Oil and Gas Commission

6534 Airport Road, Fort St. John, B.C
V1J 4M6

APPROVAL
AE-110299

Under the Provisions of the Environmental Management Act

LNG Canada Development Inc.
400 4th Avenue SW
Calgary, Alberta
T2P 0J4

is authorized to discharge effluent to the environment from the Oxbow wetland site, located at the LNG Canada Export Terminal Project in Kitimat, BC. The discharge is subject to the conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may result in prosecution.

1. DEFINITIONS

For the purpose of this Approval, the following definitions apply:

1.1. ***Act*** means the *Environmental Management Act*;

1.2. ***Discharge*** means the total mass of a solid, liquid or gaseous material introduced into the environment;

1.3. ***Manager*** means an OGC employee authorized to exercise the powers of the OGC under Section 14 of the *Environmental Management Act*;

1.4. ***OGC*** means the B.C Oil and Gas Commission;

1.5. ***Approval Holder*** means LNG Canada Development Inc.

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

2. AUTHORIZED DISCHARGES

2.1 Source of the Discharge

2.1.1 The authorized works are water management activities within the excavation of an area approximately 50 metres (m) by 160 m within the Oxbow Wetland. The water management system includes above ground surface pond(s), settlement tanks, bag/sand filters, activated carbon vessels, and/or ion exchange media. The site reference number for this discharge is E320451.

2.1.2 The location of the points of discharge is the Oxbow Discharge Area, approximate centre of the area 54.0084 N, -128.6867 W. The legal land description is also known as b-15-B/103-I-2.

2.2 Control of Discharge

2.2.1 Effluent removed from the Oxbow Wetland excavation area will be treated and discharged to ground surface in the wooded area east/southeast of the Oxbow Wetland and treatment system (the Discharge Area). Water shall not be discharged within 10 m of any aquatic water body.

2.2.2 The average authorized rate of discharge is 1500 m^3/day, the maximum authorized rate of discharge is 6000 m^3/day. Daily monitoring of the discharge area shall be conducted, and the effluent rate shall be reduced or suspended as required to mitigate the potential for ponding of water.

2.2.3 The authorized discharge period is continuous during daylight hours, 7 days per week. The Approval is valid for a period of up to 15 months from the date of issuance.

2.2.4 The effluent discharged shall not exceed the British Columbia Contaminated Site Regulation Schedule 3.2 Standards (BC CSR). Applicable discharge limits include:

Table 1. Authorized Discharge Quality

Contaminants of Concern	BC CSR Schedule 3.2 Standard
Chloride	250 mg/L
Fluoride	1.5 mg/L
Benzo(a)pyrene	0.01 µg/L
Benzo(b/j)fluoranthene	0.07 µg/L

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

APPROVAL: AE-110299

Pyrene	0.2 µg/L
Cobalt[1]	20 µg/L
Lithium	8 µg/L
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment

[1]CSR Schedule 3.2 Cobalt drinking water standard (1µg/L) replaced with interim standard of 20 µg/L as per ENV Technical Bulletin 3 for Contaminated Sites, effective September 24, 2018.

2.2.5 The Approval Holder shall measure and record the volume and rate from the point of discharge from the treatment system.

2.2.6 The effluent water may not be discharged in a manner or quantity that impairs the proper ecological function or otherwise causes excessive erosion of the drainage system into which the discharge of water is conveyed.

3. GENERAL REQUIREMENTS

3.1 Maintenance of Works and Emergency Procedures

The Approval Holder shall inspect the authorized works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the Approval Holder, which prevents continuing operation of the authorized works, the Approval Holder shall immediately notify the Manager and take appropriate remedial action.

3.2 Bypasses

The discharge of contaminants, which have bypassed the authorized works, is prohibited unless the consent of the Manager is obtained and confirmed in writing.

3.3 Process Modifications

The Approval Holder shall notify the Manager prior to implementing changes to any process that may affect the quality and/or quantity of the discharge.

3.4 Post Disposal

The Approval Holder shall ensure that all equipment associated with the discharge is removed from the work area in a manner as to minimize environmental impact.

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

APPROVAL: AE-110299

4. MONITORING AND REPORTING REQUIREMENTS

The Manager may alter the monitoring and reporting program as needed. The need for changes to the program will be informed by the results submitted as well as any other information obtained by the OGC and the Ministry of Environment in connection with the discharges.

4.1 Discharge and Compliance Monitoring

4.1.1 The Approval Holder shall maintain information, analytical data and flow measurements as described in Section 2 for inspection by OGC.

4.1.2 The Approval Holder shall retain a qualified professional to implement the following monitoring plan:

Table 2. Sampling & Monitoring Frequency

Description	Location	Frequency	Parameters
Baseline Conditions	Oxbow Water & Discharge Area	One event, prior to initiating water management activities	-Observation for signs of contamination (sheen & olfactory considerations). -Collection of field parameters: pH, temperature, reduction-oxidation & turbidity. -A qualitative assessment of the discharge area vegetation by observation & taking photos and a quantitative assessment of the discharge area soil by sampling & laboratory testing for contaminants of concern and contaminants of potential concern. A minimum of 6 sampling locations shall be selected across the discharge area and be representative of depressional areas where fluids may tend to accumulate. Samples for analysis shall be collected within the top 15cm of mineral soil.

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

APPROVAL: AE-110299

	Discharge Point from Treatment System	One event, prior to continuous discharging activities	-Observation for signs of contamination (sheen & olfactory considerations). -Collection of field parameters: pH, temperature, reduction-oxidation & turbidity. -Water sampling for the following parameters: Polycyclic Aromatic Hydrocarbons (PAHs), chloride, fluoride, ammonia, nitrite, sulphate, and dissolved & total metals (aluminum, arsenic, cadmium, chromium, cobalt, copper iron, lead, lithium, manganese, mercury, nickel, titanium, zinc).
During Treatment & Discharge Operations	Oxbow Water & Intake of Treatment System	Daily	- Observation for signs of contamination (sheen & olfactory considerations).
	Discharge Area	Daily	-Observation for signs of contamination (sheen & olfactory considerations) & for signs of ponding water (3 times per day minimum). -Collection of field parameters: pH, temperature, reduction-oxidation & turbidity. -Field monitoring of select parameters using a field device (e.g. colorimeter).
	Discharge Point of Treatment System	Daily	-Observation for signs of contamination (sheen & olfactory considerations). -Collection of field parameters: pH, temperature, reduction-oxidation & turbidity.

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

APPROVAL: AE-110299

		A minimum of twice weekly plus additional sampling events if visual or olfactory signs of contamination are observed.	-Water sampling for following parameters: Polycyclic Aromatic Hydrocarbons (PAHs), chloride, fluoride, ammonia, nitrite, sulphate, and dissolved & total metals (aluminum, arsenic, cadmium, chromium, cobalt, copper iron, lead, lithium, manganese, mercury, nickel, titanium, zinc).
Post Discharge	Discharge Area	Once – within two weeks of completion of discharge activities under this Approval	-A qualitative assessment of the discharge area vegetation by observation & taking photos and a quantitative assessment of the discharge area soil by sampling & laboratory testing for contaminants of concern. Locations and sample depths shall be consistent with the baseline sampling.

4.1.3 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effects to the environment, the discharge shall be halted immediately.

4.1.4 If, in the opinion of the qualified professional responsible for the monitoring program, the discharge is or is likely causing adverse effect to the environment, the Manager shall be notified immediately at (250) 794-5236. Haisla First Nation representatives shall be notified as soon as practicable.

4.1.5 Photographs of the authorized works and authorized discharge shall be taken prior to, during and after the discharge. These shall be submitted with the final report or upon request from the OGC.

4.2 Reporting

4.2.1 During the period of active discharge, the Approval Holder shall provide the Manager and the Haisla First Nation with updates every two weeks of the monitoring results from the discharge and flow monitoring.

4.2.2 In the event an exceedance of applicable objectives is observed, the Approval Holder shall notify the Manager within 48 hrs of the receipt of the laboratory results.

Date Issued: June 12th, 2020

Akbar Khan, P.Eng.
Environmental Management Officer

4.2.3 The Approval Holder shall submit a final report summarizing all monitoring & sampling activities within 60 days of the termination of the discharge. The final report shall be submitted to the OGC and the Haisla First Nation.

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Akbar Khan, P.Eng.
Environmental Management Officer

APPROVAL: AE-110299

PROVINCE OF
BRITISH COLUMBIA

APPENDIX A

Environmental Protection Division

Site Plan

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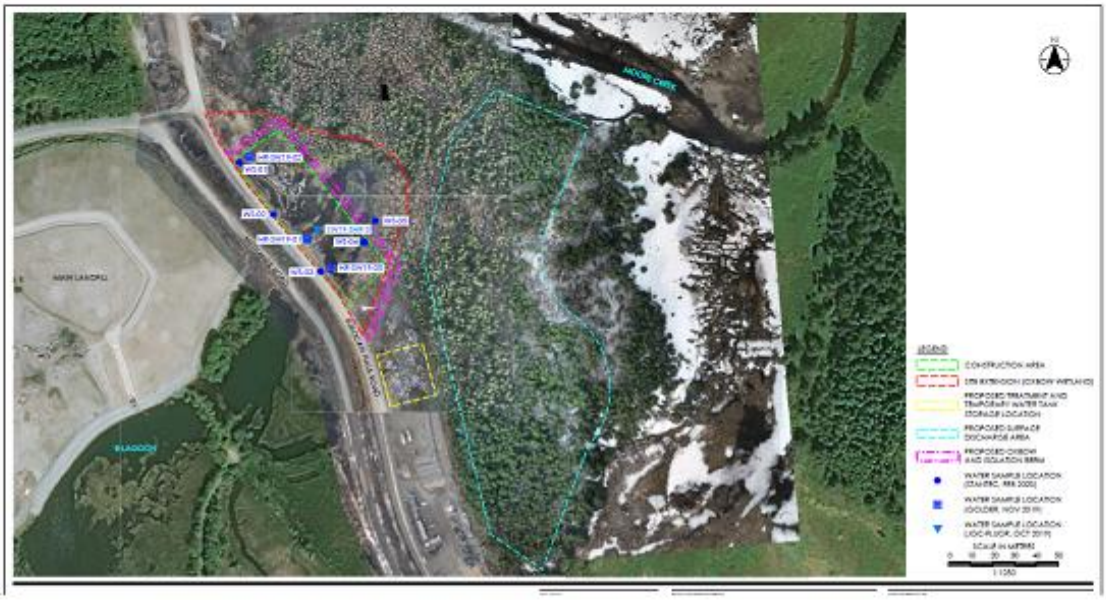

AUTHORIZATION:
Date:

(Office Use Only)

for Director, *Environmental Management Act*
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PROVINCE OF BRITISH COLUMBIA

APPENDIX B

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Location Map

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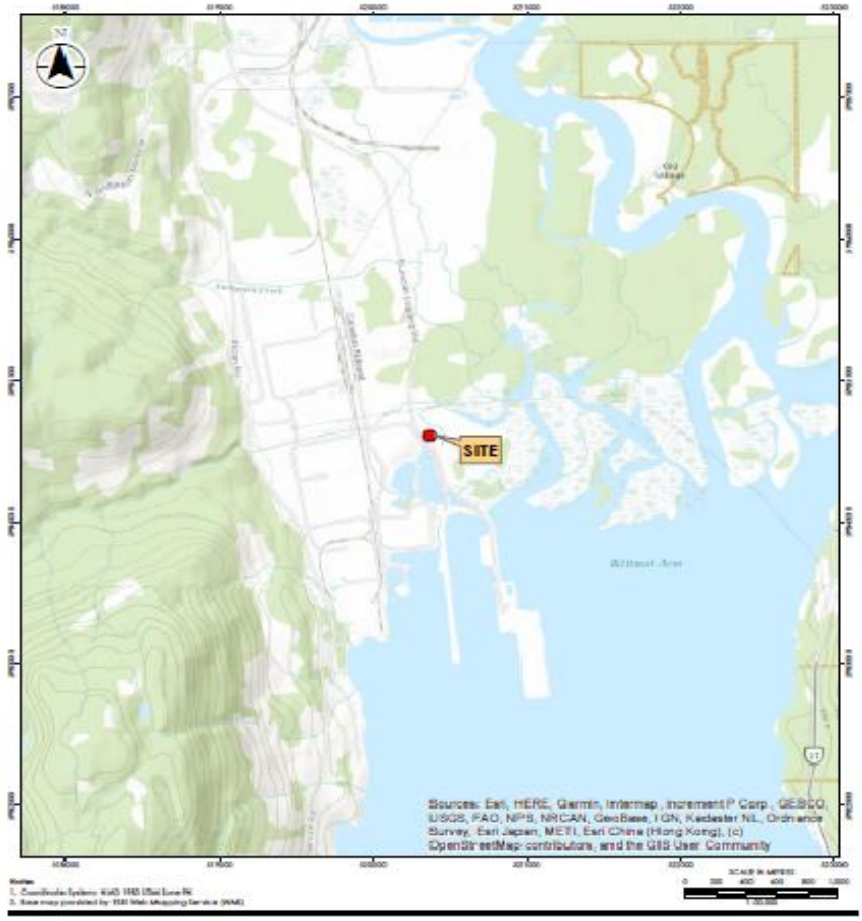

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