

**TERMS OF REFERENCE FOR THE PREPARATION OF AN
ENVIRONMENTAL IMPACT STATEMENT**

**PROJECT SEA DRAGON
CORE BREEDING CENTRE AND BROODSTOCK
MATURATION CENTRE
BYNOE HARBOUR**

PROJECT SEA DRAGON PTY LTD

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1 Introduction

Project Sea Dragon Pty Ltd (referred to hereafter as the Proponent) is proposing to establish a core breeding centre and broodstock maturation centre at Point Ceylon in Bynoe Harbour (the Project), approximately 120 km by road from Darwin, Northern Territory.

The Project is one component of three proposed in the NT for the larger Project Sea Dragon, which also includes:

- a hatchery proposed to be located near Darwin. The hatchery would be considered under the *Environmental Assessment Act* (EA Act) through a separate Notice of Intent (NOI)
- the Stage 1 Legume Grow-out Facility proposed for Legume Station, which is being assessed separately under the EA Act at the level of an environmental impact statement (EIS).

The Project is located on vacant unregistered crown land Portion 3192 at Point Ceylon, on the southern side of Bynoe Harbour.

The core breeding centre is to be used for the development, production and selection of high performing prawn stock. The top performing individual prawns would be transferred to the broodstock maturation centre to produce commercial numbers of broodstock for use in the hatchery. The Project is proposed to be staged but will be assessed at full scale.

The total development footprint for the centres and common facilities at full scale, including seawater intake pipeline and discharge channels, will be approximately 132 ha. Infrastructure will be scaled up over time to support increased demand.

Seawater for the farm would be piped from an intake in the deeper channel of Bynoe Harbour approximately 2 km through several 600 mm high density polyethylene pipes to Point Ceylon. The pipeline has been designed to avoid the adjacent Paspaley pearling oyster leases and would be anchored to the seabed to maintain its alignment. Seawater would be stored in onshore settling ponds sized to accommodate at least 5 days' supply for normal site operations. At full scale, the expected maximum daily seawater intake volume for both the breeding and maturation centres would be 11 000 m³.

The initial discharge for Stage 1 would be approximately 2200 m³/day with the full-scale project flow equivalent to the intake volume of 11 000 m³/day (approximately four gigalitres per annum). Saline waste water from the centres is proposed to be pumped to settling ponds and then discharged via a channel/pipe to a tidal pond with a rubble weir constructed adjacent to Wheatley Creek.

Fresh water for operational use and for potable supplies may be sourced through a combination of rainwater catchment, desalination plant(s) onsite and groundwater if groundwater capacity is found to be viable.

Construction of an access road into the site would be necessary with two options proposed. The preferred option is a road that runs north-south from Fog Bay Road and the alternative option is a road running east-west from Dundee Road. Both options provide public access, terminating at the Project site administration area.

Workforce requirements for the Project are estimated to be 27 personnel at Stage 1 and 45 at full scale, with a mix of skills and expertise.

The full-scale Project is proposed to operate for at least 25 years to support the Proponent's hatchery and grow-out facilities.

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The Proponent submitted the NOI for the Project to the Northern Territory Environment Protection Authority (NT EPA) on 19 February 2016 for consideration under the EA Act.

On 19 August 2016, following a number of further information requests, the NT EPA decided that the Project required assessment under the EA Act at the level of an EIS. The NT EPA decision was based on the following issues:

- potential impacts from the discharge of waste from the prawn farming activities into receiving waters considered to be of high environmental value
- the significant management requirements for solid and liquid waste and the potential detrimental effects of inappropriate management practices
- potential impacts and risks associated with securing an adequate fresh water supply for the site
- public interest.

Terms of Reference have been developed to assist the Proponent in preparing an EIS for the Project in accordance with clause 8 of the Environmental Assessment Administrative Procedures. The Terms of Reference focus on the specific issues identified above. Other risks identified in the NOI were not considered to be significant and can be dealt with through the Proponent's management plans. The EIS should describe the Project and existing environment in sufficient detail to put those risks into context for the reader.

2 Description of the proposed action

2.1 General information

The EIS should identify all the processes and activities intended for the Project and associated ancillary activities, during the life of the Project. The EIS should provide a brief background and context to the Project, including:

- the title of the Project
- the full name, contact details and postal address of the Proponent
- the current status of the Project
- the location of the Project in the region and its proximity to:
 - landmark features
 - sites of cultural significance
 - sites of social significance
 - regional community centres
 - public access/boat ramps to waterways in Bynoe Harbour
 - tourism sites in Bynoe Harbour (e.g. Crab Claw Island Resort, The Lodge of Dundee)
 - pearling oyster leases
 - areas on the National Reserve System

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- sensitive environments, such as major waterways, significant groundwater resources, significant natural features and conservation reserves
- the location of all infrastructure (both existing and proposed) relating to any aspect of the construction, operation and decommissioning/rehabilitation of the action
- the background to the development of the Project, including discussion of previous or other environmental impact assessment
- how the Project relates to any other proposals or actions, of which the Proponent should reasonably be aware, that have been or are being taken, or that have been approved in the region
- lease requirements, land tenure, acquisition requirements (permits, rezoning and Native Title), and the tenures under which the Project would be held, including details of relevant legislative processes required to grant proposed tenure
- identification of areas proposed for future expansion, or any other potential future activities being planned
- National, State and/or Territory standards, codes of practice and guidelines relevant to the Project.

2.2 Project components

The EIS should provide an overview of the construction, operation and decommissioning/closure phases of the proposed action and describe relevant activities at each phase. Aspects to be covered include, but are not limited to:

- a detailed schedule or timetable of all relevant aspects of the Project
- delineation of the Project footprint using detailed maps and diagrams. Include:
 - all areas to be permanently cleared/disturbed, including for power supply infrastructure
 - the major components of the Project:
 - core breeding centre modules
 - broodstock maturation modules
 - settlement and water treatment ponds/tanks
 - water storage
 - seawater intake and discharge channels/pipelines and pumps
 - tidal weir and discharge point
 - freshwater supply infrastructure (including desalination plant if required)
 - sewerage
 - waste management infrastructure
 - buildings, roads (including access road into the site) and hardstand areas

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- power supply infrastructure. Consideration should be given to power supply in the context of desalination as the primary freshwater supply source
- communication infrastructure
- borrow pits.

2.2.1 Construction phase

The EIS should describe the traffic management requirements, including:

- operating times and scheduling
- vehicle types, numbers and frequency
- the estimated volumes and proposed routes of traffic generated by the proposal
- traffic flow management, including site access and signage.

The EIS should provide design and engineering details of all ponds and water storage structures including:

- dimensions
- construction materials, including liners
- alignment
- batter slope design
- water intake
- outflows and overflows
- pumping and transfer systems.

The EIS should provide design and engineering details of the tidal weir and discharge point including whether discharge will be managed actively or passively with tidal changes with consideration of extreme weather events in the design and operation.

The EIS should provide details on how electricity will be distributed to the CBC and BMC - via overhead or underground powerlines and any ongoing maintenance.

Preferred design criteria for major components of the facility should be described including the limitations imposed by site characteristics, and consideration of climate change and extreme weather events in the design.

Methods for the storage, handling, containment and emergency management of chemicals and other hazardous substances (including fuel) should be described.

Outline the construction workforce requirements, including expected numbers, sources, accommodation requirements, services required and transport arrangements.

2.2.2 Production process and operation

The EIS should describe all aspects of production at the breeding and maturation centres, including:

- species to be cultured and sources of founder stock
- information on culturing and selection of broodstock

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- disease risks, hygiene, biosecurity and quarantine requirements
- type and quantities of antibiotic, anti-parasitic and anti-fouling agents that may be utilised by the project
- types and sources of stock food
- feeding and stocking rates
- key steps and techniques involved in the breeding and maturation centres
- material inputs and outputs (water, feed/waste etc.) of the breeding and maturation system
- ongoing management and maintenance requirements.

The EIS should provide details of the predicted operational workforce requirements, including:

- the number of people to be employed, skills base required, and likely sources (local, regional, overseas)
- the number of people that may be employed to manage or undertake environmental duties on the site, including the specific qualifications and the level of experience with related activities
- the arrangements for transport of workers to and from the Project site
- worker/staff accommodation and services (water, sewage, communication, power, recreation).

The EIS should provide information on the quantity, quality, source (groundwater, surface water and/or desalination), storage, and infrastructure requirements for water use for the Project, considering:

- requirements of breeding and maturation centres
- intake sea water treatment
- waste water treatment
- dust suppression
- drinking water
- ablutions and sewage treatment.

The EIS should describe the details of proposed water extraction and rainwater harvest, including treatment, storage, reuse and disposal options. Anticipated extraction rates, volumes and usage of water should be provided, where relevant.

The EIS should provide relevant information in respect of operational aspects of the road network and transport requirements, including:

- ongoing provisions for road maintenance, including source and extraction of materials and maintenance schedules
- type, size and number of vehicles required
- estimated frequency and times of Project vehicle use on public infrastructure

- routes for operational transport.

2.2.3 Decommissioning and rehabilitation

The EIS should discuss the expected life of the Project and plan for decommissioning and closure, including unexpected closure. At a minimum, the EIS should:

- identify options for decommissioning of all components of the Project and rehabilitation of the site
- discuss relevant aspects of closure planning and decommissioning such as waste management, pollution control, land stabilisation, erosion and sediment control, revegetation and avoidance of breeding habitat creation for biting insects
- propose environmental objectives and completion criteria against which the progress of decommissioning and rehabilitation can be measured.

2.3 Approvals, conditions and agreements

The EIS must provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the Project, including, but not limited to:

- a description of any approvals that will be required from State, Territory or Commonwealth agencies and/or authorities
- a summary of current agreements between the Proponent, the Northern Territory, and/or the Australian Governments, and/or other stakeholders, including Traditional Owners and/or land managers
- details of the monitoring, enforcement and review procedures that apply, or are likely to apply, to the Project.

When describing the individual approvals, certificates, permits etc. that will be required the Proponent must include details of any conditions likely or expected to be imposed.

2.4 Environmental history

The EIS must include details of the environmental record of the Proponent, including:

- details of any proceedings against the Proponent under Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources, and details of systems and processes that have been subsequently upgraded
- any international or national accreditations (e.g. ISO 14001), environmental awards or other recognition for environmental performance.

2.5 Alternatives

The EIS should describe any feasible alternatives to carrying out the Project. The choice of the preferred option(s) for material elements of the project should be clearly explained, including how it complies with the principles and objectives of ecologically sustainable development.

A brief description should be provided of whether alternatives for the following are relevant, and were considered:

- locations for components of the Project (e.g. water intake and waste discharge locations, pond siting, etc.)

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- settlement ponds and water treatment
- feed types and/or sources (e.g. availability or feasibility of local sources of feed)
- alternative environmental management techniques (in particular, methods for waste treatment and discharge, techniques to promote recirculation and minimise discharges)
- alternative energy sources.

Discussion should include:

- sufficient detail to make clear why a particular alternative is preferred to another
- adverse and beneficial effects (direct and indirect) of alternatives at national, State / Territory, regional and local levels
- a comparison of short, medium and long-term advantages and disadvantages of the options.

2.6 Ecologically Sustainable Development

When considering the matters to be addressed in the EIS, the NT EPA is required under the *Northern Territory Environment Protection Authority Act* to:

- (a) promote ecologically sustainable development (ESD)
- (b) protect the environment, having regard to the need to enable ESD.

Accordingly, the Project, its potential impacts (positive and negative) and the management measures used to enhance positive and reduce negative impacts will be assessed in the context of ESD principles, consistent with the *National Strategy for Ecologically Sustainable Development*.¹ Therefore, it is essential that the Proponent demonstrate how it complies with and contributes to the principles and objectives of ESD in the relevant section(s) of the EIS.

3 Existing environment

Studies used to describe the existing environment of the Project and its surrounds should be of a scope and standard sufficient to serve as a benchmark (or baseline) against which the impacts of the Project over time may be assessed. The level of detail in the EIS should reflect the scale and nature of the studies required to clearly define the potential for impacts from the Project.

3.1 Physical and biological

Existing aspects to be discussed must include:

- climate and local meteorology in the context of project environmental management, including rainfall patterns and intensity, temperature, evaporation, wind, and the predicted frequency and severity of extreme weather events, such as storms and cyclones for the 2, 10 and 100 year average recurrence intervals (ARI)
- regional topography and geomorphology

¹ Ecologically Sustainable Development Steering Committee, 1992. *National Strategy for Ecologically Sustainable Development*. Department of the Environment and Water Resources, Canberra, Australia. Available at: <http://www.environment.gov.au/resource/national-strategy-ecologically-sustainable-development>

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- regional geology
- soil types and land unit(s)
- details of any limiting properties of soil and substrate types and land units in the Project footprint
- surface water features in and adjacent to the proposed action, including:
 - major and minor rivers and drainage lines (permanent and ephemeral)
 - catchment boundaries and sizes
 - surface water flow directions
 - water reservoirs (natural and artificial)
 - wetlands
 - areas of periodic inundation
 - beneficial uses.
- groundwater aquifers and hydrogeological properties, including:
 - local and regional aquifers and bores
 - surface connections via springs or recharge zones
 - depth to water tables
 - groundwater quality
 - sustainable yield
 - beneficial uses and significance.
- estuarine and marine water quality including existing temporal variations in suspended solids, nutrient levels and phytoplankton (or surrogate such as chlorophyll α)
- hydrodynamics of the receiving waters for waste discharge, including local tides and current patterns.

The EIS should describe fauna, flora and vegetation communities of the Project area, with a particular focus on the marine environment of Bynoe Harbour. The EIS should describe and map, where relevant:

- any areas within the Project footprint that have previously been subject to clearing activities or disturbance
- significant or sensitive vegetation types and/or ecosystems
- aquatic ecosystems or groundwater dependent ecosystems likely to be affected by the Project
- the presence or likely presence of listed threatened and/or migratory species under the *Environment Protection and Biodiversity Conservation Act 1999* and/or the *Territory Parks and Wildlife Conservation Act* (within the Project area or adjacent areas that may be impacted)
- the regional context for habitat types found within the Project area.

Explain the basis for statements made in response to the above, that is, whether the Proponent:

- is identifying and relying upon existing literature or previous surveys
- has conducted its own surveys specifically for this purpose.

3.2 Socio-economic aspects

The EIS should include a balanced summary of the social and economic value (positive and negative) of the Project on a regional, state and national scale. The EIS should include a brief description of the current population, demography and socio-economic aspects of the region in which the Project is situated.

4 Risk assessment

4.1 Risk assessment approach

The EIS should be undertaken with specific emphasis on the identification, analysis and mitigation of potential impacts through a whole-of-project risk assessment. Through this process, the EIS will:

- identify and discuss the full range of risks presented by the Project
- identify relevant potential direct and indirect impacts
- quantify and rank risks so that the reasons for proposed management responses are clear
- identify levels of uncertainty about estimates of risk and the effectiveness of risk controls in mitigating risk
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues
- demonstrate that the Project represents best practicable technology.

A number of key risks have been identified through a preliminary assessment of the Project. Each of the identified risks should be addressed by the Proponent in the risk assessment and management process. It is expected that further risks will be identified through the comprehensive risk assessment process required for the EIS. These should be addressed and appropriate management initiatives developed to demonstrate that the:

- Proponent is fully aware of risks associated with all predictable aspects of the Project
- prevention and mitigation of risks are properly addressed in the design specifications
- risks can and will be managed effectively during the construction, operation, decommissioning, closure and post-closure phases of the Project.

Information provided should permit the general reader to understand the likelihood and potential severity of each risk presented by the Project, and any uncertainty around these risks, as well as any uncertainty about the effectiveness of controls. Levels of uncertainty that preclude robust quantification of risk should be clearly acknowledged.

Risk rankings assigned should be fully justified. Where a risk score associated with the likelihood or consequence of an impact is reduced as a result of proposed mitigation measures, clear justification should be provided for the reduction in score. The adequacy and feasibility of mitigation measures must be demonstrable.

Sufficient quantitative analysis should be provided to indicate whether risks are likely to be acceptable or tolerable. A comparison can be made with similar ventures in Australia and internationally. Assumptions used in the analyses should be explained.

The risk assessment should be based on international best practice. The NT EPA recommends the use of processes for risk management that are formalised in Standards Australia / Standards New Zealand (e.g. AS/NZS ISO 31000:2009; HB 436:2004; HB 203:2006; HB 158:2010).

4.2 Waste water (operational effluent)

4.2.1 Environmental objectives

To ensure the waters of Bynoe Harbour, including Wheatley Creek, are protected both now and in the future, such that the ecological health and uses, and the health, welfare and amenity of people are maintained.

4.2.2 Assessment of risks

The EIS should include an assessment of risks to marine waters in Bynoe Harbour and Wheatley Creek at an appropriate spatial scale as a result of waste water discharge from the Project. In particular, the EIS should, for both Stage 1 of the Project and at full scale, include:

- prediction of concentrations of key nutrients at point of discharge and annual nutrient loads into receiving waters
- consideration of other potential components of the waste water before and after treatment e.g. organic matter, pathogens, chemicals, therapeutants etc.
- prediction and discussion of the rates of dilution on key contaminants associated with mixing of discharged waste water into the tidal environment and consequent impacts to water quality and biological indicators based on the modelled hydrodynamics for receiving waters
- assessment of the predicted impacts from biological uptake of nutrients in receiving waters (phytoplankton blooms, etc.) including consideration of the nutrient assimilative capacity of receiving waters
- consideration of any impacts from waste water discharge to sensitive biological receptors and species listed under NT and Commonwealth statutes.

The influence of seasonality, tidal variation and climate change should be discussed. The risk assessment should give consideration to the staging, and short, medium and long term timeframes of the Project.

4.2.3 Mitigation

The EIS should contain a waste water management plan that clearly outlines objectives and measures to mitigate likely impacts of the Project on receiving waters for waste water discharge. All mitigation measures in the plan should be adequately detailed to demonstrate best practice management and that environmental values of receiving waters will be maintained. The plan must include but not be limited to measures that:

- minimise contamination of marine systems

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- avoid the exposure of sensitive biological receptors to pathogens, contaminants or poor quality water
- ensure the discharge of water is consistent with relevant legislation, including the *Water Act*, *Fisheries Act* and *Waste Management and Pollution Control Act* (WMPC Act) and consider the requirement for an Environment Protection Approval and/or Environment Protection Licence under the WMPC Act
- account for times of intense and prolonged rainfall, extreme meteorological conditions, such as 100 year ARI storm events, cyclones and storm surges, and the predicted impacts of climate change.

Appropriate waste minimisation, discharge water quality, and discharge/impact monitoring strategies should be adopted as described for a category B prawn farm facility in *Licensing wastewater releases from existing marine prawn farms in Queensland* (Version 2; Queensland Department of Environment and Heritage Protection; <https://www.ehp.qld.gov.au/assets/documents/regulation/pr-op-wastewater-prawn-farm.pdf>) and with reference to the principles and content of other relevant guidance documents.^{2,3,4}

4.2.4 Monitoring

The management plan should include details of monitoring programs that would be implemented throughout the life of the Project to determine the effectiveness of the mitigation measures. The monitoring programs should identify site specific water quality objectives, clear thresholds and contingency measures should operational activities lead to exceedances. Monitoring programs should be capable of detecting change in a statistically robust manner.

Provisions to notify and respond to environmental risks associated with water quality should be discussed and provided in the EIS.

Where interpretation of the monitoring data or other observations has detected the potential for or actual adverse trends in performance or impacts, detail the remedial/corrective strategies and actions that would likely be implemented. Include scopes of work where appropriate together with a commitment to an implementation timetable and any modifications to the monitoring program required in order to assess the performance of the actions.

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 5).

4.3 Waste management

4.3.1 Environmental objective

To ensure wastes generated by the Project, both solid and liquid, are appropriately managed in accordance with the waste management hierarchy to minimise the risks of environmental pollution and public health nuisances.

² Assessment of wastewater impacts should be undertaken with reference to the following guidance: ANZECC & ARM CANZ (2000) Guidelines for Fresh and Marine Water Quality

³ Northern Territory Environment Protection Authority, 2013. Guidelines on Mixing Zones. Available at: <https://ntepa.nt.gov.au/waste-pollution/guidelines/guidelines>

⁴ Department of Environment and Heritage, 2012. Technical guideline - Wastewater release to Queensland waters (Version 1; Queensland Department of Environment and Heritage Protection) - cleaning of marine fouling on prawn farming and ancillary infrastructure and equipment, and the management of any related waste products, and - Management of solid wastes including prawn pond sludge.

4.3.2 Assessment of risks

Identify, characterise and quantify the predicted waste streams likely to be generated by the operating breeding and maturation centres and in particular, the following:

- water treatment residues
- sludge from settlement ponds/tanks
- prawn mortalities (including a worst case scenario)
- prawn escapes
- desalination plant effluent and brine.

Assess the risks to the environment, including adjacent waterways and groundwater for incremental stages of the Project if the identified wastes are not appropriately managed.

4.3.3 Mitigation and monitoring

Provide a management plan in the EIS that considers waste management strategies for storage, treatment, transport and disposal of waste taking into account the waste hierarchy. The EIS should provide information on appropriately licensed facilities for disposal of listed wastes and consider the requirement for an Environment Protection Approval and/or Environment Protection Licence under the WMPC Act.

If incineration is proposed, the EIS should refer to the NT EPA Guideline *Disposal of Waste by Incineration* at <https://ntepa.nt.gov.au/waste-pollution/guidelines/guidelines>, for information that should be considered.

For management of solid wastes, the Proponent should address the requirements of the NTEPA endorsed Victoria EPA '*Guidelines for Environmental Management Biosolids Land Application*' with additional consideration given to the wet/dry tropical climate of the region.

A monitoring program should identify objectives, clear thresholds and contingency measures if waste management practices do not perform as predicted during operation. Monitoring programs should be capable of detecting change in a statistically robust manner.

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 5).

4.4 Freshwater supply

4.4.1 Environmental objective

To ensure that the groundwater and surface water resources are protected both now and in the future, such that ecological health and the health, welfare and amenity of people and land uses are maintained.

4.4.2 Assessment of risks

The EIS should assess the potential impacts and risks of:

- drawdown from groundwater extraction affecting aquifers utilised by other users and/or groundwater dependent ecosystems. Where risks to sensitive receptors are identified, drawdown modelling should quantify potential impacts and the modelling approach should be documented (data sources, data limitations, model time steps, model assumptions and uncertainties)
- saline intrusion as a result of the proposed pumping regime

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- seasonal groundwater decline on continuity of groundwater supply.

4.4.3 Mitigation and monitoring

Provide a management plan in the EIS that demonstrates any potential impacts to the environment, including impacts to groundwater users, can be appropriately managed. The plan should consider an appropriate borefield configuration that could deliver the water supply requirement if the groundwater option is proposed as part of the water supply mix.

A monitoring program should identify objectives, clear thresholds and contingency measures if the freshwater supply management measures do not perform as predicted during operation. Monitoring programs should be capable of detecting change in a statistically robust manner.

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 5).

4.5 Socio-economic

4.5.1 Environmental objectives

To monitor and manage the intended and unintended social and economic consequences, both positive and negative, of the Project.

4.5.2 Assessment of risks

- Assess the risks of the Project not realising its projected economic and social benefits.
- Document the economic and social impacts (including to local tourism, recreation and amenity values) of the Project, both positive and negative, on nearby populations in the region and more broadly.
- Provide for appropriate contingencies during project feasibility and planning stages to manage expectations of the community, local business owners and residents who may be affected if the Project does not proceed.

4.5.3 Mitigation and monitoring

The EIS should:

- describe how the Proponent proposes to manage any identified and emergent economic or social risks from and to the Project, or its associated workforce
- describe how potential local and regional business and employment opportunities related to the Project will be identified and managed
- include mechanisms for monitoring, mitigating, reporting and managing any identified potential social or economic impacts
- provide a stakeholder communication plan that provides for updates and opportunities for the community to raise any concerns during planning, construction, operation and decommissioning phases

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 5).

5 Environmental management

The specific safeguards and controls proposed to be employed to minimise or remedy environmental impacts identified in the risk assessment process are to be included in an

EMP. The EMP should be strategic, describing a framework for continuing management, mitigation and monitoring programs for the significant environmental impacts of the Project.

The scope, content and structure of the EMP will be a function of the outcomes of the environmental risk assessment and determined by the significance of the environmental impacts. The EMP should not be prepared in isolation but should be consistent and integrated with the principles of an environmental management system. The EMP should include specialised management plans where it is necessary to provide a high level of operational detail. As much detail as is practicable should be provided to enable adequate assessment of the proposed environmental management practices and procedures.

The EMP needs to address the Project phases (construction, operation and decommissioning/rehabilitation) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, necessary resourcing, responsibility and timing for each environmental issue.

Further information on the development of an EMP is available in the NT EPA's *Guideline for the Preparation of an Environmental Management Plan*, accessible on the NT EPA webpage at: <https://ntepa.nt.gov.au/environmental-assessments/assessment-guidelines>.

6 General advice on the Environmental Impact Statement

6.1 General content

The EIS should be a stand-alone document. It should contain sufficient information to avoid the need to search out previous or additional, unattached reports.

The EIS should enable interested stakeholders and the NT EPA to understand the environmental consequences of the proposed action. Information provided in the EIS should be objective, clear, succinct, and easily understood by the general reader. Technical jargon should be avoided wherever possible. Cross-referencing should be used to avoid unnecessary duplication of text. Maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. Spatial data should also be provided to the NT EPA as importable GIS shape files (compatible with ArcMap) with relevant features and areas marked as polygons, lines and points, and any relevant geospatially referenced underlays included.

The level of analysis and detail in the EIS should reflect the level of significance of the expected and potential impacts on the environment, as determined through adequate technical studies. Consideration of appropriate spatial, temporal and analytical scales should be used to clearly communicate the potential impacts to the environment.

Information materials summarising and highlighting risks of the proposed action should be provided in a culturally appropriate format and language, accompanied by graphics and illustrations that assist with interpretation, where relevant.

6.2 Structure, format and style

The EIS should comprise of three elements:

1. Executive summary

The executive summary must include a brief outline of the Project and each chapter of the EIS, allowing the reader to obtain a clear understanding of the proposed action, its environmental implications and management objectives. It must be written as a stand-

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alone document able to be reproduced on request by interested parties who may not wish to read the EIS as a whole.

2. Main text of the document

The main text of the EIS should include a list of abbreviations, a glossary to define technical terms, acronyms, abbreviations, and colloquialisms. The document should consist of a series of chapters detailing the level of significance and management of the expected and potential impacts on the environment from the proposed action.

3. Appendices

The appendices must include detailed technical information, studies or investigations necessary to support the main text. These will be made publicly available and should include:

- a table listing how these Terms of Reference have been addressed in the EIS, cross-referenced to chapters, page numbers and/or appendices
- the name of, work done by and the qualifications and experience of the persons involved in preparing the EIS
- a table listing commitments made by the Proponent
- detailed technical information, studies or investigations necessary to support the main text.

The EIS should be produced on A4 size paper capable of being photocopied, with any maps, diagrams or plans on A4 or A3 size paper, and in colour, if possible.

6.3 Referencing and information sources

All sources must be appropriately referenced using the Harvard Standard. The reference list should include the address of any internet pages used as data sources. All referenced supporting documentation and data, or documents cited in the EIS must be available upon request. For information given in the EIS, the EIS must state:

- the source of the information
- how recent the information is
- how the reliability of the information was tested
- what uncertainties (if any) are in the information.

All known and unknown variables or assumptions made in the EIS must be clearly stated and discussed. Confidence levels must be specific, as well as the sources from which they were obtained. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

Reliability of the data and an explanation of the sampling criteria and approach should be provided where data are used to support statements, studies and claims in the EIS. Sufficient discussion should accompany the data to demonstrate that the data and results of quality control and quality assurance testing are suitable and fit for purpose. The NT EPA's *Guideline for Consultants Reporting on Environmental Issues* at <https://ntepa.nt.gov.au/waste-pollution/guidelines/guidelines>, outlines the minimum information required for the presentation of data from studies, investigation, and monitoring to enable efficient review.

The EIS must include information on any consultation about the Project, including:

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- any consultation that has already taken place
- a list of persons and agencies consulted during the EIS
- if there has been consultation about the Project, any documented response to, or result of, the consultation
- proposed consultation about relevant impacts of the Project
- identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

The EIS has an important role in informing the public about this Project. It is essential that the Proponent demonstrates how any public concerns were identified and will influence the design and delivery of the Project. Public involvement and the role of government organisations should be clearly identified. The outcomes of any surveys, public meetings and liaison with interested groups should be discussed including any changes made to the Project as a result of consultation. Details of any ongoing liaison should also be discussed.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the NT EPA on the preferred presentation of that material, before submitting it to the NT EPA for consideration.

Information of a confidential nature should not be disclosed in the EIS if disclosure of the information might:

- prejudice inter-governmental relations between an Australian body politic and a body politic overseas or between two (2) or more bodies politic in Australia or in the Territory
- be an interference with a person's privacy
- disclose information about an Aboriginal sacred site or Aboriginal tradition
- disclose information obtained by a public sector organisation from a business, commercial or financial undertaking that is:
 - a trade secret
 - other information of a business, commercial or financial nature and the disclosure is likely to expose the undertaking unreasonably to disadvantage.

It is an offence under the *Northern Territory Environment Protection Authority Act* to give information to the NT EPA that the person knows is misleading or contains misleading information.

6.4 Administration

The Proponent should lodge three bound hard copies and electronic versions (Adobe PDF and Microsoft Word format) of the EIS with the NT EPA. The electronic copies should be provided both as a single file of the entire document and separate files of the document components.

The Proponent should consider the file size, the number of files, format and style of the document appropriate for publication on the NT EPA website. The capacity of the website to store data and display the material may have some bearing on how the documents are constructed.

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The Proponent is to advertise that the draft EIS is available for review and comment, in The NT News.

At a minimum, the advertisement should be published in the Saturday edition of the NT News at the commencement of the public exhibition period.

The following information should be published in the advertisement:

- a brief summary of the Project and the environmental assessment process
- clear notice that the draft EIS is available for public comment and for how long
- the locations the draft EIS will be available for viewing
- the method and contact details for interested groups or persons wishing to make comment, including an address (postal and electronic) to which interested persons may send or deliver their written comments.

The NT EPA requires the complete draft EIS document and a draft of the advertisement at least one week prior to advertising the draft EIS, to arrange web upload of the document, and review and comment on advertising text.

6.5 Public exhibition

The public exhibition period for the draft EIS will be four (4) weeks. The exhibition period should not occur in late December or January in any year to ensure optimal opportunity for public and Government viewing of the EIS document. The NT EPA will direct the Proponent to extend the EIS exhibition period if the EIS exhibition overlaps the late December or January periods.

Sufficient copies of the draft EIS should be provided to and be made available for public exhibition at:

- NT EPA, Level 1, Arnhemica House, 16 Parap Rd, Parap
- Northern Territory Library, Parliament House, Darwin
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin
- Dundee Social and Recreation Club, 21 Lepanto Road, Dundee Beach
- The Lodge of Dundee, Dundee Beach.

It is the Proponent's responsibility to ensure that the hard copies are supplied to the aforementioned locations in a timely manner.