

January 20th, 2017

Pacific NorthWest LNG Ltd.
Ste. 2500, Park Place Tower
666 Burrard St.
Vancouver, BC V6C 3B1

Attention: Pacific NorthWest LNG Ltd.

RE: Determination of Application Area Number 100084437 OGC Legacy # 9708813

Permit Holder: Pacific NorthWest LNG
Date of Issuance: January 20th, 2017
Effective Date: January 20th, 2017
Application Submitted Date: November 24, 2014
Application Determination Number: 100084437

PERMISSIONS AND CONDITIONS

PERMISSIONS

Oil and Gas Activities Act

1. The BC Oil and Gas Commission, under section 25 (1) of the *Oil and Gas Activities Act*, hereby permits the Permit Holder referenced above to carry out the following activities subject to the conditions contained herein, any applicable exemptions and authorizations:
 - a) To construct, maintain and operate a LNG facility, and piping and equipment associated with the facility (the "LNG facility"), facility ID 00026224, at location D-034-K, 103-J-01.
2. The permissions and authorizations granted under this permit are limited to the activities and areas described in the plot plan by KBR Technical Services, Inc. with project number F217, drawing number PI-AAA-P10-002, Rev. D, dated April 25, 2013, and as submitted to the Commission on August 25, 2014.

Permissions to Flare

3. The permit holder may flare gas from the three flares identified as "warm", "cold" and "low pressure" in PR-65-PR32-001, rev C, Process Flow Diagram Unit 65 Flare System, 22 Feb 2013 for the following purposes:
 - a) flare pilots;
 - b) flare system purge;
 - c) process upsets; and
 - d) commissioning and start-up.

4. The permit holder may incinerate gas from the two thermal oxidizers identified as “A1-1910” in PR-19-PR32-001, rev C, Process Flow Diagram Unit 19 Thermal Oxidizer, 22 Feb 2013 and “A2-1910” for the following purpose:
 - a) oxidation of acid gas before venting.

CONDITIONS

Notification

1. At least 30 days prior to commencing any construction activities under this permit, the permit holder must provide the Lax Kw'alaams Band, Metlakatla First Nation, Gitxaala Nation, Kitsumkalum First Nation, Kitselas First Nation, and Gitga'at First Nation the proposed construction schedule.
2. The permit holder must submit the notice required under section 3(1)(g) of the Liquefied Natural Gas Facility Regulation (LNGFR) in writing to ogcpipelines.facilities@bcogc.ca and by submitting a “Notice of Construction Start” form through KERMIT.
3. Within 60 days of completion of construction activities under this permit, the permit holder must submit to the Commission a post construction plan as a shapefile and PDF plan accurately identifying the operating area. The shapefile and plan must be submitted via eSubmission.

Facility Conditions

4. The LNG facility must have:
 - a) a maximum inlet gas rate of 2250 mmscfd;
 - b) a maximum inlet gas H₂S concentration of 23 mg/m³;
 - c) a maximum of two LNG trains;
 - d) a maximum of two full containment LNG tank systems;
 - e) the following maximum storage limits:

Stored Substance	Maximum Storage Container Capacity
LNG	2 x 180,000 m ³
C2 Refrigerant	1,200 m ³
C3 Refrigerant	2,800 m ³
Condensate	1,000 m ³
Diesel	650 m ³

- f) one thermal oxidizer per LNG train for continuous combustion of waste gas with a minimum availability of 95% on a 365 day rolling average calculated based on LNG train availability.
5. The permit holder must comply with the applicable requirements set out in the “Measurement Requirements for Upstream Oil and Gas Operations.”
6. On the request of the Commission or, if no request is made, prior to commencement of commissioning, the permit holder must submit via email, to the satisfaction of the Commission:
 - a) an updated quantitative risk assessment including disposition of the previously submitted quantitative risk assessment recommendations;
 - b) documentation showing the impact of the process safety hazards of the LNG facility on workers;
 - c) documentation, current to the proposed phase of construction or commissioning, confirming that:
 - (i) site preparation has been undertaken to elevations which allow appropriate foundation design to proceed;
 - (ii) peat has been removed and clay has been replaced with structural fill up to a depth of approximately 3 m below foundation formation elevation; and
 - (iii) pile foundations will be used where deep clay may occur;
 - d) an updated analysis of the acceleration response spectra for design of piles to be located on Lelu Island; and

- e) an analysis showing that the thermal oxidizer bypass vent effluent meets the BC Ambient Air Quality Objectives current at the time of permitting.
- 7. If the Commission has made a request under condition 6 the permit holder must not undertake any phase of construction of the LNG facility specified by the Commission unless the request has been fulfilled to the satisfaction of the Commission.
- 8. The permit holder must not undertake operation, including commissioning, of the LNG facility until it has submitted via email, to the satisfaction of the Commission, documentation verifying that the required safety integrity levels identified in the safety integrity level study submitted to the Commission pursuant to s.3(1)(d) of the LNGFR have been achieved.
- 9. The permit holder must participate (by provision of data and information) in any safety studies that the Commission deems necessary to analyze potential for site interaction and event escalation with other facilities.

Flaring

- 10. The permit holder must not undertake operation, including commissioning, of the LNG facility until it has submitted via email, to the satisfaction of the Commission, a Flaring Notification Plan. The Flaring Notification Plan will include:
 - a) notification processes specific to:
 - (i) flaring during commissioning; and
 - (ii) flaring during operations;
 - b) notification to residents within a 1.0km radius of the flares, the District of Port Edward, the North Coast Regional District, the City of Prince Rupert, Lax Kw'alaams Band, Metlakatla First Nation, Gitxaala Nation, Kitsumkalum First Nation, Kitselas First Nation, and Gitga'at First Nation regarding flaring events; and
 - c) a definition of a flaring event that includes events where the quantity of gas exceeds 10,000 m³ per event or the duration exceeds 4 hours.
- 11. The permit holder must implement the notification plan in accordance with the Flaring Notification Plan at least 24 hours before a planned flaring event or within 24 hours of the start of an unplanned flaring event.
- 12. The permit holder must not undertake operation, including commissioning, of the LNG facility until it has submitted via email, to the satisfaction of the Commission, a Flaring Management Report that documents measures to design, construct and operate the LNG facility to minimize flaring of gas and liquids and associated emissions including, but not limited to, black smoke during commissioning.
- 13. The Flaring Management Report must be submitted to the Commission at least 18 months prior to commencement of commissioning, subject to any applicable written exemptions.
- 14. The permit holder must implement the measures set out in the Flaring Management Report.
- 15. The permit holder must ensure that emissions from flares and thermal oxidizers do not:
 - a) create a hazard to public health or safety;
 - b) result in off-lease odours; or
 - c) result in injury to vegetation or wildlife.
- 16. Subject to section 18(3) of the LNGFR, the permit holder must design, maintain and operate flares and thermal oxidizers so that flaring, other than flaring for emergency purposes, does not result in:
 - a) the emission of black smoke during normal operations; or
 - b) the emission of black smoke during process upsets that exceed a period or periods aggregating more than 15 minutes in any two hour period.

Noise

- 17. Prior to commencing construction, the permit holder shall complete, to the Commission's satisfaction, a Noise Management Plan for noise resulting from construction activity.

18. The permit holder must undertake reasonable measures to mitigate noise from construction activity.
19. The permit holder must not undertake operation, including commissioning, of the LNG facility until it has submitted via email, to the satisfaction of the Commission:
 - a) an updated ambient noise model, including a new baseline survey; and
 - b) an updated low frequency noise assessment.
20. Within two years of commencing operations of the LNG facility, the permit holder must submit via email, to the Commission's satisfaction, a noise survey that has been conducted during the summer months and at maximum operating conditions and that includes data measuring and an assessment of whether the LNG facility noise emissions meet the following permissible sound levels:

Receptor	Permissible Sound Level (dBA)		Universal Transverse Mercator Coordinates (Zone 9 NAD 83)	
	Day	Night	Easting	Northing
Residence 1	58 dBA	48 dBA	415968 m	6008506 m
Residence 2	58 dBA	48 dBA	416039 m	6008370 m
Residence 3	58 dBA	48 dBA	416092 m	6007960 m
Kitson Island Campsite	As set out in the baseline survey, that is submitted to the Commission's satisfaction, pursuant to condition 19(a), above.		414285 m	6004189 m
Smith Island			418091 m	6005537 m
Tsum Tsadai			416563 m	6003973 m
Ridley Island			414427 m	6008332 m

21. On request of the Commission, the permit holder must submit to the Commission's satisfaction, via email, additional noise surveys or other assessments. Such surveys or assessments may be requested by the Commission in response to noise complaints, LNG facility changes, or for any other reason.
22. If the LNG facility noise emissions exceed the permissible sound levels listed in condition 20 above, the permit holder shall complete, to the Commission's satisfaction, a Noise Management Plan for noise resulting from operational activities.

ADVISORY GUIDANCE

1. For this LNG facility, the marine safety zone is under the jurisdiction of the Prince Rupert Port Authority and Transport Canada. In the interest of public safety, it is expected that public access will be managed within a marine safety zone.
2. While the permissible sound levels at the receptors listed above will be considered in noise surveys and assessments, the Commission recognizes that LNG facility construction and maintenance, as well as other development not under the control of the permit holder may change the acoustic environment and therefore the permissible sound levels.
3. These conditions are established for the sole purpose of the permit issued under the *Oil and Gas Activities Act*. They do not relieve the permit holder from any obligation to comply with other legislative or other legal requirements of the federal, provincial, or local governments. Nothing in this permit shall be construed as reducing, increasing, or otherwise affecting what may be required of the permit holder to comply with all applicable legislative or legal requirements.

DEFINITIONS

For the purposes of interpreting the portions of this permit that pertain to flaring:

Commissioning means the period of time commencing when operations begin in accordance with section 11 of the LNGFR and ending when the first cargo of LNG is shipped from the LNG train.

Normal operations excludes emergency conditions and commissioning.

Emergency conditions involve activation of facility safety systems that could lead to flaring for emergency purposes. Flaring for emergency purposes occurs when safety controls within the LNG facility are enacted to depressurize equipment to avoid possible injury or property loss resulting from explosion, fire or catastrophic equipment failure.

Process upset means deviations that require operator to take measures that prevent safety or production loss and preempt activation of safety systems. Process upset excludes safety systems activation.



Mayka Kennedy, P.Eng., C.Dir.
Executive Vice President, Chief Engineer
Authorized Signatory and Commission Delegated Decision Maker

Copied to:

First Nations: Lax Kw'alaams Band, Metlakatla First Nation, Gitxaala Nation, Kitsumkalum First Nation, Kitselas First Nation, Gitga'at First Nation
BC Environmental Assessment Office
Prince Rupert Port Authority
Transport Canada