Attachment C - Operational FSRU Conditions

Contents

1. General

The Proponent must ensure all activities are undertaken in compliance with the *Protection of the Environment Operations (POEO) Act 1997* and any associated Regulations.

The Proponent must apply for and hold an in-force (that is, Issued) Environment Protection Licence (EPL) issued by the Environment Protection Authority prior to the proponent carrying out any scheduled activities under the *POEO Act 1997*.

A copy of the EPL must be kept at the premises to which the licence applies. The licence must be produced to any authorised officer of the EPA who asks to see it. The licence must be available for inspection by any employee or agent of the Proponent working at the premises.

The Proponent must prepare a Pollution Incident Response Management Plan (PIRMP) in accordance with the requirements set out in Part 5.7(a) of the POEO Act.

Pollution monitoring data that is required to be collected by an EPL condition must be published by the Proponent in accordance with Section 66(6) of the POEO Act and with the written requirements issued by the EPA.

2. Discharges to air and water and applications to land

Location of monitoring/discharge points and areas

The following points referred to in the table below are identified for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air or water from the point.

Table - Monitoring/discharge point identification

Water

Pt	Identification point	Type of Monitoring	Point Location Description	Type of Discharge Point
TBD	FSRU Duel Fuel Reciprocating Engines	Air	Note	Discharge to Air Air quality monitoring
TBD	Cooling water discharge intake	Water	Note	Discharge to waters Water quality monitoring
TBD	Cooling water discharge outlet	Water	Note	Discharge to waters Water quality monitoring
TBD	Ambient water quality monitoring	Water	Note	Discharge to waters Ambient water monitoring

Note: Water quality and air quality emission monitoring locations will be informed by more detailed information from the proponent and supported by the relevant Management Plans.

3. Limit conditions

Pollution of waters

Except as may be expressly provided in an Environment Protection Licence, the Proponent must comply with Section 120 of the POEO Act 1997.

Concentration limits

For each monitoring/discharge point specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table below.

Water Limits

Point	Analyte	Limit
Cooling water discharges	Total residual chlorine	13 microgram per litre
Cooling water discharges	Temperature	Ambient plus 7 degrees Celsius

Note: Water quality limits will be informed by more detailed information from the proponent and supported by the relevant Management Plans.

Air Limits

Emission Limits – FSRU Duel Fuel Reciprocating Engines

Pollutant	Unit of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid particles (Total)	milligrams per cubic metre	50	Dry, 273 K, 101.3 kPa	TBD %	1 hour
Oxides of nitrogen (as NO_2 equivalent)	milligrams per cubic metre	450	Dry, 273 K, 101.3 kPa	TBD %	1 hour
Sulfuric acid mist or sulfur trioxide or both, as SO_3 equivalent	milligrams per cubic metre	100	Dry, 273 K, 101.3 kPa	TBD %	1 hour
Sulfur dioxide	milligrams per cubic metre	To be determined (TBD)	Dry, 273 K, 101.3 kPa	TBD %	1 hour

Note: These limits are based on similar projects for land-based activities. These emission limits and monitoring requirements would typically be set in an Environment Protection Licence informed by the Clean Air Regulation.

Note: Air quality limits will be informed by more detailed information from the proponent and supported by the relevant Management Plans.

The FSRU should be designed and constructed to enable air emissions stack testing per the requirements of the *EPA Approved methods for the sampling and analysis of air pollutants in NSW*.

Noise

L6.1 Noise generated at the premises must not exceed the noise limits in the Table below.

Location	Lot and DP number	NOISE LIMITS dB(A)		
		Day $L_{Aeq\ (15\ minute)}$	Evening $L_{Aeq\ (15\ minute)}$	Night $L_{Aeq\ (15\ minute)}$
72 Darcy Road, Port Kembla	Lot 66 DP11149	48	47	43

L6.2 For the purposes of Condition 6.1:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
- Evening is defined as the period from 6pm to 10pm all days,
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L6.3 The noise limits set out in condition L6.1 apply under the following meteorological conditions:

Assessment Period	Meteorological Conditions
Day	Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m AGL
Evening	
Night	Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m AGL; and / or Stability Category F with wind speeds up to and including 2m/s

L6.4 For the purposes of condition L6.3:

a) The meteorological conditions are to be determined from meteorological data obtained from a representative meteorological weather station; and

b) Stability Category shall be determined by the sigma-theta method referred to in Fact Sheet D of the Noise Policy for Industry.

L6.5 To determine compliance:

a) with the $L_{Aeq(15\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable

- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) with the noise limits in condition L6.1, the noise measurement equipment must be located:

- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by condition L6.5(a).

L6.6 A non-compliance of condition L6.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions L6.5(a) and L6.5(b); and/or
- at a point other than the most affected point at a location.

L6.7 For the purposes of determining the noise generated at the premises the modification factors in Fact Sheet C of the Noise Policy for Industry must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

L6.8 Compliance measurements should not be undertaken during rain or where wind speed at microphone level will affect the acquisition of valid sound pressure level measurements.

Odour

The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997 provides that the licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

No condition of these requirements identifies a potentially offensive odour for the purposes of Section 129 of the POEO Act.

4. Operating conditions

Leak Detection and Repair Program

1) The licensee must design and implement a gas Leak Detection and Repair LDAR program for all gas process plant and equipment.
    a. The objective of the LDAR is to prevent and minimise the emission of air pollutants, consistent with the relevant conditions of the Environment Protection Licence.
    b. All gas process plant and equipment must be checked for leaks at an interval not exceeding 3 months, unless otherwise approved in writing by the EPA.

   All leaks must be repaired within 3 days of detection, unless otherwise approved in writing by the EPA.

2) The licensee must retain records of the Gas Leak Detection and Repair (LDAR) program for a period of at least four years from the date the leak was detected.

3) The licensee must submit a brief summary report on the gas LDAR program with the annual return. The summary report must include, but may not be limited to the following:
    a. The total number of leaks detected during the reporting period;
    b. The type of component/s repaired as part of the LDAR program during the reporting period;
    c. The time taken to complete each repair; and
    d. Benchmarking of current leak detection practices and technology implemented at the premises with best available leak detection practices and technology.

Dust
The premises must be maintained in a condition that minimises and/or prevents the emission of dust from the premises at all times.

All activities occurring in or on the premises must be carried out in manner that will minimise the generation or emission from the premises of wind blown or traffic generated dust.

5. Monitoring and recording conditions

Requirement to monitor concentration of pollutants discharged

For each monitoring/discharge point or utilisation area specified below (by a point number), the Proponent must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The Proponent must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

Water

Points TBD

Pollutants	Units of Measure	Frequency	Sampling Method
pH	pH	Daily during any discharge	Grab sample
Temperature (Intake and outlet)	Degrees Celsius	Continuous	Continuous
Total residual chlorine/total residual oxidant	micrograms Cl per L	Continuous	Continuous

Monitoring locations and requirements will be developed through the relevant management plans and verification conditions.

Air

Monitoring - POINT – FSRU Duel Fuel Reciprocating Engines

Pollutant	Units of measure	Frequency	Sampling method

Selection of sampling positions	-	TBD	TM-1
Temperature	degrees Celsius	TBD	TM-2
Moisture	%	TBD	TM-22
Oxygen	%	TBD	TM-22
Volumetric flowrate	m^3/s	TBD	TM-2
Velocity	m/s	TBD	TM-2
Nitrogen dioxide and nitric oxide (as NO_2 equivalent)	mg/m^3	TBD	TM-11
Solid particles	mg/m^3	TBD	TM-15
Sulfuric acid mist or sulfur trioxide or both, as SO_3 equivalent	mg/m^3	TBD	TM-3
Sulfur dioxide	mg/m^3	TBD	TM-4

Requirement to monitor volume

Points TBD

Frequency	Unit of Measure	Sampling Method
Daily during discharge	Kilolitres per day	Note

Note: Volume monitoring will be informed by more detailed information from the proponent and supported by the relevant Management Plans..

6. Special Conditions

Operational Environmental Management Plan

The Applicant shall prepare an Operation Environmental Management Plan (OEMP) which shall include details of how environmental performance would be managed and monitored to meet acceptable environmental outcomes, including what actions will be taken to address potential adverse environmental impacts.

In particular, the following environmental issues shall be addressed in the Plan:

a) a summary of baseline data;

b) a description of:

- the relevant statutory requirements (including any relevant approval, licence or lease conditions);
- any relevant limits or performance measures/criteria; and
- the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;

c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;

d) a program to monitor and report on the:

- impacts and environmental performance of the project
- effectiveness of any management measures
- a broader sampling program to monitor harbour-wide trends in Harbour water quality;
- an ongoing ecological monitoring program to assess the ecological health of the Port Kembla Harbour;

e) a FSRU and Water Treatment System Operation, Maintenance and Monitoring sub-plan, that includes:

- Trigger action response protocols related to operational monitoring of FSRU discharges, e.g. if water quality limits and triggers are exceeded.
- Maintenance of the MGPS
- Antifouling/hull cleaning on the FSRU

f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;

g) a program to investigate and implement ways to improve the environmental performance of the project over time

h) a protocol for managing and reporting any:

- incidents
- complaints
- non-compliances with the conditions of this approval and statutory requirements
- exceedances of the impact assessment criteria and/or performance criteria;

i) a protocol for periodic review of the plan.

Water Quality Verification Program

Prior to the commencement of operations, the Proponent must submit a draft Water Quality Verification Program (Program) to the EPA. The program must be approved by the EPA prior to implementation.

Unless otherwise agreed to in writing by the EPA, the Program must be designed to:

a) Confirm that the discharge flow, pollutants (including temperature, sodium hypochlorite and any by-products), pollutant concentrations, and pollutant loads in the discharge match those presented in the EIS or the expected environmental outcomes required as part of the Development Approval process.
b) Cover discharge concentrations under the full range of operating conditions including median, 80th percentile, 90th percentile and maximum levels of all key pollutants
c) Cover the full range and worst-case operational discharge flow and quality (temperature and sodium hypochlorite) conditions (e.g. during maximum sodium hypochlorite generation).
d) Confirm mixing zone modelling predictions of achieving ANZECC (2000) trigger value of 3 µg/L total residual chlorine at the edge of the near-field mixing zone.

e) Confirm mixing zone modelling predictions of achieving ANZECC (2000) trigger values for temperature at the edge of the near-field mixing zone
f) Confirm the modelling predictions related to potential cumulative temperature and chemical impacts on Port Kembla Harbour.
g) Assess potential acute toxicity risk in the immediate area around the discharge point, and the potential water quality and ecological risk in that zone.
h) Assess the risks of any disinfection by-products that are not accounted for by total residual chlorine measurement.
i) Inform and develop recommendations for ongoing operational monitoring and management of the discharges.

If the program identifies pollutant/s discharges in excess of the predicted or required discharge quality (flow, concentration, temperature or load), if acute toxicity risks are identified, or if sodium hypochlorite by-product risks are identified then the Proponent shall provide details of remedial measures to be implemented to reduce discharges to no greater than that predicted in the EIS and address any residual risks.

Details of the remedial measures and a timetable for implementation shall be submitted to the EPA.

Air Quality Management Plan

The proponent must develop and implement an air quality management plan prior to the commencement of project operations. As a minimum, the air quality management plan must include the following parts:

a. Proactive and reactive management measures for all air emission sources;
b. Benchmark proactive and reactive management measures against industry best management practice;
c. Key performance indicator(s);
d. Monitoring method(s) – including continuous particle monitoring;
e. Location, frequency and duration of monitoring;
f. Record keeping;
g. Response mechanisms; and
h. Compliance reporting.

Air Quality Verification Program

Prior to the commencement of operations, the Proponent must submit a draft Air Quality Verification Program (Program) to the EPA.

Unless otherwise agreed to in writing by the EPA, the Program must be designed to:

a) Confirm that the pollutant emissions, pollutant concentrations, and pollutant loads in the emissions match those presented as part of the Development Assessment process. The program must be approved by the EPA prior to implementation.

b) At the conclusion of the monitoring, if the program identifies pollutant/s emissions in excess of the predicted discharge quality (flow, concentration, or load) or in excess of relevant emissions standards, then the Proponent shall provide details of remedial measures to be implemented to reduce discharges to no greater than that predicted in the EIS.

c) Details of the remedial measures and a timetable for implementation shall be submitted to the EPA.

Noise Verification Program

Prior to the commencement of operations, the Proponent must submit a draft Noise Verification Program (Program) to the EPA.

Unless otherwise agreed to in writing by the EPA, the Program must be designed to:

a) Confirm that the noise emissions from the premises match those presented as part of the Development Assessment process. The program must be approved by the EPA prior to implementation.
b) At the conclusion of the monitoring, if the program identifies emissions in excess of the predicted, then the Proponent shall provide details of remedial measures to be implemented to reduce noise to no greater than that predicted in the EIS.
c) Details of the remedial measures and a timetable for implementation shall be submitted to the EPA.