



Environmental Authority (Chapter 5A Activities) Permit Number PEN100448409

Under section 310M of the *Environmental Protection Act 1994* this permit is issued to:

Gladstone LNG Pty Ltd
5 Ord Street
West Perth WA 6005

in respect to carrying out Level 1 chapter 5A activities as per Section 23 of the *Environmental Protection Regulation 2008* on the relevant resource authorities listed below:

Project Name	Petroleum Authority Type(s) and Number(s)
Gladstone LNG Project – Fisherman’s Landing	Petroleum Facility Licence 9

This environmental authority takes effect from the date of grant of Petroleum Facility Licence 9 under the *Petroleum and Gas (Production and Safety) Act 2004*.

This authority remains in force unless it is cancelled, surrendered or suspended.

The anniversary date of this environmental authority is 7 May.

This environmental authority is subject to the attached schedule of conditions.

7. 05. 2010

Date

Delegate of Administering Authority
Department of Environment and Resource Management

Additional advice about the application

1. This approval is for the carrying out the following level 1 chapter 5A activities:

Level 1 chapter 5A activity:

Schedule 5, Item 8: A petroleum activity, other than a petroleum activity mentioned in items 1 to 7, that includes 1 or more chapter 4 activities for which an aggregate environmental score is stated, namely:

- ERA 8(3)(a) – Chemical storage – storing more than 500m³ of class C1 or C2 combustible liquids under AS1940 or dangerous goods class 3.
- ERA 9(b) – Hydrocarbon gas refining – refining in a year 200 000 000m³ or more of natural gas.
- ERA 14(1) – Electricity generation – generating electricity by using gas at a rated capacity of 10MW electrical or more.
- ERA 50(2) – Bulk material handling – loading or unloading 100t or more of bulk material in a day or stockpiling bulk materials

2. This approval pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any additional approval for this activity which might be required by other State and/or Commonwealth legislation. Other legislation administered by DERM for which a permit may be required includes but is not limited to the:

- *Aboriginal Cultural Heritage Act 2003*;
- The contaminated land provisions of the *Environmental Protection Act 1994*;
- *Nature Conservation Act 1992*; and
- *Water Act 2000*.

Applicants are advised to check with all relevant statutory authorities and comply with all relevant legislation.

3. This environmental authority consists of the following Schedules

Schedule A – General conditions
Schedule B – Air
Schedule C – Water Management
Schedule D – Noise Management
Schedule E – Waste Management
Schedule F – Land Management
Schedule G – Storage and Handling of Chemicals, Flammable and Combustible Substances
Schedule H – Petroleum Infrastructure
Schedule I – Monitoring Programs
Schedule J – Community Issues
Schedule K – Notification Procedures
Schedule L – Definitions
Appendix A – Maps and Plans

SCHEDULE A GENERAL CONDITIONS**PREVENT AND/OR MINIMISE LIKELIHOOD OF ENVIRONMENTAL HARM**

- (A1) This authority does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.
- (A2) In carrying out petroleum activities the holder of this authority must prevent and / or minimise the likelihood of environmental harm being caused.

MAINTENANCE OF MEASURES, PLANT AND EQUIPMENT

- (A3) The holder of this authority must:
- install all measures, plant and equipment necessary to ensure compliance with the conditions of this authority; and
 - maintain such measures, plant and equipment in a proper and efficient condition; and
 - operate such measures, plant and equipment in a proper and efficient manner.
- (A4) All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this authority must be calibrated, appropriately operated and maintained.
- (A5) The holder of this authority must ensure that daily operation and maintenance of all plant and equipment relating to the authorised petroleum activities are carried out by suitability qualified, competent and experienced person(s).
- (A6) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases the risk of environmental harm from the petroleum activities.
- (A7) All analyses and tests required to be conducted under this authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

ENVIRONMENTAL MANAGEMENT PLAN

- (A8) From commencement of this authority, an environmental management plan (EM Plan) must be implemented. The EM Plan must identify all sources of actual or potential environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources, and the actions that must be taken to prevent the likelihood of environmental harm being caused. The EM Plan must also provide for its regular review, and 'continuous improvement' in the environmental performance of the activities that are carried out on the site.

The EM Plan must address the following matters:

- identification of environmental issues and potential impacts;
- environmental commitments - a commitment by the holder of this approval to achieve specified and relevant environmental goals;
- control measures for routine operations to prevent or minimise environmental harm;
- contingency plans and emergency procedures for non-routine situations to prevent or minimise environmental harm;
- organisational structure showing how responsibility for environmental management is accounted for in the organisation;
- an effective communication system for environmental management goals, control measures and contingency plans;
- the regular and emergency monitoring of contaminant releases;
- the conduct of environmental impact assessments;
- staff training in environmental management policies and practices;

- j) record keeping; and
 - k) periodic review of environmental performance, and continual improvement.
- (A10) The holder of this authority must develop and implement a greenhouse gas reduction strategy for the petroleum project no later than three (3) months prior to the commencement of operations. The strategy must address, but not necessarily be limited to:
- a) the company's policy on greenhouse gas emissions;
 - b) an energy efficiency program;
 - c) a continuous improvement program;
 - d) better control systems; and
 - e) a CO2 minimisation plan.
- (A11) A Waste Management Program (WMP) in accordance with Part 5 of the *Environmental Protection (Waste Management) Policy 2000* must be developed three (3) months prior to the commencement of construction. It must be implemented at the commencement of construction activities and maintained for the duration of authorised petroleum activities.
- (A12) The EM Plan must not be implemented or amended in a way that contravenes or is inconsistent with any condition of this approval.
- (A13) Contingency plans and emergency procedures must be developed and implemented for non-routine situations to deal with foreseeable risks and hazards including corrective responses to prevent and mitigate environmental harm (including a contingency plan when plant shuts down for maintenance or other reasons).

THIRD PARTY AUDITING

- (A14) Compliance with the conditions of this authority must be audited by an appropriately qualified third party auditor, nominated by the holder of this authority and accepted by the administering authority, within one year of the commencement of this authority, and annually thereafter.
- (A15) The holder of this authority must submit a copy of the final third party audit report to the administering authority with each annual return.
- (A16) The third party auditor must certify the findings of the audit in the report.
- (A17) The financial cost of the third party audit is borne by the holder of this authority.
- (A18) The holder of this authority must immediately act upon any recommendations arising from the audit report and:
- a) investigate any non-compliance issues identified; and
 - b) as soon as practicable, implement measures or take necessary action to ensure compliance with this authority.
- (A19) Subject to Condition (A14), and not more than three (3) months following the submission of the audit report, the holder of this authority must provide written advice to the administering authority addressing the:
- (a) actions taken by the holder to ensure compliance with this authority; and
 - (b) actions taken to prevent a recurrence of any non-compliance issues identified.

FINANCIAL ASSURANCE

- (A20) The holder of this authority must provide a financial assurance in the amount and form required by the administering authority for the authorised petroleum activities.
- (A21) Subject to Condition (A20), the holder of this authority must revise the estimate of financial assurance every five (5) years from the date of grant.

- (A22) In accordance with Condition (A21), the revised calculation of financial assurance must be provided to the administering authority on the anniversary date of this authority
- (A23) The financial assurance is to remain in force until the administering authority is satisfied that no claim is likely to be made on the assurance.

DEFINITIONS

- (A24) Words and phrases used in this authority are defined in Schedule L – Definitions. Where a definition for a term used in this authority is not defined within this authority, the definitions in the *Environmental Protection Act 1994*, its Regulation and Environmental Protection Policies must be used.

SCHEDULE B AIR

NUISANCE

- (B1) The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activities must not cause an environmental nuisance (as defined in the *Environmental Protection Act 1994*) at a sensitive place or commercial place.
- (B2) The release of dust and/or particulate matter resulting from the activities must not cause an environmental nuisance (as defined in the *Environmental Protection Act 1994*) at a sensitive place or commercial place.

RELEASE OF CONTAMINANTS TO THE ATMOSPHERE

- (B3) The release of contaminants to the atmosphere from a point source must only occur from those release points identified in *Schedule B, Table 1 - Contaminant Release Points* and must be directed vertically upwards without any impedance or hindrance.
- (B4) Contaminants must be released to the atmosphere from a release point at a height and a flow rate not less than the corresponding height and velocity stated for that release point in *Schedule B, Table 1 - Contaminant Release Points* and in Conditions (B10) and (B14) for flare contaminants.
- (B5) Contaminants must not be released to the atmosphere from a release point at a mass emission rate/concentration, as measured at a monitoring point, in excess of that stated in *Schedule B, Table 2 - Contaminant Release Limits to Air*.
- (B6) Contaminants must be monitored not less frequently than specified in *Schedule B, Table 2 - Contaminant Release Limits to Air*.
- (B7) Monitoring of any releases to the atmosphere required by a condition of this authority must be carried out in accordance with the following requirements:
- (a) monitoring provisions for the release points listed in *Schedule B, Table 2 - Contaminant Release Limits to Air* must comply with the Australian Standard AS 4323.1 - 1995 'Stationary source emissions, Method 1: Selection of sampling positions' (or more recent editions); the following tests must be performed for each determination specified in *Schedule B, Table 1 - Contaminant Release Limits to Air*:
 - i. gas velocity and volume flow rate;
 - ii. temperature; and
 - iii. water vapour concentration (moisture content);
 - (b) where practicable, samples must be taken when emissions are expected to be at normal operating conditions; and

- (c) during the sampling period the following additional information must be gathered:
- i. production rate at the time of sampling;
 - ii. raw materials used;
 - iii. number of turbines operating; and
 - iv. reference to the actual test methods and accuracy of the methods.

- (B8) All release points referred to in Schedule B, Table 1 - Contaminant Release Points must be conspicuously marked with the corresponding release point number.

Schedule B, Table 1 – Contaminant Release Points

Release Point Number	Source Description	Stack Height (m)	Release Velocity * (m/s)
RP1	Gas turbine Stage 1 unit 1	25	25
RP2	Gas turbine Stage 1 unit 2	25	25
RP3	Gas turbine Stage 2 unit 1	25	25
RP4	Gas turbine Stage 2 unit 2	25	25
RP5	Auxiliary boiler unit 1	25	14
RP6	Auxiliary boiler unit 2	25	14

*These limits apply during normal operating conditions.

Schedule B, Table 2 – Contaminant Release Limits to Air

Monitoring Location	Contaminant	Emission Limits *	Frequency of Monitoring
RP1	Oxides of Nitrogen (NOX)	25 ppmv dry at 15% O ₂ and 3.56 g/s (per stack)	All stacks must be monitored during commissioning of the facility and annually thereafter
RP2			
RP3			
RP4			
RP5			
RP6			
RP1	Volatile Organic Compounds (VOC)	5.9 ppmv dry at 15% O ₂ and 0.2 g/s (per stack as methane equivalent)	
RP2			
RP3			
RP4			
RP5			
RP6			
		30 mg/Nm ³ dry at 5% O ₂ and 0.4 g/s (per stack.)	

* These limits are applicable during normal operating conditions.

- (B9) Within three (3) months of commissioning the facility, the holder of this authority must conduct air emission monitoring to demonstrate compliance with air emission limits listed in Schedule B, Table 2 and provide documentation of the monitoring to the administering authority.

FLARE RELATED CONDITIONS

- (B10) Contaminants released to the atmosphere from the flare at a height not less than the 30 m above ground.
- (B11) The flare* must be equipped with a flare tip design to provide good mixing with air, flame stability and achieve a minimum Volatile Organic Compound (VOC) removal efficiency of 98% under varied gas flow rate and meteorological conditions and meet the best practice design standards of NSW EPA: Protection of the Environmental Operations (Clean Air) Amendment (Industrial and

Commercial Activities) Regulation 2005, US EPA Code of Federal Regulations: 40 CFR 60.18 and 40 CFR 63.11.

* The flare plume must satisfy the Civil Aviation Safety Authority (CASA) requirements prior to operation.

- (B12) The flare must be equipped with a continuously burning pilot or other automatic ignition system that assures gas ignition and provides immediate notification to appropriate personnel when the ignition system ceases to function.
- (B13) The flare must be designed to handle large fluctuations in both the volume and the chemical content of gases.
- (B14) Visible smoke and particulate emissions must not be permitted for more than five minutes in any two hour period.

SCHEDULE C WATER MANAGEMENT

EROSION AND SEDIMENT CONTROL

- (C1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment. Reasonable and practicable measures are outlined in "Soil and Erosion Control. Engineering Guidelines for Queensland Construction Sites", June 1996 published by the Institution of Engineers, Australia, Queensland Division.
- (C2) Erosion control and sediment control structures must be checked, repaired or replaced as required after each rain event.

CONTAMINANT RELEASES TO GROUNDWATERS

- (C3) There must be no release of contaminants to groundwaters.

CONTAMINANT RELEASES TO SURFACE WATERS

- (C4) The only contaminants permitted to be released to surface waters are:
 - (a) stormwater in accordance with Conditions (C9) to (C12); and
 - (b) cooling water blowdown in accordance with Conditions (C16) to (C43).
- (C5) The release of contaminants directly or indirectly to waters:
 - (a) must not produce any visible discolouration of receiving waters; and
 - (b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

STORMWATER MANAGEMENT

- (C6) A stormwater management plan including discharge point locations must be submitted and approved by the administering authority, prior to operating the approved activity at the site.
- (C7) The stormwater management plan specified in Condition (C6) must be implemented.
- (C8) The stormwater management plan specified in Condition (C6) must be reviewed and updated annually.
- (C9) The release of contaminants via stormwater must:
 - (a) only occur at the release points specified in Schedule C Table 1; and
 - (b) comply with each of the water quality limits specified in Schedule C Table 1.

- (C10) Stormwater discharges must be monitored by *in situ* testing prior to discharge and daily during discharge events.
- (C11) Notwithstanding the quality characteristic limits specified in Schedule C Table 1, the release of contaminants via stormwater must not have any properties nor contain any organisms or other contaminants which, in the opinion of the administering authority, are capable of environmental harm or nuisance.
- (C12) The stormwater detention basin(s) must be designed to ensure they can hold stormwater from a 1 in a 10 year flood event.

Schedule C - Table 1: Contaminant release limits to water based on *in situ* testing

Quality characteristics	Release point/ Sample point	Discharge limit	Limit type
Dissolved Oxygen	S2 as shown in Appendix A – Plan 2	4.0 mg/L	minimum
pH		6.5 – 8.5	range
Hydrocarbons		No visible sheen, oil or objectionable material	maximum
Temperature		Background \pm 2°C	range
Turbidity		20 NTU	maximum
Electrical Conductivity		57 mS/cm	maximum
Total Dissolved Ions		Background + 10%	maximum

SPILLAGE CONTROL

- (C13) The spillage of bulk products being loaded or unloaded, wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillage must not be cleaned up by hosing, sweeping or otherwise releasing such wastes, contaminants or material to any external storm water drainage system, roadside gutter or waters.

MAINTENANCE OF STORMWATER MANAGEMENT DEVICES

- (C14) Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering the LNG facility footprint.
- (C15) All stormwater management devices must be installed and maintained to ensure they are working properly at all times, including the following:
- oil and grit separator devices;
 - detention basin(s);
 - grass swales; and
 - trash racks and protected risers.

PERMITTED WASTEWATER RELEASE AND DISCHARGE POINTS

- (C16) Wastewater discharged from the site must not exceed the release limits specified in Schedule C – Table 2 measured at the monitoring point S1 the location of which is shown on Appendix A – Plan 2 attached to this environmental authority.

Schedule C – Table 2: Release Quality Limits

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	RELEASE LIMIT (at S1)	LIMIT TYPE	MINIMUM MONITORING FREQUENCY
Located at a depth of 5m LAT located directly beneath the jetty stem near the connection to the jetty head – as shown on Appendix A – Plan 2.	S1 (pre-diffuser)	Dissolved Oxygen (mg/L)	6.0	minimum	Weekly
		pH	6.5 to 8.5	range	
		Zinc (filtered) (mg/L)	2.3	maximum	
	Located at the edge of the GPC lease boundary for the plant at the jetty end. – as shown on Appendix A – Plan 2.	Total Phosphate (mg/L)	9.9	maximum	
		Filterable Reactive Phosphorous (mg/L)	1.2	maximum	
		Total Suspended Solids (mg/L)	10	maximum	
		Chlorotolyltriazole (mg/L)	1.0	maximum	

MONITORING

- (C17) Monitoring of contaminants released to Port Curtis must be undertaken for the quality characteristics and parameters, at the monitoring point(s), and at the frequency specified in Schedule C – Table 2.
- (C18) All determinations of the quality of toxicants in the wastewater discharge released must be made on samples that are representative of the discharge.
- (C19) All determinations of the quality of contaminants released must be made in accordance with the methods prescribed in the latest edition of the Department of Environment and Resource Management's *Monitoring and Sampling Manual - Environmental Protection (Water) Policy*, and be carried out on samples that are representative of the discharge.
- (C20) The daily volume of wastewater discharged from the petroleum activities prior to dilution with any seawater must be determined or estimated by an appropriate method with an accuracy of +/- 5%, (e.g. a calibrated flow meter) and records kept of such determinations.
- (C21) A record must be kept of all days on which no release to waters occurred and an entry of zero recorded for that day's discharge volumes.

TOXIC SUBSTANCES

- (C22) Notwithstanding any other condition of this environmental authority, there must be no discharge of any contaminants to any waters where the no observed effect concentration (NOEC) for acute toxicity tests to any test organisms in a direct toxicity assessment (DTA) is observed at a 0.5% concentration i.e. the lowest observed effect concentration (LOEC) must only be observed at a mixing ratio of 1:202 (wastewater : receiving water).
- (C23) Notwithstanding any other condition of this environmental authority, there must be no discharge of any contaminants to any waters where the NOEC for chronic toxicity tests to any test organisms in DTA is observed at a 0.5% concentration i.e. the LOEC must only be observed at a mixing ratio of 1:202 (wastewater : receiving water).

Note: The acute and chronic NOEC and LOEC limits set are based on the modeling undertaken and the historic ecotoxicology literature and relevant water quality guidelines. These limits are subject to change, pending the outcomes of the diffuser validation study and the Confirmation DTA".

DIFFUSER VALIDATION

- (C24) The holder of this environmental authority must provide to the administering authority a monitoring plan for the diffuser modelling validation at least three (3) months prior to the commencement of the discharge of wastewater to Port Curtis. The Monitoring Plan (Diffuser Validation) must have the following objectives:
- (a) to validate all modelling and investigations related to the diffuser;
 - (b) to confirm that expected dilutions predicted in design of the diffuser under specified flow conditions are met as a minimum; and
 - (c) to confirm the expected dilutions as affected by tidal cycles particularly for periods when tidal velocities are less than 0.1m/sec at the site of the diffusers.
- (C25) The Monitoring Plan (Diffuser Validation), required by Condition (C24), must include (but not be limited to) the following:
- (a) a description of the diffuser;
 - (b) a list of environmental values located within and adjacent to the diffuser to be protected;
 - (c) background sampling of the water column;
 - (d) sampling of the water column in the plume to determine and confirm the extent of the mixing zone;
 - (e) an assessment of the need for and practicality of using dye tests to aid in understanding performance of the diffuser;
 - (f) sufficient samples must be taken to determine:
 - i. The extent (spatially and temporally) of the mixing zone;
 - ii. The magnitude/concentration (spatially and temporally) of the mixing zone; and
 - iii. The extent of the plume during periods when tidal velocities are less than 0.1m/sec.
 - (g) the methods for collection and analysis of the samples;
 - (h) the methods of analysing the data and responding to the results; and
 - (i) monitoring must be done by a competent person in accordance with methods prescribed in the latest edition of the DERM Monitoring and Sampling Manual and carried out on representative samples.
- (C26) The holder of this environmental authority must:
- (a) have due regard to comments, provided by the administering authority, in the finalisation of the Monitoring Plan (Diffuser Validation).
 - (b) implement the Monitoring Plan (Diffuser Validation).
- (C27) The holder of this environmental authority must provide to the administering authority a Diffuser Validation Report within 20 business days of receipt of results obtained from the Monitoring Plan (Diffuser Validation). The report must include:
- (a) the outcome of the monitoring including the methodology and findings of the Monitoring Plan (Diffuser Validation);
 - (b) a determination on the validation of modelling and investigations undertaken;
 - (c) any resulting recommendations for changes to the waste water release regime and the monitoring program; and
 - (d) any resulting recommendations for changes that are necessary to minimise the likelihood of environmental harm and size of the initial mixing zone.

DIRECT TOXICITY ASSESSMENT (DTA)

- (C28) A written DTA program that effectively measures toxicity of the wastewater discharge must be developed and submitted to the administering authority at least three (3) months prior to the discharge of wastewater to Port Curtis.

- (C29) The DTA program must be submitted to the administering authority prior to discharge commencing and amended to take account of any comments provided by the administering authority.

CONFIRMATION DTA (post-commissioning)

- (C30) The holder of this environmental authority must undertake a Confirmation DTA on a sample of the wastewater discharge. The sample must be representative of the wastewater discharge quality expected into the foreseeable future. This Confirmation DTA must be undertaken within the first three (3) months of the commencement of operations.

CONFIRMATION DTA (process modification)

- (C31) The holder of this environmental authority must undertake a risk assessment and revisit the Cooling Water Marine Impact Assessment when any change in the petroleum facility operation or management of the wastewater stream occurs.
- (C32) If a potential impact on ecotoxicological endpoints is identified, a Confirmation DTA must be undertaken to quantify any impacts.

EVENT-BASED DTA (prolonged non-compliance)

- (C33) In the event that any toxicant identified in Schedule C-Table 2 exceeds the compliance limit on three (3) consecutive monitoring occasions then the holder of this environmental authority must collect sufficient wastewater to perform a DTA at the time the fourth monitoring occasion is due to take place. The wastewater sample should be stored in an appropriate manner. Preparations should be made with the DTA testing laboratory to potentially receive a sample to be tested on the following week. Priority chemical analysis should be arranged with the testing laboratory for the contaminant expected to potentially exceed the compliance limit for the fourth consecutive occasion and to report the result as soon as practicably possible. Should the analysis determine that the contaminant has indeed exceeded the compliance limit for the fourth consecutive occasion then the previously collected wastewater sample must be priority dispatched to the DTA testing laboratory for immediate testing.

TOXICITY MANAGEMENT PLAN

- (C34) Where any Confirmation DTA result demonstrates any observable toxic effect not in compliance with Conditions (C22) or (C23), then the holder of this environmental authority must either:
- demonstrate to the satisfaction of the administering authority that the cause of the non-compliant toxicity result has been rectified (supported by, for example, monitoring data and other relevant accompanying information) and is unlikely to recur, or must otherwise;
 - conduct a risk assessment and implement suitable management measures to mitigate any risk, which may include:
 - investigating the predicted concentrations in the receiving environment, using the diffuser modelling and plume validation study;
 - taking actual measurements of the contaminant/s of concern in the receiving environment, at or near the approved mixing zone boundary;
 - water column profiling of temperature and salinity to examine actual dilution of cooling waters; and
 - comparing background concentrations to key reference site data; or must otherwise; and
 - undertake further DTAs on six (6) monthly basis, and/or perform a Toxicity Identity Evaluation (TIE), until compliance with both Conditions (C22) and (C23) is achieved.

DTA PROCEDURE

- (C35) The DTA procedure must address the following:

- (a) all specific methods and protocols to establish that concentrations of toxicants do not exhibit chronic toxicological effects outside the approved chronic toxicity limits to the test biota, including but not limited to:
- i. specific test organisms to be utilised for DTA testing, in accordance with Section 8.3.6.8 of the ANZECC/ARMCANZ Australian and New Zealand *Guidelines for Fresh and Marine Water Quality* (2000), to provide an accurate indication of actual & chronic toxic effects in the receiving waters, taking into consideration locally occurring species and the nature of any change being investigated;
 - ii. dilution water selection (should be locally collected seawater, with an artificial seawater control);
 - iii. sampling methodology to ensure that a representative sample is obtained of wastewater prior to release to diffusers under worse case conditions, e.g. highest probably concentration (lowest seawater dilution) and daily process activity.
 - iv. characterisation of the discharge wastewater, including temperature and potential toxicant(s) present;
 - v. the nature of the contaminant(s);
 - vi. acute and chronic DTA testing conducted on end-of-pipe discharge wastewater;
 - vii. the mixing zone dilution effects likely to be provided by the discharge structure;
 - viii. test/biological end points;
 - ix. statistical end-points (including No Observed Effect Concentration-(NOEC) and Lowest Observable Effect Concentration (LOEC), Effect Concentration 10% (EC₁₀) and Lethal Concentration (LC₁₀));
 - x. quality assurance/quality control;
 - xi. applicable Toxicity Identification Evaluation (TIE) procedures to be followed should the administering authority require such an evaluation; and
 - xii. reporting of DTA procedure results promptly to the administering authority, which must include but not be limited to:
 1. NOEC for all bioassay results;
 2. LOEC for all bioassay results;
 3. EC₁₀ for all bioassay results demonstrating sufficient toxicity to calculate this value;
 4. LC₁₀ for all bioassay results demonstrating sufficient toxicity to calculate this value;
 5. information on the test sample and dilution water collection;
 6. timing of test sample collection in relation to process performance;
 7. details of any water quality-related manipulation of the test sample if required (subject to approval by the administering authority);
 8. test sample and dilution water delivery details;
 9. results of the chemical analysis of the test sample for known toxicants of concern (i.e. all parameters on Tables 2 and 3 are a minimum requirement in addition to parameters indicative of any change), receiving environment dilution water, and the test water (wastewater/receiving water) for each of the dilutions;
 10. time between test sample collection and commencement of the DTA (which should be kept to a minimum); and
 11. interpretation of results e.g. relating NOEC to the trigger values, the extent of the mixing zone based on acute and chronic end-points and modelling predictions, and additional dilution of seawater at low current conditions; and
- (b) submitting the final DTA report within 80 business days of the commencement of the DTA requirement.

- (C36) The holder of this environmental authority must have due regard to the administering authority's comments in the finalisation of any and all DTA-related protocols and procedures.
- (C37) The holder of this environmental authority must not change the DTA Program without the prior written approval of the administering authority.
- (C38) The DTA must be designed and performed by a suitably qualified person.

RECEIVING ENVIRONMENT MONITORING PROGRAM (REMP)

- (C39) The holder of this environmental authority must implement a REMP based on the outcomes of a background environmental investigation, pertaining to the receiving waters (i.e. Port Curtis and connected waters) that address at least the following:
- (a) description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality); and
 - (b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy 2009*); and
 - (c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed; and
 - (d) water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the REMP.

CONTAMINANT AND RELEASE REDUCTION STRATEGY

- (C40) The holder of this environmental authority must implement studies to investigate alternative means for the treatment and management of the wastewater discharge stream to Port Curtis from the petroleum facility. The Contaminant and Release Reduction Strategy will have the following objectives:
- (a) to avoid the discharge of contaminants;
 - (b) to reduce the discharge of contaminants; and
 - (c) to demonstrate "No Observed Toxicological Effect" in the discharge.
- (C41) The Contaminant and Release Reduction Strategy Study, required by condition C39, must include, as a minimum, the following:
- (a) an investigation of the feasibility of alternative options, practices and procedures to avoid or further minimise the volume and concentration of contaminants released to waters including (but not limited to) avoiding discharge, improving the quality of the discharge, best practice re-use and recycling alternatives, segregation of waste streams and source reduction and the use of other treatment technologies (i.e. mixing and subsequent disposal with other waste streams); and
 - (b) the Water Quality Objectives in the *Environmental Protection Policy (Water) 2009*;
 - (c) where alternative options, practices and procedures are not considered feasible, the provision of a report providing justification to support that determination;
 - (d) to provide a regular review of emerging technologies or reuse options that may achieve significant load reductions, or zero loads of contaminants;
 - (e) to provide a regular review of emerging technologies that may reduce toxic effects of the wastewater discharge; and
 - (f) to develop five year programs of implementation of any feasible measures consistent with best practice environmental management for the relevant contaminants.
- (C42) The initial Contaminant and Release Reduction report must be submitted to the administering authority within two (2) years of the start of wastewater discharge to Port Curtis. The report(s) must, as a minimum, include the following:
- (a) details of the specific options, practices and procedures investigated; and
 - (b) where alternative options, practices and procedures are not considered feasible, the provision of justification to support that determination; and
 - (c) details of the option(s) to be implemented by the holder of this development approval, including the timeframes for implementation, and justification for the chosen option/s.
- (C43) Any REMP monitoring data and/or DTA data must be made available to DERM upon request in the format specified by the requesting officer within 10 business days.

SCHEDULE D NOISE MANAGEMENT

- (D1) Noise from the LNG plant activities must not cause environmental nuisance at any sensitive place or commercial place.
- (D2) When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive place or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- (D3) If the authority holder can provide evidence through monitoring that the limits defined in Schedule D – Table 1 are not being exceeded as a result of noise emissions from petroleum activities then the holder is not in breach of Condition (D1). Monitoring and subsequent analysis must provide:
- determination of $L_{Aeq,15 mins}$ for the LNG plant noise at the noise sensitive place or commercial place;
 - narrow band analysis and the noise 'signature' of the LNG plant to determine the contribution from the LNG plant to the total noise level at the noise sensitive place or commercial place;
 - the level and frequency of occurrence of impulsive or tonal noise;
 - taking measurements of the low frequency noise below 200 Hz;
 - atmospheric conditions including temperature, wind speed and direction; and
 - location, date and time of recording.
- (D4) If monitoring indicates exceedence of the limits in Schedule D – Table 1 due to the contribution from the LNG plant activities, then the holder of this authority must:
- resolve the complaint with the use of appropriate dispute resolution techniques to the satisfaction of the administering authority; or
 - consider Best Practice Environmental Management in instigating noise abatement measures to comply with noise emission limits in Schedule D – Table 1.

Schedule D - Table 1 – Noise component limits for the LNG Plant

Noise component at the following locations (outdoors):				
	No 2 Fisherman's Rd	Smith Road locality	Larcombe Street locality	Curtis Island
$L_{Aeq,15 mins}$	37 dB(A)	24 dB(A)	24 dB(A)	28 dB(A)
$LA_{1adj,15 mins}$	42 dB(A)	29 dB(A)	29 dB(A)	33 dB(A)

Notes: A map showing the exact location of residential noise receptors in the vicinity of Fisherman's Landing is attached in Appendix A – Plan 3.

The noise levels in Table 1 apply for the day, evening and night periods since the LNG plant operates continuously on a 24-hour basis.

- (D5) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

NOISE CONTROL MEASURES

- (D6) The authorised activities must be carried out by such reasonable and practicable means necessary to minimise the noise generated. The measures adopted must be incorporated into the relevant procedure(s) implemented under the Environmental Management Plan required by Condition (A10) and must include, but not necessarily be limited to, the following noise abatement measures:
- ensure that any equipment to be used on the site is assessed for potential noise nuisance impacts and appropriately attenuated;

- (b) low frequency components at the plant including the gas turbine are to be attenuated according to Australian standards and Best Practice Environmental Management;
- (c) ensure that engine cowlings and high efficiency silencers are fitted to all the engines of all plant and equipment identified as impacting on noise sensitive receivers; and
- (d) where operation of reversing beepers is likely to cause environmental nuisance, taking measures to ensure mitigation of the environmental nuisance, for example by de-tuning the reversing beepers, replacing the reversing beepers with other warning devices and/or replacing reversing beepers with alternative reversing beepers which adjust their noise level output in accordance with the prevailing background noise level.

LOW FREQUENCY NOISE

- (D7) Notwithstanding Condition (D1) and the limits specified in Table 1 in Condition (D4), emission of any noise below 200 Hz must not cause an environmental nuisance.
- (D8) Low frequency noise from the LNG plant is NOT considered to be a nuisance under Condition (D7) if monitoring shows that noise emissions do not exceed the following limits:
 - (a) 50 dB(Z) measured inside the noise sensitive place or commercial place; and
 - (b) the difference between the internal A-weighted and Z-weighted noise levels is no greater than 15 dB.

SCHEDULE E WASTE MANAGEMENT

- (E1) Waste generated in the carrying out the activities must be stored, handled and transferred in a proper and efficient manner. Waste must not be released to the environment, stored, transferred or disposed in a manner that contravenes any condition of this environmental authority.
- (E2) The holder of this authority must ensure that activities authorised under this environmental authority do not result in the release or likely release of a hazardous contaminant to land or waters, unless specifically authorised by a condition of this environmental authority.
- (E3) The holder of this authority must ensure that all general waste produced from the conducting of the activities under this environmental authority is removed and disposed of at a facility that is permitted to accept such waste.
- (E4) All regulated waste removed from the site must be removed by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994* and sent to a facility that is permitted to accept such waste.
- (E5) When regulated waste is removed from within the boundary of the authorised facility and transported by the holder of this authority, a record must be kept of the following:
 - (a) date of waste transport;
 - (b) quantity of waste removed and transported;
 - (c) type of waste removed and transported;
 - (d) quantity of waste delivered; and
 - (e) any incidents (e.g. spillage) that may have occurred en route.
- (E6) Regulated waste is not permitted to be disposed on site, including septic waste and concentrate water from the reverse osmosis plant.

SCHEDULE F LAND MANAGEMENT

PREVENTING CONTAMINANT RELEASE TO LAND

- (F1) All chemicals, fuels and other liquid contaminants must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and in

accordance with appropriate standards including: AS4326 Storage and Handling of Oxidising Substances, AS1940 - Storage and Handling of Flammable and Combustible Liquids and AS3780 - The Storage and Handling of Corrosive Substances.

CONTAMINATED LAND

- (F2) Prior to construction, investigations must be carried out in accordance with the Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland (EPA, 1998), the *Environmental Protection Act 1994*, and the National Environment Protection (Site Assessment) Measure 1999 (NEPM) for contaminated land unless otherwise agreed in writing by the administering authority.
- (F3) As soon as practicable and within 3 (three) months of cessation of authorised activities that cause any significant disturbance to land, the holder of this authority must investigate contaminated land status in accordance with *Environmental Protection Act 1994* requirements and the NEPM where land has been subject to contamination caused by activities authorised under this authority;

ACID SULFATE SOILS

- (F4) The holder of this authority must conduct an acid sulfate soils (ASS) investigation prior to construction and in accordance with the requirements of the State Planning Policy 2/02 Development involving Acid Sulfate Soils and relevant guidelines such as the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland 1998 unless otherwise agreed in writing by the administering authority.
- (F5) Acid sulfate soils must be managed such that contaminants are not directly or indirectly released, as a result of the activity, to any waters or the bed and banks of any waters.

PEST AND WEED SPECIES

- (F6) Pest and weed species must be managed to prevent their growth and proliferation.

MANAGEMENT OF FAUNA

- (F7) The holder of this authority must develop and implement, within three (3) months from the date of this approval, a Fauna Management Plan that details how the holder will ensure that authorised activities are undertaken to minimise the potential risk of causing harm to fauna.
- (F8) The holder of this authority must minimise lighting disturbance to marine turtles by:
- (a) physically shielding lights and directing the lights onto work areas;
 - (b) keeping light heights as low as practicable;
 - (c) using long wave length lights instead of short wavelength lights where practicable;
 - (d) minimising reflective surfaces; and
 - (e) fitting motion detectors and light timers, where practicable.

SCHEDULE G STORAGE AND HANDLING OF CHEMICALS, FLAMMABLE AND COMBUSTIBLE SUBSTANCES

- (G1) All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids (including petroleum products and associated piping and infrastructure) must be stored and handled in accordance with the relevant Australian Standard where such is available.
- (G2) Notwithstanding the requirements of any Australian Standard and any other relevant Australian or State legislation, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the

materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied:

- (a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
 - (b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.
- (G3) All containment systems must be roofed and designed to minimise rainfall collection within the system.

SCHEDULE H PETROLEUM INFRASTRUCTURE

GENERAL CONDITIONS

- (H1) Infrastructure authorised under this authority must be located within the area defined by this authority. A map showing the exact location of petroleum infrastructure is attached in Appendix A – Plan 4.
- (H2) All infrastructure (including buildings, structures, petroleum equipment and plant erected and/or used for the authorised activities) authorised under this authority must be removed from the relevant environmental authority prior to surrender of this authority, except where agreed in writing by the administering authority and the landowner.

SCHEDULE I MONITORING PROGRAMS

- (11) The holder of this authority must:
- (a) develop and implement an operations monitoring program that is capable of demonstrating compliance with the conditions in this authority at least three (3) months prior to the commencement of operations;
 - (b) develop and implement a construction phase monitoring program program that is capable of demonstrating compliance with the conditions in this authority at least one (1) month prior to the commencement of construction; and
 - (c) document the monitoring and inspections carried out under the program and any actions taken.
- (12) The holder of this authority must ensure that a suitably qualified, experienced and competent person(s) conducts all monitoring required by this authority.
- (13) The holder of this authority must record, compile and keep for a minimum of five (5) years all monitoring results required by this authority and make available for inspection all or any of these records upon request by the administering authority. Monitoring results relating to rehabilitation should be kept until the relevant petroleum tenure is surrendered.
- (14) Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this authority must be reviewed for performance and amended if required on an annual basis.
- (15) An annual monitoring report must be prepared each year and presented to the administering authority when requested. This report shall include but not be limited to:
- (a) a summary of the previous 12 months monitoring results obtained under any monitoring programs required under this authority and, a comparison of the previous 12 months monitoring results to both this authority limits and to relevant prior results; and
 - (b) an evaluation/explanation of the data from any monitoring programs; and

- (c) a summary of any record of quantities of releases required to be kept under this authority; and
- (d) a summary of the record of equipment failures or events recorded for any site under this approval; and
- (e) an outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.

SCHEDULE J COMMUNITY ISSUES

- (J1) When the administering authority advises the holder of a complaint alleging environmental nuisance, the holder must investigate the complaint and advise the administering authority in writing of the action proposed or undertaken in relation to the complaint.
- (J2) When requested by the administering authority, the holder of this authority must undertake monitoring specified by the administering authority, within a reasonable and practicable timeframe nominated by the administering authority, to investigate any complaint of environmental harm at any sensitive or commercial place.
- (J3) The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within 14 days of completion of the investigation, or receipt of monitoring results, whichever is the latter.
- (J4) If monitoring in accordance with Condition (J2), indicates that emissions exceed the limits set by this authority or are causing environmental nuisance, then the holder of this authority must:
 - (a) address the complaint including the use of appropriate dispute resolution if required; and/or
 - (b) as soon as practicable implement abatement or attenuation measures so that noise, dust, particulate or odour emissions from the authorised activities do not result in further environmental nuisance.
- (J5) Maintain a record of complaints and incidents causing environmental harm, and actions taken in response to the complaint or incident; and
- (J6) The holder of this authority must record the following details for all complaints received and provide this information to the administering authority on request:
 - (a) name, address and contact number for complainant;
 - (b) time and date of complaint;
 - (c) reasons for the complaint;
 - (d) investigations undertaken;
 - (e) conclusions formed;
 - (f) actions taken to resolve complaint;
 - (g) any abatement measures implemented; and
 - (h) person responsible for resolving the complaint.
- (J7) The holder of this authority must retain the record of complaints required by this condition for five (5) years.

SCHEDULE K NOTIFICATION PROCEDURES

- (K1) The holder of this authority must telephone the Department of Environment and Resource Management's Pollution Hotline (1300 130 372) or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this authority or any event where environmental harm has been caused or may be threatened.

- (K2) Subject to Condition (K1), the holder of this authority is required to report in the case of uncontained spills (including hydrocarbon, contaminated water or mixtures of both) of the following volumes or kind:
- (a) releases of any volume to water;
 - (b) releases of water contaminated with hydrocarbons of volume greater than 200L to land; and
 - (c) releases of any volumes where potential serious or material environmental harm is considered to exist.
- (K3) The notification of emergencies or incidents as required by Conditions (K1) and (K2) must include but not be limited to the following:
- (a) the authority number and name of holder;
 - (b) the name and telephone number of the designated contact person;
 - (c) the location of the emergency or incident;
 - (d) the date and time of the release;
 - (e) the time the holder of the authority became aware of the emergency or incident;
 - (f) the estimated quantity and type of any substances involved in the incident;
 - (g) the actual or potential suspected cause of the release;
 - (h) a description of the effects of the incident including the environmental harm caused, threatened, or suspected to be caused by the release;
 - (i) any sampling conducted or proposed, relevant to the emergency or incident; and
 - (j) actions taken to prevent any further release and mitigate any environmental harm caused by the release.
- (K4) Within 14 days following the initial notification of an emergency or incident or receipt of monitoring results, whichever is the later, further written advice must be provided to the administering authority, including the following:
- (a) results and interpretation of any samples taken and analysed;
 - (b) outcomes of actions taken at the time to prevent or minimise environmental harm; and
 - (c) proposed actions to prevent a recurrence of the emergency or incident.
- (K5) As soon as practicable, but not more than six (6) weeks following the conduct of any environmental monitoring performed in relation to the emergency or incident, which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this authority, written advice must be provided of the results of any such monitoring performed to the administering authority.

SCHEDULE L

DEFINITIONS

Words and phrases used throughout this licence are defined below except where identified in the *Environmental Protection Act 1994* or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

"**Act**" means the Environmental Protection Act 1994.

"**administering authority**" means the Department of Environment and Resource Management (DERM) or its successor.

"**acceptance criteria**" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete (same as completion criteria).

"**annual exceedance probability**" means the probability that the given event will be exceeded within a one-year period.

"**commissioning**" means activities commenced after each part of the LNG Process Plant has

reached the stage of construction completion. Commissioning activities include the preparation for operation of any part or parts of the plant prior to start-up, e.g., tightness testing, drying of circuits, loading of molecular sieve, chemical cleaning, instrument complex function testing, software checks, final electrical checks, air freeing, introduction of hydrocarbons, equipment operational tests, etc.

During the commissioning phase, fuel gas will be used for gas turbine testing, compressor testing, and flare pilots. When all commissioning activities, on all parts of the plant have been completed, the LNG Process Plant is considered to be Ready for Start-up (RFSU).

"competent person" means a person or body possessing demonstrated experience and qualifications to perform these tasks.

"land" in the 'land schedule' of this document means land excluding waters and the atmosphere.

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"noxious" means harmful or injurious to health or physical well-being.

"offensive" means causing unreasonable offence or displeasure; is unreasonably disagreeable to the sense; disgusting, nauseous or repulsive.

"protected area" means

- a protected area under the Nature Conservation Act 1992; or
- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.

"rehabilitation" means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

"sediment dam" means a structure for the capture and treatment of stormwater runoff contaminated only by sediments from disturbed areas and which discharge off-site once full.

"self sustaining" means an area of land, which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

"sensitive place" [e.g. odour and dust] has the same meaning as and includes a noise sensitive place and a commercial place.

"shutdown" means those activities involved in preparing a unit to be taken off line.

"stable" means geotechnical stability of the rehabilitated landform where instability related to the bearing capacity, excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

"start-up" means those activities involved in preparing a unit to achieve process conditions.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), and any under groundwater, any part thereof.

Additional Waters Definitions

"background" means the parameter level in receiving waters immediately upstream of site release point.

"total Nitrogen" means the sum of Organic Nitrogen, Ammonia Nitrogen, Nitrite plus Nitrate Nitrogen

"total Phosphorus" means the sum of the reactive phosphorus, acid-hydrolysable phosphorus and organic phosphorus, as mg/L of Phosphorus. This includes both the inorganic and organic fraction of phosphorus.

"mg/kg" means milligrams per kilogram.

"mg/L" means milligrams per litre.

"µg/L" means micrograms per litre.

"ng/L" means nanograms per litre.

"TEQ" means World Health Organisation Toxicity Equivalency Quotient. For the purposes of assessing compliance with dioxin conditions of this authority, determined concentrations which are below the laboratory analytical detection limit are deemed to be zero, For the purpose of assessing whether analytical detection limits are acceptable, both lower and upper bound TEQ values must be considered.

"Toxicity Identification Evaluation" means a procedure to identify the chemical(s) responsible for the toxicological effects observed in the direct toxicity assessment testing. The procedure is described in the document "Methods for Aquatic Toxicity Identification Evaluation: Phase II Toxicity Identification Procedures for Acutely and Chronically Toxic Samples" document reference EPA/600/R-92/080 published by the United States Environmental Protection Agency, Office of Research and Development in 1993, or more recent revisions of that procedure as such become available.

"50th percentile" means that the measured values of the quality characteristic must not be greater than the release limit for any more than three out of six consecutive samples where the time interval between the taking of each consecutive sample is not less than three days.

"80th percentile" means that the measured values of the quality characteristic must not be greater than the release limit for any more than one out of five consecutive samples where the time interval between the taking of each consecutive sample is not less than three days.

"90th percentile" in respect of odour measurement means that the measured values of odour concentration must not be greater than the release limit for any more than three out of thirty consecutive odour concentration monitoring results.

"median" means the middle value, where half the data are smaller, and half the data are larger. If the number of samples is even, the median is the arithmetic average of the two middle values.

"maximum" means that the measured value of the quality characteristic or contaminant must not be greater than the release limit stated.

"minimum" means that the measured value of the quality characteristic or contaminant must not be less than the release limit stated.

"range" means that the measured value of the quality characteristic or contaminant must not be greater than the higher release limit stated nor lower than the lower release limit stated.

Additional Air Definitions.

"Normal cubic metre (m³)" means the volume of dry gaseous contaminant which occupies 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.

"Total Organic Carbon" ("TOC") means the sum of all compounds of carbon that contain at least one carbon to carbon bond plus methane and its derivatives. For the purpose of measurement 1 gram of TOC is deemed to have the same flame ionisation response as 1 gram of Hexane.

Noise Definitions.

"L_{Amax adj,T}" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over a time period of not less than 15 minutes, using Fast response.

"Background noise level" means noise, measured in the absence of the noise under investigation, as either:

L_{A90,T} being the A-weighted sound pressure level exceeded for 90 percent of the time period of not less than 15 minutes, using Fast response, or

L_{LAvg,T} being the arithmetic average of the minimum readings during a representative time period of not less than 15 minutes, using Fast response.

"MaxL_{pA,T}" means the maximum A-weighted sound pressure level measured over a time period of not less than 15 minutes, using Fast response.

"noise sensitive place" means –

a legal dwelling, caravan park, residential marina or other residential premises; or
a motel, hotel or hostel; or
a kindergarten, school, university or other educational institution; or
a medical centre or hospital; or
a protected area; or
a public park or gardens.

and includes the curtilage of any such place.

"commercial place" means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land.

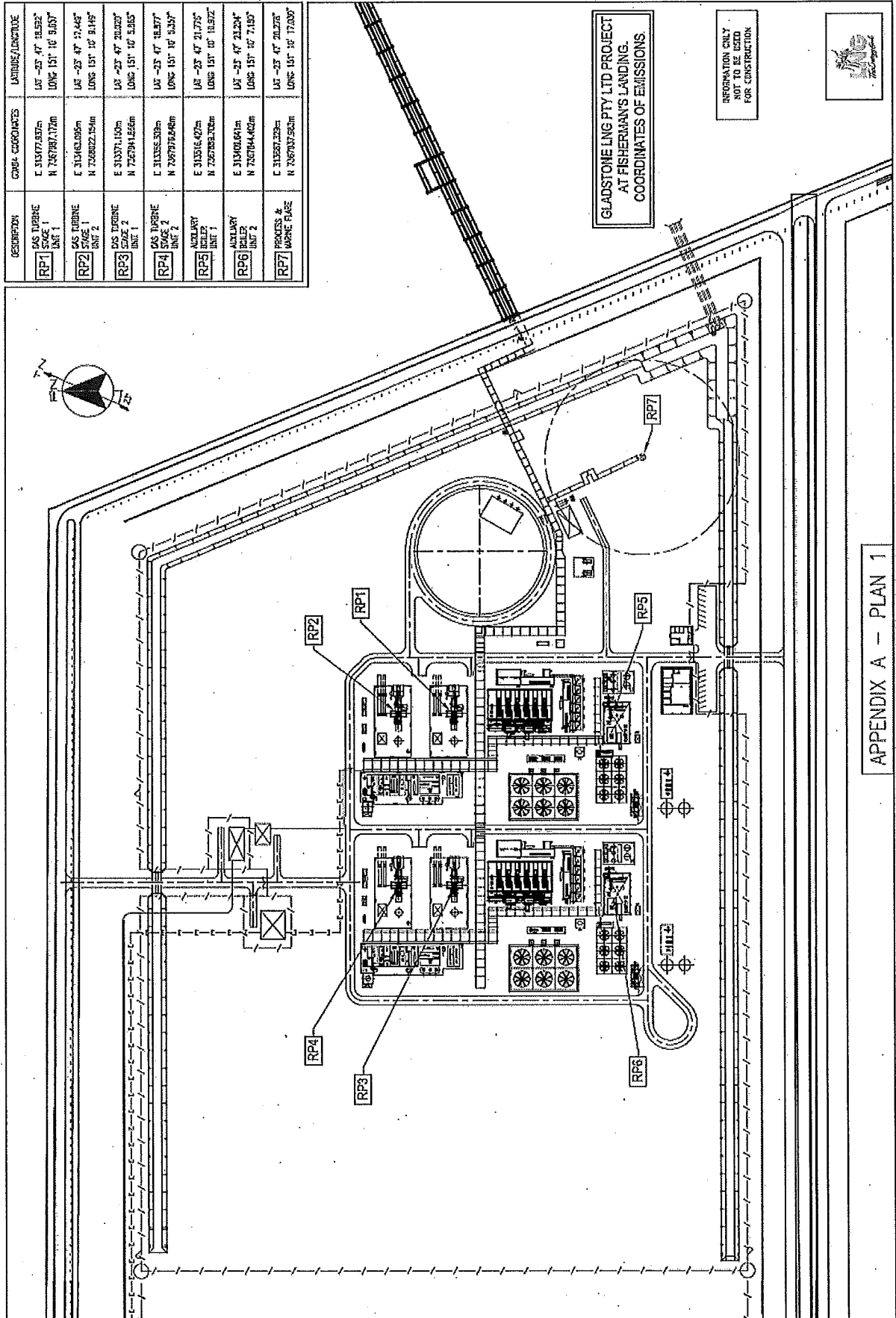
"dB (Linear) Peak" is the maximum reading in decibels (dB) obtained using the "P" time – weighting characteristic as specified in AS 1259.1 – 1990 with all frequency – weighted networks inoperative.

APPENDIX A

MAPS, FIGURES AND APPROVED PLANS

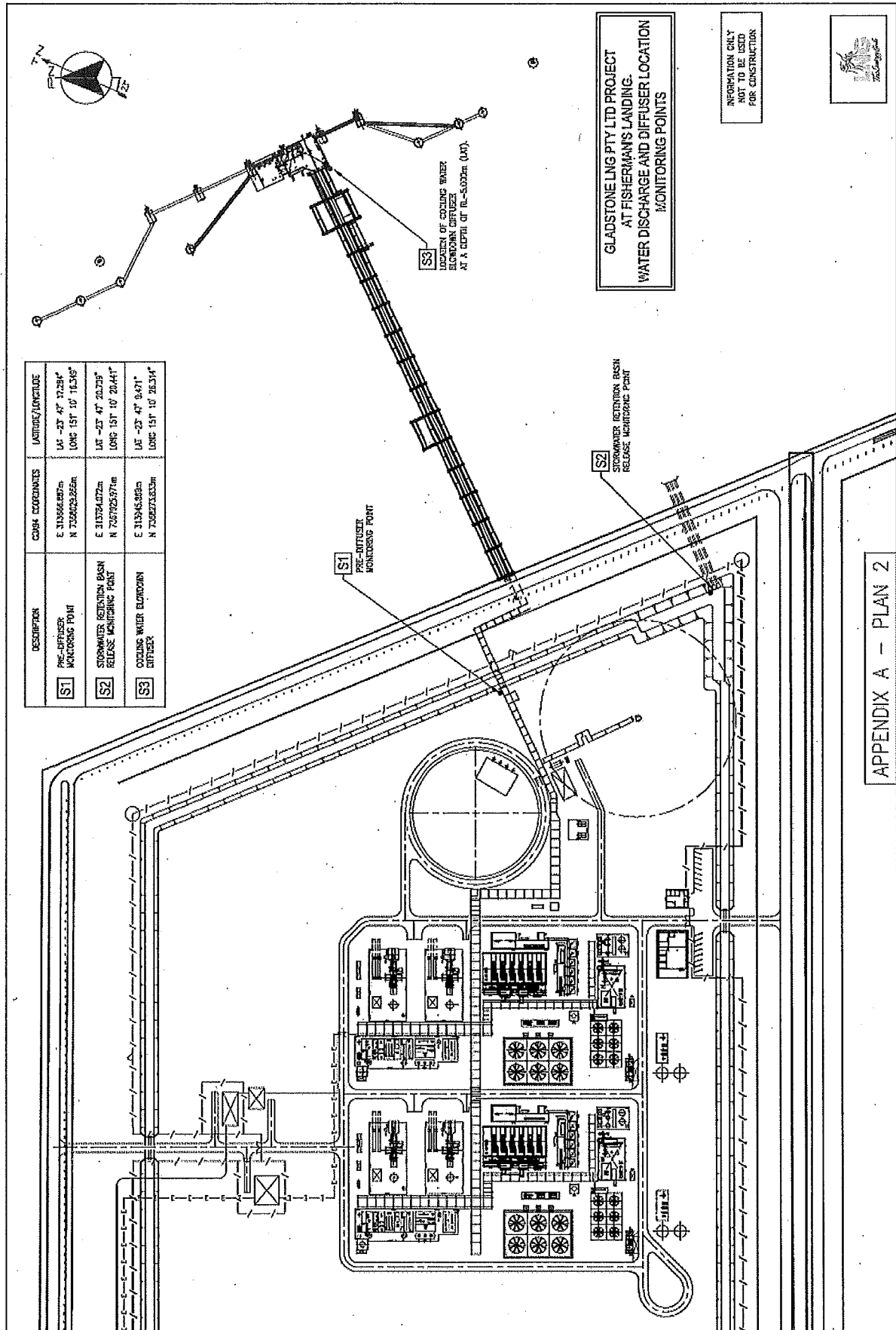
APPENDIX A - PLAN 1

DESCRIPTION	COORDINATES	LATITUDE/LONGITUDE
RP1 GAS TURBINE STAGE 1 UNIT 1	E 313177.837m N 725798.172m	Lat -23° 47' 31.52" Long 151° 10' 5.63"
RP2 GAS TURBINE STAGE 1 UNIT 2	E 313163.058m N 726022.151m	Lat -23° 47' 31.44" Long 151° 10' 51.95"
RP3 GAS TURBINE STAGE 2 UNIT 1	E 313307.150m N 725794.456m	Lat -23° 47' 20.22" Long 151° 10' 5.85"
RP4 GAS TURBINE STAGE 2 UNIT 2	E 313356.329m N 725793.840m	Lat -23° 47' 31.57" Long 151° 10' 5.33"
RP5 AUXILIARY BLOWER UNIT 1	E 313316.422m N 725793.720m	Lat -23° 47' 21.75" Long 151° 10' 10.52"
RP6 AUXILIARY BLOWER UNIT 2	E 313401.614m N 725794.402m	Lat -23° 47' 21.24" Long 151° 10' 7.19"
RP7 PROCESS & WASTE FLARE	E 313503.239m N 725793.582m	Lat -23° 47' 20.27" Long 151° 10' 17.00"



APPENDIX A - PLAN 1

APPENDIX A – PLAN 2



DESCRIPTION	CNSR COORDINATES	LATITUDE/LONGITUDE
S1 PRE-DIFFUSER MONITORING POINT	E 313566.892m N 732003.825m	Lat -27 47' 37.284" Long 151 10' 16.365"
S2 STORMWATER RETENTION BASIN RELEASE MONITORING POINT	E 313734.072m N 732092.577m	Lat -27 47' 30.798" Long 151 10' 20.441"
S3 COOLING WATER BLOWDOWN DIFFUSER	E 313546.965m N 732027.833m	Lat -27 47' 54.91" Long 151 10' 28.314"

Gladstone LNG Pty Ltd Project
At Fisherman's Landing.
Water Discharge and Diffuser Location
Monitoring Points

INFORMATION ONLY
NOT TO BE USED
FOR CONSTRUCTION



APPENDIX A – PLAN 2

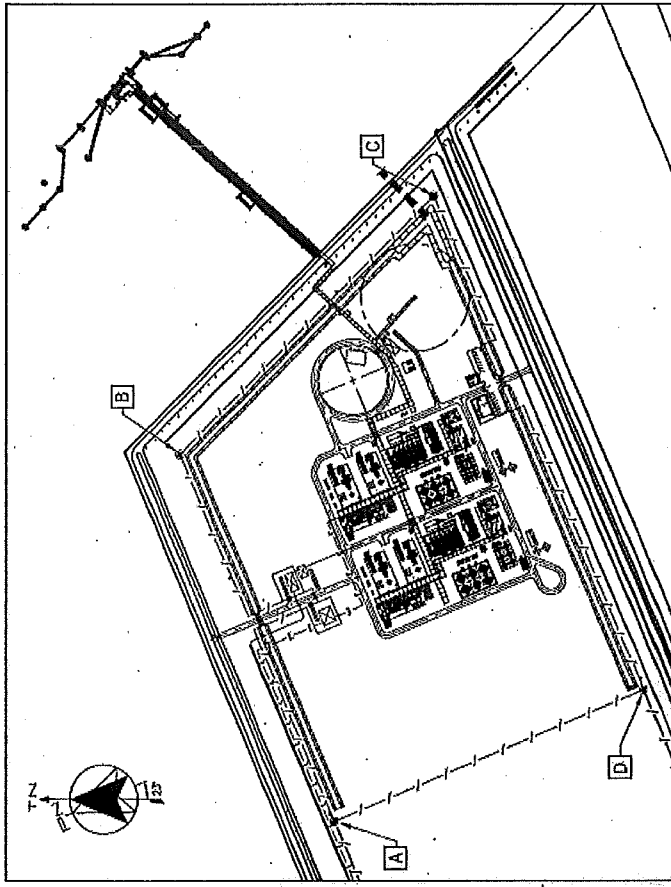
APPENDIX A – PLAN 3

DESCRIPTION	COMP. COORDINATES	LATITUDE/LONGITUDE
142, FISHERMAN'S ROAD, YARWUN	E 3116524.000m N 7266289.000m	LAT -27° 45' 41.333" LONG 151° 3' 4.507"
SMITH ROAD, TARGINIE	E 307232.000m N 7260883.000m	LAT -27° 45' 48.844" LONG 151° 6' 29.885"
LARCOMBE STREET, TARGINIE	E 307212.000m N 7261322.000m	LAT -27° 47' 57.219" LONG 151° 6' 28.245"
CHURCH ISLAND	E 316524.000m N 7260285.000m	LAT -27° 45' 21.331" LONG 151° 13' 49.277"



APPENDIX A – PLAN 3

APPENDIX A – PLAN 4



DESCRIPTION	CGRS COORDINATES	LATITUDE/LONGITUDE
A SITE BOUNDARY CORNER OF LICENSED AREA	E 313642.335m N 7392036.417m	147° 25' 47" 15.831" 108° 15' 19" 54.471"
B SITE BOUNDARY CORNER OF LICENSED AREA	E 313465.340m N 7392226.725m	147° 23' 47" 10.614" 108° 15' 19" 10.201"
C SITE BOUNDARY CORNER OF LICENSED AREA	E 313812.280m N 739214.807m	147° 23' 47" 21.094" 108° 15' 10" 21.453"
D SITE BOUNDARY CORNER OF LICENSED AREA	E 313227.658m N 7392584.128m	147° 25' 47" 28.172" 108° 15' 19" 59.072"

