Terms of Reference for an Environmental Impact Statement

Ichthys Liquid Natural Gas Acid Gas Removal Unit (AGRU) Upgrades and Carbon Capture and Storage (CCS) Preparedness Project

INPEX Operations Australia Pty Ltd

Litchfield Council Local Government Area

3 July 2026

ntepa Northern Territory Environment Protection Authority

Proposal	Ichthys LNG AGRU Upgrades and CCS Preparedness Project
Proponent	INPEX Operations Australia Pty Ltd
NT EPA reference	EP2025/045
Local government area	Litchfield Council
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Further information and guidance on the environmental impact assessment process is available on the NT EPA website at: www.ntepa.nt.gov.au

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1. Introduction

1.1. Overview

The Ichthys Liquid Natural Gas (LNG) Acid Gas Removal Unit (AGRU) Upgrades and Carbon Capture and Storage (CCS) Preparedness Project proposed by INPEX Operations Australia Pty Ltd (proponent) is being assessed by the Northern Territory Environment Protection Authority (NT EPA) under the *Environment Protection Act 2019* (EP Act) by environmental impact statement (EIS).

These terms of reference (TOR) set out the matters relating to the environment that are to be addressed in the EIS for this proposal, in accordance with regulation 98 of the Environment Protection Regulations 2020 (EP Regulations). The EIS must also address all requirements in the NT EPA's Preparing an environmental impact statement – Environmental impact assessment guidance for proponents.

1.2. Background

The proposed action (EP2025/045) (the Proposal) is for the construction of a carbon dioxide (CO_2) compression and export system (CCES), and upgrade of the existing acid gas removal units at the Ichthys LNG Facility located on NT Portion 7002 at Bladin Point, approximately 10 km southeast of Darwin.

The Proposal includes site preparation, construction (including civil works, piling, drainage installation), and installation (module delivery / installation, cabling and upgrades within the Ichthys LNG facility), pre-commissioning and cold commissioning of:

- modularised equipment to upgrade the two existing acid gas removal units (AGRUs)
- a CCES including CO_2 compressor modules and auxiliary vents, an in-plant section of the CO_2 export pipeline, export metering, and pipeline inspection gauge launcher, a modular building with combined electrical and control equipment to power and control the new facilities
- a common dehydration module
- a water treatment system/s, including water tanks to treat and re-use water recovered from the CO2 stream
- supplementary power infrastructure (i.e. a small battery energy storage system, electrical power distribution system and cabling).

The Proposal also includes disposal of an estimated 15,400 m^3 of hydrotest fluids and wastewater by one or more of the following methods:

- evaporation from within the Ichthys LNG facility
- discharge to Darwin Harbour at the existing module offloading facility (MOF) at Bladin Point via a new outfall, or
- offsite disposal by a licensed waste contractor.

The referral also identifies several Associated Activities closely related to the proposed action including:

- maintenance dredging of the MOF
- Ichthys CCS Project
- Bonaparte CCS Project

The Proposal develops a key component of the CCS system within Ichthys LNG facility and executes a stage in a process towards its ultimate operation. Two other key components and stages are the subject of separate referrals and are not themselves part of the Proposal. The Ichthys CCS Project (EP2025/049), and the Bonaparte CCS Project (EP2025/048) were both referred to the NT EPA by the proponent shortly after the current proposed action was referred.

The associated Ichthys CCS Project includes hot commissioning and operation of the upgraded AGRUs proposed for installation, pre-commissioning and cold commissioning under this Proposal. Once operational, the AGRUs will be capable of processing feed gas with a higher volume of CO_2 and other contaminants. Unless an entire CCS system is built and operational, the additional volume of CO_2 extracted will be vented, with or without contaminants depending on whether incineration to remove those contaminants is available. The Ichthys CCS Project also involves construction of approximately 12 km of the CO_2 export pipeline connecting the facility to an onshore inlet station on the Middle Arm Peninsula within Darwin Harbour.

The associated Bonaparte CCS Project includes construction of 90 km of the subsea CO_2 pipeline from the onshore inlet station through Darwin Harbour to the boundary of the Northern Territory's Coastal Waters. Construction will involve seabed jetting, levelling and filling, shore crossing trench and shore-pull preparations, dredging within Darwin Harbour and spoil disposal at existing spoil grounds in the Beagle Gulf and rock armouring of pipeline within Darwin Harbour. It will involve connecting, cleaning, testing, pre-commissioning, and ultimately operation of the entire length of the CO_2 pipeline that is within the Northern Territory.

Additionally, the proponent has indicated that in order to transport the prefabricated modules (and potentially specialised pipeline materials) required by the Proposal, it will need to engage in maintenance dredging at the MOF and disposal of dredge spoil. The maintenance dredging itself is not part of the Proposal and has not yet been referred. Events or circumstances that are substantially caused by the maintenance dredging will have been substantially caused by the proposed action. Hence, it can be assumed that any impacts that are substantially caused by the maintenance dredging are also impacts of the proposed action unless further information emerges during assessment to indicate that assumption would not be accurate.

The Ichthys CCS Project, the Bonaparte CCS Project, and the maintenance dredging (the Associated Activities) are also actions within the meaning of s 5(1) of the EP Act.

The Proposal and Associated Activities are causally mutually dependent. The hot commissioning and operation of the upgraded AGRUs is causally dependent on the AGRUs being installed and cold commissioned as per the Proposal. Consequences and events that flow from the hot commissioning and operation of the upgraded AGRUs will likely be substantially caused by the Proposal and hence are potential indirect impacts of the Proposal. The extent and nature of those consequences may substantially increase or decrease as a result of the viability and operation of the entire CCS system which is being built in three components across multiple actions. The objective and potential environmental benefits of the system is only realised if a complete system is built. Further, stages of the system becoming operational which will occur via the Associated Activities (such as connection, testing, and operation of the pipeline) is entirely causally dependent on the installation and commissioning activities that are part of the Proposal. For these reasons, direct and indirect consequences and events flowing from the Associated Activities are potentially indirect impacts of the Proposal.

In addition, the NT EPA made decisions in respect of EP2025/049 and EP2025/048 on 10 March 2026, and in both cases the decision was that standard environmental impact assessment was required by EIS method. They are therefore actions that are the subject of environmental impact assessment within the meaning of reg 79(f)(ii). The Proposal and the Associated Activities directly and indirectly potentially impact the sensitivity, value and quality of the marine, terrestrial and atmospheric environment in the area of the Darwin Harbour, and hence the Associated Activities are also other actions that are proposed in or near the area of the Proposal within the meaning of reg 79(f)(v).

The environmental assessment processes for the Associated Activities are likely to run concurrently and a significant proportion of information relevant to one matter will be the same or similar to information relevant to one or more of the other matters. As such, the proponent and the NT EPA will need to obtain information about, consult on, and consider direct and indirect impacts of the Ichthys CCS Project and the

Bonaparte CCS Project over a similar time period in any event. Consideration of this information will further the principle of evidence-based decision-making provided by s 20 of the EP Act.

For all these reasons the NT EPA considers that a cumulative impact assessment of the combined impacts of the Proposal and the Associated Activities under reg 79(f) is appropriate.

The NT EPA notes that the proponent's decision to split the CCS project into separate sub-projects with separate referrals will result in duplicate requirements to consult regarding the potential impacts of the proposed CCS project on the community. This creates a risk that the community will experience confusion and consultation fatigue, impacting its ability to participate in decisions in accordance with s 42(d) of the EP Act. In order to mitigate these risks, the NT EPA foreshadows that it may provide processes by which it accepts submissions from interested persons or public authorities in relation to more than one matter. It may take this course if it considers such processes would be in the interests of the efficient and effective administration of the EP Act, and where the relevant timeframes for submissions in the various matters permit this to occur.

The NT EPA also proposes to take into account information obtained in relation to one matter when assessing each other matter, to the extent that the information is relevant and subject to ensuring natural justice to the proponent. There will be significant amounts of similar information that will need to be covered by each EIS due to the interrelated nature of the proposals. However, the proposals raise distinct issues and considerations, and each proposal must be assessed and decided on its own merits.

The EIS can be submitted as a separate stand-alone document or as a part of a shared document (with one or two of the other EIS prepared for the Associated Activities). If submitted as a different part of the same document, it should be clear which content in the shared document is particular to the EIS.

Whether the EIS is submitted as a separate document or as a part of shared document, it will have common chapters or appendices that set out common factual information and expert opinion with the EIS for the Associated Activities. The EIS should clearly refer to and cross-refence the common chapters or parts of the common chapters that it relies upon and how these parts should be taken into account for the Proposal.

1.3. Assessment period

The draft EIS is to be submitted to the NT EPA within 24 months from the date of issue of these TOR (in line with regulation 99 of the EP Regulations and in consideration of the matters listed under EP Regulation 99(3)).

1.4. Environment Protection and Biodiversity Conservation Act 1999

The Australian Government Minister for the Environment and Water determined that the proposal is not a controlled action for matters protected under the Commonwealth EPBC Act (EPBC Referral 2025/10273).

2. Matters to be addressed in the draft EIS

2.1. Executive summary of the draft EIS

A stand-alone summary of the draft EIS is required. The summary is to be presented in a way that is accessible to interested parties who may not wish to read the full draft EIS, enabling stakeholders to understand the likely consequences of the Proposal.

The summary must provide the following at a minimum:

- a clear and concise overview of the Proposal including the proponent details, elements of the Proposal, activities and lifespan

- appropriate map/s of:
    - the Proposal area (i.e. the Ichthys Plant boundary)
    - the areas affected by the Associated Activities (i.e. the wider area of potential impact)
    - the areas affected by the Proposal and Associated Activities (i.e. both of the above)
- a clear and concise overview of the stages of the Proposal and of the Proposal with the Associated Activities
- a summary of the alternatives considered for the Proposal including, but not limited to options for disposing of wastewater and hydrotest fluids, retaining an acid gas incinerator or similar technology, and the direct and indirect consequences of the Proposal and Associated Activities
- an overview of the existing environment including climate, location and significance of sensitive receptors that may be impacted by the Proposal and by the Associated Activities both individually and cumulatively.
- a summary of the potential significant environmental impacts and benefits of the Proposal including, but not limited to:
    - direct, indirect impacts of the Proposal
    - direct, indirect impacts of the Associated Activities
    - the cumulative impacts of the combined direct and indirect impacts of the Proposal and of the Proposal with the Associated Activities both individually and together
- a summary of measures to avoid and/or mitigate potential significant impacts of the Proposal, the Associated Activities and the Proposal and the Associated Activities (together), with clear and measurable outcomes for environment protection
- a summary of measures to offset residual significant impacts of the Proposal, the Associated Activities and the Proposal and the Associated Activities (together), with clear and measurable outcomes for environment protection
- a summary of stakeholder engagement and future stakeholder engagement
- a summary of decommissioning at the end of the Proposal's life and end of life of the Proposal with the Associated Activities, rehabilitation/restoration and future land use.

The Executive Summary should include a consolidated plain-language explanation of how the Proposal (including the full 250km and subsea injection facilities in G-7-AP) and the Associated Activities sit together, including which regulator assesses each component. This will allow the public to understand the full CCS proposal as a single system.

2.2. Proposal description

2.2.1. Overview

Provide a clear description of the Proposal and the full scope of works for which approval is sought. The Proposal description must include:

- a summary table listing the main physical components of the Proposal and their maximum spatial extent or quantity, using appropriate parameters including the matters outlined in Table 1
- a description, and maximum spatial extent, of the Associated Activities supporting maps, figures, images, diagrams, and flow charts

- the decision-making criteria and framework used in considering various options that would deliver the required outcomes, with identification of the various options that were evaluated in deciding the Proposal design, why the preferred option was selected above other options, and how the environmental decision-making hierarchy was applied
- a discussion of how the Proposal addresses sections 3, 42 and 43 of the EP Act, including the principles of ecologically sustainable development (sections 17-24 of EP Act)
- any minor variations or modifications to the Proposal since the referral information was submitted.

Provide detail about any information gaps or uncertainties in relation to the EIS, including any further studies or measures required to address these gaps. Where there is uncertainty in the concept design, operational reliability, capacity or life of the Proposal or its components, the approach to resolving this uncertainty must be clearly explained and the maximum extent or range for each parameter provided.

The draft EIS is to:

- use committed language (e.g. 'will') instead of ambiguous terms (e.g. 'may,' 'where possible,' 'if required,' etc.)
- demonstrate that all proposed avoidance, mitigation and management measures, as well as all monitoring activities, are based on relevant guidance or are in accordance with contemporary best practice.

2.2.2. Potentially affected area

Delineate the area potentially affected by the Proposal and by each of the Associated Activities, including direct, indirect and cumulative impacts, considering the surrounding land, water and communities/ municipalities that may be impacted with a suitable buffer to allow for uncertainty.

Provide maps showing:

- the extent of the area potentially affected by the Proposal and by each of the Associated Activities alongside important local and regional features
- current tenure and land use in the areas potentially affected by the Proposal and Associated Activities
- other interests that may be affected by the quality of the environment in the areas potentially affected by the Proposal and by each of the Associated Activities
- sensitive environments within the areas potentially affected by the Proposal and each of the Associated Activities.

2.2.3. Proponent Capacity

Provide the following:

- a summary of matters that are material to determining the proponent's capacity to carry out the Proposal and Associated Activities in accordance with any approval that may be granted including the proponent's history of compliance with environmental approvals and statutory requirements
- experience, qualifications and certification of all suitably qualified consultants and subconsultants engaged by the proponent to complete the EIS

Outline any partnerships with other organisations or industries as part of the Proposal.

2.2.4. Objectives of the proposal

State the rationale and justification for the Proposal, considering social, economic and other environmental benefits and costs to the NT, in particular local communities, during the life of the Proposal and Associated Activities, and post development.

2.2.5. Construction, operation and decommissioning

Provide a detailed description of all construction, operation and decommissioning aspects of the Proposal and each of the Associated Activities as outlined in Table 1.

Table 1 Minimum information requirements for the proposal description

Topic	Required information

Site layout maps	The description of the Proposal and of each of the Associated Activities must include, but not be limited to, detailed maps and graphic illustrations of:
	• the location and approximate dimensions of areas to be disturbed, structures to be built or repurposed including:
	  ○ all areas to be cleared or disturbed
	  ○ service infrastructure
	  ○ stormwater and drainage infrastructure and water storages
	  ○ erosion and sediment controls
	  ○ buildings and structures
	  ○ temporary stockpiles of potentially acid sulfate soils
	  ○ waste storage facilities
	• the Proposal area in relation to any overlapping or adjacent leases or permits
	• areas potentially affected by the Proposal and by the Associated Activities.

Design	Describe key elements in the design of the Proposal including provision for the infrastructure required for the Proposal and for each of the Associated Activities. Describe design options considered, including different configurations of infrastructure, reasons for selection of preferred design, and how the proposed design avoids and/or mitigates environmental constraints and potential significant impacts and risks to the surrounding environment. Describe how the Proposal, and the key elements of the Proposal and the Associated Activities will integrate with existing government and privately operated infrastructure networks e.g. road, rail and subsea cables and pipelines. Describe how the Proposal has been designed to minimise social, cultural, and environmental impacts, considering the needs of the community and stakeholders.
Site selection	Describe the site selection process for the Proposal and each of the Associated Activities including: • alternative locations considered for terrestrial and subsea infrastructure • site selection processes for selecting the locations of terrestrial and subsea infrastructure • consideration of stakeholder comments

Topic	Required information
	Include a list of the criteria used for site selection and discuss the outcomes in relation to the principles of environment protection and management (as set out in Part 2 of the EP Act), adaptation to a changing climate, and the NT EPA's environmental objectives.
Construction	Describe all elements and stages of the construction phase of the Proposal and of each of the Associated Activities including: • vegetation clearing and site preparation • construction methodology including equipment and machinery required • construction materials required – types, quantities, qualities, sources, storage requirements and potential hazards • waste management including classification of waste streams and methods of disposal • location, extent, and nature of temporary stockpiles of borrow material and topsoil • new ancillary infrastructure or upgrades required to service the Proposal and the Associated Activities, including road access, and supply of electricity, water, and sewerage • maintenance of existing infrastructure required to facilitate construction • construction timing.
Commissioning and operations	Describe all elements and stages of the commissioning and operation phases of the Proposal and each of the Associated Activities including: • infrastructure (including temporary ancillary) – location, size and type • facility design. Where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts • materials and chemicals required - major types, quantities, qualities, sources, storage requirements and potential hazards • waste management including classification of waste streams and methods of disposal • Commissioning and operational method and any limitations to the effective operation and management of infrastructure required for the Proposal and for the 'Associated Activities' • timeframes for the commencement and completion of staged operations of the Proposal and of the Proposal with each of the Associated Activities • ongoing maintenance and upgrades required to service onshore, nearshore and any offshore infrastructure throughout the operational period • separation distances from sensitive receptors and restricted work areas • emissions and emission sources

Topic	Required information
	• applicable legislation, guidelines, standards and permits • controls to avoid uncontrolled discharges to the environment, including pipeline ruptures in the marine and terrestrial environment • information on controlled discharges to the environment including the adequacy and likely effectiveness of mitigation measures and controls to manage potential impacts • details on incident reporting and emergency response measures to be undertaken in the event of a hazardous material spill • environmental management of all operational aspects including adequacy and likely effectiveness of mitigation measures and controls.
Decommissioning	Describe all elements and stages for decommissioning, closure and rehabilitation of the Proposal and of each of the Associated Activities with consideration of section 42 of the EP Act. It should detail: • the proposed lifespan of the Proposal and of each of the Associated Activities • best practices for progressive rehabilitation, closure and restoration to ensure a safe and stable condition, that does not cause environmental harm and that can sustain a post-development land use • biological, cultural, economic and social considerations of options for progressive rehabilitation, decommissioning of infrastructure, removal and disposal of infrastructure at the end of the Proposal's life and of the combined life of the Proposal and Associated Activities, and final closure • revegetation to original state and blending of disturbed surfaces into surrounding vegetation and topography. Where the area cannot be rehabilitated to a natural and/or a stable condition, state the reasons and the proposed methodology to achieve the best outcomes • proposed next use (including land and sea) after closure including alternatives defined by the outcomes of consultations undertaken with key stakeholders • final site design identifying the locations of post-development land use and the areas where rehabilitation is not proposed (if applicable) • rehabilitation objectives and outcomes to be met • environmental constraints to achieving rehabilitation objectives and milestones.
Transport and traffic	Describe traffic and transport activities during construction, operation and decommissioning of infrastructure required by the Proposal and the Associated Activities including but not limited to: • proposed transport methods and routes • existing transport baseline information including current traffic numbers, movement patterns (during wet and dry seasons) and relevant existing infrastructure

Topic	Required information
	• forecast vehicle and marine vessel movements including type, size, volume, and frequency of movements, volumes of traffic, vehicle types, access routes, hours of operation.
Energy	Provide relevant information with respect to energy during construction of infrastructure required by the Proposal and by the Associated Activities, including but not limited to: • energy requirements and sources • consideration of renewable sources of energy and justification of selected options.
Workforce	Provide an assessment of the workforce required for each phase of the Proposal and of the Associated Activities, including but not limited an evaluation of the following: • likely sources (local, regional, interstate, overseas) • workforce training opportunities • employment opportunities for Aboriginal people • indirect local and regional workforce opportunities created through local and regional procurement opportunities • benefits to the local community.

2.3. Alternatives

State the rationale and justification for the Proposal, and an assessment of alternatives that considers the strategic, social, economic, and environmental implications, technical feasibility and commercial drivers. The assessment must be supported by:

- an evaluation of alternatives that were considered and could meet the objectives of the Proposal (as set out in section 2.2.4) including, but not limited to, alternative designs including retention of an acid gas incinerator or similar technology, alternative CCES and CCS designs and locations, and proceeding with the upgrades of the AGRUs and other equipment in the absence of a CCES system. For each of these alternatives, include an assessment of:
  - the short, medium and long term advantages and disadvantages
  - the operational requirements (including workforce, associated infrastructure requirements, the energy requirements and potential sources of energy)
  - an estimate of initial capital and ongoing operating costs
  - consideration of the potential direct, indirect and cumulative impacts over the life of the Proposal and each of the other Associated Activities
  - consideration of potential impacts and benefits to local and regional communities over the life of the Proposal
  - clear justification for why the Proposal is preferred over the alternatives
  - a comparative discussion on the social, economic, cultural and environmental values preserved or enhanced through the selection of the Proposal over the other alternatives
  - a discussion of the implications of not proceeding with the Proposal.

2.4. Whole of environment considerations

Provide an assessment of the impacts of the Proposal, each of the Associated Activities and of the Proposal with the Associated Activities on the whole of the environment, in particular, a description of the connections and interactions between the environmental factors, and an assessment of cumulative impacts, and impacts at a local and regional scale. Succinctly discuss predicted outcomes in relation to the principles of environment protection and management (as set out in Part 2 of the EP Act), and the NT EPA environmental factors and objectives.

2.5. Consideration of the impacts of a changing climate

The draft EIS must:

- assess how adaptation to reasonable climate change scenarios (with reference to reporting in: Climate Change in the Northern Territory – State of the science and climate change impacts (NESP ESCC Hub 2020)) has been considered in the design, construction, operation, and any effect on the viability of the Proposal and Associated Activities, including differentiating between a scenario in which the full CCS system is fully operational and subject to a variety of potential risks of failure, and a scenario in which the full CCS system is not operational, and information relevant to assessing the comparative likelihood of these scenarios
- describe and assess the extent to which the outcomes and commitments proposed will address any significant vulnerabilities of the Proposal and of the Associated Activities and the environmental values within the zone of potential impact including:
  - an evaluation of any adaptation measures including both structural (e.g. design modifications, alternative solutions) and non-structural (e.g. land-use planning, monitoring, emergency response programs) measures
  - consideration of the most current and reasonable climate change projections for the region e.g. Australia's national climate change projections, Climate Change in Australia

2.6. Information requirements for environmental factors

The NT EPA identified nine environmental factors that could be significantly impacted by the Proposal and Associated Activities (Table 2). Further information about environmental factors is available in the NT EPA's environmental factors and objectives guidance.

Table 2 Environmental factors that must be addressed in the draft EIS

THEME	FACTOR	ENVIRONMENTAL OBJECTIVE
LAND	Terrestrial environmental quality	Protect the quality and integrity of land and soils so that environmental values are supported and maintained.
	Terrestrial ecosystems	Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity, and ecological functioning.
SEA	Coastal processes	Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.

THEME	FACTOR	ENVIRONMENTAL OBJECTIVE
	Marine environmental quality	Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.
	Marine ecosystems	Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.
AIR	Air quality	Protect air quality and minimise emissions and their impact so that environmental values are maintained.
	Atmospheric processes	Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.
PEOPLE	Community and economy	Enhance communities and the economy for the welfare, amenity, and benefit of current and future generations of Territorians.
	Culture and heritage	Protect culture and heritage.
	Human health	Protect the health of the Northern Territory population.

For each environmental factor listed in Table 2, the draft EIS is to provide an assessment of how the NT EPA's environmental objective would be met, as outlined in the NT EPA Guide for preparing an EIS and detailed below.

The areas potentially affected by the Proposal and by each of the Associated Activities is to be delineated in the EIS to identify the environmental factor and their specific values that have the potential to be impacted by the:

- Proposal
- Associated Activities
- Proposal with the Associated Activities.

Information should be presented that clearly articulates:

- the direct and indirect impacts associated with the Proposal
- the cumulative impacts of the Proposal with the:
    - Bonaparte CCS Project
    - Ichthys CCS Project
- the cumulative impacts of the Proposal with all the Associated Activities.

If additional potential impacts are identified through the environmental impact assessment process, these must also be included in the draft EIS, even if this requires addressing additional environmental factors not specified in Table 2.

2.6.1. Terrestrial environmental quality

Table 3 Minimum information required for assessment of Terrestrial environmental quality

Aspect	Specific information required
NT EPA objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.	
Environmental values	Describe the characteristics and current condition of land and soils in the areas potentially affected by the Proposal and by the Associated Activities. This must include, at a minimum, descriptive and spatial information for the following: • soil physical and chemical properties • potential or actual presence of contaminated soils as determined from a Preliminary Site Investigation and/or contaminated land investigations, if the need is indicated • presence of potential acid sulfate soils, acid sulfate soils and acid forming material, and indicative volumes encountered. Provide results and interpretation of any geotechnical, geochemical and soil investigations and surveys of the proposal area and the expanded footprint incorporating the Associated Activities. Include an assessment of the suitability of sites for relevant Proposal elements. Identify environmental values that could be affected by impacts to terrestrial environmental quality (e.g. quality and integrity of land and soils) caused by the Proposal and by the Associated Activities. Include consideration of land uses, properties and public infrastructure surrounding the Proposal and the Associated Activities.
Potential significant impacts and risks	Identify, describe, and assess potential significant impacts and risks to the quality and integrity of land and soils from the Proposal and from the Associated Activities including, cumulative impacts and risks. This must include at a minimum: • direct disturbance of land and soils during construction (e.g. land clearing, excavation, trenching, compaction, loss of soil structure) • indirect disturbance from construction activities resulting in soil erosion, topsoil migration, sedimentation, and altered drainage patterns • disturbance or treatment of contaminated soils, potential acid sulfate soils, acid sulfate soils and acid forming material • contamination of soils from spills or leaks associated with transport, storage (including potential storage of hydrotest water in a lined pond) and handling of hazardous materials. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the proposal level and cumulatively with the Associated Activities, with use of, and reference to, relevant guidance.

Aspect	Specific information required
Avoidance, mitigation, and management	Outline measures for avoiding and mitigating impacts identified above, with consideration of section 26 (environmental decision-making hierarchy) and section 27 (waste management hierarchy) of the EP Act. Consider measures to enhance or restore environmental quality. These must include at a minimum: • infrastructure (including supporting facilities) design and layout • staging of the Proposal and of each of the Associated Activities • site rehabilitation and restoration • erosion and sediment control planning and implementation in line with best practice guidance (IECA 2008, Best Practice Erosion and Sediment Control, International Erosion Control Association (Australasia), Picton, NSW) • water management and efficiency (including stormwater) • potential acid sulfate soils, acid sulfate soils and acid forming material management (if present) (any proposed works must be undertaken in accordance with the National Acid Sulfate Soils Guidance • emergency, hazard and spill response management • end-of-life of assets management • compliance with any statutory or policy basis for the proposed measures. Identify standards and controls (including commitments that would be within management plans) to be implemented as part of the Proposal and Associated Activities and their likely effectiveness to mitigate and manage impacts to terrestrial environmental quality. If acid sulfate soil is detected, and exposure of these soils are unavoidable, an Acid Sulfate Soil Management Plan is required. The Acid Sulfate Soil Management Plan must include the following: • location of the proposed disturbance • depth and volume of soil to be disturbed • clearly presented analytical results • acid base accounting results which clearly indicate an accurate liming rate • an appropriate monitoring program.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential significant impacts and risks, and mitigation and management measures identified above. Describe clear and measurable outcomes and commitments that will ensure the environmental objective is met and impacts of implementing the Proposal and Associated Activities remain acceptable. The proposed monitoring and reporting must specify timing.
Residual impact	Assess the significance of any residual impact or risk of the Proposal to identified values.

2.6.2. Terrestrial ecosystems

Table 4: Minimum information required for assessment of Terrestrial ecosystems

Aspect	Specific information required
NT EPA objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity, and ecological functioning.	
Environmental values	Identify terrestrial ecosystem values within and around the areas potentially affected by the Proposal and by the Associated Activities. This must include, at a minimum: • descriptive and spatial information (i.e. maps, geospatial data) on the location and extent of field-verified vegetation communities areas potentially affected by the Proposal and by each of the Associated Activities using vegetation mapping based on the Northern Territory Guidelines and Field Methodology for Vegetation Survey and Mapping (Brocklehurst et al. 2007) • descriptive and any new spatial information (i.e. maps, geospatial data) of sensitive and significant vegetation including monsoon vine thicket (in accordance with the NT Land Clearing Guidelines • identification of Conservation Significant species including listed threatened and migratory species (*Territory Parks and Wildlife Conservation Act 1976* (TPWC Act) and EPBC Act, including restricted range and data deficient species. A likelihood assessment should also be provided for all Conservation Significant species that are known to occur or have the potential to occur. • identification of flora and fauna that hold social, cultural, and/or economic values and have the potential to occur, and describe the importance of these species • descriptive and spatial information (i.e. maps, geospatial data) for all listed terrestrial threatened flora and fauna and migratory species known, or considered likely to occur. This must include, at a minimum: ○ the type, value, sensitivity, quality and geographic extent of suitable habitat (hectares), landscape context, listing status (TPWC Act, EPBC Act), threatening processes, estimates of population size, abundance and distribution • a description of the presence of invasive weeds (declared under the *Weed Management Act 2001*), pests and biosecurity risks observed or considered likely to occur in the proposal area. The descriptions, above, must be supported by appropriate baseline survey assessments that have been undertaken at appropriate times of the year, across the areas potentially affected by the Proposal and by each of the Associated Activities. Survey results must be presented and must include descriptive information that clearly outlines the survey and identification effort undertaken, including estimates of population parameters used to evaluate the local and regional context for potential impacts from the Proposal and from the Associated Activities. Include in appendices the detailed technical information, studies, or investigations necessary to support the draft EIS. Justify the suitability of the methods, surveys

Aspect	Specific information required
	or processes used to identify/estimate species occurrence (presence/absence), relative abundance, habitat condition or quality, and the extent of values potentially impacted. Any technical information provided is to include the details of all data collection. This is necessary to support the conclusions drawn in the EIS and should not be provided as summaries or abridged versions. Data must be provided in appropriate and readable formats (both numeric and spatial) with appropriate metadata to facilitate assessment, and in line with NT EPA guidance material about biodiversity data including drafts. Address information gaps or uncertainties in relation to terrestrial ecosystems, including further studies or measures completed to address these gaps. This must include appropriate justification, should survey methods diverge from relevant Commonwealth and NT guidelines, including citation of species experts or scientific literature.
Potential significant impacts and risks	Identify, describe, and assess potential significant impacts (direct, indirect, and cumulative) of the Proposal and of the Associated Activities on terrestrial ecosystems and identified environmental values in accordance with requirements of the EP Act and EPBC Act. This must include, at a minimum: • habitat degradation for species of conservation significance, e.g. due to noise, light, vibration, dust, weeds, runoff, erosion, disturbance of acid sulfate soils, and sedimentation impacts • introduction or spread of invasive species due to workforce, vehicle and equipment movement • fauna mortality or injury caused by e.g. collision with vehicles and equipment, entrapment in excavations • changes to populations of species of conservation significance • significant impacts to flora and fauna that hold social, cultural or economic values • how the assessment of potential significant impacts to terrestrial ecosystems has taken the impacts of a changing climate into account. Identify areas of habitat critical to the survival of species of conservation significance, particularly those necessary for activities such as foraging, breeding, roosting, or dispersal. Include areas essential for the long-term maintenance of the species, important populations, key populations for genetic diversity, and efforts related to population reintroduction or recovery. Identify other industries and proposals near the Proposal and the Associated Activities that are likely to contribute to cumulative impacts on terrestrial ecosystems, including threatened species and habitats. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act).

Aspect	Specific information required
	Quantify the significance and extent of impacts, at the Proposal level and cumulatively in consideration of the potential impacts from the Associated Activities, with use of and reference to relevant guideline thresholds.
Avoidance, mitigation, and management	Outline the proposed measures to avoid, mitigate and manage the potential significant impacts identified above, with particular consideration of sections 26 (environmental decision-making hierarchy) and 27 (waste management hierarchy) of the EP Act, and measures to enhance or restore environmental quality. The avoidance, mitigation and management measures proposed must include environmental objectives, performance criteria, monitoring and reporting methods, corrective actions, assigned responsibilities and timeframes for implementation and review in accordance with NT Government and NT EPA guidance. Demonstrate that proposed infrastructure has been scheduled, designed and appropriately sited to avoid and mitigate impacts to terrestrial ecosystem values. If the siting the Proposal and Associated Activities elements are not able to avoid or mitigate impacts to terrestrial ecosystem values (i.e. threatened species habitat) provide a justification for why this was not feasible. Identify areas of land that will be excluded from development of the Proposal and Associated Activities due to the presence of extreme constraints that cannot be overcome.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential significant impacts and risks to terrestrial ecosystems, and mitigation and management measures. For any potential significant impact, thresholds must be set and mitigation measures described, should thresholds be met or exceeded. Describe clear and measurable indicators, outcomes and commitments that will ensure the NT EPA's environmental objective for terrestrial ecosystems will be met and impacts of implementing the Proposal and of implementing the Proposal with the Associated Activities remain acceptable. Specify timeframes for monitoring and reporting. The proposed monitoring and reporting must specify which phase of the Proposal it relates to (i.e. construction, commissioning, and/or operations). All monitoring activities must be substantiated and in accordance with available guidance, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians, and/or their representatives.
Residual impact	Assess the significance of any residual impact or risk of the Proposal and of the Proposal with the Associated Activities to identified values.
Offsets	Where significant residual impact to terrestrial ecosystem values, including listed species under the EPBC Act and/or TPWC Act, is likely to remain after proposed avoidance and mitigation measures have been applied, identify any proposed offset and describe how it is consistent with the NT Offset Framework. This must include offset options and feasibility.

2.6.3. Coastal processes

Table 5: Minimum information required for assessment of Coastal processes

Aspect	Specific information required
NT EPA Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.	
Environmental values	Identify and describe the geophysical and hydrological processes that may be impacted by the Proposal and by the Associated Activities. This must include descriptive and spatial information in relation to (at a minimum): • coastal and estuarine hydrodynamics • tides • water levels • currents • sediment transport • water filtration • storm surge. Identify environmental values that could be directly, indirectly and cumulatively affected by impacts to coastal processes caused by the Proposal and by the Associated Activities. This must include consideration of the following where relevant: • benthic communities and habitats • mangrove communities • threatened and migratory species • habitats for species of cultural, social or commercial importance • known recreational fishing sites • other land uses • sacred sites and heritage sites. Justify the suitability of the methodologies, surveys or processes used to provide information about geophysical and hydrological processes. Detail any information gaps or uncertainties in relation to geophysical and hydrological processes, including any further studies or measures required to address these gaps.
Potential impacts and risks	Identify how geophysical and hydrological processes that shape coastal morphology could be impacted by the Proposal and by the Associated Activities. Identify, describe and assess direct, indirect and cumulative impacts of the Proposal and Associated Activities, on coastal processes. This must include, at a minimum, assessment of: • changes to bathymetry (increased channel depth) caused by dredging which may alter local tidal flow patterns/ current speed/direction • modification to currents and flows from the construction and placement of infrastructure

Aspect	Specific information required
NT EPA Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.	
	• indirect impacts to water quality through alteration of hydrodynamics from dredging activities (capital and maintenance) • indirect impacts to sediment deposition through changes to sediment transport and morphodynamics of estuary bed/sand shoals and ebb tide deltas • indirect impacts to water quality, sediment deposition and tidal flushing • indirect impacts to mangroves • cumulative impacts of any other actions occurring or proposed on Middle Arm. Assessment of impacts associated with dredging should be consistent with relevant guidance and recommendations from the Western Australian Marine Science Institution (WAMSI) Dredge Science Node, for example, the Guideline on dredge plume modelling for environmental impact assessment.
Avoidance, mitigation and management	Identify how impacts to geophysical and hydrological processes that shape coastal morphology will be avoided. Identify the standards and controls that will be implemented and their likely effectiveness to avoid, mitigate and manage impacts to coastal processes. Demonstrate that standards and controls must address the following (at a minimum): • site selection and design for terrestrial and marine infrastructure • site boundary treatments, including for protection of intertidal areas • stormwater drainage management • coastal protection works. Demonstrate and substantiate that standards and controls are in accordance with best practice, including advice from relevant NT Government authorities.
Predicted Outcome	Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values. Describe clear and measurable outcomes and commitments for the protection and enhancement of coastal processes that are relevant to the Proposal and to the Proposal with the Associated Activities. Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the Proposal and of the Associated Activities. Provide a clear explanation as to why the impacts of implementing the Proposal and the Associated Activities are acceptable.

2.6.4. Marine environment quality

Table 6: Minimum information required for assessment of marine environment quality

Aspect	Specific information required
NT EPA objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.	
Environmental values	Describe the characteristics and current condition of marine water and sediment that could be impacted by the Proposal and by the Associated Activities. This will include (at a minimum) descriptive and spatial information for the following: • existing water and sediment quality data to inform the description and spatial definition of the areas potentially affected by the Proposal and by the Associated Activities • current quality of sediments within proposed dredge and trenching footprint. • water and sediment quality sampling identified as required to enable robust impact assessment to be undertaken • baseline chemical, physical and biological characteristics in the wastewater and hydrotest fluid discharge location. Identify beneficial uses and environmental values that could be directly, indirectly and cumulatively affected by impacts to the quality of water and sediment caused by implementing the Proposal and the Associated Activities. This will include consideration of the following where relevant: • marine ecosystems • recreational uses • commercial uses • protected fish areas • cultural uses including indigenous harvest of food • cultural and heritage sites • human health. Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to provide information about the quality and productivity of water, sediment and biota. Detail any information gaps or uncertainties in relation to the quality and productivity of water, sediment, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	Describe, map and illustrate the location, area, depth and volume of maintenance dredging of the existing berth pockets of the MOF associated with the Proposal and Associated Activities, including currently dredged and approved areas for dredging in relation to the proposed dredging. Explain the provisions of any existing approvals, licences or permits relevant to spoil disposal associated with the Proposal

Aspect	Specific information required
	and Associated Activities including dates, volumes and existing spoil ground location, capacity, and environmental values. Describe the timing, duration, and operation hours of dredging, the type and design of dredge vessels and equipment, vessel movement paths and frequency, physical and chemical characteristics of material to be dredged, potential water and sediment quality impacts, modelled predictions of dredge generated turbidity plumes and related dispersal into the environment and sedimentation effects, dredge equipment, dredge methods. Provide an assessment of the duration, magnitude and geographic extent of the potential environmental impacts of dredging and dredged material disposal on water and sediment quality, using an impact zonation approach that is consistent with contemporary best practice dredging guidance[1]. The assessment should consider the most recent predictive benthic habitat map for Darwin Harbour prepared by the Australian Institute of Marine Science. Describe the management thresholds, triggers, and actions of any attributes that may affect the dispersal of dredge-related sediment plumes into the environment, and the potential to cause environmental harm. Provide the volume of wastewater from the Proposal and the Associated Activities, describe any contaminants of concern, including in the hydrotest fluid discharge and the potential impacts to marine environmental quality. Provide an assessment of the risks associated with credible planned and unplanned CO_2 release scenarios impacting marine environment quality, including the modelled fate and effect of plumes, associated seawater acidification, hypoxia and benthic toxicity
Avoidance, mitigation, and management	Outline the measures for avoiding or mitigating impacts identified above, with particular consideration of section 26 (Environmental decision-making hierarchy) and section 27 (Waste management hierarchy) of the EP Act and ensure that measures to enhance or restore environmental quality are included. Outline the management and operational plans and adaptive management strategies including trigger action response plans that would be implemented, and specify the associated performance indicators, timeframes for implementation.
Monitoring and reporting	Demonstrate that appropriate water quality monitoring and reporting has been developed for each phase of the proposal, i.e. construction, commissioning, operations, decommissioning, and/or post-decommissioning.

[1] Including but not limited to guidance published by the WA EPA: EPA 2021, *Technical Guidance – Environmental impact assessment of marine dredging proposals*, EPA, Western Australia; guidance published by the WAMSI Dredging Science Node at https://wamsi.org.au/projects/dredging-science/; guidance published by the Australian Government including the Great Barrier Reef Marine Park Authority (GBRMPA) at https://www2.gbrmpa.gov.au/our-work/managing-activities-and-use/dredging-and-dredge-material-disposal and the National Assessment Guidelines for Dredging 2009 at https://www.dcceew.gov.au/sites/default/files/documents/guidelines09.pdf; and guidance published by the Queensland Government at https://www.tmr.qld.gov.au/business-industry/transport-sectors/ports/dredging/dredging-in-ports-in-queensland/; Ports Australia Code of Practice for Dredging and Dredged Material Management.

Aspect	Specific information required
	Describe how corrective management actions will be initiated and completed. Demonstrate that proposed water quality monitoring sites are appropriately located to monitor relevant impacts. Describe clear and measurable indicators, outcomes and commitments that will ensure the environmental objective is met, the impacts of implementing the Proposal and the Associated Activities remain acceptable, and specify timeframes for monitoring and reporting.
Residual impact	Assess the significance of any residual impact or risk of the Proposal to identified values.

2.6.5. Marine ecosystems

Table 7: Minimum information required for assessment of marine ecosystems

Aspect	Specific information required
NT EPA objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.	
Environmental values	Provide maps and interpretation of regional bathymetry, geology, geomorphology, sediments and seabed features at the local-scale for the area of influence within Darwin Harbour and NT waters. Provide results and interpretation of any marine investigations undertaken in the area of influence to inform the EIS. Describe the oceanic processes within the near shore and onshore areas potentially affected by the Proposal and the Associated Activities, such as local and regional tides, as well as seasonal current patterns and wave magnitudes. Describe the marine ecosystems values of the areas potentially affected by the Proposal and Associated Activities, including but not restricted to the presence and extent of benthic communities dominated by mangroves, seagrass, macro algae, corals, filter feeders, mixed communities and bare substrates. Describe any listed, threatened or migratory marine species within the areas potentially affected by the Proposal and Associated Activities and the habitats they rely on. Describe the baseline ambient noise levels for the marine environment. Detail any information gaps or uncertainties in relation to marine ecosystems, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	Describe potential impacts to the NT EPA's environmental objective associated with the Proposal and Associated Activities, including: • impacts to fauna habitat (feeding, nursery, epibenthic, infauna, pelagic, water column etc.) due to changes to marine environment, introduction or spread of contaminants or pest species

Aspect	Specific information required
	• impacts to fauna as a result of collision with vessels or survey and/or construction equipment • impacts on marine fauna from credible planned and unplanned CO_2 release scenarios • changes to marine fauna behaviours as a result of noise, CO_2 (and trace elements in an unplanned leak) emissions or lighting from proposal areas • disturbance/loss to benthic habitats from pipe laying (including anchoring, vessel manoeuvres and trenching if required) and installation • disturbances to benthic habitats – e.g. sedimentation/erosion from surface runoff. • impacts from increased turbidity, and changes in temperature and pH, from the Proposal and the Proposal with the Associated Activities including dredging, and the significance of impacts on species during critical life stages such as spawning, larval settlement and any decrease in foraging success at critical times for /during reproduction. Determine the areas potentially affected by the Proposal and the Associated Activities that could feasibly experience those impacts. Provide an assessment of potential impacts and risks to marine ecosystems utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • methods, equipment, timing and frequency • the likely scale, extent of disturbance • cumulative impacts with other industries or proposals • environmental management requirements associated with seasonal weather, extreme weather conditions such as storms and cyclones for the 2, 10, and 100 year average recurrence interval events • reversibility of impacts. The assessment must identify potential impacts and risks to marine ecosystems and quantify their significance: • against relevant guideline thresholds • on the beneficial uses, water quality objectives and identified environmental values.
Avoidance, mitigation, and management	Outline the measures for avoiding, mitigating, or offsetting impacts identified above, with particular consideration of sections 26 (Environmental decision-making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. Discuss adaptation to a changing climate including design and resultant viability of the Proposal and Associated Activities. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.

Aspect	Specific information required
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the Proposal and Associated Activities to identified values.
Offsets	If the residual impact is significant after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Framework and EPBC Act environmental offsets policy if relevant.

2.6.6. Air quality

Table 8: Minimum information required for assessment of air quality

Aspect	Specific information required
NT EPA objective: Protect air quality and minimise emissions and their impact so that environmental values are maintained.	
Environmental values	Describe ambient air quality in the Darwin airshed for relevant air quality indicators using current ambient air data from the last five years, or the maximum period of data available if five years is not available. Identify existing emission sources within the Darwin airshed that contribute to ambient pollution, in particular sources required to report emissions under the National Pollutant Inventory, and the types and quantities of pollutants emitted and air toxics emitted (where available include a schematic / conceptual site model for the existing INPEX LNG facility's operation to identify sources of emissions and stage of operation). Describe and map the location of sensitive receptors within the areas potentially affected by the Proposal and Associated Activities. Detail any information gaps or uncertainties in relation to air quality, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	Identify how air quality will potentially be impacted by implementing the proposed action and the Proposal with the Associated Activities including for the long term (30 years). Provide an emissions inventory (in alignment with section 6 of the Guidance for Modelling Dispersion of Air Pollutants in the NT) including source type, location, pollutants emitted, and their emission rates of all phases of the proposed action and Associated Activities, including process vents, ship loading, tank venting and fugitive emissions from process equipment. The inventory must consider emissions from construction through to decommissioning and for scenarios including start-up, shut-

Aspect	Specific information required
	down and/or maintenance, unplanned upset conditions, normal operating conditions of the AGRU and CCES, an unplanned CO_2 leak containing trace amounts of pollutants and the scenario of both LNG trains hot venting simultaneously. The emissions inventory must address all pollutants relevant to the National Pollution Inventory, the National Environment Protection (Ambient Air Quality) Measure and the National Environment Protection (Air Toxics) Measure. Identify, describe and assess the potential direct and indirect impacts of the proposed action and Associated Activities, and cumulative impacts on air quality in the Darwin airshed from air pollutants including but not limited to: • hydrogen sulfide • volatile organic compounds, including BTEX • particulate matter (PM_{10} and $PM_{2.5}$). Describe the potential impacts to air quality associated with all phases of the Proposal and the Proposal with the Associated Activities from construction, operation through to decommissioning and for scenarios including start-up, shut-down and/or maintenance, unplanned upset conditions and normal operating conditions of the AGRU and CCES, unplanned CO_2 leak containing trace amounts of pollutants, emergency conditions and the scenario of both LNG trains hot venting simultaneously. The assessment must take into account seasonal meteorological variations of the Darwin airshed. The assessment must be informed by appropriate air quality and pollutant dispersal modelling that incorporates background baseline air quality and air shed capacity for pollutants relevant to the full context of the Proposal and Associated Activities. Dispersion modelling is to be consistent with the Guidance for Modelling Dispersion of Air Pollutants in the NT. If background monitoring does not cover other known emission sources during abnormal operations, e.g. Darwin LNG hot venting, then estimates need to be made for the ground level impact of these emissions. Pollutant dispersal modelling results for all scenarios must be provided in the form of pollutant contour maps that clearly depict: • the sources of the emission being modelled • ground level concentration contours in $\mu g/m^3$ and include a contour for the criteria limit • the boundary of the proposed action and associated infrastructure • the location of human sensitive receptors • the location of environmental values such as sacred sites, culturally significant sites, sensitive vegetation and areas of high biodiversity. Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to establish baseline air quality data, forecast emissions and model pollutant dispersal.

Aspect	Specific information required
	Address information gaps or uncertainties in relation to air emissions, including further studies or measures completed to address these gaps. In accordance with section 9 of the guideline for modelling dispersion of air pollutants: • Assess the extent to which sensitive receptors could be directly or indirectly affected by air emissions. • Identify the areas that could feasibly experience direct, indirect and cumulative impacts and assess the severity of impacts to identified values. Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach, improved alternative technologies, incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act). If there is the potential for significant emissions, a Level 2 air quality impact assessment is likely to be required in accordance with the *Guidance for Modelling Dispersion of Air Pollutants in the NT* (NT EPA, 2025)[2]. Modelling must undergo a process of independent review by an appropriately qualified expert. The review must form part of the EIS.
Avoidance, mitigation, and management	Outline the measures for avoiding or mitigating the impacts identified above, with particular consideration of sections 26 (Environmental decision-making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Avoidance, mitigation and offset measures must be developed with consideration given to the following: • design and layout of the Proposal • best available technology • emission avoidance, mitigation or management measures • compliance with any statutory or policy basis for the proposed measures. Identify how air emissions will be avoided over the life of the Proposal and of the Proposal with the Associated Activities. Identify the controls that will be implemented as part of the Proposal and the Associated Activities and their effectiveness to avoid, mitigate and manage air emissions. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant government advisory agencies.
Monitoring and reporting	Outline any proposed monitoring and reporting activities related to potential impacts (including cumulative impacts) and risks, and mitigation and management measures. • The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations, unplanned release.

[2] Guidance for Modelling Dispersion of Air Pollutants in the NT

Aspect	Specific information required
	• All monitoring activities should be substantiated and in accordance with best practice advice from relevant government advisory agencies. • Describe clear and measurable outcomes and commitments for the protection and enhancement of environmental values that could be impacted by air quality and emissions.
Residual impact	Identify any potential residual impact of the Proposal on environmental values.

2.6.7. Atmospheric processes

Table 9: Minimum information required for assessment of Atmospheric processes

Aspect	Specific information required
NT EPA Objective: Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions (GHG) by 2050.	
Environmental values	Describe and assess the GHG emissions that would be generated by implementing the Proposal, and the Associated Activities, and discuss the potential effect of the Proposal and the Associated Activities on the scale, magnitude, and trajectory of GHG emissions in the NT. The discussion should include a scenario where the AGRUs are upgraded and operational and the Ichthys CCS is operational and a scenario where the AGRUs are upgraded and operational and the Ichthys CCS is not operational. Detail any information gaps or uncertainties in relation to atmospheric processes, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	Using the Australian Government's recognised emissions accounting methodologies - update estimates of the Proposal's Scope 1 and Scope 2 GHG emissions (e.g. venting, diesel exhaust, electricity). Present the estimates as an inventory of projected annual emissions for each relevant GHG, for each fiscal year and total for the life of the Proposal and of the Proposal with the Associated Activities, with emissions expressed in tonnes CO_2 equivalent (tonnes CO_2-e). Describe any uncertainties and further work required to improve understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the Proposal level and cumulatively, with use of and reference to relevant guideline thresholds.
Avoidance, mitigation, and management	Describe any energy efficiency and mitigation and management measures that will be adopted during the design, construction, commissioning and operation phases of the Proposal and the Associated Activities to reduce or minimise GHG emissions to as low as reasonably practicable, and that demonstrate application of best practice - so as to contribute to the NT's target of net zero by 2050 (for example by sourcing renewable power).

Aspect	Specific information required
Monitoring and reporting	Outline any proposed monitoring and reporting of GHG emissions. Identify whether the Commonwealth *National Greenhouse and Energy Reporting Act 2007* Safeguard Mechanism obligations apply to the Proposal.
Residual impact	Describe the net contribution to the NT's GHG emissions over the life of the Proposal and Associated Activities.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify any proposed GHG emission offsets and describe how any proposed offset is consistent with the NT Offset Framework and NT GHG emissions offsets policy.

2.6.8. Community and economy

Table 10: Minimum information required for assessment of Community and economy

Aspect	Specific information required
NT EPA objective: Enhance communities and the economy for the welfare, amenity, and benefit of current and future generations of Territorians.	
Environmental values	Describe and provide baseline data for the area of influence likely to be affected by impacts from the Proposal. This must include (at a minimum): • definition of areas potentially affected by the Proposal and the Associated Activities and the affected communities • existing infrastructure (housing, transport, utilities, public infrastructure and recreational facilities) • workforce participation • land and sea uses, including recreational values • community values of Darwin Harbour, Middle Arm Peninsula, and the broader region • existing sources and levels of noise within the area of influence • current traffic activity within the area of influence, including vessel movements within Darwin Harbour. Detail any information gaps or uncertainties in relation to community and economy, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	Identify, describe and assess likely direct and indirect impacts and benefits, and cumulative impacts, of the Proposal and Associated Activities on communities and the economy, with reference to relevant principles of ecologically sustainable development (sections 17 – 24 of the EP Act). This must include (at a minimum) consideration of: • disturbance to social, cultural, economic and ecological values of Darwin Harbour, Middle Arm Peninsula and the broader region (including cultural activities, recreation, aesthetics, liveability and sense of place) • the promotion of Darwin as an iconic, world-class harbour city

Aspect	Specific information required

	• disturbance to the environmental surrounds that provide for the tropical lifestyle and amenity of residents and visitors, through alteration of:
	  ○ air quality
	  ○ noise
	  ○ odour
	  ○ light
	  ○ visual amenity
	• concerns about cumulative impacts, e.g. discharges of wastewater, dredging, increased marine traffic, loss of mangroves and iconic species such as turtles, dugong and dolphins, migratory birds, loss of fishing breeding areas, reduced water quality, reduced air quality, increased noise, contribution to greenhouse gas emissions and climate change
	• pressure on existing infrastructure and services in nearby suburbs, including transport, utilities, public infrastructure and recreational facilities
	• disturbance to non-heritage listed sites of historical importance, including World War II historical sites around Darwin Harbour
	• access issues for other Darwin Harbour users
	• reduced marine safety in East Arm and Darwin Harbour, and rivers and creeks.
	
	Describe any uncertainties and further work required to improve understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act).
	
	Quantify the significance and extent of impacts, at the proposal level and cumulatively, with use of and reference to relevant guideline thresholds.

Avoidance, mitigation, and management	Describe measures to avoid, mitigate and manage potential significant social and economic impacts, and to enhance benefits to the community and economy, over the life of the Proposal (consider section 6.5 of the NT EPA guidelines for Economic and Social Impact Assessment). Describe measures to avoid, mitigate and manage potential significant impacts of noise from the Proposal and Associated Activities (including construction, commissioning, operation and decommissioning) on the affected communities. Ensure that avoidance, mitigation and management measures are consistent with relevant guidelines including the NT EPA Noise Management Framework Guideline. Describe how the views of stakeholders have been considered in proposed avoidance, mitigation and management measures.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential significant impacts and benefits and that will be used to demonstrate and measure how enhancement of the community and economy is achieved.
Residual impact	Assess the significance of any residual impact or risk to identified values and the acceptability of the residual impact to stakeholders. Assess the significance of any residual impacts on the Territory economy.

2.6.9. Culture and heritage

Table 11: Minimum information required for assessment of Culture and heritage

Aspect	Specific information required
NT EPA objective: Protect culture and heritage.	
Environmental values	Undertake studies to identify, describe, and characterise potential and existing Aboriginal and non-Aboriginal cultural heritage values that may be affected by the Proposal and Associated Activities. This includes: • Aboriginal or Macassan archaeological heritage places (automatically protected under the *Heritage Act 2011* (Heritage Act) • other Heritage Places assessed and declared under the Heritage Act • underwater cultural heritage declared and protected under the Heritage Act and the *Underwater Cultural Heritage Act 2018* • Sacred Sites under the *Northern Territory Aboriginal Sacred Sites Act 1989* Include evidence that relevant Aboriginal representative bodies and other Aboriginal peoples as required have been consulted. Describe any gaps, uncertainties and further work required to improve understanding of cultural heritage values and ensure their protection.
Potential significant impacts and risks	Describe and assess the potential significant impacts on cultural heritage values from implementing all phases of the Proposal and Associated Activities, specifically for the construction, operation, and decommissioning phases.
Avoidance, mitigation, and management	Outline the measures for avoiding and mitigating the impacts identified above, with consideration of section 26 (environmental decision-making hierarchy) and section 27 (waste management hierarchy) of the EP Act. Provide a cultural heritage management plan (CHMP) that identifies and describes the measures that will be implemented to avoid and reduce impacts to identified cultural heritage (for all phases of the Proposal and Associated Activities), including but not limited to: • measures to protect, and avoid entry to sacred sites e.g. sacred sites clearance, an Authority Certificate • strategies to avoid disturbance and damage to Heritage Places protected under the Heritage Act (noting all Aboriginal and Macassan archaeological places are automatically protected, including unknown sites) • strategies to avoid disturbance and damage to underwater cultural heritage protected under the Heritage Act and the Underwater Cultural Heritage Act • any requirement to obtain approval under the Heritage Act to carry out work on a heritage place or object • strategies to reduce impacts to all identified cultural heritage values during construction, commissioning, and operation • strategies for the identification and management of unexpected Aboriginal archaeological finds (additional to those identified in the EIS).

Aspect	Specific information required
	Provide evidence that relevant Aboriginal representative bodies and other Aboriginal peoples have been consulted in the drafting of the CHMP. \ Provide a Maritime Archaeological Management Plan (MAMP) that identifies and describes the measures that will be implemented to avoid and reduce impacts to underwater cultural heritage. Include how obligations under the EPBC Act and *United States Sunken Military Craft Act 2004* will be managed regarding underwater cultural heritage
Monitoring and reporting	Outline proposed methodology and timeframes for monitoring and reporting against the CHMP and MAMP. The proposed monitoring and reporting must specify which phase of the proposal it relates to (i.e. construction, commissioning, operation and decommissioning). Explain how the proposed monitoring and reporting responds to advice from relevant government advisory agencies, native title holders, Traditional Owners, and/or their representatives. Describe clear and measurable outcomes and commitments for the protection of cultural heritage values.
Residual impact	Determine whether there are likely to be any significant residual environmental impacts or risks to identified cultural heritage values and how obligations under relevant legislation protecting the NT's cultural heritage will be satisfied.

2.6.10. Human health

Table 12: Minimum information required for assessment of Human health

For the avoidance of doubt, the contents of this table are the guidelines specified by the Chief Health Officer in accordance with reg 80(2) for the purpose of carrying out a health impact assessment for this EIS.

Aspect	Specific information required
NT EPA objective: Protect the health of the Northern Territory population.	
Environmental values	Describe the human health values within the surrounding communities within the areas potentially affected by the Proposal and Associated Activities. This must include (at a minimum) descriptive and spatial information for sensitive receptors. Detail any information gaps or uncertainties in relation to human health, including any further studies or measures required to address these gaps.
General	The Chief Health Officer supports the requirement for INPEX to conduct an intermediate Health Impact Assessment (HIA) as defined by the enHealth *Health Impact Assessment Guidelines 2017 (HIA Guidelines).*[3]

[3] https://www.cdc.gov.au/system/files/2025-10/enhealth-guidance-health-impact-assessment-guidelines_0.pdf

Aspect	Specific information required
	The Chief Health Officer also recommends the HIA consider health holistically in line with the World Health Organisation's definition covering physical, mental and social wellbeing and as identified in the HIA Guidelines. The HIA should be sufficient to support the cumulative impact assessment required by this EIS, including assessment of the cumulative health impacts of the Proposal and Associated Activities. The HIA must undergo a process of independent review by an appropriately qualified expert. The review must form part of the EIS.
Potential significant impacts and risks	Identify, describe and assess likely direct, indirect and cumulative impacts of the Proposal and the Associated Activities on human health Describe the conditions under which impacts may occur e.g. commissioning, normal operating conditions, upset conditions, shut-downs, start-ups, and emergency conditions such as pipeline leaks and ruptures Identify the area that could feasibly experience direct and indirect impacts and assess the nature and severity of impacts to identified values. Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, adopt the precautionary principle and demonstrate how it has been met (section 19 of EP Act).
Avoidance, mitigation, and management	Identify how impacts to human health will be avoided. Identify the general and specific controls that must be implemented as part of the Proposal and Associated Activities and their likely effectiveness to avoid, mitigate and manage impacts to human health. Identify any uncertainties associated with the proposed pollution avoidance, mitigation and management controls. General and specific controls must address as a minimum: • air quality, noise, vibrations and odour for sensitive receptors in the area of influence • emergency response capacity and capability
Monitoring and reporting	• Provide proposed monitoring and reporting activities related to potential impacts and risks to human health, and mitigation and management measures. • Describe clear and measurable outcomes and commitments that will ensure the environmental objective is met and impacts of implementing the Proposal will be acceptable. • The proposed monitoring and reporting should specify which Proposal phase i.e., construction or operations and which of the Associated Activities it relates to. • Demonstrate that monitoring activities are in accordance with best-practice, including advice from relevant NT Government authorities.
Residual impact	Identify the significance of any residual impact or risk of the Proposal to identified values.

3. Other requirements

3.1. Offsets

Provide details of an overall biodiversity offset strategy for any significant residual impacts of the Proposal, ensuring the strategy is sufficiently detailed to demonstrate a reasonable level of feasibility. Offsets must be consistent with the NT Offsets Framework and the NT Biodiversity Offsets Policy.

3.2. Stakeholder engagement and consultation

Proponents have a general duty under section 43 of the EP Act to provide communities and stakeholders that may be affected by a proposal with an opportunity for consultation to assist community understanding of the proposal and its potential significant impacts and benefits. If an impact or benefit is uncertain, this must be clearly stated.

The proponent must engage and consult with stakeholders[4] who are affected by and interested in the proposal. The proponent must document the following in the EIS:

- the proponent's approach to stakeholder engagement and consultation for the life of the proposal, through provision of a stakeholder engagement plan, including demonstration that this is consistent with the NT EPA's guidance for proponents: Stakeholder Engagement and Consultation and aligns with best practice guidance
- a summary of information presented during consultations, including identified stakeholder groups, issues raised, and adjustments made to the proposal because of consultation
- details of further stakeholder engagement and consultation undertaken on the proposal during the EIS phase including:
    - the engagement approach
    - any additional identified stakeholders
    - methods used for communication with stakeholders and how proposal information was disseminated
    - how stakeholder input was invited
    - how any new information on the potential significant impacts/benefits of the proposal were communicated (if necessary)
    - issues raised in consultations
    - any adjustments to the proposal as a result of consultation.
- timeframes for review of stakeholder engagement and consultation processes, including any relevant social impact management plans, over the life of the Proposal and Associated Activities.

3.3. Public consultation requirements

The public consultation requirements for the EIS are outlined in Part 5 Division 6 of the EP Regulations. Additional specific details are provided below.

[4] As defined in the NT EPA Guidance for Proponents - Stakeholder Engagement and Consultation

3.3.1. Submission period

The submission period under the EP Act during which feedback can be given on the draft EIS is between 30 and 60 business days. The duration of the period will be confirmed during the draft EIS pre-lodgement phase. The NT EPA will also discuss and explore the viability of inviting and accepting submissions that are made with respect to both the Proposal and Associated Activities in this phase, and will permit such submissions if satisfied this can be done in a way that ensures natural justice to any person entitled to natural justice, and in a manner consistent with the EP Act generally and in particular s 42(d) and the procedural requirements of the EP Regulations.

3.3.2. Form and manner for publication

The draft EIS must:

- provide:
  - a executive summary available as a separate document
  - a main report providing content particular to the Proposal
  - common chapters or appendices on matters affected by the Proposal and the Associated Activities
  - appendices particular to the Proposal
- have a navigable table of contents
- present information in format that is easy to follow including schematics and figures
- include cross-references to common chapters or parts of the common chapters that the EIS relies upon and how those parts should be taken into account for the Proposal
- use hyperlinks to assist with navigation through the document
- generally conform with the web content accessibility guidelines (WCAG) 2.0 level AA and material relevant to creating accessible documents on the NT Government Website.

3.3.3. Public consultation locations

The draft EIS is to be made available in hard copy for public consultation during the submission period at:

- NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap, NT 0820
- Northern Territory Library, 54 Cavenagh St, Darwin, NT 0800
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin, NT 0800
- Northern Land Council, 45 Mitchell Street, Darwin

Appendix A – List of relevant guidance material

The following guidance material is considered relevant to the TOR. This list is not exhaustive, but captures guidance used in the preparation of these TOR and to inform the preparation of the EIS. The proponent must draw on further relevant industry and best practice guidance as part of developing the EIS.

- Brocklehurst, P. S. et al., 2007. Northern Territory guidelines and field methodology for vegetation survey and mapping. Available at: https://territorystories.nt.gov.au/10070/635994/0
- CSIRO 2020. Climate Change in the Northern Territory: State of the science and climate change impacts. https://depws.nt.gov.au/__data/assets/pdf_file/0011/944831/state-of-the-science-and-climate-change-impacts-final-report.pdf
- Commonwealth of Australia, 2013. Significant Impact Guidelines 1.1: Matters of National Environmental Significance. Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance
- DCCEEW, 2023. Interim Engaging with First National People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999: https://www.dcceew.gov.au/sites/default/files/documents/interim-engaging-with-first-nations-people-and-communities-assessments-and-approvals-under-epbc-act.pdf
- DENR, 2020. Northern Territory Climate Change Response: Towards 2050. Department of Environment and Natural Resources: https://climatechange.nt.gov.au/nt-climate-change-response/northern-territory-climate-change-response-towards-2050
- DEPWS, 2021. Northern Territory Offsets Framework. Department of Environment, Parks and Water Security: https://depws.nt.gov.au/environment-information/northern-territory-offsets-framework/northern-territory-offsets-framework
- DEPWS, 2023. Biodiversity Offsets Policy. Department of Environment, Parks and Water Security https://depws.nt.gov.au/__data/assets/pdf_file/0003/1182450/biodiversity-offsets-policy.pdf
- DoH, 2017. Guidelines for Preventing Mosquito Breeding Associated with Construction Practice near Tidal Areas in the NT. https://digitallibrary.health.nt.gov.au/entities/publication/7f82b5df-5b0c-4519-b5aa-49652cbda22e.
- Infrastructure Australia, 2021. Guide to economic appraisal. https://www.infrastructureaustralia.gov.au/guide-economic-appraisal
- Northern Territory Government, 2017. Preventing weed spread guide, Weed Management Branch: https://nt.gov.au/environment/weeds/how-to-manage-weeds/prevent-weed-spread-industry-and-recreation
- NT EPA, 2025. Waste. https://ntepa.nt.gov.au/your-environment/waste
- NT EPA, 2026. Environmental management.https://ntepa.nt.gov.au/publications-and-advice/environmental-management