

AIR POLLUTION CONTROL PERMIT TO CONSTRUCT

Permittee: Name: Valence Natural Gas Solutions Address: 5812 Jefferson Lane Williston, North Dakota 58801	Permit Number: ACP-18229 v 1.0 Permit Description: Synthetic Minor
Source Name & Location: FGC 003 Portable Several Counties in North Dakota	Source Type: Natural Gas Processing Plant
Date of Application: <div style="text-align: right; margin-right: 50px;">May 21, 2024</div>	

Pursuant to Chapter 23.1-06 of the North Dakota Century Code (NDCC), and the Air Pollution Control Rules of the State of North Dakota (Article 33.1-15 of the North Dakota Administrative Code or NDAC), and in reliance on statements and representations heretofore made by the permittee (i.e., owner) designated above, a Permit to Construct is hereby issued authorizing such permittee to construct and initially operate the source unit(s) at the location designated above. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Environmental Quality (Department) and to any conditions specified below:

Date: _____

 James L. Semerad
 Director
 Division of Air Quality

1. Project and Facility Emissions Units:

This Permit to Construct allows the construction and initial operation of the herein-mentioned new or modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Environmental Quality and to the conditions specified herein.

Table 1-1 lists the permitted emissions units associated with FGC 003.

Table 1-1: Source-wide Permitted Equipment.

Emission Unit Description ^A	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Ethylene glycol (EG) dehydration unit rated at 4.0 MMscfd ^B	DEHY-001	FLARE-001	Flash tank to flare
Triethylene glycol (TEG) reboiler heater rated at 1.5 MMBtu/hr fired on residue gas ^C	HTR-001	HTR-001	None
Three 23,000-gallon pressurized natural gas liquids (NGL) tanks	TK-NGL	None	None
16,000-gallon water storage tank	TK-W1	None	None
Waukesha F3524GSI (4SRB) natural gas-fired compressor engine rated at 840 hp (2024) (NSPS JJJJ & NESHAP ZZZZ)	ENG-001 ^D	ENG-001	Non-selective catalytic reduction (NSCR)
Waukesha H24SE (4SRB) natural gas-fired compressor engine rated at 530 hp (2024) (NSPS JJJJ & NESHAP ZZZZ)	ENG-002 ^D	ENG-002	NSCR
NG Doosan D219L (4SRB) natural gas-fired generator engine rated at 550 hp (2024) (NSPS JJJJ & NESHAP ZZZZ)	ENG-003 ^D	ENG-003	NSCR
NG Doosan D219L (4SRB) natural gas-fired generator engine rated at 612 hp (2024) (NSPS JJJJ & NESHAP ZZZZ)	ENG-004 ^D	ENG-004	NSCR

Emission Unit Description ^A	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Emergency diesel generator engine rated at 150 KW (NSPS IIII & NESHAP ZZZZ)	GEN-001 ^D	GEN-001	None
NGL truck loading	TL-1 ^E	None	None
Water tank loading	WL-1 ^E	None	None
Flare (process/emergency)	FLARE-001	FLARE-001	None
Fugitive emissions (NSPS OOOOb)	FUG	FUG	Leak detection and repair program (LDAR)

^A All emission unit ratings are considered nominal ratings.

^B EG is regenerated via the closed loop TEG heat transfer system (i.e., indirect heating).

^C TEG is not used for direct contact dehydration.

^D USEPA certified engine.

^E Insignificant source of emissions.

2. Applicable Standards, Restrictions and Miscellaneous Conditions:

A. New Source Performance Standards (NSPS):

The permittee shall comply with all applicable requirements of the following NSPS subparts, in addition to Subpart A, as referenced in Chapter 33.1-15-12 of the North Dakota Air Pollution Control Rules and 40 CFR 60.

- 1) 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (EU GEN-1).
- 2) 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (EUs ENG-001, ENG-002, ENG-003, and ENG-004).
- 3) 40 CFR 60, Subpart OOOOb – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022 (EU FUG). The compressors driven by EUs ENG-001 and ENG-002 are also subject to this subpart.

B. National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Source Categories/Maximum Achievable Control Technology (MACT):

The permittee shall comply with all applicable requirements of the following MACT subparts, in addition to Subpart A, as referenced in Chapter 33.1-15-22 of the North Dakota Air Pollution Control Rules and 40 CFR 63.

- 1) 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EUs ENG-001, ENG-002, ENG-003, ENG-004, and GEN-001). The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. Please send all documentation to EPA at the following address:

U.S. EPA Region 8
1595 Wynkoop Street
Mail Code 8ENF-AT
Denver, CO 80202-1129

C. Fuel Restrictions:

- 1) The heater (EU HTR-001) and gas fired engines (EUs ENG-001, ENG-002, ENG-003, ENG-004) are restricted to combusting only natural gas or residue gas containing no more than 2 grains of sulfur per 100 standard cubic feet.
- 2) The emergency diesel engine (EU GEN-001) shall be fired on ultra-low sulfur diesel fuel (ULSD) containing no more than 0.0015 percent sulfur by weight.

D. Flare Restrictions (EU FLARE-001):

- 1) When it is necessary to operate the flare during emergency, malfunction or maintenance, all precautions shall be taken to minimize emissions and maintain compliance with the applicable ambient air quality standards as outlined in NDAC 33.1-15-02 and the opacity standard of 20% not to exceed 60% for more than one six-minute period per hour.
- 2) The flare must be equipped and operated with an automatic ignitor or a continuous burning pilot which must be maintained in good working order as outlined in NDAC 33.1-15-07-02.
- 3) The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department.

3. Emission Unit Limits:

Emission limits from the operation of the source unit(s) identified in Table 1-1 of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Table 3-1: Permit Emissions Limits

Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Pollutant / Parameter	Emission Limit ^A
TEG reboiler heater	HTR-001	HTR-001	Opacity	20% ^B
Natural gas-fired engine	ENG-001 - ENG-004	ENG-001 - ENG-004	NO _x	1.0 g/hp-hr or 82 ppmvd ^A
			CO	2.0 g/hp-hr or 270 ppmvd ^A
			VOC	0.70 g/hp-hr or 60 ppmvd ^A
			Opacity	20% ^B
Emergency generator engine	GEN-001	GEN-001	Various	Condition 2.A.1
			Opacity	20% ^B
Flare (process/emergency)	FLARE-001	FLARE-001	NO _x	50 tons/year, Condition 3.A.1
			CO	30 tons/year, Condition 3.A.2
			VOC	70 tons/year, Condition 3.A.3
			Opacity	20% ^C
Fugitive emissions	FUG	FUG	VOC	Condition 2.A.3

^A The emission limits in g/hp-hr and ppmvd @ 15% O₂ are from 40 CFR 60, Subpart JJJJ. The permittee must also meet all applicable emission limits established by 40 CFR 63, Subpart ZZZZ.

^B 40% opacity is permissible for not more than one six-minute period per hour.

^C 60% opacity is permissible for not more than one six-minute period per hour.

A. Emissions Restrictions:

By the 15th day of each month, the owner/operator must record NO_x, CO, and VOC emissions for the previous month and for the previous 12-month period (12-month rolling total) for the emission units listed in II.A. These records will be kept for a period of at least five years. The Department shall be notified by the 15th day of the month in which the calculation was made anytime a limit was exceeded in any rolling 12-month period.

The owner/operator shall submit a semi-annual monitoring report for the limits listed in Condition II.A. All instances of exceedances of the 12-month rolling limits shall be identified in the report.

A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.

- 1) Monthly NO_x emissions shall be calculated via the following method:

$$\text{NO}_x \text{ in } \left(\frac{\text{tons}}{\text{month}} \right) = \left[(\text{Gas}_{\text{Propane}} \times \text{LHV}_{\text{Propane}}) + (\text{Gas}_{\text{Inlet}} \times \text{LHV}_{\text{Inlet}}) \right] \times \text{EF}_{\text{NO}_x} \times \frac{1 \text{ ton}}{2000 \text{ lb}}$$

Where,

Gas_{Propane} = amount of propane flared (MMscf/month)

Gas_{Inlet} = amount of inlet gas flared (MMscf/month)

LHV_{Propane} = lower heating value of propane (Btu/scf)

LHV_{Inlet} = lower heating value of inlet gas (Btu/scf)

EF_{NO_x}¹ = 0.068 lb/MMBtu

- 2) Monthly CO emissions shall be calculated via the following method:

$$\text{CO in } \left(\frac{\text{tons}}{\text{month}} \right) = \left[(\text{Gas}_{\text{Propane}} \times \text{LHV}_{\text{Propane}}) + (\text{Gas}_{\text{Inlet}} \times \text{LHV}_{\text{Inlet}}) \right] \times \text{EF}_{\text{CO}} \times \frac{1 \text{ ton}}{2000 \text{ lb}}$$

Where,

Gas_{Propane} = amount of propane flared (MMscf/month)

Gas_{Inlet} = amount of inlet gas flared (MMscf/month)

LHV_{Propane} = lower heating value of propane (Btu/scf)

LHV_{Inlet} = lower heating value of inlet gas (Btu/scf)

EF_{CO}² = 0.31 lb/MMBtu

¹ See AP-42 Chapter 13.5, Table 13.5-1, Feb 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/13.5_industrial_flares.pdf (Last visited June 12, 2024)

² See AP-42 Chapter 13.5, Table 13.5-1, Feb 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/13.5_industrial_flares.pdf (Last visited June 12, 2024)

- 3) Monthly VOC emissions shall be calculated via the following method:

$$\text{VOC in } \left(\frac{\text{tons}}{\text{month}} \right) = \left(MW_{\text{Inlet}} \times \frac{10^6 \text{ lb-mol}}{379.4 \text{ MMscf}} \times Gas_{\text{Inlet}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \right) + \left(MW_{\text{Propane}} \times \frac{10^6 \text{ lb-mol}}{379.4 \text{ MMscf}} \times Gas_{\text{Propane}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times DE \right)$$

Where,

- Gas_{Propane} = amount of propane flared (MMscf/month)
- Gas_{Inlet} = amount of inlet gas flared (MMscf/month)
- MW_{Propane} = molecular weight of propane (lb-mol)
- MW_{Inlet} = molecular weight VOCs in inlet gas (lb-mol)
- DE³ = 0.02 (98% DRE of flare).
- $\frac{10^6 \text{ lb-mol}}{379.4 \text{ MMscf}}$ = volume of gas at 60°C and 14.696 psia

4. Emission Testing Requirements:

A. Initial testing:

All initial testing will require a minimum of three runs, one hour each, unless otherwise specified in a federal subpart.

Table 4-1: Initial Emissions Testing for Project

Emission Unit Description	Emission Point (EP)	Pollutant / Parameter	EPA Method ^A
Natural gas-fired engines	ENG-001 through ENG-004	NO _x CO VOC	Per NSPS JJJJ

^A Other equivalent reference method approved by the Department may be used.

A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate

³ See August 2023, Application for Permit to Operate Mobile Flare Gas Capture Facility FGC 003, page 59.

reporting the test results to the Department, the permittee shall follow the procedures and formats in the Department's Emission Testing Guideline.⁴

1) Test:

Within 180 days after initial startup, the permittee shall conduct emissions tests at the emission units listed in Table 4-1 using an independent testing firm, to determine the compliance status of the facility with respect to the emission limits specified in Table 3-1. Emissions testing shall be conducted for the pollutant(s) listed above in accordance with EPA Reference Methods listed in 40 CFR 60, Appendix A. Test methods other than those listed above may be used upon approval by the Department.

2) Notification:

The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.

3) Sampling Ports/Access:

Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air. The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform and utilities shall be submitted to the Department for review and approval.

4) Other:

⁴ See February 7, 2020, North Dakota Department of Environmental Quality Division of Air Quality Emissions Testing Guidelines. Available at: https://www.deq.nd.gov/publications/AQ/policy/PC/Emission_Testing_Guide.pdf

The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel. A signed copy of the test results shall be furnished to the Department within 60 days of the test date.

All tests shall be made available, and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

B. Sampling and Testing:

The Department may require the permittee to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33.1-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the permittee shall follow the procedures and formats in the Department's Emission Testing Guideline.

5. General Conditions (Equipment):

A. Best Management Practices:

At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

B. Operation of Air Pollution Control Equipment:

The permittee shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

C. Stack Heights:

The facility is a portable skid mounted unit, with no building structures. Based on the portable nature of the facility, there are no stack height requirements for this source.

D. Like-Kind Engine Replacement:

This permit allows the permittee to replace an existing engine with a like-kind unit. Replacement is subject to the following conditions:

- 1) The Department must be notified within 10 days after change-out of the unit.
- 2) The replacement unit shall operate in the same manner, provide no increase in throughput and have equal or less emissions than the unit it is replacing.
- 3) The date of manufacture of the replacement unit must be included in the notification. The facility must comply with any applicable federal standards (e.g. NSPS, MACT) triggered by the replacement.
- 4) The replacement unit is subject to the same state emission limits as the existing unit in addition to any NSPS or MACT emission limit that is applicable. Testing shall be conducted to confirm compliance with the emission limits within 180 days after start-up of the unit.

E. Organic Compound Emissions:

The permittee shall comply with all applicable requirements of NDAC 33.1-15-07 – Control of Organic Compounds Emissions.

F. Air Pollution from Internal Combustion Engines:

The permittee shall comply with all applicable requirements of NDAC 33.1-15-08-01 – Internal Combustion Engine Emissions Restricted.

G. Fugitive Emissions:

The release of fugitive emissions shall comply with the applicable requirements in NDAC 33.1-15-17.

6. General Conditions (Procedural):

A. Construction:

Construction of the above-described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified 10 days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or

revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

B. Startup Notice:

A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.

C. Permit Invalidation:

This permit shall become invalid if construction is not commenced within 18 months after issuance of such permit, if construction is discontinued for a period of 18 months or more; or if construction is not completed within a reasonable time.

D. Source Operations:

Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.

E. Alterations, Modifications, or Changes:

Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.

F. Recordkeeping:

The permittee shall maintain any compliance monitoring records required by this permit or applicable requirements. The permittee shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.

G. Annual Emission Inventory/Annual Production Reports:

The permittee shall submit an annual emission inventory report and/or an annual production report upon Department request, on forms supplied or approved by the Department.

H. Malfunction notification:

The permittee shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

I. Nuisance or Danger:

This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.

J. Transfer of Permit to Construct:

The holder of a permit to construct may not transfer such permit without prior approval from the Department.

K. Right of Entry:

Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place at which the source listed in Condition 1 of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

L. Other Regulations:

The permittee of the source unit(s) described in Condition 1 of this permit shall comply with all State and Federal environmental laws and rules. In addition, the permittee shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.

M. Permit Issuance:

This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23.1-06.

7. State Enforceable Only Conditions (not Federally enforceable)

A. Odor Restrictions:

The permittee shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33.1-15-16.