Northern Territory
Environment Protection Authority

# DIRECTION TO PROVIDE ADDITIONAL INFORMATION

Direction given under clause 14(2)(a) of the
Environmental Assessment Administrative Procedures 1984

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| **Proposal** | Darwin Processing Facility |
| **Proponent** | TNG Limited (Enigma Mining Limited) |
| **Proposed action** | Construct and operate the Darwin Processing Facility at Middle Arm, Darwin Harbour, within Lot 1817, Hundred of Ayers. The facility would process magnetite concentrate railed from the Mt Peake Project, to produce titanium dioxide, vanadium pentoxide and iron oxide, for export. |
| **Environmental impact assessment type** | Environmental Impact Statement (EIS) |
| **Direction** | The proponent is directed to provide the additional information to the EIS, detailed in **Attachment A**:<br>• to address the submissions received in relation to the Supplement<br>• to facilitate the NT EPA's consideration of the final EIS prior to making its assessment report and recommending to the Minister whether an environmental approval should be granted or refused. |
| **Submission period** | The additional information must be submitted to the NT EPA within 12 months of the date of this Direction. |
| **Person authorised to give direction** | |
| **Name and position** | Dr Paul Vogel AM<br>**Chairperson – NT EPA** |
| **Signature** |  |
| **Date of direction** | 20 May 2021 |

ntepa Northern Territory Environment Protection Authority

# Attachment A – Additional information required in relation to the final environmental impact statement TNG Limited – Darwin Processing Facility

Direction to provide additional information under clause 14(2) of the Environmental Assessment Administrative Procedures 1984

| Context | Additional information required |
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| **1. Land suitability, site selection and justification** | |
| 1.1 Site selection and justification process<br><br>The proposal location is about 16 km southeast of the city of Darwin, the Northern Territory's major population centre, and is adjacent to the Darwin Harbour marine environment, sensitive mangrove and Melaleuca fringing vegetation and would potentially have multiple significant impacts on the receiving biophysical and social environment.<br><br>Section 4.3.1 of the Draft EIS, and section 2.7 of the Supplement discuss alternative locations considered for the proposal, concluding that Lot 1817 is the most appropriate location for the proposal, with some degree of consideration of access to utilities, cost, land availability, and economic and social benefits. However, the NT EPA considers that a substantially more detailed and transparent evaluation of the advantages and disadvantages of potential reasonable alternative locations, including processing the ore at the mine site, must be provided. This should include consideration of the relative potential impacts to the environment at each location, including impact on air quality, greenhouse gas emissions, transport of waste materials, potential for surface and ground water impacts, potential impacts from unplanned pollution incidents, impacts on aquatic flora and fauna including mangroves, and aesthetic and community impacts including noise, visual, social and economic impacts. The evaluation must take into consideration the changes to the proposal and new information about | Provide a detailed description of the site evaluation and selection process, taking environmental factors into consideration in a manner that will minimise, to the extent practicable, impacts on natural resources, sensitive ecosystems, and populated areas.<br><br>Demonstrate that reasonable alternative locations have been properly considered and evaluated using site selection criteria.<br><br>Describe how the siting process has considered environmental and social impacts that may occur as a result of the proposal including but not limited to:<br><br>• increased traffic from the transport of materials, including wastes<br>• increased demands on local infrastructure<br>• increased impact, including cumulative impact, on air quality<br>• increased stress on water resources<br>• impacts on the receiving environment<br>• impacts from unplanned pollution events<br>• greenhouse gas emissions<br>• community impacts including noise, visual, social and economic impacts.<br><br>Provide the NT EPA with a description of the process by which the site was selected, including an analysis of alternative sites, justification for the proposed site and related consultation with government authorities, affected |

| Context | Additional information required |
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| environmental values and predicted impacts relating to land clearing, habitat loss, emissions to air and water, and impacts to social amenity.<br><br>DIPL has advised that it does not consider that use of the 64 ha of land for rehabilitation purposes is an appropriate use of land, given that it is zoned for the development of strategic industry.<br><br>Public submissions queried whether the proposal is considered a mining activity under the *Mining Management Act 2001* and whether a Mineral Lease and mining authorisation would be required. | communities and local non-government organisations. The site selection must address matters of national environmental significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the principles of environment protection and management under Part 2 of the *Environment Protection Act 2019* (EP Act).<br><br>Consult with DIPL Lands and Planning in relation to the proposed rehabilitation area to determine whether it would be an acceptable use of the land as proposed.<br><br>Consult with the Department of Industry, Tourism and Trade to determine whether the proposal is classified as a mining activity (mineral processing) and if authorisation under the *Mining Management Act 2001* is required. |
| 2. **Terrestrial ecosystems** | |
| <u>2.1 Wildlife corridor</u><br><br>Clearing for the proposal would remove 92.5 ha of suitable habitat (Eucalypt woodland) for the Black-footed Tree-rat (*Mesembriomys gouldii gouldii*) (vulnerable NT / endangered EPBC) and the Bare-rumped Sheathtail Bat (*Saccolaimus saccolaimus nudicluniatus*) (vulnerable NT / vulnerable EPBC).<br><br>Advice from the NT DEPWS Flora and Fauna Division indicates that the proposal access arrangements would extend the Kittyhawk access road and that this would impact vegetation that is contiguous with a retained wildlife corridor. This would potentially fragment the proposed corridor and reduce the effectiveness for maintaining regional connectivity for the Black-footed Tree-rat (BFTR). | Provide outcomes of consultation with the NT DEPWS Flora and Fauna Division on the proposed access arrangements for the site and provide additional information to demonstrate either:<br><br>• that the proposal would not impact on the proposed wildlife corridor associated with the Kittyhawk Industrial Estate; or<br>• that the proposal would impact on the proposed wildlife corridor and that appropriate measures would be implemented, to ensure that this would not potentially significantly impact the effectiveness of the corridor for maintaining regional connectivity for the BFTR.<br><br>If alterations to the access arrangements are proposed to avoid further habitat fragmentation, provide a detailed description of this, including maps and/or figures and an assessment of the impact of any proposed change. |
| <u>2.2 Residual fauna impacts</u><br><br>The Australian Government Department of Agriculture Water and the Environment (DAWE) considered that the proposal would have a significant residual impact on the BFTR and the Bare-rumped Sheathtail Bat (BRSB), due to habitat loss and fragmentation, and therefore offset conditions | Describe how any significant residual impact due to BFTR and BRSB habitat loss and fragmentation (leading to a reduced area of occupancy) would be offset, with consideration of the relevant conservation advice and the EPBC Act environmental offsets policy. |

| Context | Additional information required |
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| would be required if the proposal is granted environmental approval under the EPBC Act.<br><br>The Supplement states that the proposal would result in a 0.01% reduction of the total available habitat for the BFTR in the Darwin Region and a 4% reduction in the habitat occupied by the species in the Middle Arm area. The proposed habitat loss may be (partially) mitigated by rehabilitation of 64 hectares of degraded habitat outside of the proposal footprint within Lot 1817. However, in the absence of explicit criteria to assess rehabilitation success, there is uncertainty as to the likely effectiveness of the program to restore habitat for the BFTR and the BRSB. | Describe the criteria that would be used to assess rehabilitation success and determine the effectiveness of the rehabilitation program to restore habitat for the BFTR and BRSB. |
| 2.3 Clearing<br><br>The submission from DAWE states that a formal variation request under the EPBC Act may be required if additional clearing is proposed to that identified in the EPBC referral. | Liaise with DAWE to determine whether a variation is required under the EPBC Act. |
| **3. Air quality** | |
| 3.1 Application of management hierarchies<br><br>The Air Quality Assessment (AQA) must demonstrate that best available technology is proposed and that the potential impacts on air quality from the proposal can be managed and are acceptable. The NT EPA's Direction to prepare a Supplement to the Draft EIS (Direction) dated 15 April 2020 required that the Supplement address NTG and public submissions on the Draft EIS related to air quality. | Provide additional detailed information to demonstrate that best available technology is proposed to avoid or reduce air emissions, and that the environmental decision-making hierarchy and the waste management hierarchy (sections 26 and 27 of EP Act) have been applied. |
| 3.2 Benchmarking of emissions<br><br>Benchmarking of emissions controls against best practice is required against additional jurisdiction guidance and experience. Benchmarking must relate the quantity of each inventory pollutant released to the air receiving environment with the activity (e.g. weight of pollutant emitted per quantity of product produced/electricity generated). Benchmarking should | Provide benchmarking that details the air emission prevention and control technology proposed and emissions performance benchmarking against application of best available technology, best practice guidance, performance standards and experience from other jurisdictions and comparable projects in Australia and/or internationally.<br><br>Benchmarking must describe and evaluate the available emission prevention and control technologies and recommend what is feasible for application at |

| Context | Additional information required |
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| reference the NSW Approved methods, Victorian EPA air guidance, and the European Best Available Techniques reference documents.<br><br>Table 5-1 of the AQA indicates that 38 ventilation stacks are included as part of the proposal, including 1 x 100m stack, 15 x 40m stacks, 19 x stacks ranging from 20-39m, and 3 x stacks <20m. It is not clear whether air emission prevention and control equipment or technologies that could lower the required number and height of the stacks, have been considered or applied. As part of the air emissions benchmarking exercise, describe the available technologies capable of reducing the height of required stacks necessary to achieve the required dispersion, the number of stacks required for the facility, and how these have been considered and the resulting changes to air quality impacts. | the proposal. Consider available options for improved technology that could prevent or reduce the required number and height of proposed ventilation stacks. Demonstrate how the proposal would meet the emission levels achievable through application of BAT and best practice. If a recommended technology, emission level or performance standard is found to be not feasible, a detailed and credible justification of the reasons must be provided. |
| <u>3.3 Application of revised Ambient Air National Environment Protection Measure (NEPM) criteria</u><br><br>The AQA consultant used the Ambient Air NEPM criteria from the 2016 version for the assessment. The NEPM was varied in April 2021 and several criteria were reduced. For example for sulfur dioxide the maximum 1 hour and 24 hour reporting standards were strengthened to 100 ppb and 20 ppb respectively.<br><br>The NEPM variation states that the maximum 1 hour average will be strengthened to 75 ppb in 2025. The AQA needs to be revised using the 2021 criteria and the forecast further revision in 2025.<br><br>$NO_2$ standards for 1 hour and annual average were strengthened to 80 ppb and 15 ppb respectively.<br><br>The revised air quality assessment should consider the varied Ambient Air NEPM criteria and present results in the same units of measurement as the Ambient Air NEPM standards and goal. Explain the conversion factors used for concentrations of chemicals in air. | Provide an updated AQA addressing the revised 2021 Ambient Air NEPM criteria and consideration of forecast 2025 criteria. |
| <u>3.4 Receiving air environment and cumulative impacts</u> | Provide a revised AQA to establish ambient air quality and model the impact of emissions from the proposal, based on the most recent available data. For |

| Context | Additional information required |
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| Demonstrate that the impact of the proposal on the receiving air environment has been assessed and considered.<br><br>Data used to establish background air quality was collected in 2017 and therefore did not consider the contribution of the nearby Inpex Onshore Liquefied Natural Gas (LNG) Facility which commenced LNG production and shipping in 2018.<br><br>The AQA should assess the potential impacts of the proposal cumulatively with other existing and approved developments. The current AQA has applied background levels based on the NT EPA's air quality monitoring data; however; consideration should also be given to the scope of emissions from nearby facilities under the current range of licensed emissions under various operating conditions i.e. during both normal standard operations to maximum upset conditions.<br><br>Inpex Onshore LNG Facility and Darwin LNG Environment Protection Licences (EPLs) are available on the NT EPA website.<br><br>The Palmerston background monitoring location is not consistent with prevailing wind conditions (NW and SE) when emissions from the proposal and nearby operating Liquefied Natural Gas (LNG) facilities disperse either towards Darwin (NW) or towards the future Weddell residential area (SE).<br><br>The modelling and assessment of cumulative air quality should consider both the measured and maximum licensed emission rates of nearby operating LNG facilities, together with TNG emission rates for routine operations/unplanned events and emergency events.<br><br>The background concentrations used in the AQA were not the 70th percentiles for all pollutants even though the AQA states this is the case. Where data was available from 2017 at Palmerston the annual average was used as the background concentration, which is not consistent with the process for predicting maximum 1-hour and 24-hour ground level concentrations (GLCs). | each of the pollutants included in the emissions estimate, describe the effect of the proposal on ground level concentrations at the boundary and at receptor locations, and the proposal contribution both in isolation and cumulatively with background as a percentage of the adopted ambient air criteria for the averaging times.<br><br>Where the revised AQA finds that the proposal would contribute a significant portion of the adopted ambient air criteria at boundary and receptor locations, provide a detailed description of how the pollutant emissions have been minimised to the maximum extent achievable through the application of best-practice process design, best available technology and emission controls.<br><br>Where impact assessment criteria are adopted for individual toxic air pollutants, assess the total impact (incremental impact plus background) at the boundary and the nearest existing or likely future off-site sensitive receptor, as required by the NSW Approved Methods.<br><br>Modelling of impacts at receptors must consider the seasonal variation of prevailing wind direction throughout the year. Background monitoring locations used in the AQA must be chosen with consideration of the prevailing wind direction.<br><br>The revised AQA must also:<br><br>• consider and assess impacts against the range of averaging times<br>• confirm the emission rate units in Table 5-1<br>• clarify why the predicted cumulative GLCs at R14 are significantly less than the GLCs for the proposal in isolation<br>• model and assess odour impacts<br>• examine the cumulative impacts with and without the contribution of air pollutants from dry season bushfires<br>• provide the results of modelling that has been undertaken in accordance with the NSW Approved Methods.<br><br>The proposal has been changed to include the addition of the WRP. The Supplement AQA identifies the WRP as a source of air emissions (Supplement Appendix G Figure 5-1), however no point source emissions data or pollution |

| Context | Additional information required |
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| | controls for the WRP are provided (Supplement Appendix G Table 5-1). Provide detail about how emissions of pollutants from the WRP have been characterised, quantified, assessed and incorporated into the AQA, with consideration of the information required to verify emission below. |
| 3.5 Verification of emissions<br><br>Submissions on the draft EIS required assessment of the risks and potential impacts to air quality from the emission of chemicals and particulates from the proposal. The Supplement provided a revised AQA (Supplement Appendix G) with an emissions inventory of pollutants that included suspended particulate ($PM_{10}$, $PM_{2.5}$), deposited dust, nitrogen dioxide ($NO_2$), sulphur dioxide ($SO_2$), ammonia ($NH_3$), hydrochloric acid (HCl) and chlorine ($Cl_2$). The AQA states that the emissions inventory was compiled using manufacturer specification data derived for maximum potential emission limits for operation of the project, and that the emissions data was then used as input for air dispersion modelling. The AQA independent peer review conducted by SLR did not identify any other pollutants of concern (Finding 1.1, Table 2, SLR), but did note that not all information required to assess the appropriateness of the emission estimates used in air dispersion modelling was made available and therefore could not be commented on.<br><br>Submissions received on the Supplement raised concern that the emissions to air had not been properly characterised and requested additional detail about the processing inputs to determine whether all pollutants of concern have been identified and assessed.<br><br>The NT EPA considers that the information provided in the Supplement is not sufficient to evaluate the reliability of emission rates used in modelling. A revised AQA based on final plant design is required.<br><br>As the emissions inventory is the foundation of the air quality assessment, a detailed discussion of the methods used to calculate emission rates for each source must be provided, including all supporting information such as manufacturer design specifications or emissions factors where no direct measurements are available. | Provide a revised AQA that includes a description of how processing inputs and outputs have been considered and accounted for in determining the air pollutants included in the emission estimate, including the nature, composition and variability of constituents in ore concentrate and feed gas. Consider the potential for titanium, vanadium, iron and associated compounds; hazardous air pollutants, heavy metals, total suspended particulates, dioxins and furans, sulphides, volatile organic compounds (VOCs), carbonyl sulphide, acid mists, products of combustion and other chemical elements or compounds in emissions.<br><br>It is noted that CO was included in the Draft EIS AQA but omitted from the Supplement AQA, although justification for this omission was not provided. The revised AQA must include CO emissions.<br><br>Provide confirmation that the air emission assessment has been done in accordance with:<br><br>• the emission standards specified for Group 6 plant and equipment under NSW Protection of the Environment Operations (Clean Air) Regulation 2010<br><br>• Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, as amended (https://www.epa.nsw.gov.au/your-environment/air/industrial-emissions/modelling-assessing-air-emissions) .<br><br>Provide revised process block/flow diagrams and clear descriptions detailing the air pollutants that would be released at each point source, the point source emissions data (concentration, temperature, emission rate, exit velocity, oxygen concentration [including a standardised concentration of 3% $O_2$] and moisture content). Include consideration of the potential wake effects of buildings. |

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| When assessing predicted GLCs the AQA added the modelled GLCs to the background concentrations. However, the methodology to calculate background is unclear. The Direction required the AQA to be completed in accordance with the NSW Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW Approved methods), available at https://www.epa.nsw.gov.au/publications/air/approved-methods-modelling-assessment-air-pollutants-160666.<br><br>The NSW Approved methods guidance states that when using background data for the max hourly concentrations the 100th percentile of background must be used for Level 1 assessments. The AQA is considered a Level 1 assessment as the methodology for a Level 2 assessment was not followed. | Provide site specific emissions calculations for each point source to show that the assessment criteria (i.e. in the ambient air at the boundary of the premises and a receptors) will not be exceeded at and beyond the boundary of the proposal because of emissions from those sources. |
| 3.6 Revised AQA to include receptors<br><br>The suburb of Weddell was included as an air pollution receptor in the Draft Environmental Impact Statement (EIS) Appendix U (Air Quality Assessment – 26 November 2019). However, air quality impacts on Weddell were not considered in the updated Supplement Appendix G (Air Quality Assessment – 25 January 2021), citing that there are currently no plans to develop this area. Advice from the Department of Infrastructure Planning and Logistics (DIPL) indicates that Weddell would likely be developed within the design life of the proposal and that it should be included as an air emissions receptor.<br><br>The future suburb of Mitchell is identified in the Darwin Regional Land Use Plan and Palmerston Eastern Suburbs Area Plan and should also be included as a receptor.<br><br>The NSW Approved Methods state that future planned residential areas must be considered when assessing sensitive receptors. | Provide an updated AQA with Weddell and Mitchell included as receptors, identify potential impacts on receptors, and monitoring and mitigation measures proposed to detect and manage air quality risks and impacts.<br><br>Additionally, given the proximity to current and future industrial developments, include details of air pollutant concentrations at the boundary of the proposal premises to assess against air quality criteria. |
| 3.7 Assessment of emissions variability including start-up, shutdown and upset condition emissions | |

| Context | Additional information required |
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| The Direction to prepare the Supplement and NT EPA guidance for proponents requested a detailed description of the source, quantity and composition of all emissions to air and that assessment of impacts needs to take into consideration routine operations, unplanned upsets and emergency events.<br><br>The AQA included modelling of emissions under normal operating conditions but not from upset (worst-case) conditions, citing (AQA Section 5.2.1) that "emissions from upset conditions are not considered to be credible events because of shut down protocols in place which would be immediately identified by the continuous emissions monitoring proposed for the primary sources of stack emissions" with the referenced source as email communication from TNG Limited to Animal Plant Mineral on 16 December 2020.<br><br>Unplanned events like an unplanned scrubber failure may lead to emissions increases of greater than 200%. Emergency events such as total plant power failure may lead to emissions greater than 500% above routine. Given that 21 scrubber stacks and 15 filter stacks are proposed it is likely that unplanned events such as scrubber failure would not be unexpected, and may occur with some frequency. The AQA states that these unplanned events were not considered because of shutdown protocols based on emissions monitoring. The NT EPA does not accept this justification. | Provide a revised AQA detailing the emission variability, including during start-up, shutdown and upset and emergency conditions, in addition to normal operating conditions. Demonstrate that emissions are being prevented and minimised.<br><br>The revised AQA must model unplanned shutdown/process upset/ scrubber failure/filter blockage events when assessing maximum hourly ground level concentrations of pollutants.<br><br>Describe how unplanned events/failures would be detected, the time likely to be taken to shutdown process units, and the variation/increase in emissions during a shutdown process.<br><br>Consider the variation in routine emissions over a normal run time for a process unit. For example, typically the emission rates for most process units increase over a run (time between maintenance shutdowns) by 20% due to fouling of heat exchangers, boiler tubes, filters, scrubber efficiency etc. |
| 3.8 Third party review comments and recommendations<br><br>SLR conducted a review of the AQA and provided comments and recommendations. | Demonstrate that the AQA review comments and recommendations made by SLR have been addressed. Where comments have not been addressed, a detailed justification must be provided. |
| 3.9 Independent review of revised AQA<br><br>The AQA is required to be revised and updated to address the requirements outlined in the items above. | After the AQA has been revised, engage a specialist independent air consultant, approved by the DEPWS, to conduct an independent review. The air consultant must be a suitably qualified and experienced person who was not involved in the preparation of the draft EIS or the Supplement, and is independent of the construction and design personnel for the proposal and those involved in delivery of it. |

| Context | Additional information required |
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| | Address any comments or recommendations provided as part of the independent review, prior to resubmission of the AQA to the NT EPA. |
| 3.10 Potential impacts on aircraft operating at the Darwin International Airport (DIA)/Royal Australian Air Force (RAAF) Base Darwin<br><br>The proposal is located about 18 km from the DIA/RAAF Base Darwin. The Supplement did not detail the consideration or assessment of potential aviation safety impacts related to plume rise from the proposal. | Provide confirmation that the proponent has consulted with the Civil Aviation Safety Authority and the Department of Defence in relation to any requirements related to tall structures and assessment of potential plume rise impacts, and the details of outcomes of the consultation. |
| **4. Atmospheric processes** | |
| 4.1 Greenhouse gas emissions<br><br>Supplement Appendix I (Discussion Paper – Greenhouse Gas Emissions: Management plan and offsets) discusses the current framework and options for TNG's approach to preparation of a GGMP and potential approaches to offsets; however, no Greenhouse Gas Management Plan was provided.<br><br>The proposed power station emissions should be included as direct emissions in the estimate given the proposed location of the power station within the facility and that its sole purpose is to generate power for the proposal. | Provide a Greenhouse Gas Management Plan (GHGMP) as part of the assessment that demonstrates the contribution of the proposal towards the goal of net zero emissions by 2050. The GHGMP must describe:<br><br>• intended reductions in emissions over the life of the proposal<br>• regular interim and long-term targets that reflect an incremental reduction in scope 1 emissions over the life of the proposal<br>• strategies which demonstrate that all reasonable and practicable measures have been applied to avoid, reduce and offset a proposal's scope 1 emissions over the life of the proposal.<br><br>The NT EPA also requires:<br><br>• credible estimates of scope 1 and scope 2 GHG emissions (annual and total) over the life of the proposal<br>• a breakdown of GHG emissions by source inclusive of, but not limited to, stationary energy, fugitives, transport, and emissions associated with changes to land use, including clearing<br>• projected emissions intensity (emissions per unit of production) for the proposal and benchmarking against other comparable projects.<br><br>The GHGMP must outline how the waste management and environmental decision-making hierarchies have been followed. |
| **5. Inland water environmental quality** | |

| Context | Additional information required |
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| 5.1 Contingency water management during unplanned events or emergencies<br><br>The EIS provides limited detail about how process affected water would be managed during foreseeable unplanned shutdowns or emergency events where there is potential for environmental harm or a significant environmental impact. Supplement Appendix C provides conceptual plans for stormwater management and erosion and sediment control. However, it is unclear how process affected water would be managed and the contingency plans that would be used in the event of an unplanned shutdown or emergency. Additional information is required to clarify how water would be managed without the need for discharge to the receiving environment, with consideration of how the environmental management hierarchies would be applied. | Provide a draft contingency plan (CP) for the facility that incorporates contingency measures for the Process Water Treatment Plant, Water Recycling Plant, stormwater management systems and domestic wastewater (septic) systems. The CP should provide clear procedures for emergency situations (such as accidental spillages, equipment or plant failure) including how process-affected water would be managed. The CP should account for all significant risks and describe how the effectiveness of any proposed impact mitigation actions would be objectively measured or demonstrated.<br><br>The CP should also describe contingencies to be implemented if water management and treatment systems do not perform as expected. |
| **6. Community and economy** | |
| 6.1 Traffic impacts<br><br>DIPL raised the following potential traffic issues:<br><br>• The Traffic Impact Assessment (TIA) identifies a 17 minute delay for vehicles at the existing level crossings for a train passing at 5 km/hr speed (which will be the most likely speed), and the queue lengths would be 928 m and 684 m along Channel Island Road (CIR) and Jenkins Road respectively. DIPL has advised, this is a significant delay and not acceptable as CIR leads to major operations and strategic developments like Inpex, Santos, PWC power station and future Middle Arm development.<br>• The TIA has also not provided impacts at the existing intersections, bridges etc. due to this delay. The delay at the existing level crossing will also have a significant impact on emergency access to, or evacuations from, any incident at these developments. CIR is the only route providing access to the major developments and it is | A revised TIA is required to address the issues raised by the DIPL Transport and Civil Services Division.<br><br>To understand potential solutions and mitigations for traffic impacts, further discussion and agreement with the DIPL Transport and Civil Services Division and the Rail Operator is required. The revised TIA must include a record of the consultation undertaken with DIPL. |

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| crucial to provide uninterrupted flow along CIR for its effective functioning.<br>• The TIA identifies an area for rail siding within the proposed lot. Additional information must be provided to confirm that all siding / loop line bifurcation would happen within the proposed lot boundary. If the bifurcation of the loop line for the siding is proposed to happen outside of the lot boundary this would impact on DIPL's ability to develop a grade separation arrangement for the CIR/Weddell Freeway intersection planned for the future.<br>• The TIA does not address the issue of transportation of waste material generated as a result of the manufacturing process. If the waste is transported to an offsite location it is unclear how this will be transported i.e. by rail or road.<br>• The raw material will be transported to the site by trains coming from south (6 times a week) and finished product will be transported to the Darwin Port (7 times a week). It is unclear how the change of locomotive is proposed to happen within the lot boundaries.<br>• The TIA does not provide any details regarding the internal access road connecting the north and south development. As this road is adjacent to the mangrove area, this will be subject to the tidal current and may impact on the flood immunity. It is also unclear whether the road would be owned by the proponent or the NT Government.<br>• The TIA identifies that there is need for 636 vehicles per day to access the development during operation. It is unclear if there is sufficient area to provide car parking for these vehicles. It is also unclear if bussing is proposed to transport staff to and from the development, if park and ride facilities would be established, and if so, where within the Greater Darwin Area such facilities would be located.<br>• The TIA identifies the emergency exit point on the northern part of the development, required to cross the rail line is ~550m south from the Elizabeth River Bridge. There will be a need to keep this | |

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| access closed at all times to prevent unauthorised use of this emergency exit. This may be an issue when the Weddell Freeway alignment is designed. | |
| <u>6.2 Noise impacts</u><br>• Weddell, if developed, would be located 2.3 km east of the proposal. The impact assessment did not assess noise levels at Weddell or Mitchell.<br>• The noise assessment does not consider cumulative noise. Only construction noise and operational noise from the proposal in isolation has been assessed with respect to compliance with assigned noise levels. The assigned levels at a sensitive receptor are the noise levels allowed from all sources. Noise from DLNG / Inpex /rail/roads etc. plus the proposal must not exceed 35dBA during night time at sensitive receptors. Background noise monitoring was carried out at two locations for 7 days. Background noise levels at ML1 exceed the assigned levels at night time. Therefore if the proposal were to proceed, night time noise exceedance would likely be significantly worse at this location.<br>• When assessing a single noise source such as the proposal alone against assigned noise levels at sensitive receptors, the assigned levels for assessment should be the assigned level minus 5dBA. The noise assessment did not subtract 5dBA from the assigned levels.<br>• The background noise assessment as noted above was only carried out over a 7 day period at 2 locations. The report did not discuss or provide any justification as to why the period monitored was representative of background noise. For example – were DLNG and Inpex operational at normal capacities; rail activity normal etc.<br>• Noise levels at the nearest sensitive receptor in Darwin should have been assessed. Noise travels long distances over water with little or no attenuation. With sound power levels for some of the equipment at the proposal estimated at around 115dBA there is potential for | Provide a revised Noise Assessment that:<br>• includes future sensitive receptor locations such as Weddell and Mitchell<br>• addresses cumulative noise impacts and how this would potentially impact on receptors<br>• includes a level that is 5dBA less than the assigned level when assessing noise from the proposal<br>• describes how the monitoring data collected for the assessment is representative of background data, with consideration of other noise sources in the locality<br>• includes assessment against at least one sensitive receptor location in Darwin CBD. |

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| cumulative noise levels (DLNG/Inpex/rail/road) in Darwin to exceed 35dBA. | |
| 6.3 Alternative workforce accommodation<br>Further information is required on alternative workforce accommodation options as the use of Section 1864 (Bladin Village) for a use that constitutes a sensitive receptor is not appropriate as it could limit the development of other sites located closer to Bladin Village on Middle Arm to support the construction and operation of large gas-based manufacturing. The former INPEX workers village at Howard Springs is owned by the NT Government and being used for mandatory supervised quarantine for repatriated Australians. | Provide information about alternative workforce accommodation considered for the proposal, including any related traffic impacts. |
| 6.4 Visual impact<br>Seven stacks were mentioned in the Draft EIS and the Supplement includes a 100 m high stack and approximately 37 stacks or exhaust pipes, ranging from 9 m to 40 m in height. | Provide a detailed assessment of potential visual amenity impact (including a viewshed and photomontages) on nearby properties, viewpoints from across the harbour including from the CBD and from the Elizabeth River Bridge. |
| **7. Whole of environment** | |
| 7.1 Waste Management<br>The EIS does not provide sufficient detail about how waste generated by the proposal would be managed and disposed of. Table 2-22 of the Supplement indicates that 527,000 tpa (1,443 tpd) of solid waste products would be generated in the processing plant.<br>The NT EPA does not consider it appropriate for the proponent to defer the assessment of potential significant impacts associated with waste from the proposal to a separate or future assessment process. | Given the significant quantities of waste that would be generated by the proposal, the NT EPA requires that a strategy for the management and disposal of waste be developed as part of this assessment process, that demonstrates how all waste from the proposal would be managed, classified, transported and disposed. The strategy must address all aspects and types of waste and describe how the waste management hierarchy would be applied. |
| 7.2 Water demand<br>Power and Water note the proponent's commitment to the construction of a wastewater recycling facility to reduce the development's demand for | Provide additional information about:<br>• construction water requirements (volume and timing) |

| Context | Additional information required |
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| potable water to an annual supply requirement of 3.85 GL/yr. However, the Supplement states "Whilst the volume of water sourced from the Darwin water supply may initially be higher as recycling processes and stormwater harvesting may not yet have commenced, as these systems come online the amount sourced from the Darwin Water Supply will be reduced from that described in the Draft EIS."<br><br>This initial water supply challenge may be significant (the supplement states "The revised water demand for the Project is 13.78 gigalitres per annum.") and hence Power and Water's water supply system (potentially both source, and network) may still need to be augmented to provide for their initial daily water demand, for an unspecified period.<br><br>In the absence of clarity around construction water requirements, the initial daily water demand requirement ahead of commissioning of the alternative water supplies, and timing of the operational phase of the project, Power and Water is unable to reasonably assess the impact the development may have on the Darwin region water supply. | • initial daily water demand requirement ahead of commissioning of the alternative water supplies<br>• fate of construction and operation wastewater prior to commissioning of the wastewater recycling facility<br>• timing of the operational phase of the project<br>• the outcomes of TNG consultation with Power and Water Corporation about assessment of the impact development may have on the Darwin regional water supply. |
| <u>7.3 Receiving environment monitoring program (REMP)</u><br><br>The proposal includes the discharge of emissions to air, land and water providing a potential pathway for the release of contaminants.<br><br>Given the proposed location of the processing facility, the proximity to the marine environment, and the potential for emissions to air, land and water to impact the receiving environment quality, the NT EPA considers that a REMP is required.<br><br>The REMP should include seasonal monitoring of downstream onshore water quality; nearshore marine water quality; sediment deposition; mangrove health; and air quality. Adaptive management strategies should be implemented to ensure the receiving environment is protected throughout the construction and operational phases of the proposal. Continued monitoring of receiving environment quality is imperative to | Provide a conceptual REMP which includes monitoring for the following aspects:<br><br>• Surface water monitoring (sediment basins, overflows and nearshore marine)<br>• Groundwater quality monitoring<br>• Mangrove health, sediments and bio-indicator monitoring<br>• Air quality (dust) monitoring<br>• Airborne noise monitoring<br>• Weed monitoring<br>• Adaptive response monitoring.<br><br>Describe the monitoring framework, monitoring and reporting schedule and methods used to detect impacts. |

| Context | Additional information required |
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| detect any proposal related impacts and ensure the quality of the receiving environment is maintained. | |