DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N558161021

FACILITY: Great Lakes Gas - Farwell Compressor Station 12		**SRN / ID:** N5581
LOCATION: 3400 HICKORY RD, LAKE GEORGE		**DISTRICT:** Bay City
CITY: LAKE GEORGE		**COUNTY:** CLARE
CONTACT: Ben Samuelkutty , Field Environmental Analyst		**ACTIVITY DATE:** 12/01/2021
STAFF: Nathanael Gentle	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled Onsite Inspection. FY2022		
RESOLVED COMPLAINTS:		

On December 1, 2021, AQD staff conducted a scheduled onsite inspection at Great Lakes Gas – Farwell Compressor Station 12, N5581. Staff arrived onsite at 12:20 PM and departed at 1:10 PM. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment Great Lakes and Energy, Air Quality Division (AQD) Administrative Rules; and to evaluate compliance with the facilities Renewable Operating Permit (ROP), MI-ROP-N5581-2018. EGLE staff were assisted onsite by Mr. Brian A. Day, Area Manager, and Mr. Ben Samuelkutty, Field Environmental Analyst. Records were provided by Mr. Chris McFarlane, Air Specialist. At the time of inspection, the facility was found to be in compliance.

Facility Description and History

The Great Lakes Gas - Farwell Compressor Station 12, N5581, is a natural gas compression and transmission station located at 3400 Hickory Road, Lake George, Michigan 48633. The facility operates five reciprocating engines, a turbine, and three boilers. The reciprocating engines and turbines are used to drive six compressors which raise the pressure of gas in the pipeline and provide the force required to move gas through the pipeline. The three boilers are used for heating purposes. It should be noted, the ANR Lincoln Compressor Station (N5586) is located one half mile south of the Farwell Compressor Station 12 on the opposite side of Hickory Avenue.

The Great Lakes Gas- Farwell Compressor Station 12 consists of the following permitted emission units:

- **EU-UNIT1206, a Solar Taurus 70 stationary natural gas fired turbine used to power a natural gas pipeline compressor. The original turbine was installed 4/30/1998. A replacement turbine was installed in July, 2018. The turbine has a rated capacity of 9,700 hp and a heat input of 74.20 MMBtu/hr.**
- **FG-ENGINES**
  - **EU-UNIT1201, a Cooper Bessemer 10V-250 natural gas reciprocating engine with a rated capacity of 3,400hp and a heat input of 31.3 MMBtu/hr. Engine was installed 6/1/1968.**
  - **EU-UNIT 1202, a Cooper Bessemer 10V-250 natural gas reciprocating engine with a rated capacity of 3,400hp and a heat input of 31.3 MMBtu/hr. Engine was installed 6/1/1968.**

    - **EU-UNIT 1203, a Cooper Bessemer 10V-250 natural gas reciprocating engine with a rated capacity of 3,400hp and a heat input of 31.3 MMBtu/hr. Engine was installed 6/1/1968.**
    - **EU-UNIT 1204, a Cooper Bessemer 10V-250 natural gas reciprocating engine with a rated capacity of 3,400hp and a heat input of 31.3 MMBtu/hr. Engine was installed 6/1/1969.**
    - **EU-UNIT 1205, a Cooper Bessemer 16W330 natural gas reciprocating engine with a rated capacity of 8,000hp and a heat input of 55.20 MMBtu/hr. Engine was installed on 6/1/1975.**
- **FG-BOILERMACT**
    - **EUBOILER1, a Hurst S3-G-150-15-W natural gas boiler with a heat input of 4.18 MMBtu/hr. Boiler was installed in 1998.**
    - **EUBOILER2, a Hurst S3-G-150-15-W natural gas boiler with a heat input of 4.18 MMBtu/hr. Boiler was installed in 1999.**
    - **EUBOILER3, a Weil-McLain PFG-7 natural gas boiler with a heat input of 0.39 MMBtu/hr. Boiler was installed in1990.**

In addition, the facility contains the following units listed as exempt.

- **EU-SpaceHeaters, eleven natural gas fired space heaters with a total maximum heat rated capacity of 1.235 MMBtu/hr. PTI exemption rule citation: R 336.1282(2)(b)(i)**
- **EU-Separator, an 8400 gal condensate storage tank. PTI exemption rule citation: R 336.1284 (2)(e)**
- **EU-Condensate, a 6500 gal condensate storage tank. PTI exemption rule citation: R 336.1284(2)(e)**
- **EU-LubeOil, a 10,000 gal lube oil storage tank. PTI exemption rule citation: R 336.1284(2)(c)**
- **EU-UsedOil, a 1,500 gal used oil storage tank. PTI exemption rule citation: R 336.1284(2)(c)**
- **EU-Antifreeze, Ambitrol FL50 storage tank, 8,000 gal (50% inhibitor, 50% glycol). PTI exemption rule citation: R 336.1284(2)(i)**
- **EU-Diesel, a 300 gal diesel storage tank. PTI exemption rule citation: R 336.1284(2)(i)**
- **EU-Gasoline, a 300 gal gasoline storage tank. PTI exemption rule citation: R 336.1284(2)(g)(ii)**
- **EUGENERATOR1, Caterpillar G3516 SITA 1053hp four stroke lean burn natural gas-fired auxiliary power unit (APU) with a maximum heat capacity of 7,909,980 Btu/hr. PTI exemption rule citation: R 336.1285(2)(g)**

During the inspection, time was not taken to look at all exempt emission units. EUGENERATOR1 was verified to be the Caterpillar unit described above. Facility personnel described the unit as used only for emergency purposes. The unit is equipped with an analog hour meter. Staff report the hours on the unit are recorded into the facilities database monthly.

The facility is a major source for nitrogen oxides (NO_x), carbon monoxide (CO) and hazardous air pollutants (HAPs) emissions. The facility is a major source of HAPs because the potential to emit for formaldehyde exceeds 10 tons per year and the potential to emit of all HAPs combined is greater than 25 tons per year. The facility is a minor source for sulfur oxides (SO_x). An inspection of the facility was last completed on September 17, 2020. At the time of the 2020 inspection, the facility was found to be in compliance. As a major source, the facility is required to submit annual

and semiannual ROP Certification Reports. These reports have historically been received on time and complete from the facility. The most recent report was received on 8/5/2021 for the reporting period 1/1/2021 to 6/30/2021. No deviations were reported to have occurred during the reporting period. Emission reporting in MAERS has historically been completed on time and complete.

EU-UNIT1206: Compliant

Emission Unit 1206 is a Solar Taurus 70 stationary gas-fired turbine. The unit is used to power a natural gas pipeline compressor. EU1206 was installed in July 2018 and replaced the previous turbine that was installed on 4/30/1998. EU-UNIT1206 was not operating at the time of inspection.

Pipeline quality natural gas used to fuel the turbine, S.C. III. 1. By using pipeline quality natural gas, the facility maintains compliance with the SO_2 emission limit, S.C. I. 3. Compliance with emission limits of nitrogen oxides is demonstrated by emission testing, S.C. V. 5. Testing was completed on 12/17/2020 to establish ranges of %load/fuel consumption within which the turbine can operate in compliance with the NO_x limits. The performance test demonstrated the turbine could be operated in the range of 63% to 100% capacity while maintaining compliance with NOx limits. During the onsite inspection, facility personnel confirmed the turbine is operated within the established range of % load/fuel consumption, S.C. III. 3.

Records of hours of operation and fuel consumption are maintained for the onsite turbine, S.C. VI. 1. Records for the period of 10/1/2020 to 11/19/2021 were provided and reviewed. During the reviewed period, the turbine was operated in the following months: November 2020, December 2020, January 2021, February 2021, September 2021, and October 2021. Included in the records are the dates the turbine was operated, the duration of the operation for that date and the total fuel used. The longest duration the turbine was operated for a single date was 24 hours. During the 12-month period of records reviewed, there were 5 dates in which the turbine was operated for 24 hours. These dates include 12/17/2020, 9/27/2021, 10/3/2021, 10/4/2021, and 10/5/2021. The highest fuel consumption occurred on 12/17/2020 with 1847.3 MCF for 24 hours of operation.

FG-ENGINES: Compliant

Five reciprocating engines are located at the Farwell Compressor Station, used to compress natural gas. All five engines are fueled with pipeline quality natural gas, S.C. III. 1. EU-UNIT 1201, EU-UNIT 1202, EU-UNIT 1203, and EU-UNIT 1204 are all Cooper Bessemer 10V-250 natural gas reciprocating engines with a rated capacity of 3400hp and a heat input of 31.3 MMBtu/hr. EU-UNIT1201, EU-UNIT 1202, and EU-UNIT 1203 were installed on 6/1/1968. EU-UNIT 1204 was installed on 6/1/1969. Engine tags were verified to match information listed in the permit. EU-UNIT 1202 was missing its engine tag due to previous maintenance in which the oil pump was replaced on the unit.

EU-UNIT 1205 is a Cooper Bessemer 16W330 natural gas reciprocating engine. The unit has a rated capacity of 8000hp and a heat input of 55.20 MMBtu/hr. The engine was installed on 6/1/1975. The engine tag on the unit was verified to match the information listed in the permit.

All units in FG-ENGINES were installed prior to June 12, 2006. As a result, none of the units are subject to 40 CFR Part 60, Subpart JJJJ. Onsite staff reported none of the units have been modified or reconstructed since the facility was last inspected. Stack heights and diameters for EU-UNIT 1201 through EU-UNIT 1205 were visually verified while onsite to be in compliance with ROP requirements. None of the units in FG-ENGINES were operating at the time of inspection.

FG-BOILERMACT: Compliant

The Great Lakes Gas Farwell Compressor Station is equipped with three boilers subject to 40 CFR Part 63, Subpart DDDDD. Two of the boilers (EUBOILER1 and EUBOILER2) are Hurst Model S-G-150-15-W with a heat input of 4.18 MMBtu/hr. EUBOILER1 was installed in 1998. EUBOILER2 was installed in 1999. The boilers are used to heat onsite buildings. One is used to heat the engine room. The other is used to heat the building housing the turbine. The third boiler onsite (EUBOILER3) is Weil-McLain PFG-7 natural gas boiler with a heat input of 0.39 MMBtu/hr. The unit was installed in 1990. EUBOILER3 is used to heat a concrete ramp located onsite, to prevent ice buildup during the winter months.

Tune-ups are required to be completed every 5 years on boilers with a heat input capacity of less than or equal to 5 million Btu per hour, S.C. III. 4. Records of the most recent tune-ups completed for each of the three units were provided and reviewed. All three boilers had a tune-up completed on 7/22/2020 by an external contractor. A tune-up checklist was used, demonstrating all the procedures required by S.C. III. 7. were completed. In addition, at the time of tune-up, burners of the boilers were also inspected, S.C. III. 5.

Special Condition, III. 10. requires a one-time energy assessment be completed no later than January 31, 2016, by a qualified energy assessor. A notification of compliance status was received by the AQD on 9/10/2015. The notice indicated the facility complied with the one-time energy assessment required to be completed by January 31, 2016, according to 40 CFR 63.7530(e).

Routine maintenance is conducted on the three boilers, including an annual boiler peak performance inspection. Records of the most recent annual inspections were provided and reviewed for all three units, S.C. VI. 2. The annual boiler peak performance inspections were completed by an external contractor on 7/13/2021 for EUBOILER1 and EUBOILER2. The annual inspection for EUBOILER3 was completed on 7/15/2021 by an external contractor.

Summary:

The Great Lakes Gas - Farwell Compressor Station 12, N5581, is a natural gas compression and transmission station that operates five reciprocating engines, a turbine, and three boilers. The reciprocating engines and turbine are used to drive six compressors which raise the pressure of gas in the pipeline and provide the force required to move gas through the pipeline. The three boilers are used for heating purposes. The facility is a major source for nitrogen oxides (NOx), carbon monoxide (CO) and hazardous air pollutants (HAPs) emissions. Based on the records reviewed and the observed activities onsite, the facility appears to be operating in accordance with the requirements of MI-ROP-N5581-2018. At this time, the facility appears to be in compliance.

Nathanael Gentz DATE 12/13/2021 SUPERVISOR Chris Hare

NAME