

Oil and Gas Commission

6534 100th Avenue, Fort St. John, B.C
V1J 8C5

PERMIT
PA-110979

Under the Provisions of the Environmental Management Act

Coastal GasLink Pipeline Ltd
450 1st Street SW
Calgary, Alberta
T2P 5H1

is authorized to discharge contaminants to the environment from the **Wilde Lake Compressor Station** located at 4-33-78-19 W6M, 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 permit, 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. **Permittee** means Coastal GasLink Pipeline Ltd.



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2. AUTHORIZED DISCHARGES

2.1. This subsection applies to the discharge of air contaminants from **THREE (3) TURBINE COMPRESSOR DRIVERS (ONE AS STANDBY)**. The site reference number for this discharge is E327991.

2.1.1. The maximum authorized rate of discharge is 65.8 m³/s each.

2.1.2. The authorized discharge period is continuous for two drivers, and intermittent for the standby unit.

2.1.3. The characteristics of the discharge are the emission products of the combustion of sweet natural gas including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and VOC's. Specific emission limits are:

<u>Parameter</u>	<u>Maximum Discharge Rate</u>
NO _x	1.9568 g/s, each
CO	2.8587 g/s, each
VOC	0.0767 g/s, each
PM _{2.5}	0.0323 g/s, each
SO _x	0.1074 g/s, each

2.1.4. The requirements of subsection 2.1.3 above, do not apply during commissioning of the turbine engines and start-up and shut-down of the engines. The Permittee shall record the periods of time during which these activities occur.

2.1.5. The authorized works are three (3) 31.077 MW BH PGT25+ turbine compressor drivers (one as standby) with dry low emission systems, three (3) 14.5 metre stacks (id 2.6 m) and related appurtenances approximately located as shown on the attached site plan.

2.1.6. The location of the facilities from which the discharge originates and the location of the point of discharge is described as 4-33-78-19W6M.

2.2. This subsection applies to the discharge of air contaminants from **THREE (3) GENERATOR DRIVERS**. The site reference number for this discharge is E327992.

2.2.1. The maximum authorized rate of discharge is 0.87 m³/s, each.

2.2.2. The authorized discharge period is continuous.



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- 2.2.3. The characteristics of the discharge are the emission products of the combustion of sweet natural gas including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and VOC's. Specific emission limits are:

<u>Parameter</u>	<u>Maximum Discharge Rate</u>
NO _x	0.4993 g/s, each
CO	0.0633 g/s, each
VOC	0.0037 g/s, each
PM _{2.5}	0.0237 g/s, each
SO _x	0.0042 g/s, each

- 2.2.4. The authorized works are three (3) 1000 kW Waukesha VHP L5794GSI generator drivers with emission controls, three (3) 8.5 metre stacks (id 0.305 m) and related appurtenances approximately located as shown on the attached site plan.

- 2.2.5. The specific emission limits authorized in subsection 2.2.3 above are obtained by the use of emission controls. The emission controls are to be maintained in good working order for emissions to be in compliance.

- 2.2.6. The location of the facilities from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6.

- 2.3.** This subsection applies to the discharge of air contaminants from **SIX (6) UTILITY GLYCOL HEATERS**. The site reference number for this discharge is E327993.

- 2.3.1. The maximum authorized rate of discharge is 0.15 m³/s, each.

- 2.3.2. The authorized discharge period is continuous.

- 2.3.3. The characteristics of the discharge are the emission products of the combustion of sweet natural gas including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and VOC's. Specific emission limits are:



Devin Scheck, P.Ag
Supervisor, Environmental Stewardship

<u>Parameter</u>	<u>Maximum Discharge Rate</u>
NO _x	0.0237 g/s, each
CO	0.0199 g/s, each
VOC	0.0013 g/s, each
PM _{2.5}	0.0004 g/s, each
SO _x	0.0007 g/s, each

2.3.4. The authorized works are six (6) 431 kW Allied Superhot AAA1920 utility glycol heaters, six (6) 6.8 m stacks (id 0.5588 m) and related appurtenances approximately located as shown on the attached site plan.

2.3.5. The location of the facilities from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6.

2.4. This subsection applies to the discharge of air contaminants from **THREE (3) SEAL GAS COMBUSTORS**. The site reference number for this discharge is E327994.

2.4.1. The maximum authorized rate of discharge is 0.58 m³/s each, the average authorized rate of discharge is 0.45 m³/s each.

2.4.2. The authorized discharge period is continuous.

2.4.3. The characteristics of the discharge are the emission products of the combustion of sweet natural gas including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and VOC's. Specific emission limits are:

<u>Parameter</u>	<u>Maximum Discharge Rate</u>
NO _x	0.0190 g/s, each
CO	0.0159 g/s, each
VOC	0.0010 g/s, each
PM _{2.5}	0.0003 g/s, each
SO _x	0.0006 g/s, each

2.4.4. The authorized works are three (3) seal gas combustors, with stack heights of 3.2 metres (id 1.5367 m) and related appurtenances approximately located as shown on the attached site plan.

2.4.5. The location of the facilities from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6.



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Supervisor, Environmental Stewardship

2.5. This subsection applies to the discharge of air contaminants from **THREE (3) VAPOUR COMBUSTORS**. The site reference number for this discharge is E327995.

2.5.1. The maximum authorized rate of discharge is 1.07 m³/s, the average authorized rate of discharge is 0.83 m³/s.

2.5.2. The authorized discharge period is intermittent, approximately 1 hr/month.

2.5.3. The characteristics of the discharge are the emission products of the combustion of sweet natural gas including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and VOC's. Specific emission limits are:

<u>Parameter</u>	<u>Maximum Discharge Rate</u>
NO _x	0.0188 g/s, each
CO	0.0158 g/s, each
VOC	0.0010 g/s, each
PM _{2.5}	0.0003 g/s, each
SO _x	0.0006 g/s, each

2.5.4. The authorized work are three (3) vapour combustors with stack heights of 3.2 metres (id 1.5367 m), and related appurtenances approximately located as shown on the attached site plan.

2.5.5. The location of the facilities from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6.

2.6. This subsection applies to the discharge of **ACCUMULATED SURFACE PRECIPITATION** to land from this facility if necessary. The site reference number for this discharge is E327996.

2.6.1. The maximum authorized rate of surface discharge is as required, subject to the conditions outlined below.

2.6.2. The effluent quality shall meet the following criteria:

Parameters	Values
Chlorides (as Cl)	500 mg/L
pH range	6.5 – 8.5



Devin Scheck, P.Ag
Supervisor, Environmental Stewardship

Extractable Hydrocarbons	No visible sheen
Electrical Conductivity	2 dS/m
Other Contaminants	None in concentrations that may have an adverse effect on the receiving environment.

- 2.6.3. The effluent shall be discharged at such a rate that there is no accumulation of effluent on the surface of the ground.
- 2.6.4. The discharge shall not occur on an unstable slope, cause erosion or result in measurable downward and outward movement of soil, rocks, snow, ice, mud or debris.
- 2.6.5. The effluent is not allowed to enter a surface watercourse or surface water body and is not to be discharged in a location where it could reasonably be expected to enter a surface watercourse or surface water body.
- 2.6.6. If the discharge is to private land, the written consent of the landowner shall be obtained prior to discharge.
- 2.6.7. The location of the facilities from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6.
- 2.6.8. Analysis of the discharge for the parameters listed in 2.6.2 shall be completed before each discharge and the results shall be recorded.
- 2.6.9. Record the volume of discharge after each discharge.
- 2.6.10. Retain for a period of 5 years, all records specified in 2.6.8 and 2.6.9 and make those records available to the OGC for inspection upon request.
- 2.7.** This subsection applies to the discharge of air contaminants from **TEMPORARY SOURCES**. The site reference number for this discharge is E330851.
- 2.7.1. The maximum authorized rate of discharge and authorized discharge period is variable for maintenance activities and emergencies as outlined in the Facility Maintenance Outage Plan.
- 2.7.2. The characteristics of the discharge are the emission products of the combustion of sweet natural gas and diesel fuel including oxides of sulphur, oxides of nitrogen, carbon monoxide, particulate matter and



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VOC's. The characteristics of the discharge will be further defined within the Facility Maintenance Outage Plan.

- 2.7.3. The authorized works will be outlined in the Facility Maintenance Outage Plan which will be submitted to the Manager for approval prior to the planned activity.
- 2.7.4. The location of the temporary sources from which the discharge originates and the location of the point of discharge is the same location as set out in subsection 2.1.6 and will be shown on the site plan included in the Facility Maintenance Outage Plan.
- 2.8. The maximum rate of discharge venting for regular operations and maintenance at the compressor station is 525,000 m³/ year. The site reference number for this discharge is E330874.
- 2.9. The maximum rate of discharge venting and blowdown at the compressor station due to emergency events is authorized as necessary. The typical blowdown and venting volume due to emergency at the station is equal or less than 120, 000 m³/year. The site reference number for this discharge is E330875.

3.0 **GENERAL REQUIREMENTS**

3.1 **Standard Conditions**

All gaseous volumes are at standard conditions which are: temperature = 293.15 K; pressure = 101.325 kPa; water vapour = zero.

3.2 **Maintenance of Works and Emergency Procedures**

The Permittee 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 Permittee, which prevents continuing operation of the authorized works, the Permittee shall immediately notify the Manager and take appropriate remedial action.

Instances of permit non-compliance shall be self-disclosed upon discovery, as outlined within Chapter 3 of the OGC Compliance and Enforcement Manual; OGCWaste.Management@bcogc.ca shall also be informed of the self-disclosure.

For spills which meet the Spill Reporting Regulation reporting criteria, a report shall be made immediately to the Provincial Emergency Program telephone 1-800-663-3456.



Devin Scheck, P.Ag
Supervisor, Environmental Stewardship

3.3 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.

3.4 Process Modifications

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

3.5 Permittee Name Change or Transfer of the Facility

Any change to the name of the Permittee, such as the sale of the facility or a corporate name change shall be reported to the Manager in writing within 30 days of the transaction.

3.6 Flaring, Incinerating and Venting

The Permittee shall adhere to the requirements outlined in the latest version of the “Flaring and Venting Reduction Guideline”, and all related bulletins, directives and information letters at the facility except as authorized by this permit, through leave of the OGC, or as required in an emergency situation and disclosed to the OGC.

3.7 Addition, Replacement or Modification of Drivers

When drivers are added, replaced or modified at the facility, the following NO_x requirements shall be met:

Fuel Used to Power Driver	Maximum NO _x emitted (g/kW-hr)
Natural Gas	2.7
Natural gas/liquid fuel combinations	6.7
Liquid fuel	10.7

3.8 Collected Liquids

Spilled material, water and liquid waste collected in drains, sumps, tanks, tank berms or other structures constructed with a similar purpose, shall not be discharged directly to the environment or to the surface water collection pond,

unless the discharge is made in accordance with an authorization under the *Environmental Management Act*.

3.9 Commissioning

For the purposes of this permit, commissioning is defined as that period of time during and after installation of the authorized works when the works are being prepared for normal operations.

3.10 Analytical Procedures

Analyses is to be carried out in accordance with the procedures described in the latest edition of the “British Columbia Laboratory Manual”.

3.11 Facility Maintenance Outage Plan

A Facility Maintenance Outage Plan is required to be submitted for releases authorized under section 2.7 of this permit. The Permittee shall develop and submit a plan at least one month in advance for planned facility maintenance, turnaround and equipment outage(s) or submit a notification to the Manager for unscheduled maintenance or equipment outage(s) within 24 hours. The plan or notification shall include but is not limited to:

3.11.1 A list of maintenance and repair activities to be executed during the maintenance, turnaround and/or equipment outage(s) at the facility, and all associated temporary discharges.

3.11.2 Schedules, including the starting date or starting date range and duration of activities.

3.11.3 A list and site plan depicting the location of all temporary discharge sources.

3.11.4 A table of discharge rates, stack parameters and emissions from temporary equipment.

3.11.5 Performance metrics and best practices to follow during the maintenance, turnaround and/or equipment outage(s).

Based on the review of the plan or notification, the Manager may require the Permittee to conduct additional monitoring and/or implement mitigations or requirements as determined by the Manager to protect the environment during the maintenance, turnaround and/or equipment outage periods.

During the facility maintenance, turnaround and equipment outage periods, all other terms and conditions of the Permit, not covered under the Facility Maintenance Outage Plan or Notification, remain in effect.

4.0 MONITORING AND REPORTING REQUIREMENTS

The Manager may alter the monitoring and reporting program as needed. The need for changes to the program will be based upon the results submitted as well as any other information obtained by the OGC and Environmental Protection in connection with the discharges.

4.1 Monitoring

The permittee shall install at least two passive monitors for the quarterly measurement of NO₂ in ppb along or near the facility perimeter, following the passive monitoring siting requirements as outlined within the B.C Field Sampling Manual. Siting of the passive monitors will also include consideration of the dispersion modelling results, the prevailing wind direction, proximity to equipment and location of sensitive receptors. The monitoring program may be modified or discontinued upon written confirmation from the Manager.

4.2 Stack Testing

Turbine Engines

The Permittee shall conduct an initial performance test for each combustion turbine authorized under section 2.1 of this permit within six months of the turbine commencing normal operations, to demonstrate compliance with the NO_x emission limits outlined within the permit. Once per calendar year each combustion turbine will undergo a NO_x emission performance test. Testing shall be in accordance with Environment and Climate Change Canada Guidelines for the Reduction of Nitrogen Oxide Emissions from Natural Gas-fuelled Stationary Combustion Turbines.

Rich Burn Generator Drivers

The Permittee shall conduct post catalytic converter emission testing on the generator drivers authorized under section 2.2 of this permit. Testing should be conducted after the initial break in period and every 8600 run time hours thereafter. Testing shall be in accordance with the B.C Ministry of Environment's B.C Field Sampling Manual and shall be to the satisfaction of the Manager.



4.3 Venting

Determine and record, based on measurements and/or calculations, the volume (cubic meters) of gas vented from the facility due to:

- a. operation and maintenance as authorized in section 2.8, as an annual totalb. emergency events as authorized in section 2.9. The Permittee shall record the reason for each emergency blowdown.

4.4 Reporting

The Permittee shall submit and summarize information as outlined in sections 2.1.4, 2.6, 4.1, 4.2 & 4.3 on an annual basis. The report is to be submitted by March 31st of each year for the operation of the preceding calendar year. Submission shall be made to OGCWaste.Management@bcogc.ca.



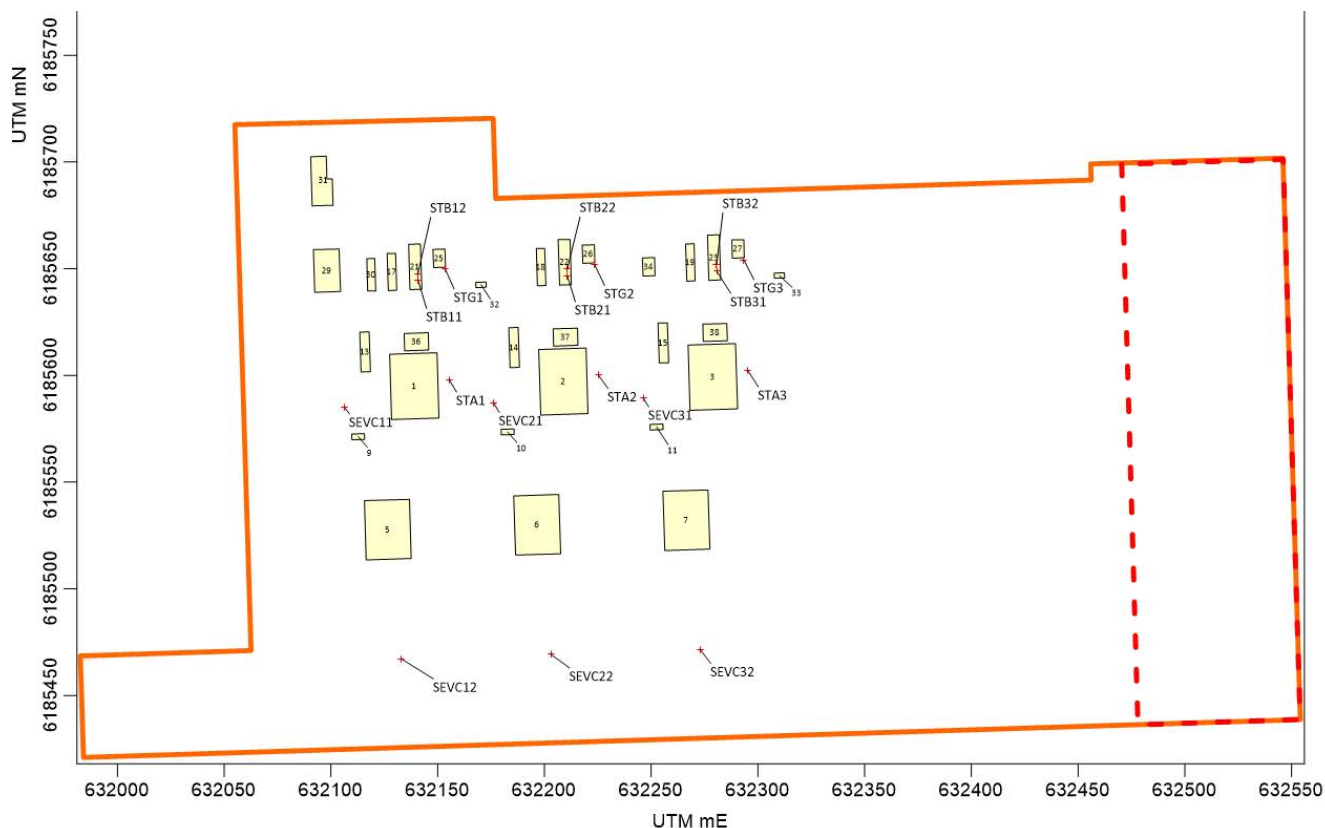
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Site Plan



Building No.	Building Description
1-3	Compressor Buildings for Unit A1, A2, and A3
5-7	Air Cooled Heat Exchangers for Unit A1, A2, and A3
9-11	Utility Gas Enclosures for Unit A1, A2, and A3
13-15	Local Control Module Buildings for Unit A1, A2, and A3
17-19	Electrical Buildings for Unit A1, A2, and A3
21-23	Mechanical Buildings for Unit A1, A2, and A3
25-27	APU Buildings for Unit A1, A2, and A3
29	Heated Storage Building
30	Personnel Building
31	Field Office Building
32	Drum Rack Building 1
33	Drum Rack Building 2
34	Unit A0 Stand-By PPU Building
36-38	Air Intakes for Unit A1, A2, and A3

Stack ID.	Stack Description
STB11	Unit A1 Boiler Exhaust 1
STB12	Unit A1 Boiler Exhaust 2
STB21	Unit A2 Boiler Exhaust 1
STB22	Unit A2 Boiler Exhaust 2
STB31	Unit A3 Boiler Exhaust 1
STB32	Unit A3 Boiler Exhaust 2
STG1	Unit A1 Gen. Skid Exhaust 1
STG2	Unit A2 Gen. Skid Exhaust 2
STG3	Unit A3 Gen. Skid Exhaust 3
STA1	Compressor Unit A1 Exhaust
STA2	Compressor Unit A1 Exhaust
STA3 (Standby)	Compressor Unit A1 Exhaust
SEVC11	Seal Gas Vapour Combustor Unit11
SEVC12	Vapour Combustor Unit12
SEVC21	Seal Gas Vapour Combustor Unit21
SEVC22	Vapour Combustor Unit22
SEVC31 (Standby)	Seal Gas Vapour Combustor Unit31
SEVC32	Vapour Combustor Unit32



AUTHORIZATION:

Date:

(Office Use Only)

for Director, *Environmental Management Act*
(Office Use Only)