management of water for hydrostatic testing and any other construction/ operational water use, together with plans for its disposal after use.
- Discuss the potential for peak storm events to effect marine habitats.
- Discuss the effects of climate change and rising sea levels on the area and the proposed development.

4.4.3 *MANAGEMENT*

- Discuss measures to safeguard surface and ground water quality from contamination.
- Describe measures to address potential impacts arising from extraction and dewatering of groundwater (if this is to be a requirement of construction).

4.5 **ECOLOGY**

4.5.1 *BASELINE*

- Describe and map floral and faunal species and biological communities (marine, estuarine and terrestrial) including those of local, regional or national significance, which could be affected by the project. If biological assessment systems exist to deliver relative statements of ecological conditions (such as the AUSRIVAS system) these systems or standard methods should be used. Significant vegetation includes:
 - rare, threatened, endangered and regionally restricted species, vegetation types or habitats;
 - communities that are particularly good examples of their type;
 - vegetation types which are outside their normal distribution or have other biogeographical significance;
 - ecologically outstanding areas which have importance beyond the immediate site, e.g. wetlands, riparian forests, etc; and
 - vegetation which is the habitat of rare and threatened fauna or has outstanding diversity.
- Flora and fauna should be surveyed and described, taking into account seasonality, with rare, threatened, endangered and listed migratory species identified against relevant Territory and Commonwealth legislation. Species with Indigenous conservation values should also be described.

- Museum & Art Gallery of the NT should be consulted when compiling all fauna lists of the Darwin Harbour region (including threatened species).
- Include survey methodologies in the Appendices.
- All surveys must include baseline sampling.
- Discuss the value of existing terrestrial woodland and mangrove communities on site to local fauna, e.g. as habitat, food source, breeding, dispersal corridor.
- Provide an assessment of statutory obligations under NT legislation (S75A Planning Act 2005) for permits to clear native vegetation and appropriate timelines to allow for application assessment and approvals.

4.5.2 *IMPACTS*

- Specify the extent of each vegetation community that will be cleared.
- Identify pest species/noxious weeds that are likely to occur as a result of activities within the project footprint.
- Discuss the impact of the proposal on species, communities and habitats, including those of local, regional or national significance as described in 4.5.1.
- An assessment should be made of the nature and extent of the likely short term and long term impacts, including whether impacts are likely to be unknown, unpredictable or irreversible. The assessment should indicate the significance of these impacts. Impacts discussed should include (but not be limited to):
 - the effects of accidental discharge of pollutants to the marine environment, such as condensate or hydrocarbon spills and the ongoing impacts from hydrocarbon degradation products on: mangrove forests and impacts on the vertebrate and invertebrate fauna dependent upon those forests and aquatic fauna. Include invertebrate fauna, corals, fish, amphibians, reptiles and mammals as well as species that are important indigenous foods;
 - the long and short term impacts associated with the proposed clearing of remnant vegetation (mangroves and terrestrial woodland) on terrestrial and marine fauna, hydrology, marine water quality and coastline stability;
 - the impacts from increased marine traffic in terms of potential introduction of exotic species;
 - the impact from increased marine traffic on marine fauna; and
 - the impacts of night lighting on fauna in adjacent mangroves.

4.5.3 *MANAGEMENT*

- Discuss ways in which impacts on species, communities and habitats can be minimised.
- Explore options for site design and layout to reduce amount of vegetation cleared or disturbed.

- Describe the methods for rehabilitating disturbed areas following construction, including revegetation strategies, surface stabilities and aquatic monitoring programs.
- Discuss the method of managing and minimising the introduction of marine pests, feral animals, and other exotic flora and fauna species.

4.6 BITING INSECTS

- Provide a biting insect management plan that:
 - outlines the existing biting insect problem at the proposed development site and the likely sources of these biting insects;
 - the potential for mosquito borne disease transmission at the proposed development site;
 - the potential for the introduction of exotic dengue carrying mosquito species;
 - measures to rectify any existing actual or potential mosquito breeding sites at the proposed development site;
 - measures that will be implemented to prevent the development from creating new mosquito breeding sites; and
 - management measures to reduce the impact of biting insects on the workforce.
- In developing the management plan, address the relevant issues outlined in the Medical Entomology Branch guidelines for prevention and management of biting insect problems – *Construction practice near tidal areas in the Northern Territory – Guidelines to prevent mosquito breeding* and *Guidelines for preventing biting insect problems for urban residential developments or subdivisions in the Top End of the Northern Territory* and *Personal Protection from Mosquitoes and Biting Midges in the Northern Territory*.

4.7 AIR QUALITY

4.7.1 BASELINE

- Baseline monitoring of significant pollutant species expected to be emitted by the CPF must be undertaken for representative periods of both wet and dry seasons prior to operation of the plant.
- Discuss considerations in the proposed design to minimise air emissions and compare with alternative designs available that may further reduce emissions.
- Outline reasons for deciding on the proposed design over other less polluting designs.
- Describe quality and characteristics of feedstock in terms of odour potential.
- Discuss options for disposal or use of offgas if the proposal to generate and sell electricity does not come to fruition.

4.7.2 *IMPACTS*

- Describe atmospheric conditions impacting on the operation in modelled hotspots.
- Determine and quantify all air emissions that will be produced by the current proposal, including:
 - an estimate of total annual quantities that will be emitted under the current design;
 - emission rates and total emissions from each of the stacks; and
 - an estimate of fugitive emissions.
- Atmospheric dispersion modelling must be undertaken, using a professionally recognised and applicable model, of major substances identified in 4.7.1. At a minimum, concentrations of H₂S and SO₂ must be modelled. Modelling should take into account the cumulative impacts of this proposal along with the current 3.7 MTPA and future 10 MTPA Wickham Point LNG Plant, Channel Island Power Station, the proposed Biodiesel Plants and diffuse sources. The modelling should also include emissions associated with the range of feedstocks identified.
- Develop an ambient air quality monitoring program to monitor ground level impacts of significant air pollutant emissions and heat plumes. Discuss with neighbouring industry the feasibility of coordinating monitoring programs.
- Develop a stack monitoring program to determine the ongoing performance for each of the stacks and operation of equipment to build specifications.
- Assess and discuss the impacts on the community, nearby businesses and the environment from dispersion of emissions from the CPF, particularly H₂S and SO₂. Include the risks of a failure of critical pollution control equipment and possible outcomes.
- Discuss the impacts of CPF emissions on the Darwin airshed, particularly during inversion events.
- Identify and quantify any potential impacts to navigational airspace from the flare and develop appropriate measures for mitigation.
- Identify expected odour generating activities and the potential impacts of odour on surrounding businesses and community.

4.7.3 *MANAGEMENT*

- Outline dust suppression initiatives. Discuss and recommend dust suppression strategies and monitoring of dust impacts.
- Outline the measures that will be employed for preventing, monitoring and managing fugitive air pollutant emissions during operation.
- Discuss strategies for minimising odour and assess the effectiveness of these.
- Describe effectiveness of the flare design to fully combust off-gas and discuss and assess alternative designs and alternative methods for emission disposal.
- Discuss all options for reducing emissions. Outline what emission capturing devices are available for each emission produced and an economic, social and

environmental feasibility of installing or not installing these devices. Include the reduction in emissions possible by the use of best practice technology. Assess the effectiveness of the available technology in minimising air emissions.

- Discuss the applicability of a vapour recovery unit at the loading gantry, in light of the European Directive number 94/63/EC.
- Discuss the use of shore based power to reduce emissions of ships while berthing.
- Acknowledge the requirement for mandatory reporting to the National Pollutant Inventory of substances emitted by the CPF and the future requirement to report greenhouse gas emissions.

4.8 NOISE

4.8.1 IMPACTS

- Determine expected noise generating activities and machinery. Assess impacts from the noise generated during construction and operation and ancillary activities against current typical background levels. Anticipated noise levels, their timing and duration, should be considered in conjunction with the sensitivity of the receptor.

4.8.2 MANAGEMENT

- Discuss measures that will be used to minimise the impacts of noise from activities and machinery outlined in 4.8.1.

4.9 WASTE MANAGEMENT

4.9.1 IMPACTS

- Describe all activities, including chemical and mechanical processes, to be conducted on the site during both construction and operation stages (e.g. chemical storage, sewage treatment, processing of wastewater, power generation, fuel burning, mechanical workshop, diesel storage).
- Identify and describe (quantify and characterise) all waste produced on site and their sources associated with construction, operation and decommissioning of all components of the proposal. Include hazardous wastes.
- Identify and discuss activities likely to give rise to an environmental nuisance as defined under the *Waste Management and Pollution Control Act*.

4.9.2 IMPACTS AND MANAGEMENT

- Discuss waste management strategies for all wastes produced on site as outlined in 4.9.1. Discuss how avoidance of waste generation, reduction, reuse and recycling

of wastes can be initiated and managed. Outline procedures for storage, transport and disposal of waste, site drainage and erosion control.

- Outline all government approvals and agreements required and obtained for all waste disposal and management matters.
- Discuss the treatment and disposal of effluent water from the processing plant. Include in the discussion the intended disposal of wastes associated with treatment of the process water and the potential impacts of any effluent water released into the environment. Assess the feasibility of re-use of treated wastewater within the facility.
- If dewatering of sludges prior to transportation is to take place, outline scenarios which detail how and where this could occur, how it could be managed and possible disposal options for contaminated water.
- Outline plans for wastewater treatment and disposal. Discuss possible impacts from irrigation of wastewater and how these impacts can be avoided and managed.
- Outline how contaminated soils will be managed. If land farming of the soils is to take place, provide plans showing location and design of the landfarm and include procedures for managing each contaminant. Also outline controls that will be put in place to prevent contaminants from leaving the site and/or entering mangroves and marine waters.
- Detail hazardous materials likely to be stored and/or used on site; provide their Material Safety Data Sheets and environmental toxicity data and biodegradability for raw materials and final products.
- If tank cleaning or gas freeing is to be carried out at the port, provide advice on the reception facilities available for receiving tanker washings (in compliance with MARPOL).
- Outline procedures for addressing and reporting of environmental nuisance incidents as discussed under 4.9.1.

4.10 GREENHOUSE GAS EMISSIONS INVENTORY AND BENCHMARKING

Refer to Appendix 1 NT Environmental Impact Assessment Guide – Greenhouse Gas Emissions.

5 SOCIO-ECONOMIC

5.1 USE (LAND AND MARINE)

5.1.1 BASELINE

- Discuss the distances from the city and residential areas, recreation areas, the airport and other facilities, and the locations of pipelines, power lines, telephone lines and other infrastructure.

- Describe existing surrounding land uses (including the passenger terminal) and, where possible, future proposed development within the locality.
- Discuss the existing cultural, recreational and commercial use of the marine environment in the vicinity of the proposed CPF.
- Provide a comparison of the economical, social and environmental benefits of electricity production using off-gas to electricity produced by other means, i.e. natural gas, renewable sources. This comparison should include a whole of lifecycle analysis.

5.1.2 *IMPACT*

- Describe, including timeframes, the anticipated and potential site specific and cumulative impacts on existing and potential uses and developments (as described in 5.1.1) during the construction and operation phases. Include a discussion of the potential issues and impacts associated with the flare and Darwin Airport flight paths. The proponent is required to consult with responsible authorities for policies on such disturbances.
- Discuss the potential impact in terms of hazard and offsite impacts on surrounding landuses, specifically the passenger terminal.

5.1.3 *MANAGEMENT*

- Outline measures to minimise the impacts to current and future uses of land and water in the project area.
- Provide details on measures to rehabilitate areas disturbed by construction of the project.
- Outline consultation processes to be undertaken with key stakeholders, including the airport, emergency services and the railway. Provide a comprehensive list of stakeholders.

5.2 **SOCIAL ENVIRONMENT**

- Identify opportunities for training and employment during construction of the facility (e.g. employment, monitoring and maintenance contracts) and how this will be structured, managed and implemented.
- Identify opportunities for local industry and indigenous workforce participation in the construction and operation of the facility. Include mechanisms to inform local business community and industry of these opportunities.
- Estimate local employment including a breakdown of skills/trades required and specific opportunities for skills development.
- Outline possible future benefits for the community following construction.

5.3 ECONOMICS

5.3.1 BASELINE

- Detail local, regional, state and national economic viability (including economic base and economic activity, future economic opportunities and contribution to the development of the Northern Territory economy).

5.3.2 IMPACTS AND MANAGEMENT

- Present a balanced and broad summary of the project's impact on the regional, Territory and national economies in terms of direct and indirect effects on employment, income and production.
- Specify any disturbance to existing land use or threat to the surrounding environment such as the harbour, coastline and mangroves, which may impact on commercial activities and potentially impact adversely on employment.
- Outline opportunities for this facility to contribute to Indigenous economic development and the wider regional development in the surrounding region.

5.4 INFRASTRUCTURE AND TRANSPORT

5.4.1 BASELINE

- Provide a plan detailing existing transport networks (including road, air and ports), telecommunications (optical fibre routes), gas and electricity infrastructure, and water supply and wastewater utilities. Include detail to differentiate between types of infrastructure, e.g. road type, dual carriage way/single lane bitumen/gravel.
- Provide locations of new roads or tracks, lay down storage areas, turning circles, approach diversion lanes, etc.
- Identify constraints with existing infrastructure and transport networks (e.g. access to and adequacy of existing water, sewage and electricity infrastructure).
- Provide details of new infrastructure that will be required for the project, including any requirements to upgrade existing infrastructure. In particular, provide details of services required for the facility.
- Provide clarification of the total vessel displacement of the vessels proposed to operate to and from East Arm Wharf. East Arm Wharf has been designed for vessels with a 70,000 deadweight or a total vessel displacement of 85,000 tonnes with maximum approach speed of 0.11 m/s and quarter point berthing.
- Provide details of approvals and agreements obtained by the relevant government bodies regarding the following infrastructure requirements:
 - trade waste disposal
 - water
 - sewage

- road access
- Discuss lighting plans and measures that will be taken to avoid interference with safe navigation of Darwin Harbour.

5.4.2 *IMPACT*

- Describe the potential impacts of the proposal on existing and future local infrastructure and transport networks during construction and operation. This should include:
 - details of type, size and number of vehicles required during all phases of the proposal and the estimated volumes, tonnage, composition, origin and destination of traffic generated by the proposal;
 - estimated times of travel and additional road infrastructure works required including site access and signage;
 - details of increased loads on existing water, sewage and electricity infrastructure, road usage, road access and shipping generated by the project.
- Discuss the potential impacts of transport operations on public amenity associated with construction and operation (noise, dust, light).

5.4.3 *MANAGEMENT*

- Provide details of any private service infrastructure and how this will be constructed and maintained (i.e. water and sewage).
- Outline proposed management of stormwater runoff both during and after construction.
- Describe the management of impacts on the road system and other existing infrastructure, including proposed corrective measures (in consultation with relevant regulatory agencies) and relevant guidelines used for construction, and operational and maintenance phases. Include measures to upgrade, maintain and restore gazetted or nominated roads and access tracks, and to undertake pipeline crossings of tracks.
- Outline requirements and responsibilities for rehabilitation or maintenance of roads and other project infrastructure upon project completion.

5.5 **HISTORIC AND CULTURAL HERITAGE VALUES**

5.5.1 *BASELINE*

- Commission an archaeological survey of the uncleared areas of section 5633. Heritage Conservation Services should be contacted to discuss this on telephone 8924 4141.
- Provide evidence that an Aboriginal Areas Protection Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act* has been obtained.

5.5.2 *IMPACT*

- Describe the potential impacts on features of cultural significance.
- The identification of indigenous cultural heritage impacts is to take place in consultation with relevant indigenous groups.

5.5.3 *MANAGEMENT*

- A Heritage Survey should be undertaken and a management plan developed for the uncleared areas of Section 5633. The plan should outline mitigative procedures and management options where appropriate. The recommendations outlined in the survey should encourage ongoing protection and management of historical and archaeological values.

6 PROJECT ENVIRONMENTAL MANAGEMENT

Specific safeguards and controls, which would be employed to minimise or remedy environmental impacts, are to be outlined. These are to be covered in detail in the Environmental Management Plans (EMP's).

6.1 ENVIRONMENTAL MANAGEMENT SYSTEM

- An Environmental Management System (EMS) should be developed for the project. The EMS should incorporate all facilities and operations associated with the project to an accepted standard commensurate with the risk of environmental harm. Accepted EMS standards are specified in:
- AS/NZS ISO 14000 – Environmental Management System, Guidelines on Principles;
- AS/NZS ISO 14001 – Environmental Management System, Specifications with guidance for Use;
- BS 7750 – Specifications for Environmental Management Systems; and
- The APPEA code of Environmental Practice;
- The EMS should include an annual program with the objective of verification of compliance with all environmental performance commitments, including permits and licences. The EMP required as part of this EIS should describe a commitment to develop an EMS to one of the above specifications.
- Discuss the potential use of an Integrated EMS incorporating EMP's, monitoring and reporting arrangements, or equivalent site-based management plans that would assist the determination of appropriate approval conditions for the project.
- The proponent should ensure consistency between their EMS and any overarching environmental management documents relating to the area.

6.2 RESOURCING AND POLICIES

Information is to be provided on strategic matters relating to environmental management and should include:

- staffing and resourcing arrangements to ensure that the measures described in the report will be carried out effectively;
- procedures and instructions to employees on minimising unnecessary environmental impacts;
- a staff induction and education program to ensure an informed response to construction and operational environmental concerns; and
- development of staff behavioural guidelines and cross-cultural awareness training.

6.3 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

A draft Environmental Management Plan (EMP) should be provided. The draft EMP should be strategic, describing a framework for environmental management. Where possible specific management policies, practices and procedures should be included in the draft EMP. A final EMP would be prepared at the conclusion of the assessment, taking into consideration comments on the EIS and incorporating the Assessment Report recommendations.

The draft EMP should:

- Define the management structure of both the construction and operational phases and the relationship to the environmental management of the site;
- Describe 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 that were not originally predicted;
- Detail how monitoring will be able to determine the differences between predicted and actual impacts;
- Include a summary table listing undertakings and commitments made in the EIS, including performance indicators, with cross-references to the text of the report; 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 on the implementation of the management plan, independent auditing or self auditing and reporting of accidents and incidents should also be described.

6.4 MONITORING AND REPORTING STRATEGIES

Specific programs of monitoring or measuring the success of the project's environmental management are to be outlined. These should be covered in greater detail in the EMP:

- details of inspections to be undertaken to ensure integrity of storage tanks, pipeline; and
- objectives to address environment and safety issues, emergency procedures, staff training, auditing and reporting.

Performance requirements should be specified quantitatively, including performance indicators for each aspect to be measured, and the stipulated target level or standard to achieve for each indicator. The timing and frequency of monitoring should also be provided. Monitoring programs should:

- ensure safeguards are being effectively applied;
- be capable of identifying any differences between predicted and actual impacts;
- identify the party responsible for undertaking corrective actions, and the actions taken to address problems; and
- be based on environmental management commitments and objectives and adequate baseline monitoring prior to the project to allow assessment of environmental changes.

The reporting program should detail:

- steps to be taken to correct any detrimental effects identified by monitoring;
- procedures for reporting on monitoring programs; and
- proposed recipients of reports.

7 HEALTH AND SAFETY PROGRAM

Health and Safety issues pertaining to the design, construction and operational phases of the project and the transport of construction materials must be investigated. Safety management systems should include hazard identification, control and periodic assessment. Systematic approaches should be developed for all site risks as they are for environmental risks. Some additional matters to be discussed include:

- a mooring analysis of vessels to ensure that they are suitable for East Arm Wharf and its particular environmental conditions. This would include provision of brake holding capacity certificate for mooring winches and certificates for mooring lines and tails verified by Darwin Port Corporation;
- issues relating to provision of emergency first aid treatment and transport of sick or injured persons to the nearest appropriate medical facility; and
- strategies and procedures in the event of an emergency.

8 RISK ASSESSMENT AND EMERGENCY MANAGEMENT PLANS

8.1 RISK ASSESSMENT

- The Proponent shall carry out a Risk Assessment in accordance with AS1940. *The Storage and Handling of Flammable and Combustible Liquids* and the guidelines of the responsible authority, where relevant.
- While the EIS must deal comprehensively with on-site risks, it is suggested that external risks to the project also be considered. It is suggested that external risks from natural hazards be determined on the basis of AS/NZS Risk Management Standard 4360:1999.
- The risk management process should consider current trends in data to develop worst case scenarios to avoid an underestimate of potential issues.
- The study should discuss all potential risks associated with operation of the CPF. Include all risks associated with loading and unloading product at the port and incidents associated with transportation by sea or road. Where possible, describe these risks in quantitative terms. The risk of a spill to the marine environment should be assessed in detail.
- An indication is required of the likelihood of possible abnormal events that may occur in operation, together with the safeguards that will be employed to reduce the likelihood of their incidence.
- The vulnerability of the processing facilities and associated infrastructure to cyclonic conditions and flooding should be discussed. Evolving data on cyclonic activities and worst case storm surge should be considered.
- Details are to be provided of the safeguards that will be employed or installed to reduce the risk of injury to persons, fauna and environmentally sensitive areas.
- An exhaustive review of potential hazards and accident risk during the construction, operation and decommissioning phases should be provided.

8.2 EMERGENCY MANAGEMENT PLAN

An outline of the proposed emergency management procedures, including fire fighting, blast buffers and the accidental release/spill of gas or other materials is to be provided.

Precautionary measures in place to reduce the probability of a spill during transportation (by sea and by road) as well as during loading and unloading of product and feedstock. In relation to an accidental spill the information should include:

- strategies that will be undertaken to prevent a spill;
- spill and leakage detection systems in place;
- the quantity of materials that would be lost;
- the area affected by the feedstock or product, under a range of likely flow conditions, including no flow up to a “typical” flood flow;

- the approximate time scale for removal of the feedstock or product by natural processes;
- strategies that would be taken to reduce harm to the environment; and
- procedures in place in the event of a spill on the deck of a tanker.

In relation to fire fighting:

Discuss the water requirements and availability in the event of a fire. There is currently one water line to the port that supplies drinking water, etc. and charges the fire fighting systems. Discuss any plans for a backup water supply system.

The following must also be considered:

- contingency plans and procedures to deal with hydrocarbon (e.g. diesel, lubricating oils) oil spills during construction and operation of the CPF. Include reference to the NT Oil Spill Contingency Plan and any prior agreements with emergency service providers, e.g. MOU required between the proponent and Port of Darwin for use of tractor tugs;
- contingency plans to account for natural disasters such as cyclones, storms, floods and fires during the construction and operation of the CPF – include cyclone warning procedures;
- ensure that development of emergency planning and response procedures are determined in consultation with regional emergency service providers;
- include the relevant Commonwealth and Territory agencies in relation to emergency medical response and transport and first aid matters; and
- relevant contacts in the event of an incident or emergency situation and reporting procedures. Include a discussion of requirements under the *Waste Management and Pollution Control Act 2003*.

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 the community, local and Territory Government and the Australian Government should be detailed and any outcomes referenced. Details of any ongoing negotiations and discussion with government agencies should also be presented.

10 ADMINISTRATION

10.1 NUMBER OF COPIES

The following should be provided:

- 16 hard copies and 5 CD copies of the EIS to EPA;
- 8 hard copies and 5 CD copies of Appendices (if separate to main document) to EPA;
- 1 electronic ADOBE*.pdf format EIS & Appendices to EPA (please save chapters into separate files for placement on the DNRETA Internet site – large files can be difficult to download);
- 1 unsecured Microsoft Word copy to the EPA to facilitate production of the Assessment Report and Recommendations;
- 3 full hard copies of the EIS to the Australian Government Department of the Environment and Heritage.

In addition, the proponent will be required to distribute copies of the EIS to public viewing locations (e.g. libraries, council offices, etc.). Additionally, the EIS is to be provided to the:

- NT Environment Centre
- Northern Land Council

The proponent should also consider producing at least several copies for direct sale to the public, on request.

10.2 ADVERTISING

The EIS is to be advertised locally in the *The Northern Territory News* and in a nationally circulated newspaper.

10.3 CONTACT DETAILS

The contact officer for the environmental impact assessment for this project is Carolyn Donnelly who may be contacted on telephone number (08) 8924 4553, or by email carolyn.donnelly@nt.gov.au.

11 BIBLIOGRAPHY

The Draft EIS should contain a comprehensive reference list/bibliography. 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.

12 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).

13 APPENDICES

Information and data related to the EIS but unsuitable for inclusion in the main body of the statement (e.g. because of its level of technical detail) should be included as appendices. This may include detailed analyses, monitoring studies, baseline surveys, raw data and modelling data. Where necessary, specific guidance should be provided on the most appropriate means of accessing information not appended to the EIS.