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Houston, TX 77002

Received AQD Gaylord District Office
10-03-23. App No. 202300141

October 5, 2023

Michigan Department of Environment, Great Lakes and Energy
Gaylord District
Air Quality Division
2100 West M-32
Gaylord, MI 49735-9282

RE: Great Lakes Gas Transmission
Boyne Falls Compressor Station (SRN B8573)
Renewable Operating Permit No. MI-ROP-B8573-2019

Dear Permit Engineer,

Enclosed is the Renewable Operating Permit (ROP) renewal application for Great Lakes Gas Transmission (GLGT) for the Boyne Falls Compressor Station. The Renewable Operating Permit (ROP) No. MI-ROP-B8573-2019 for the Boyne Falls Compressor Station was issued on May 29, 2019, and the renewal is due on or before November 29, 2023. As required under Section A.29 of the Boyne Falls Compressor Station ROP, GLGT is submitting both the attached hard copy of the application and an electronic version of the ROP Application Package to EGLE-ROP@michigan.gov and thus requests that the determination of administrative completeness of the application be completed within 15 days of receipt of this hard copy version of the application by AQD.

Please find attached the renewal application including all necessary materials as listed below:

- ROP Application Form
- ROP Mark-up
- Supplemental Data
- Plans Referenced in the ROP

If you have any questions or comments concerning this request, please contact me at (832) 320-5490 or via email at chris_mcfarlane@tcenergy.com .

Sincerely,

Christopher McFarlane

Christopher McFarlane, P.G.
US Environment - Air
TC Energy

Enclosure – Renewable Operating Permit Application

Stantec

Renewable Operating Permit Application

Boyne Falls Compressor Station
Charlevoix County, Michigan

September 30, 2023

Prepared for:

Great Lakes Gas Transmission
700 Louisiana Street Suite 700
Houston, TX 77002

Prepared by:

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1200 Brickyard Lane Suite 400
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Project Number:

227706045

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1 Technical Support Documentation

Great Lakes Gas Transmission (GLGT) owns and operates several facilities in Michigan that are used in both natural gas transmission and storage. The function of some GLGT compressor stations, including the Boyne Falls Compressor Station #11 (Boyne Falls Station), is to maintain pressure in pipelines to transport natural gas from GLGT's mainline to and from storage facilities located in Michigan or to local distribution companies or other end users. The GLGT Boyne Falls Station is a natural gas compression and transmission station that currently operates two (2) Rolls Royce Avon 76G Natural Gas Turbines (11-1-01 and 11-B-02), one (1) emergency generator (G1), one (1) natural gas-fired boiler (BLR1), and insignificant activities including fuel gas heater, space heaters and storage tanks. The Station is located near Boyne Falls, Michigan in Charlevoix County.

The Title V regulations established emission thresholds of 100 tons per year (tpy) for all criteria pollutants and 25 tpy for total Hazardous Air Pollutants (HAPs) or 10 tpy for an individual HAP to classify a stationary source as major. Boyne Falls Station is considered a Title V Part 70 major source due to NOx, CO, emissions in excess of the applicability threshold.

GLGT operates the Boyne Falls Station under a Title V Renewal Operating Permit MI-ROP-B8573-2019 issued on May 29, 2019, and the renewal is due on or before November 29, 2023. As required under Section A.29 of the Boyne Falls Station, GLGT is submitting this Renewable Operating Permit (ROP) within the specified time frame for review by the Michigan Environment, Great Lakes and Energy (EGLE)Therefore, according to R336.1210(9), this is considered a timely renewal application and the facility will be authorized to continue to operate until EGLE takes final action on this application. There have been no new Permits to Install (PTI) issued by EGLE since the issuance of the current ROP (MI-ROP-B8573- 2019).

This ROP application is comprised of the following information:

- Section 1 consists of technical support documentation;
- Section 2 consists of the ROP renewal application forms;
- Appendix A consists of the area maps and process flow diagrams;
- Appendix B contains the emission calculations;
- Appendix C contains a mark-up of the current Boyne Falls Station ROP; and

Please note the address, contact person and phone number, and responsible official for the facility are as follows:

GLGT Pipeline Company
700 Louisiana Street, Ste. 700
Houston, Texas 77002

Technical Contact:
Chris McFarlane,
US Environment – Air
Email: chris_mcfarlane@tcenergy.com

Responsible Official:
Mike Coy
Area Manager – Great Lakes
mike_coy@tcenergy.com

1.1 Process Description

Boyne Falls Station is located at10339 Great Lakes Road, Boyne Falls, MI 49713. The station maintains pressure (recompression) in pipelines supporting natural gas to and from storage facilities located in Michigan, to industrial customers or to local distribution companies. Boyne Falls Station operates two (2) natural gas-fired 16,000 horsepower (hp) Rolls Royce Avon 76G turbines (EUUNIT1101 and EUUNIT1102) that are used to compress natural gas for transport and end users. The pipeline system normally operates continuously, 24 hours per day, 365 days per year.

Section 1.2 describes the process equipment operating at Boyne Falls Station that must be included in the Renewal Operating Permit application. Section 1.2.5 describes equipment ("Insignificant Activities") considered exempt from most requirements associated with Michigan's Renewable Operating Permit program [R336.1212(3)]. Equipment at Boyne Falls Station identified as exempt from the requirement to obtain a permit to install is discussed in Section 1.2.6 and listed in Table 1.2.1.

1.2 Emission Source Description

The Boyne Falls Station transports natural gas along the pipeline by receiving low-pressure inlet natural gas and compressing the stream to increase the pressure and maintain the downstream flow. The Boyne Falls Station is covered by Standard Industrial Classification (SIC) 4922 and has the potential to operate seven (7) days per week, twenty-four (24) hours per day. This section provides a brief description of the two (2) natural gas fired Rolls Royce 16,000 hp turbines (EUUNIT 1101 and EUUNIT 1102) and an emergency use natural gas 408 hp generator (EUAPU). No other sources are affected as part of this application. Emission calculations for all sources are provided in Appendix B.

1.2.1 TURBINES

Boyne Falls Station operates two (2) natural gas-fired 16,000 horsepower (hp) Rolls Royce Avon 76G turbines (EUUNIT1101 and EUUNIT1102) that are used to compress natural gas for transport and end users. The compressor drive equipment is the primary source of air emissions at Boyne Falls Station. Emissions of concern are mainly the combustion products NOx, CO and VOC. NOx emissions result from thermal generation of nitric oxide (NO) in high-temperature combustion zones. CO and VOC emissions result from incomplete combustion of natural gas. GLGT employs good combustion practices on turbines combined with the exclusive use of natural gas in order to minimize air emissions.

Emissions for additional pollutants emitted by the turbines are described below.

- NOx and CO emissions are based on emission factors from AP-42 Table 3.1-1 (4/00).
- CO_2e emissions are based on emission factors and global warming potential specified in 40 CFR Part 98.
- Particulate matter (PM), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$), and volatile organic compound (VOC) emissions are based on emission factors from AP-42 Table 3.1-2a (4/00).
- Annual sulfur dioxide (SO_2) emissions are based on 0.25 grains of sulfur per 100 standard cubic feet of natural gas, and maximum hourly emissions are based on 20 grains of sulfur per 100 standard cubic feet.
- Emissions of formaldehyde and total hazardous air pollutants (HAPs) are based on emission factors from AP-42 Table 3.1-3 (4/00).

1.2.2 EMERGENCY GENERATOR

Boyne Falls Station has one (1) 4-stroke rich burn (4SRB) emergency generator (EUAPU), rated at 408 hp, which is operated during the year on a routine basis for maintenance purposes. The generator is equipped with an internal combustion engine whose emissions exhaust from a single exhaust stack. A summary of the significant emission sources located at Boyne Falls Station is provided in Table 1-1.

Table 1-1: Summary of Air Emissions – Significant Sources

Emission Point ID	Source	Manufacturer	Model/ Type	Rated Capacity (hp)	Heat Input (MMBTU/hr)	Status
EUUNIT 1101	Natural Gas Fired Turbine A	Rolls Royce	Avon-76G	16,000	158.80	Active
EUUNIT 1102	Natural Gas Fired Turbine B	Rolls Royce	Avon-76G	16,000	158.80	Active
EUAPU	Emergency Generator	Cummins	GV12-525IPG	408	3.30	Active

1.2.3 INSIGNIFICANT ACTIVITIES

Activities identified as "insignificant" pursuant to R336.1212 (2) do not need to be included in an administratively complete application for a renewable operating permit. These activities do not significantly contribute to the actual emissions or the potential to emit. The following activities, identified under R336.1212 (2) as insignificant, may be performed at the Boyne Falls Station:

- Repair and maintenance of grounds and structures;
- Use of office supplies;
- Use of housekeeping and janitorial supplies;
- Sanitary plumbing and associated stacks or vents;
- Temporary activities related to the construction or dismantlement of buildings, utility lines, pipelines, wells, earthworks, or other structures;
- Storage and handling of drums or other transportable containers that are sealed during storage and handling;
- Fire protection equipment, firefighting and training in preparation for fighting fires (prior approval by the department for open burning associated with training in preparation for fighting fires will be obtained pursuant to R336.1310);
- Use, servicing, maintenance of motor vehicles, except where the activity is subject to an applicable requirement;
- Construction, repair, and maintenance of roads or other paved or unpaved areas, except where the activity is subject to an applicable requirement; and
- Piping and storage of sweet natural gas, including venting from pressure relief valves and purging of gas lines.

1.2.4 EXEMPT SOURCES

Certain processes and process equipment exempt by state rule from obtaining a Permit to Install (PTI) may be subject to inclusion in the ROP application. The guidelines for determining whether an exempt process or process equipment must be included in the ROP application are summarized as follows:

- Process or process equipment exempt under R336.1212(3) need not be included in the ROP application, provided there are no applicable requirements;
- Process or process equipment exempt under R336.1212(4) need to be listed in the ROP application as Exempt Devices, provided there are no process-specific emission limitations or standards; and,
- If a process or process equipment identified as exempt under §§1212(3) or 1212(4) has an applicable requirement with a process-specific emission limitation or standard, it must be included as an emission group in the ROP.

There is one source at the Boyne Falls Station that qualifies for the above exemptions. This source is also exempt from the requirement of obtaining a PTI. The natural gas-fired boiler (EUBOILER) is exempt under R336-1212(4)(c) since the heat rating is below 50 MMbtu/hr.

1.3 Permit Summary and Compliance and History

The Boyne Falls Station is subject to certain federal and state air quality regulations. This section summarizes the air permitting requirements and key air quality regulations that apply to the operation of the facility. This application addresses the following regulatory programs: Prevention of Significant Deterioration (PSD) permitting, Non-Attainment New Source Review (NSR) permitting, New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), Compliance Assurance Monitoring (CAM), Chemical Accident Prevention (CAP), Risk Management Program (RMP), and stratospheric ozone protection regulations.

There have been no administrative or judicial actions taken against GLGT within the past five years pertaining to operation of the Boyne Falls Station. There are currently no outstanding violations of state or federal environmental laws or regulations at Boyne Falls Station. There have been no new PTI issued by EGLE since the issuance of existing ROP. Since its issuance, GLGT has complied with the terms and conditions of the existing ROP.

1.4 Federal and State Regulatory Review

Boyne Falls Station will be subject to certain federal and state air quality regulations. This section summarizes the air permitting requirements and key air quality regulations that will apply to the operation of the facility once constructed. Specifically, applicability or non- applicability of the following regulatory programs are addressed: Prevention of Significant Deterioration (PSD) permitting, Non-Attainment New Source Review (NNSR), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), Compliance Assurance Monitoring (CAM), Chemical Accident Prevention (CAP) and Risk Management Program (RMP), and stratospheric ozone protection regulations. This review is presented to supplement and/or add clarification to the information provided in the EGLE ROP renewal application forms, which together fulfill the requirement to include citations and descriptions of applicable statutory and administrative code requirements.

This section provides a summary of applicable requirements and non-applicability determinations for certain regulations allowing the EGLE to confirm that identified regulations are not applicable to the facility. Note that this non-applicability review is limited to those regulations for which there may be some possible applicability specific to Boyne Falls Station. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, *Standards of Performance for Petroleum Refineries*).

1.4.1 PREVENTION OF SIGNIFICANT DETERIORATION/NON-ATTAINMENT NEW SOURCE REVIEW

The Boyne Falls Station is located in Charlevoix County, which is designated by the U.S. EPA 40 CFR §81.323 as in "attainment" or "unclassifiable" for all criteria pollutants. As such, new construction or modifications that result in emission increases are potentially subject to the PSD permitting regulations. PSD applicability depends on the existing status of the facility (i.e., major or minor source) and the net emissions increases associated with the project.

The major source threshold for PSD applicability is 250 tons per year (tpy) unless the source is included on a list of 28 specifically defined industrial source categories for which the PSD "major" source threshold is 100 tpy. Since the Boyne Falls Station does not fit any of the types of sources mentioned on the above list, the PSD major source threshold is 250 tpy of regulated criteria pollutants. The potential emissions of NOx from the existing equipment at the station exceed 250 tpy and the facility is considered to be an "existing major source" for PSD permitting purposes.

GLGT is not requesting any modification with this application that would subject emission units at the Boyne Falls Station to a non-attainment NSR review or PSD review. Therefore, information regarding the ambient air impacts of criteria pollutants is not required and is not addressed herein.

1.4.2 NEW SOURCE PERFORMANCE STANDARDS (NSPS)

NSPS contained in 40 CFR 60 require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the relevant regulations. These NSPS regulations were reviewed to determine their applicability to Boyne Falls Station equipment or to confirm non-applicability as appropriate. The results of this review are summarized below by regulatory citation.

NSPS contained in 40 CFR 60 require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the relevant regulations. These NSPS regulations were reviewed to determine their applicability to Boyne Falls Station equipment or to confirm non-applicability as appropriate. The results of this review are summarized below by regulatory citation.

Table 1.4.1 NSPS Regulatory Review

Regulatory Citation	Non-Applicability Determination
40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	This standard is not applicable to the Farwell Compressor Station because there are no natural gas-fired boilers with a design heat input capacity of 2.9 MW (10 MMBtu/hr) or greater.
40 CFR 60 Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction,	There are no petroleum storage vessels with capacity greater than 40,000 gallons at this facility. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.

Regulatory Citation	Non-Applicability Determination
Reconstruction, or Modification Commenced After June 11, 1973 and prior to May 19, 1978	
40 CFR 60 Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and prior to July 23, 1984	There are no petroleum storage vessels with capacity greater than 40,000 gallons at this facility. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	There are no volatile organic liquid storage vessels with capacity greater than 75 cubic meters at this facility. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines	This standard is not applicable to EUUNIT1101 and EUUNIT1102 because both turbines were installed prior to the applicability date. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart KKK-Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	This regulation is not applicable to this facility because the facility is not a natural gas processing plant as defined in the regulation. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart LLL - Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	Boyne Falls Station processes natural gas but does not operate a sweetening unit or a sulfur recovery unit. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)	This regulation applies to owners or operators of stationary CI ICE that commence construction, modification or reconstruction after July 11, 2005 and to manufacturers of 2007 and later model year CI ICE. The Boyne Falls Station does not operate any stationary diesel-fired CI ICE. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE)	The engines at Boyne Falls Station were constructed prior to June 12, 2006 and have not been modified or reconstructed since June 12, 2006. Therefore, this regulation does not apply. GLGT would like to request a permit shield for this regulation.

Regulatory Citation	Non-Applicability Determination
40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines	The standards of performance for Stationary Combustion Turbines, applies to combustion turbines with peak load heat input greater than 10 MMBtu/hour constructed, modified, or reconstructed after February 18, 2005. All turbines at Boyne Falls Station were constructed prior to February 18, 2005, and have not been modified or reconstructed since February 18, 2005. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution	Boyne Falls Station does not employ reciprocating or centrifugal compressors that are located prior to the point of natural gas custody transfer (40 CFR Part 60.5365(b)&(c)). Additionally, all of the storage tanks located at Farwell CS12 were constructed prior to August 23, 2011 and have not been modified or reconstructed after the applicability date. Furthermore, as prescribed in 40 CFR Part 60.5395, these storage tanks are not located at well sites. Therefore, this regulation is not applicable. GLGT would like to request a permit shield for this regulation.
40 CFR 60 Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced After September 18, 2015	On June 3, 2016, the EPA published 40 CFR 60 Subpart OOOOa which establishes emission standards and compliance schedules for the control of methane, volatile organic compounds (VOC) and sulfur dioxide emissions from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. The Boyne Falls Station is considered a natural gas compressor station and is potentially subject to this regulation. However, all equipment and processes potentially subject to this regulation were installed prior to the applicability date and have not been modified or reconstructed. Therefore, this regulation does not apply. GLGT would like to request a permit shield for this regulation.

1.4.3 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

Federal NESHAP regulations promulgated pursuant to Section 112 of the CAA are found in 40 CFR Parts 61 and 63. In general, NESHAP, or Maximum Achievable Control Technology (MACT) standards apply to major stationary sources of HAP emissions, defined as potential-to- emit of 10 tons or more per year of any single HAP or 25 tons or more per year of any combination of HAP and area sources of HAP emissions (thresholds less than a major source). Boyne Falls Station is considered an area source of

HAPs as the potential to emit is less than 10 tpy for any individual HAP and less than 25 tpy of total HAPs. Existing and proposed NESHAP standards were reviewed to determine area source applicability to Boyne Falls Station or to confirm non-applicability as appropriate. Potentially applicable NESHAPs are discussed below.

Table 1.4.2 NESHAP Regulatory Review

Regulatory Citation	Non-Applicability Determination
40 CFR 61 Subpart M - National Emission Standard for Asbestos	Boyne Falls Station may at times engage in demolition and/or renovation activities involving asbestos-containing materials (ACM). Therefore, the facility could be potentially subject to Subpart M, Standards for Demolition and Renovation (40 CFR 61.145). Procedures are in place to ensure the station complies with these standards.
40 CFR 61 Subpart V - National Emission Standard for Equipment Leaks (Fugitive Emission Sources)	This regulation is not applicable to the Boyne Falls Station because the provisions of this subpart apply to sources that are intended to operate in volatile hazardous air pollutant (VHAP) service. “In VHAP service means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP) as determined according to the provisions of 61.245(d).” The Boyne Falls Station processes do not have any sources that operate in VHAP service. GLGT would like to request a permit shield for this regulation.
40 CFR 63 Subpart A – General Provisions	This regulation has general provisions that are referenced by other more specific NESHAP regulations.
40 CFR 63 Subpart HH - NESHAP from Oil and Natural Gas Production Facilities	This regulation is not applicable to the Boyne Falls Station because the facility is a transmission and storage facility and is not an oil and gas production facility as defined in this regulation. GLGT would like to request a permit shield for this regulation.
40 CFR 63 Subpart HHH - NESHAP from Natural Gas Transmission and Storage Facilities	Subpart HHH establishes national emission limitations and operating limitations for natural gas transmission and storage facilities that are major sources of HAP emissions. The rule affects facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final user. The Boyne Falls Station is a natural gas compression and storage facility and is potentially subject to this regulation. However, the facility does not operate a glycol dehydration unit which is the only ‘affected’ source under the regulation. Therefore, the facility is not subject to this regulation. GLGT would like to request a permit shield for this regulation.

Regulatory Citation	Non-Applicability Determination
40 CFR 63 Subpart EEEE – NESHAP for Organic Liquids Distribution (non-Gasoline)	40 CFR 63 Subpart EEEE was promulgated on August 25, 2003 and applies to organic liquids distribution (OLD) operations that are located at, or are part of, a major source of hazardous air pollutant (HAP) emissions as defined in section 112(a) of the Clean Air Act. This regulation does not apply to the tanks or loading operations at the Boyne Falls Station because per 40 CFR 63.2334(c)(2), OLD operations located at Natural Gas Transmission facilities as defined in 40 CFR 63 Subpart HHH are exempt from the requirements of 40 CFR 63 Subpart EEEE (OLD MACT). GLGT would like to request a permit shield for this regulation.
40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)	Subpart ZZZZ regulates HAP emissions from existing, new, and reconstructed stationary compression ignition (CI) and spark ignition (SI), emergency and non-emergency, RICE located at major and area sources of HAP emissions. This standard is potentially applicable to the Boyne Falls Station because the facility operates one (1) emergency stationary RICE (EUAPU) and is considered an area source of HAPs. EUAPU is an existing engine rated at 408 hp and is subject to this subpart per 40 CFR 63.6590(a)(1)(iii). The emergency engine is subject to operating requirements set forth in 40 CFR 63.6640(f) as well as maintenance requirements per Table 2d (5).
40 CFR 63 Subpart DDDDD and Subpart JJJJJJ - NESHAP for Industrial, Commercial and Institutional Boilers	The Industrial/Commercial/Institutional Boilers and Process Heaters MACT for major sources was promulgated on March 21, 2011, and regulates HAP emissions from new and existing industrial, commercial, or institutional boilers and process heaters located at major sources of HAP emissions. The EPA subsequently issued a notice on May 18, 2011 to postpone the effective dates of the final rule until the completion of reconsideration or judicial review, whichever is earlier. On January 9, 2012, the EPA vacated the May 18, 2011 notice that delayed the effective dates of the Boiler MACT rule. The notice on final action on reconsideration was published in the Federal Register on January 31, 2013. Boyne Falls Station is not a major source of HAP emissions and is therefore exempt from Subpart DDDDD. GLGT would like to request a permit shield for this regulation. Subpart JJJJJ regulates existing and new industrial, commercial, and institutional boilers located at area source facilities. The rule applies to boilers located at an area source of HAPs that burn coal, oil, biomass, or non-waste materials. The boiler is a natural gas fired boiler and therefore exempt from all requirements of 40 CFR Part 63, subpart JJJJJ. GLGT would like to request a permit shield for this regulation.

Regulatory Citation	Non-Applicability Determination
40 CFR 63 Subpart YYYY – NESHAP for Stationary Combustion Turbines	Subpart YYYY establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emissions from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emissions and operating limitations. Boyne Falls Station is not a major source of HAP emissions and is therefore exempt from this regulation. GLGT would like to request a permit shield for this regulation.

1.4.4 COMPLIANCE ASSURANCE MONITORING (CAM)

Enhanced monitoring requirements have been adopted into 40 CFR 64. The enhanced monitoring requirements are referred to as Compliance Assurance Monitoring (CAM). CAM is applicable to sources that have a potential to emit in excess of major source thresholds, not considering “tailpipe” emission controls, and use an “active” control device to achieve compliance with the emission limit. Combustion controls may be considered in evaluating the potential to emit.

An emission unit is subject to CAM if all of the following criteria are satisfied:

- the unit is located at a major source that is required to obtain a Part 70 or Part 71 permit;
- the unit is subjected to an emission limitation or standard for a regulated air pollutant;
- the unit uses an active control device to achieve compliance with any such emission limit or standard, and
- the unit has potential pre-controlled emissions of the applicable air pollutant above the major source threshold.

There are no pollutant-specific emission units at Boyne Falls Station to which CAM requirements apply. GLGT requests a permit shield for this determination.

1.4.5 CHEMICAL ACCIDENT PREVENTION PROVISIONS AND RISK MANAGEMENT PLAN

Boyne Falls Station is not subject to the Chemical Accident Prevention Provisions of 40 CFR Subpart 68. Applicability to this regulation is based on the type and quantity of certain regulated substances stored at a facility, and the Boyne Falls Station does not exceed the applicability thresholds (40 CFR 68.10). The facility is not considered a stationary source under 40 CFR 68.3 (Chemical Accident Prevention) because it is regulated under 49 CFR 192, DOT.

1.4.6 ACID RAIN REGULATIONS

Boyne Falls Station is not subject to the federal acid rain regulations found in 40 CFR Parts 72 through 77 because the Station does not own or operate an affected unit as defined in 40 CFR part 72.6.

1.4.7 MICHIGAN STATE AIR POLLUTION CONTROL RULES (R336)

The following paragraphs discuss the general compliance with the Michigan state air pollution control rules.

Part 1 – General Provisions

This part provides the definitions for the terms used throughout the Michigan air pollution control rules. These general provisions and definitions generally apply to the facility. There are no specific requirements under this part.

Part 2 – air use approval

This part requires facilities in Michigan to obtain a permit to install prior to installation, construction, reconstruction, relocation, or modification of any process or process equipment, including associated control equipment, that has the potential to emit any pollutant to the atmosphere. In addition, some facilities are required to obtain a renewable operating permit.

All processes or process equipment at this facility either have a permit to install or qualify under one of the various exemptions provided in the rule. This facility was also required to obtain a renewable operating permit. A complete and timely application was submitted in 2018 and a renewable operating permit was issued in May 2019. This application is being submitted in order to renew this renewable operating permit.

Part 3 – Emission Limitations and Prohibitions- Particulate Matter

The processes and the process equipment at this facility will be subject to the visible emission limitations specified in R336.1301(1). All sources at the facility will be operated in compliance with these requirements. It should be noted that for natural gas-fired fuel burning equipment, compliance with this requirement is demonstrated by using pipeline quality natural gas. R336.1331 of this part limits the emissions of particulate matter from a process or process equipment. This rule also establishes a particulate matter emission limit based on a process weight rate. However, no particulate matter emissions, other than fuel combustion sources, are anticipated from the processes at this facility. Therefore, the rule is not currently applicable to the facility.

Part 4 – Emissions Limitations and Prohibitions- Sulfur-Bearing Compounds

R336.1403 limits emissions of sulfur dioxide from specific sources including coal or oil fuel fired equipment, sour gas handling facilities, and gas sweetening plants. This facility does not handle sour gas and does not operate any process or process equipment for which an emission limit has been specified in this part. Therefore, this part is not applicable.

Part 6 – Emission Limitations and Prohibitions- Existing Sources of Volatile Organic Compound Emissions

This part limits emissions of volatile organic compounds from various sources including storage vessels, loading facilities, and natural gas processing plants. The facility is in compliance with all the applicable requirements of this regulation. R336.1629 requires a monitoring program to control emissions of volatile organic compounds from components of existing process equipment used in natural gas processing. The

rule only applies to facilities located in Kent, Livingston, Macomb, Monroe, Muskegon, Oakland, Ottawa, St. Clair, Washtenaw, and Wayne. This facility is not a natural gas processing plant and is not located in one of the counties listed above. Therefore, this rule is not applicable.

Part 7 – Emission Limitations and Prohibitions- New Sources of Volatile Organic Compound Emissions

This part limits emissions of volatile organic compounds from all new sources. A “new source” is defined as a process or process equipment which is either placed into operation on or after July 1, 1979, or for which a permit to install is made to the EGEL on or after July 1, 1979. The Boyne Falls Station commenced operation in 1970 so the rule does not apply.

Part 8 – Emission Limitations and Prohibitions- Oxides of Nitrogen

This part regulates emissions of oxides of nitrogen (NOx) from electric generating units and fossil fuel-fired units with a maximum design heat input of more than 250 million Btu per hour. On April 1, 2004, the US EPA finalized the second phase of the rule known as the “the NOx SIP Call Rule.” In response to this action, EGLE promulgated R336.1818 regulating NOx emissions from stationary internal combustion engines. This facility does not operate any sources regulated under this part. Therefore, this part does not apply to the facility.

Part 9 – Emission Limitations and Prohibitions- Miscellaneous

Part 9 specifies numerous miscellaneous limitations and prohibitions. Rule 336.1901 prohibits emission of an air contaminant which may result in injurious effects to human health or safety, animal life, plant life of significant economic value, property, or interference with the comfortable enjoyment of life and property. Rule 336.1906 prohibits dilution or concealment of emissions. This facility operates in compliance with these requirements.

Rule 336.1911 requires the facility to develop a malfunction abatement plan if and when requested by the department. The facility will develop and implement a malfunction abatement plan upon receipt of such request from the department.

This part also specifies the operating, notification, and reporting procedures associated with start- up, shutdown, and malfunction of a source, process or process equipment in R336.1912. The facility complies with all the requirements of this part in the event of a start-up, shutdown, or a malfunction as required by the general conditions section of the ROP.

Part 10 – Intermittent Testing and Sampling

Part 10 allows the department to require the owner or operator of a source to conduct performance tests using reference test methods or the department to conduct the tests on behalf of the state. Upon receipt of any such request from the department, the facility will conduct the specified performance test within the established timelines and following the agreed upon reference test methods. If the department intends to perform the test, the owner or operator will provide the necessary performance test facilities. GLGT will comply with any state requests for testing as necessary.

Part 11 – Continuous Emission Monitoring

Part 11 sets the procedures for continuous emissions monitoring for fossil fuel-fired steam generators, sulfuric acid-producing facilities, fluid bed catalytic cracking unit catalyst regenerators at petroleum refineries, and coal-fired electric generating units at a power plant. The facility and the equipment do not fall into these categories; therefore, this part does not apply.

1.5 Proposed Changes to Existing Renewable Operating Permit

GLGT has proposed the addition of flexible group FGRULE285(2)(mm) for routine and emergency venting of natural gas from transmission and distribution systems or field gas from gathering lines, exempt from the requirement of obtaining a PTI under 212(4). GLGT has proposed language to incorporate the process-specific standards under Rule 285(2)(mm) using language provided by the EGLE template for the rule. GLGT has proposed that Section E of the permit be removed in order to reduce confusion should non-applicability of the requirements change at the site. The updates are included in the marked-up version of the permit included in Appendix C.

1.6 SUMMARY

This document contains all the necessary elements for GLGT to meet the requirements for a complete ROP renewal application under the EGLE rules and guidance. There are no changes being requested to the current ROP permit. GLGT requests that this renewal application be reviewed, and a draft ROP be issued at the earliest convenience.

2 Application Form

EGLE

RENEWABLE OPERATING PERMIT
RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at http://michigan.gov/air (select the Permits Tab, "Renewable Operating Permits (ROP)/Title V", then "ROP Forms & Templates").

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN	SIC Code	NAICS Code	Existing ROP Number	Section Number (if applicable)
B8573	4922	486210	MI-ROP-B8573-2019	

Source Name: Boyne Falls Compressor Station

Street Address: 10339 Great Lakes Road

City	State	ZIP Code	County
Boyne Falls	MI	49713	Charlevoix

Section/Town/Range (if address not available):

Source Description:

Great Lakes Gas Transmission (GLGT) owns and operates several facilities in Michigan that are used in both natural gas transmission and storage. The function of some GLGT compressor stations, including Boyne Falls Compressor Station #11 (Boyne Falls Station), is to maintain pressure in pipelines to transport natural gas from GLGT's mainline to and from storage facilities located in Michigan or to local distribution companies or other end users. The GLGT Boyne Falls Station is a natural gas compression and transmission station that operates two (2) natural gas-fired turbines to recompress gas during transmission and one (1) natural gas-fired emergency generator.

☐ Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.

OWNER INFORMATION

Owner Name	Section Number (if applicable)
Great Lakes Gas Transmission Company, LP	

Mailing address (☐ check if same as source address)

700 Louisiana Street, Suite 700

Houston, TX 77002

City	State	ZIP Code	County	Country
Houston	TX	77002	Harris	USA

☐ Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

SRN: B8573	Section Number (if applicable):

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name		Title		
Chris McFarlane		US Environment - Air		
Company Name & Mailing address (☐ check if same as source address)				
TC Energy 700 Louisiana Street, Suite 700				
City	State	ZIP Code	County	Country
Houston	TX	77002	Harris	USA
Phone number		E-mail address		
832-320-5490		Chris_mcfarlane@tcenergy.com		

Contact 2 Name (optional)		Title		
Company Name & Mailing address (☐ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name		Title		
Mike Coy		Area Manager – Great Lakes		
Company Name & Mailing address (☐ check if same as source address)				
Great Lakes Gas Transmission				
City	State	ZIP Code	County	Country
Johannesburg	MI	49751	Otsego	USA
Phone number		E-mail address		
989-939-8916		Mike_coy@tcenergy.com		

Responsible Official 2 Name (optional)		Title		
Company Name & Mailing address (☐ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

☐ Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

SRN: B8573	Section Number (if applicable):

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
☒ Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	☐ Compliance Plan/Schedule of Compliance
☒ Mark-up copy of existing ROP using official version from the AQD website (required)	☐ Stack information
☐ Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	☐ Acid Rain Permit Initial/Renewal Application
☒ Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	☐ Cross-State Air Pollution Rule (CSAPR) Information
☐ MAERS Forms (to report emissions not previously submitted)	☐ Confidential Information
☐ Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	☒ Paper copy of all documentation provided (required)
☐ Compliance Assurance Monitoring (CAM) Plan	☒ Electronic documents provided (optional)
☐ Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	☐ Other, explain:

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	☒ Yes ☐ No

The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.

If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.

Name and Title of the Responsible Official (Print or Type)

Mike Coy, Area Manager – Great Lakes

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

Signature of Responsible Official	**Date** 10/03/2023

SRN: B8573	Section Number (if applicable):

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from **all** emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	☐ Yes ☒ No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	☐ Yes ☒ No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	☐ Yes ☒ No ☐ Yes ☐ No
C4.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NOx, PM10, PM2.5, SO_2, VOC, lead) emissions? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No, criteria pollutant potential emission calculations do not need to be included.	☐ Yes ☒ No
C5.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No, HAP potential emission calculations do not need to be included.	☐ Yes ☒ No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	☐ Yes ☒ No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	☐ Yes ☒ No ☐ Yes ☒ No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes, identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	☐ Yes ☒ No ☐ Yes ☐ No ☐ ☐
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes, then a copy must be submitted as part of the ROP renewal application.	☐ Yes ☒ No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	☐ Yes ☒ No

☒ Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: **AI-**Part C

SRN: B8573	Section Number (if applicable):

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. ☒ Yes ☐ No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	**Emission Unit Description**	**Rule 212(4) Citation** [e.g. Rule 212(4)(c)]	**Rule 201 Exemption Rule Citation** [e.g. Rule 282(2)(b)(i)]
EUBOILER	Natural Gas-Fired Boiler 4.18MMbtu/hr	R336.1282(2)(b)(i)	R336.1212(4)(b)

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

SRN: B8573	Section Number (if applicable):

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to **all** emission units and **all** applicable requirements in the existing ROP.

E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If Yes, identify changes and additions on Part F, Part G and/or Part H.	☐ Yes ☒ No
E2. For each emission unit(s) identified in the existing ROP, all stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were not reported in the most recent MAERS reporting year? If Yes, identity the stack(s) that was/were not reported on applicable MAERS form(s).	☐ Yes ☒ No
E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If Yes, complete Part F with the appropriate information.	☐ Yes ☒ No
E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.	☐ Yes ☒ No

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: **AI-**

SRN: B8573	Section Number (if applicable):

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. If No, go to Part G. ☐ Yes ☒ No

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (*Include Process Equipment, Control Devices and Monitoring Devices*)	Date Emission Unit was Installed/ Modified/ Reconstructed

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. ☐ Yes ☐ No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. ☐ Yes ☐ No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identity the stack(s) that were not reported on the applicable MAERS form(s). ☐ Yes ☐ No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. ☐ Yes ☐ No

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-**

SRN: B8573	Section Number (if applicable):

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.

If Yes, identify the emission units in the table below. If No, go to Part H. ☐ Yes ☒ No

Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	**Emission Unit Description – *Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices***	**Date Emission Unit was Installed/ Modified/ Reconstructed**
☐ Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
☐ Rule 287(2)(c) surface coating line		
☐ Rule 290 process with limited emissions		

Comments:

☐ Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

SRN: B8573	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If Yes, answer the questions below.	☐ Yes ☒ No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	☐ Yes ☒ No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If Yes, identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	☐ Yes ☒ No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify each state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	☐ Yes ☒ No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If Yes, list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	☐ Yes ☒ No
H6. Does the source propose to add, change and/or delete **source-wide** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H7. Are you proposing to **streamline** any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	☐ Yes ☒ No

SRN: B8573	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No

SRN: B8573	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15.	Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H16.	Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H17.	Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No

☐ Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

	SRN: B8573	Section Number (if applicable):

1. Additional Information ID
AI-Part C

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

See Appendix B for Criteria Pollutant, HAP and GHG emissions calculations.

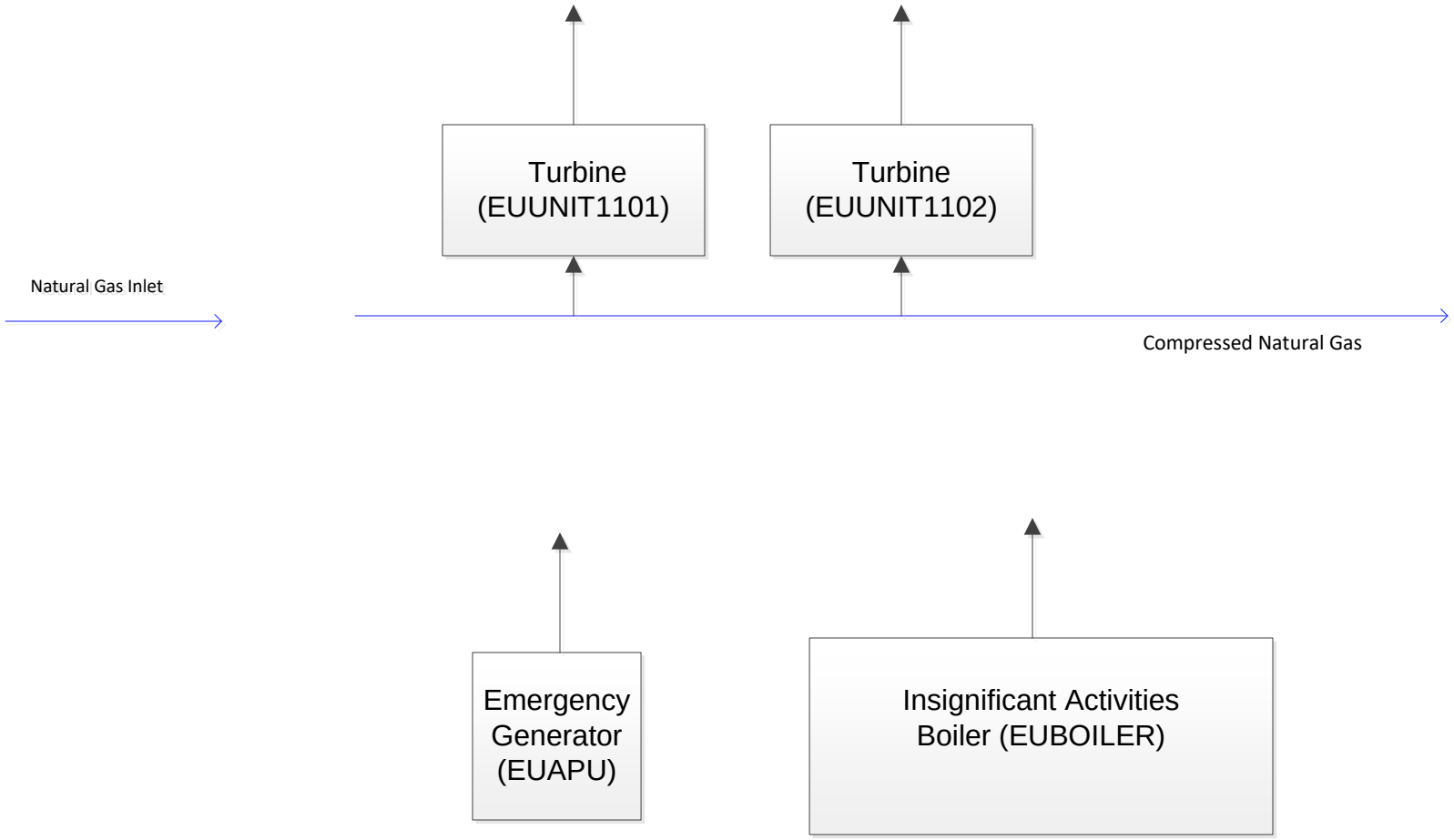
Page of

APPENDICIES

Appendix A Area Maps and Process Flow Diagrams

Great Lakes Gas Transmission – Boyne Falls Compressor Station #11	TC Energy	Figure 1
Area Map		September 2023

Attachment A
Figure 2
Great Lakes Gas Transmission
Boyne Falls Compressor Station Process Flow Diagram



Appendix B Emission Calculations

Please note: there are no proposed changes to the emission calculations

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Significant Activities

Emission Point ID	Source	Manufacturer	Model/Type	Rated Capacity (hp)	Heat Input (MMBTU/hr)
EUUNIT1101	Natural Gas-Fired Turbine	Rolls Royce	Avon 76G	16,000	158.8
EUUNIT1102	Natural Gas-Fired Turbine	Rolls Royce	Avon 76G	16,000	158.8
EUAPU	Natural Gas-Fired Electrical Generator	--	--	408	3.30

Insignificant Activities

Emission Point ID	Description of Exempt Emission Unit	RO Permit Exemption	NSR Permit Exemption	Basis of Exemption
EUBOILER	Natural Gas-Fired Boiler	R336.1212(4)(c)	R336.1282(2)(b)(i)	<50 MMBtu/hr

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit	Unit Description	HP	Heat Input	Potential Emission Rates													
				NO_x		CO		VOC		PM		SO_2		Mass GHG's		CO2e GHG's	
			(MMBtu/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
EUUNIT1101	Natural Gas-Fired Turbine	16,000	158.80	56.46	247.30	14.47	63.37	0.37	1.62	1.16	5.10	0.60	2.63	18,576.38	81,364.54	18,595.18	81,446.89
EUUNIT1102	Natural Gas-Fired Turbine	16,000	158.80	56.46	247.30	14.47	63.37	0.37	1.62	1.16	5.10	0.60	2.63	18,576.38	81,364.54	18,595.18	81,446.89
EUAPU	Natural Gas-Fired Electrical Generator	408	3.30	7.29	0.36	12.28	0.6138	0.10	0.0049	0.0641	0.0032	0.0641	0.0032	386.03	19.30	386.42	19.32
			Total Emissions	**112.92**	**494.61**	**28.94**	**126.74**	**0.74**	**3.25**	**2.33**	**10.20**	**1.20**	**5.26**	**37,152.76**	**162,729.09**	**37,190.36**	**162,893.78**

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Compound	Emission Rate						Total	
	EUUNIT1101		EUUNIT1102		EUAPU			
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1,1,2,2-Tetrachloroethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-05	4.17E-06	8.35E-05	4.17E-06
1,1,2-Trichloroethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-05	2.52E-06	5.05E-05	2.52E-06
1,3-Butadiene	7.59E-05	3.32E-04	7.59E-05	3.32E-04	2.19E-03	1.09E-04	2.34E-03	7.74E-04
1,3-Dichloropropene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-05	2.10E-06	4.19E-05	2.10E-06
2,2,4-Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2-Methylnaphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	7.06E-03	3.09E-02	7.06E-03	3.09E-02	9.21E-03	4.60E-04	2.33E-02	6.23E-02
Acrolein	1.13E-03	4.95E-03	1.13E-03	4.95E-03	8.68E-03	4.34E-04	1.09E-02	1.03E-02
Benzene	2.12E-03	9.27E-03	2.12E-03	9.27E-03	5.21E-03	2.61E-04	9.45E-03	1.88E-02
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(e)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biphenyl	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-05	2.92E-06	5.84E-05	2.92E-06
Chlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-05	2.13E-06	4.26E-05	2.13E-06
Chloroform	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-05	2.26E-06	4.52E-05	2.26E-06
Chrysene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	5.65E-03	2.47E-02	5.65E-03	2.47E-02	8.18E-05	4.09E-06	1.14E-02	4.95E-02
Ethylene Dibromide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-05	3.51E-06	7.03E-05	3.51E-06
Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.25E-01	5.49E-01	1.25E-01	5.49E-01	6.77E-02	3.38E-03	3.18E-01	1.10E+00
Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-02	5.05E-04	1.01E-02	5.05E-04
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-04	6.80E-06	1.36E-04	6.80E-06
n-Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	2.29E-04	1.00E-03	2.29E-04	1.00E-03	3.20E-04	1.60E-05	7.79E-04	2.03E-03
PAH	3.88E-04	1.70E-03	3.88E-04	1.70E-03	4.65E-04	2.33E-05	1.24E-03	3.42E-03
Perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide	5.12E-03	2.24E-02	5.12E-03	2.24E-02	0.00E+00	0.00E+00	1.02E-02	4.48E-02
Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-05	1.96E-06	3.93E-05	1.96E-06
Toluene	2.29E-02	1.00E-01	2.29E-02	1.00E-01	1.84E-03	9.21E-05	4.77E-02	2.01E-01
Vinyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-05	1.18E-06	2.37E-05	1.18E-06
Xylene	1.13E-02	4.95E-02	1.13E-02	4.95E-02	6.40E-04	3.20E-05	2.32E-02	9.90E-02
Total	**0.18**	**0.79**	**0.18**	**0.79**	**0.11**	**0.01**	**0.47**	**1.59**

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Emission Unit ID	**EUUNIT1101 and EUUNIT1102**
Description of Unit	Rolls Royce Avon 76G Natural Gas-Fired Turbine
Manufacturer	Rolls Royce
Date of Construction/Modification	6/1/1971
Fuel Used	Natural Gas
Minimum Lower Heating Value (LHV)	918 Btu/scf
Maximum Higher Heating Value (HHV)	1,020 Btu/scf
Rated Horsepower (hp)	16,000 hp
Heat Rate (Btu/bhp-hr)	9,925 Btu/bhp-hr
Heat Input (MMBtu/hr)	158.80 MMBtu/hr
Maximum Hourly Fuel Consumption	172,985 scf/hr
Control Device	N/A
Stack Designation	SVUNIT1101, SVUNIT1102
Annual Hours of Operation	8,760 hr/yr
Annual Fuel Consumption	1,515.35 MMscf/yr

Emission Factors:

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source
NO_x	3.2E-01	lb/MMBtu	a
CO	8.2E-02	lb/MMBtu	a
NM/NE VOC	2.1E-03	lb/MMBtu	b
PM (Filterable + Condensable)	6.6E-03	lb/MMBtu	b
SO_2	3.4E-03	lb/MMBtu	b

[a] AP-42 Table 3.1-1 "Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from
[b] AP-42 Table 3.1-2a "Emission Factors for Criteria Pollutants and Greenhouse Gases from Stationary Gas

Potential Emissions:

Pollutant	Emission Rate (lb/hr)	Calculation Methodology	Potential Emissions [d] (ton/yr)
NO_x	56.46	c	247.30
CO	14.47	c	63.37
NM/NE VOC	0.37	c	1.62
PM (Filterable + Condensable)	1.16	c	5.10
SO_2	0.60	c	2.63

[c] Emission Rate (lb/hr) = (Emission Factor, lb/MMBtu) * (Max Fuel Consumption, scf/hr) * (Maximum HHV, Btu/scf) * (MM/1,000,000)
[d] Emission Rate (ton/yr) = (Emission Rate, lb/hr) * (Annual Operation, hrs/yr) * (1 ton/2000 lb)

HAP Calculated Emissions:

Pollutant	Emission Factor (lb/MMBtu)[e]	Potential Emissions (lb/hr)[f]	Potential Emissions (tons/yr)[g]
HAPs:			
1,3-Butadiene	4.3E-07	7.59E-05	0.0003
Acetaldehyde	4.0E-05	7.06E-03	0.0309
Acrolein	6.4E-06	1.13E-03	0.0049
Benzene	1.2E-05	2.12E-03	0.0093
Ethylbenzene	3.2E-05	5.65E-03	0.0247
Formaldehyde	7.1E-04	1.25E-01	0.5487
Naphthalene	1.3E-06	2.29E-04	0.0010
PAH	2.2E-06	3.88E-04	0.0017
Propylene Oxide	2.9E-05	5.12E-03	0.0224
Toluene	1.3E-04	2.29E-02	0.1005
Xylene	6.4E-05	1.13E-02	0.0495
Total HAP	**1.03E-03**	**0.18**	**0.79**

[e] AP-42 Table 3.1-3 "Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas
[f] Emission Rate (lb/hr) = (Emission Factor, lb/MMBtu) * (Max Fuel Consumption, scf/hr) * (Maximum HHV, Btu/scf) * (MM/1,000,000)
[g] Emission Rate (ton/yr) = (Emission Rate, lb/hr) * (Annual Hours of Operation, hrs/yr) * (1 ton/2000 lb)

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit ID No.: **EUUNIT1101 and EUUNIT1102**
Description of Unit: **Rolls Royce Avon 76G Natural Gas-Fired Turbine**

Potential Greenhouse Gas (GHG) Emission Calculations[2]

Pollutant	Uncontrolled Emission Factor[2]	Factor Units[2]	Emissions (lb/hr)	Emissions (TPY)	Global Warming Potential (GWP)[2]	CO2e Emissions (lb/hr)	CO2e Emissions (TPY)
CO_2	53.06	kg CO_2/MMBtu	18,575.99	81,362.86	1.00	18,575.99	81,362.86
CH_4	0.001	kg CH_4/MMBtu	0.35	1.53	25.00	8.75	38.34
N_2O	0.0001	kg N_2O/MMBtu	0.04	0.15	298.00	10.43	45.70
TOTAL GHGs	--	--	**18,576.38**	**81,364.54**	--	--	--
TOTAL GHGs (CO_2e)	--	--	--	--	--	**18,595.18**	**81,446.89**

[1] Heat input based on fuel consumption and permitted HP.
[2] Based on 40 CFR 98 Subpart C, 98.33(a)(1)(i), Tier 1 Methodology, Equation C-1 and using source specific heat input.

GHG Emissions (lb/hr) = EF_{GHG} (kg/MMBtu) * 2.204623 lb/kg * Source Specific Heat Input (MMbtu/hr)
GHG Emissions (TPY) = GHG Emissions (lb/hr) * Annual Hoperating Hours (hr/yr) * 1 Ton/2000 lb
CO_2e Emissions (TPY) = Σ (GHG Emissions (tpy) * GWP)

Where:

EF_{GHG} = Fuel-specific default CO_2, CH_4, or N_2O emission factors from Table C-1 for CO_2 (Natural gas - Weighted U.S. Average) and Table C-2 for CH_4 and N_2O (Natural Gas) of 40 CFR Part 98, Subpart C (kg/MMBtu)
Heat Input = Btu/hp-hr x Site-rated hp x (1 MMBtu/1,000,000 Btu) = MMBtu/hr
GWP = Global Warming Potentials, 40 CFR 98, Subpart A, Table A-1

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Emission Unit ID	**EUAPU**	
Unit ID No.		
Description of Unit	**Natural Gas-Fired Generator Engine, 408 hp**	
Manufacturer	--	
Date of Construction/Modification	6/1/1971	
Stroke Cycle	4-Stroke	
Type of Burn	Rich-burn	
Fuel Used	Natural Gas	
Minimum Lower Heating Value (LHV)	918	Btu/scf
Maximum Higher Heating Value (HHV)	1,020	Btu/scf
Rated Horsepower (hp)	408	hp
Heat rate (Btu/bhp-hr)	8,088	
Heat Input (MMBtu/hr)	3.30	MMBtu/hr
Maximum Hourly Fuel Consumption	3,595	scf/hr
Control Device	N/A	
Stack Designation	N/A	
Annual Hours of Operation	100	hr/yr
Annual Fuel Consumption	0.36	MMscf/yr

Emission Factors:

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source
NOx	2.21	lb/MMBtu	a
CO	3.72	lb/MMBtu	a
NM/NE VOC	0.03	lb/MMBtu	a
PM (Filterable + Condensable)	0.019	lb/MMBtu	a
PM10 (Filterable + Condensable)	0.019	lb/MMBtu	a
SO2	0.001	lb/MMBtu	a

[a] AP-42 Table 3.2-3 "Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines" (7/00).

Potential Emissions:

Pollutant	Emission Rate lb/hr	Calculation Methodology	Potential Emissions [c] ton/yr
NOx	7.29	b	0.3647
CO	12.28	b	0.6138
NM/NEVOC	0.0977	b	0.0049
PM (Filterable + Condensable)	0.0641	b	0.0032
PM10	0.0641	b	0.0032
SO2	0.00194	b	0.00010

Sample Calculation:

[b] Emission Rate (lb/hr) = (Emission Factor lb/MMBtu) * (Heat Input MMBtu/hr)

[c] Emission Rate (ton/yr) = (Hourly Emission Rate lb/hr) * (Annual Hours of Operation hrs/yr) * (1 ton/2000 lb)

[d] Emission Rate (lb/yr)=Emission Rate (lb/hr) *Annual Hours of Operation (hrs/yr)

HAP Calculated Emissions:

Pollutant	Emission Factor (lb/MMBtu)[e]	Potential Emissions (lb/hr)[f]	Potential Emissions (tons/yr)[g]
HAPs:			
1,1,2,2-Tetrachloroethane	2.53E-05	8.35E-05	4.17E-06
1,1,2-Trichloroethane	1.53E-05	5.05E-05	2.52E-06
1,3-Butadiene	6.63E-04	2.19E-03	1.09E-04
1,3-Dichloropropene	1.27E-05	4.19E-05	2.10E-06
Acetaldehyde	2.79E-03	9.21E-03	4.60E-04
Acrolein	2.63E-03	8.68E-03	4.34E-04
Benzene	1.58E-03	5.21E-03	2.61E-04
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	1.77E-05	5.84E-05	2.92E-06
Chlorobenzene	1.29E-05	4.26E-05	2.13E-06
Chloroform	1.37E-05	4.52E-05	2.26E-06
Ethylbenzene	2.48E-05	8.18E-05	4.09E-06
Ethylene Dibromide	2.13E-05	7.03E-05	3.51E-06
Formaldehyde	2.05E-02	6.77E-02	3.38E-03
Methanol	3.06E-03	1.01E-02	5.05E-04
Methylene Chloride	4.12E-05	1.36E-04	6.80E-06
Naphthalene	9.71E-05	3.20E-04	1.60E-05
PAH	1.41E-04	4.65E-04	2.33E-05
Styrene	1.19E-05	3.93E-05	1.96E-06
Toluene	5.58E-04	1.84E-03	9.21E-05
Vinyl Chloride	7.18E-06	2.37E-05	1.18E-06
Xylene	1.94E-04	6.40E-04	3.20E-05
Total HAP	**0.0324**	**0.1070**	**0.0053**

[e] Based on AP-42 Table 3.2-3 "Uncontrolled Emission Factors for 4-Stroke Rich Burn Engines" (7/00).

[f] Emission Rate (lb/hr) = (Emission Factor lb/MMBtu) * (Heat Input MMBtu/hr)

[g] Emission Rate (ton/yr) = (Hourly Emission Rate lb/hr) * (Annual Hours of Operation hrs/yr) * (1 ton/2000 lb)

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit ID No.: **EUAPU**
Description of Unit: **Emergency Generator**

Potential Greenhouse Gas (GHG) Emission Calculations[2]

Pollutant	Uncontrolled Emission Factor[2]	Factor Units[2]	Emissions (lb/hr)	Emissions (TPY)	Global Warming Potential (GWP)[2]	CO2e Emissions (lb/hr)	CO2e Emissions (TPY)
CO_2	53.06	kg CO_2/MMBtu	386.03	19.30	1.00	386.03	19.30
CH_4	0.001	kg CH_4/MMBtu	0.01	0.00	25.00	0.18	0.01
N_2O	0.0001	kg N_2O/MMBtu	0.00	0.00	298.00	0.22	0.01
TOTAL GHGs	--	--	**386.03**	**19.30**	--	--	--
TOTAL GHGs (CO_2e)	--	--	--	--	--	**386.42**	**19.32**

[1] Heat input based on fuel consumption and permitted HP.
[2] Based on 40 CFR 98 Subpart C, 98.33(a)(1)(i), Tier 1 Methodology, Equation C-1 and using source specific heat input.

GHG Emissions (lb/hr) = EF_{GHG} (kg/MMBtu) * 2.204623 lb/kg * Source Specific Heat Input (MMbtu/hr)
GHG Emissions (TPY) = GHG Emissions (lb/hr) * Annual Hoperating Hours (hr/yr) * 1 Ton/2000 lb
CO_2e Emissions (TPY) = Σ (GHG Emissions (tpy) * GWP)

Where:

EF_{GHG} = Fuel-specific default CO_2, CH_4, or N_2O emission factors from Table C-1 for CO_2 (Natural gas - Weighted U.S. Average) and Table C-2 for CH_4 and N_2O (Natural Gas) of 40 CFR Part 98, Subpart C (kg/MMBtu)
Heat Input = Btu/hp-hr x Site-rated hp x (1 MMBtu/1,000,000 Btu) = MMBtu/hr
GWP = Global Warming Potentials, 40 CFR 98, Subpart A, Table A-1

Appendix C Mark-Up of Current Title V Permit, Boyne Falls Compressor Station ROP NO. MI-ROP-B8573-2019

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

EFFECTIVE DATE: May 29, 2019

ISSUED TO

Great Lakes Gas Transmission Company, LP
Boyne Falls Compressor Station

State Registration Number (SRN): B8573

LOCATED AT

10339 Great Lakes Road, Boyne Falls, Charlevoix County, Michigan 49713

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-B8573-2019

Expiration Date: May 29, 2024

Administratively Complete ROP Renewal Application Due Between
November 29, 2022 and November 29, 2023

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-B8573-2019

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

_____
Shane Nixon, Gaylord District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a Source-Wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements are identified for each ROP term or condition. All terms and conditions that are included in a PTI are streamlined, subsumed and/or is state-only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**

- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**

- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state-only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**

2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**

3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**

4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities: **(R 336.1213(1)(d))**
   a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
   c. Inspect, at reasonable times, any of the following:
      i. Any stationary source.
      ii. Any emission unit.
      iii. Any equipment, including monitoring and air pollution control equipment.
      iv. Any work practices or operations regulated or required under the ROP.
   d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.

5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**

7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**

8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).[2] **(R 336.1370)**

10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, "Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:"[2] **(R 336.1301(1))**
    a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
    b. A limit specified by an applicable federal new source performance standard.

    The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
    a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.[1] **(R 336.1901(a))**
    b. Unreasonable interference with the comfortable enjoyment of life and property.[1] **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).[2] **(R 336.2001)**

14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**

15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
    a. The date, location, time, and method of sampling or measurements.
    b. The dates the analyses of the samples were performed.
    c. The company or entity that performed the analyses of the samples.
    d. The analytical techniques or methods used.
    e. The results of the analyses.
    f. The related process operating conditions or parameters that existed at the time of sampling or measurement.

17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604-3507. **(R 336.1213(4)(c))**

20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**

21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
    a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
    b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
    c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following: **(R 336.1213(3)(c))**
    a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
    b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that; "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete." The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.

23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**

24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**

25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.[2] **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
    a. The applicable requirements are included and are specifically identified in the ROP.
    b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

    Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
    a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
    b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
    c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
    a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
    b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
    c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
    d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
    e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**

29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**

31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**

32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**

33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
    a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
    b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
    c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
    d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(9))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.

37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).

39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
    a. June 21, 1999,
    b. Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
    c. The date on which a regulated substance is first present above a threshold quantity in a process.

40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.

41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan’s State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit to Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.[2] **(R 336.1201(1))**

44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.[2] **(R 336.1201(8), Section 5510 of Act 451)**

45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.[2] **(R 336.1219)**

46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.[2] **(R 336.1201(4))**

Footnotes:
[1]This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUUNIT1101	Natural Gas-fired Rolls-Royce Avon 76G turbine unit, rated at 16,000 horsepower (158.8 MMBtu/hr) at ISO conditions	06/01/1971	FGAVON
EUUNIT1102	Natural Gas-fire Rolls-Royce Avon 76G turbine unit rated at 16,000 horsepower (158.8 MMBtu/hr) at ISO conditions	06/01/1971	FGAVON
EUAPU	Existing emergency use, 408 HP natural gas-fired, spark ignition rich burn reciprocating internal combustion engine with 3.26 MMBtu/hr heat input driving an electrical generator. This engine is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) located at an area source of HAP emissions. An existing engine is defined as one for which construction or reconstruction commenced before June 12, 2006.	06/01/1971	NA
EUPIPEMAINT	Routine and emergency venting of natural gas from transmission and distribution systems	1971	FGRULE285(2)(mm)

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EUAPU
EMISSION UNIT CONDITIONS

DESCRIPTION

Existing emergency use, 408 HP natural gas-fired, spark ignition rich burn reciprocating internal combustion engine with 3.26 MMBtu/hr heat input driving an electrical generator. This engine is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) located at an area source of HAP emissions. An existing engine is defined as one for which construction or reconstruction commenced before June 12, 2006.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EUAPU with a non-resettable hour meters to track the operating hours.**(R 336.1213(3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall complete all required records in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1213(3))**

2. The permittee shall monitor and record the total hours of operation for EUAPU once per calendar month. **(R 336.1213(3))**

3. The permittee shall maintain a log of inspections and maintenance performed as specified in SC IX.1, 2, and 3 of this table. **(R336.1213(3))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall change the oil and oil filter for EUAPU every 500 hours of operation or annually, whichever comes first. **(40 CFR 63.6603(a), 40 CFR Part 63, Subpart ZZZZ, Table 2D)**

2. The permittee shall inspect the spark plugs of EUAPU every 1000 hours of operation or annually, whichever comes first, and replace them as necessary. **(40 CFR 63.6603(a), 40 CFR Part 63, Subpart ZZZZ, Table 2D)**

3. The permittee shall inspect all hoses and belts of EUAPU every 500 hours of operation or annually, whichever comes first, and replace them as necessary. **(40 CFR 63.6603(a), 40 CFR Part 63, Subpart ZZZZ, Table 2D)**

4. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Area Sources: Stationary Reciprocating Internal Combustion Engines. **(40 CFR Part 63, Subpart ZZZZ)**

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGAVONS	Two Rolls-Royce Avon 76G natural gas-fired stationary turbines rated at 16,000 horsepower (158.8 MMBtu/hr) each	EUUNIT1101 EUUNIT1102
FGRULE285(2)(mm)	Routine and emergency venting of natural gas from transmission and distribution systems exempt from the requirements of Rule 201 pursuant to Rule 278, Rule 278a and Rule 285(2)(mm)	EUPIPEMAINT

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FGAVONS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Two Rolls-Royce Avon 76G natural gas-fired stationary turbines rated at 16,000 horsepower (158.8 MMBtu/hr) each

Emission Unit: EUUNIT1101, EUUNIT1102

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NOx	82 ppm by volume, corrected to 15% oxygen[2]	Hourly	EUUNIT1101 and EUUNIT1102 individually	SC V.1	**40 CFR 52.21**
2. NOx	61.2 pph[2]	Hourly	EUUNIT1101 and EUUNIT1102 individually	SC V.1	**40 CFR 52.21**
3. NOx	268 tpy[2]	12 month rolling time period as determined at the end of each calendar month	EUUNIT1101 and EUUNIT1102 individually	SC VI.1	**40 CFR 52.21**
4. CO	300 ppm by volume[2]	Hourly	EUUNIT1101 and EUUNIT1102 individually	SC V.1	**40 CFR 52.21**
5. CO	140 pph[2]	Hourly	EUUNIT1101 and EUUNIT1102 individually	SC V.1	**40 CFR 52.21**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall verify NOx and CO emission rates from FGAVONS by testing at owner's expense, in accordance with the Department requirements. Testing shall be performed using an approved USEPA Method listed in:

Pollutant	Test Method Reference
NOx	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A

An alternate method, or a modification to the approved USEPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

2. The permittee shall verify the NOx and CO emission rates from FGAVONS, at a minimum, every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

3. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 7 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall monitor, record, and calculate the following data for EUUNIT1101 and EUUNIT1102 for each calendar month **(R 336.1213(3)):**
   a. Hours of operation during the month
   b. Fuel consumption
   c. NOx emissions in tons per month
   d. NOx emissions in tons per year

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVUNIT1101	Exhaust with cross sectional area equivalent to that of a circular stack of 135.6 inches diameter[2]	45[2]	**40 CFR 52.21**
2. SVUNIT1102	Exhaust with cross sectional area equivalent to that of a circular stack of 135.6 inches diameter[2]	45[2]	**40 CFR 52.21**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:
[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGRULE285(2)(mm)
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rule 278, Rule 278a and Rule 285(2)(mm).

Emission Unit: EUPIPEMAINT

POLLUTION CONTROL EQUIPMENT

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. For venting of natural gas for routine maintenance or relocation of transmission and distribution systems in amounts greater than 1,000,000 standard cubic feet, the permittee shall, at a minimum, implement measures to assure safety of employees and the public and minimize impacts to the environment. **(R 336.1285(2)(mm)(ii)(B))**

2. For venting of field gas for routine maintenance or relocation of transmission and distribution systems in amounts greater than 1,000,000 standard cubic feet, the permittee shall notify the AQD District Supervisor prior to a scheduled pipeline venting. **(R 336.1285(2)(mm)(ii)(A))**

3. For venting of natural gas for routine maintenance or relocation of transmission and distribution systems in amounts greater than 1,000,000 standard cubic feet, the permittee shall provide necessary notification in accordance with the Michigan gas safety standards, the federal pipeline and hazardous materials safety administration standards, and the federal energy regulatory commission standards, as applicable. The permittee is not required to copy the AQD on the notifications. **(R 336.1285(2)(mm)(ii)(B))**

4. For venting of field gas for routine maintenance or relocation of gathering pipelines in amounts greater than 1,000,000 standard cubic feet, the permittee shall notify the AQD District Supervisor prior to a scheduled pipeline venting. **(R 336.1285(2)(mm)(iii)(A))**

5. For venting of field gas for routine maintenance or relocation of gathering pipelines in amounts greater than 1,000,000 standard cubic feet, the permittee shall provide necessary notification in accordance with the Michigan Department of Environmental Quality, Office of Geological Survey, and the Michigan Public Service Commission Standards, as applicable. The permittee is not required to copy the AQD on the notifications. **(R 336.1285(2)(mm)(iii)(B))**

6. For emergency venting of natural gas or field gases in amounts greater than 1,000,000 standard cubic feet per event, the permittee shall notify the pollution emergency alert system (PEAS) within 24 hours of an emergency pipeline venting. For purposes of this requirement, an emergency is considered an unforeseen event that disrupts normal operating conditions and poses a threat to human life, health, property, or the environment if not controlled immediately. **(R 336.1285(2)(mm)(iv))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

[1] This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2] This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that the requirements identified in the table below are not applicable to the specified emission unit(s) and/or flexible group(s). This determination is incorporated into the permit shield provisions set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii). If the permittee makes a change that affects the basis of the non-applicability determination, the permit shield established as a result of that non-applicability decision is no longer valid for that emission unit or flexible group.

Emission Unit/Flexible Group ID	Non-Applicable Requirement	Justification
FGAVONS	40 CFR 60.33 et seq., NSPS, Subpart GG – New Source Performance Standards for Stationary Gas Turbines	FGAVONS is made up of EUUNIT1101 and EUUNIT1102. These units were installed in 1971. NSPS, Subpart GG does not affect stationary gas turbines installed before its promulgation date of 10/3/1977. If either unit is modified or reconstructed as defined in 40 CFR 60.14 or 40 CFR 60.15, it would become subject to 40 CFR Part 60, Subpart GG.

APPENDICES

Appendix 1. Acronyms and Abbreviations

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CEMS	Continuous Emission Monitoring System	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
Department/ department	Michigan Department of Environmental Quality	gr	Grains
		HAP	Hazardous Air Pollutant
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
GACS	Gallons of Applied Coating Solids	HP	Horsepower
GC	General Condition	H_2S	Hydrogen Sulfide
GHGs	Greenhouse Gases	kW	Kilowatt
HVLP	High Volume Low Pressure*	lb	Pound
ID	Identification	m	Meter
IRSL	Initial Risk Screening Level	mg	Milligram
ITSL	Initial Threshold Screening Level	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	NMOC	Non-methane Organic Compounds
MAP	Malfunction Abatement Plan	NO_x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	ng	Nanogram
		PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	Particulate Matter equal to or less than 10 microns in diameter
NA	Not Applicable		
NAAQS	National Ambient Air Quality Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pounds per hour
		ppm	Parts per million
NSPS	New Source Performance Standards	ppmv	Parts per million by volume
NSR	New Source Review	ppmw	Parts per million by weight
PS	Performance Specification	%	Percent
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonable Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	TAC	Toxic Air Contaminant
SCR	Selective Catalytic Reduction	Temp	Temperature
SNCR	Selective Non-Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TEQ	Toxicity Equivalence Quotient	µg	Microgram
USEPA/EPA	United States Environmental Protection Agency	µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
VE	Visible Emissions	yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

Appendix 2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-B8573-2013. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

Source-Wide PTI No MI-PTI-B8573-2013 is being reissued as Source-Wide PTI No. MI-PTI-B8573-2019

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
NA	NA	NA	NA

Appendix 7. Emission Calculations

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGAVONS.

$$EF\ \frac{lb}{MMBtu} \times 1000\ \frac{MMBtu}{MMcf} \times \textit{Fuel Consumption}\ \frac{MMcf}{month} \times \frac{1ton}{2000lb} = NOx\ \frac{ton}{month}$$

Where:

EF = Emission factor as determined in most recent stack test

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ, AQD, Report Certification form (EQP 5736) and MDEQ, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

GREAT LAKES GAS TRANSMISSION, LP
CHARLEVOIX COUNTY, MICHIGAN

Summaries	Emission Calculations

Raw Data

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Significant Activities

Emission Point ID	Source	Manufacturer	Model/Type	Rated Capacity (hp)	Heat Input (MMBTU/hr)
EUUNIT1101	Natural Gas-Fired Turbine	Rolls Royce	Avon 76G	16,000	158.8
EUUNIT1102	Natural Gas-Fired Turbine	Rolls Royce	Avon 76G	16,000	158.8
EUAPU	Natural Gas-Fired Electrical Generator	--	--	408	3.30

Insignificant Activities

Emission Point ID	Description of Exempt Emission Unit	RO Permit Exemption	NSR Permit Exemption	Basis of Exemption
EUBOILER	Natural Gas-Fired Boiler	R336.1212(4)(c)	R336.1282(2)(b)(i)	<50 MMBtu/hr

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit	Unit Description	HP	Heat Input	Potential Emission Rates													
				NO_x		CO		VOC		PM		SO_2		Mass GHG's		CO2e GHG's	
			(MMBtu/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
EUUNIT1101	Natural Gas-Fired Turbine	16,000	158.80	56.46	247.30	14.47	63.37	0.37	1.62	1.16	5.10	0.60	2.63	18,576.38	81,364.54	18,595.18	81,446.89
EUUNIT1102	Natural Gas-Fired Turbine	16,000	158.80	56.46	247.30	14.47	63.37	0.37	1.62	1.16	5.10	0.60	2.63	18,576.38	81,364.54	18,595.18	81,446.89
EUAPU	Natural Gas-Fired Electrical Generator	408	3.30	7.29	0.36	12.28	0.6138	0.10	0.0049	0.0641	0.0032	0.0641	0.0032	386.03	19.30	386.42	19.32
Total Emissions				**112.92**	**494.61**	**28.94**	**126.74**	**0.74**	**3.25**	**2.33**	**10.20**	**1.20**	**5.26**	**37,152.76**	**162,729.09**	**37,190.36**	**162,893.78**

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Compound	Emission Rate						Total	
	EUUNIT1101		EUUNIT1102		EUAPU			
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1,1,2,2-Tetrachloroethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-05	4.17E-06	8.35E-05	4.17E-06
1,1,2-Trichloroethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-05	2.52E-06	5.05E-05	2.52E-06
1,3-Butadiene	7.59E-05	3.32E-04	7.59E-05	3.32E-04	2.19E-03	1.09E-04	2.34E-03	7.74E-04
1,3-Dichloropropene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-05	2.10E-06	4.19E-05	2.10E-06
2,2,4-Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2-Methylnaphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	7.06E-03	3.09E-02	7.06E-03	3.09E-02	9.21E-03	4.60E-04	2.33E-02	6.23E-02
Acrolein	1.13E-03	4.95E-03	1.13E-03	4.95E-03	8.68E-03	4.34E-04	1.09E-02	1.03E-02
Benzene	2.12E-03	9.27E-03	2.12E-03	9.27E-03	5.21E-03	2.61E-04	9.45E-03	1.88E-02
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(e)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biphenyl	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-05	2.92E-06	5.84E-05	2.92E-06
Chlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-05	2.13E-06	4.26E-05	2.13E-06
Chloroform	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-05	2.26E-06	4.52E-05	2.26E-06
Chrysene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	5.65E-03	2.47E-02	5.65E-03	2.47E-02	8.18E-05	4.09E-06	1.14E-02	4.95E-02
Ethylene Dibromide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-05	3.51E-06	7.03E-05	3.51E-06
Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.25E-01	5.49E-01	1.25E-01	5.49E-01	6.77E-02	3.38E-03	3.18E-01	1.10E+00
Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methanol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-02	5.05E-04	1.01E-02	5.05E-04
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-04	6.80E-06	1.36E-04	6.80E-06
n-Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	2.29E-04	1.00E-03	2.29E-04	1.00E-03	3.20E-04	1.60E-05	7.79E-04	2.03E-03
PAH	3.88E-04	1.70E-03	3.88E-04	1.70E-03	4.65E-04	2.33E-05	1.24E-03	3.42E-03
Perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene Oxide	5.12E-03	2.24E-02	5.12E-03	2.24E-02	0.00E+00	0.00E+00	1.02E-02	4.48E-02
Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-05	1.96E-06	3.93E-05	1.96E-06
Toluene	2.29E-02	1.00E-01	2.29E-02	1.00E-01	1.84E-03	9.21E-05	4.77E-02	2.01E-01
Vinyl Chloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-05	1.18E-06	2.37E-05	1.18E-06
Xylene	1.13E-02	4.95E-02	1.13E-02	4.95E-02	6.40E-04	3.20E-05	2.32E-02	9.90E-02
Total	**0.18**	**0.79**	**0.18**	**0.79**	**0.11**	**0.01**	**0.47**	**1.59**

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Emission Unit ID	**EUUNIT1101 and EUUNIT1102**	
Description of Unit	Rolls Royce Avon 76G Natural Gas-Fired Turbine	
Manufacturer	Rolls Royce	
Date of Construction/Modification	6/1/1971	
Fuel Used	Natural Gas	
Minimum Lower Heating Value (LHV)	918	Btu/scf
Maximum Higher Heating Value (HHV)	1,020	Btu/scf
Rated Horsepower (hp)	16,000	hp
Heat Rate (Btu/bhp-hr)	9,925	Btu/bhp-hr
Heat Input (MMBtu/hr)	158.80	MMBtu/hr
Maximum Hourly Fuel Consumption	172,985	scf/hr
Control Device	N/A	
Stack Designation	SVUNIT1101, SVUNIT1102	
Annual Hours of Operation	8,760	hr/yr
Annual Fuel Consumption	1,515.35	MMscf/yr

Emission Factors:

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source
NO_x	3.2E-01	lb/MMBtu	a
CO	8.2E-02	lb/MMBtu	a
NM/NE VOC	2.1E-03	lb/MMBtu	b
PM (Filterable + Condensable)	6.6E-03	lb/MMBtu	b
SO_2	3.4E-03	lb/MMBtu	b

[a] AP-42 Table 3.1-1 "Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from
[b] AP-42 Table 3.1-2a "Emission Factors for Criteria Pollutants and Greenhouse Gases from Stationary Gas

Potential Emissions:

Pollutant	Emission Rate (lb/hr)	Calculation Methodology	Potential Emissions [d] (ton/yr)
NO_x	56.46	c	247.30
CO	14.47	c	63.37
NM/NE VOC	0.37	c	1.62
PM (Filterable + Condensable)	1.16	c	5.10
SO_2	0.60	c	2.63

[c] Emission Rate (lb/hr) = (Emission Factor, lb/MMBtu) * (Max Fuel Consumption, scf/hr) * (Maximum HHV, Btu/scf) * (MM/1,000,000)
[d] Emission Rate (ton/yr) = (Emission Rate, lb/hr) * (Annual Operation, hrs/yr) * (1 ton/2000 lb)

HAP Calculated Emissions:

Pollutant	Emission Factor (lb/MMBtu)[e]	Potential Emissions (lb/hr)[f]	Potential Emissions (tons/yr)[g]
HAPs:			
1,3-Butadiene	4.3E-07	7.59E-05	0.0003
Acetaldehyde	4.0E-05	7.06E-03	0.0309
Acrolein	6.4E-06	1.13E-03	0.0049
Benzene	1.2E-05	2.12E-03	0.0093
Ethylbenzene	3.2E-05	5.65E-03	0.0247
Formaldehyde	7.1E-04	1.25E-01	0.5487
Naphthalene	1.3E-06	2.29E-04	0.0010
PAH	2.2E-06	3.88E-04	0.0017
Propylene Oxide	2.9E-05	5.12E-03	0.0224
Toluene	1.3E-04	2.29E-02	0.1005
Xylene	6.4E-05	1.13E-02	0.0495

Total HAP	**1.03E-03**	**0.18**	**0.79**

[e] AP-42 Table 3.1-3 "Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas

[f] Emission Rate (lb/hr) = (Emission Factor, lb/MMBtu) * (Max Fuel Consumption, scf/hr) * (Maximum HHV, Btu/scf) * (MM/1,000,000)

[g] Emission Rate (ton/yr) = (Emission Rate, lb/hr) * (Annual Hours of Operation, hrs/yr) * (1 ton/2000 lb)

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit ID No.: **EUUNIT1101 and EUUNIT1102**
Description of Unit: **Rolls Royce Avon 76G Natural Gas-Fired Turbine**

Potential Greenhouse Gas (GHG) Emission Calculations[2]

Pollutant	Uncontrolled Emission Factor[2]	Factor Units[2]	Emissions (lb/hr)	Emissions (TPY)	Global Warming Potential (GWP)[2]	CO2e Emissions (lb/hr)	CO2e Emissions (TPY)
CO_2	53.06	kg CO_2/MMBtu	18,575.99	81,362.86	1.00	18,575.99	81,362.86
CH_4	0.001	kg CH_4/MMBtu	0.35	1.53	25.00	8.75	38.34
N_2O	0.0001	kg N_2O/MMBtu	0.04	0.15	298.00	10.43	45.70
TOTAL GHGs	--	--	**18,576.38**	**81,364.54**	--	--	--
TOTAL GHGs (CO_2e)	--	--	--	--	--	**18,595.18**	**81,446.89**

[1] Heat input based on fuel consumption and permitted HP.

[2] Based on 40 CFR 98 Subpart C, 98.33(a)(1)(i), Tier 1 Methodology, Equation C-1 and using source specific heat input.

GHG Emissions (lb/hr) = EF_{GHG} (kg/MMBtu) * 2.204623 lb/kg * Source Specific Heat Input (MMbtu/hr)
GHG Emissions (TPY) = GHG Emissions (lb/hr) * Annual Hoperating Hours (hr/yr) * 1 Ton/2000 lb
CO_2e Emissions (TPY) = Σ (GHG Emissions (tpy) * GWP)

Where:

EF_{GHG} = Fuel-specific default CO_2, CH_4, or N_2O emission factors from Table C-1 for CO_2 (Natural gas - Weighted U.S. Average) and Table C-2 for CH_4 and N_2O (Natural Gas) of 40 CFR Part 98, Subpart C (kg/MMBtu)
Heat Input = Btu/hp-hr x Site-rated hp x (1 MMBtu/1,000,000 Btu) = MMBtu/hr
GWP = Global Warming Potentials, 40 CFR 98, Subpart A, Table A-1

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Emission Unit ID	**EUAPU**	
Unit ID No.		
Description of Unit	**Natural Gas-Fired Generator Engine, 408 hp**	
Manufacturer	--	
Date of Construction/Modification	6/1/1971	
Stroke Cycle	4-Stroke	
Type of Burn	Rich-burn	
Fuel Used	Natural Gas	
Minimum Lower Heating Value (LHV)	918	Btu/scf
Maximum Higher Heating Value (HHV)	1,020	Btu/scf
Rated Horsepower (hp)	408	hp
Heat rate (Btu/bhp-hr)	8,088	
Heat Input (MMBtu/hr)	3.30	MMBtu/hr
Maximum Hourly Fuel Consumption	3,595	scf/hr
Control Device	N/A	
Stack Designation	N/A	
Annual Hours of Operation	100	hr/yr
Annual Fuel Consumption	0.36	MMscf/yr

Emission Factors:

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source
NOx	2.21	lb/MMBtu	a
CO	3.72	lb/MMBtu	a
NM/NE VOC	0.03	lb/MMBtu	a
PM (Filterable + Condensable)	0.019	lb/MMBtu	a
PM10 (Filterable + Condensable)	0.019	lb/MMBtu	a
SO2	0.001	lb/MMBtu	a

[a] AP-42 Table 3.2-3 "Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines" (7/00).

Potential Emissions:

Pollutant	Emission Rate lb/hr	Calculation Methodology	Potential Emissions [c] ton/yr
NOx	7.29	b	0.3647
CO	12.28	b	0.6138
NM/NEVOC	0.0977	b	0.0049
PM (Filterable + Condensable)	0.0641	b	0.0032
PM10	0.0641	b	0.0032
SO2	0.00194	b	0.00010

Sample Calculation:

[b] Emission Rate (lb/hr) = (Emission Factor lb/MMBtu) * (Heat Input MMBtu/hr)

[c] Emission Rate (ton/yr) = (Hourly Emission Rate lb/hr) * (Annual Hours of Operation hrs/yr) * (1 ton/2000 lb)

[d] Emission Rate (lb/yr)=Emission Rate (lb/hr) *Annual Hours of Operation (hrs/yr)

HAP Calculated Emissions:

Pollutant	Emission Factor (lb/MMBtu)[e]	Potential Emissions (lb/hr)[f]	Potential Emissions (tons/yr)[g]
HAPs:			
1,1,2,2-Tetrachloroethane	2.53E-05	8.35E-05	4.17E-06
1,1,2-Trichloroethane	1.53E-05	5.05E-05	2.52E-06
1,3-Butadiene	6.63E-04	2.19E-03	1.09E-04
1,3-Dichloropropene	1.27E-05	4.19E-05	2.10E-06
Acetaldehyde	2.79E-03	9.21E-03	4.60E-04
Acrolein	2.63E-03	8.68E-03	4.34E-04
Benzene	1.58E-03	5.21E-03	2.61E-04
Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00
Carbon Tetrachloride	1.77E-05	5.84E-05	2.92E-06
Chlorobenzene	1.29E-05	4.26E-05	2.13E-06
Chloroform	1.37E-05	4.52E-05	2.26E-06
Ethylbenzene	2.48E-05	8.18E-05	4.09E-06
Ethylene Dibromide	2.13E-05	7.03E-05	3.51E-06
Formaldehyde	2.05E-02	6.77E-02	3.38E-03
Methanol	3.06E-03	1.01E-02	5.05E-04
Methylene Chloride	4.12E-05	1.36E-04	6.80E-06
Naphthalene	9.71E-05	3.20E-04	1.60E-05
PAH	1.41E-04	4.65E-04	2.33E-05
Styrene	1.19E-05	3.93E-05	1.96E-06
Toluene	5.58E-04	1.84E-03	9.21E-05
Vinyl Chloride	7.18E-06	2.37E-05	1.18E-06
Xylene	1.94E-04	6.40E-04	3.20E-05
Total HAP	**0.0324**	**0.1070**	**0.0053**

[e] Based on AP-42 Table 3.2-3 "Uncontrolled Emission Factors for 4-Stroke Rich Burn Engines"

[f] Emission Rate (lb/hr) = (Emission Factor lb/MMBtu) * (Heat Input MMBtu/hr)

[g] Emission Rate (ton/yr) = (Hourly Emission Rate lb/hr) * (Annual Hours of Operation hrs/yr) * (1 ton/2000 lb)

2023 TITLE V RENEWAL
GREAT LAKES GAS TRANSMISSION, LP
BOYNE FALLS CS11, MICHIGAN

Unit ID No.: **EUAPU**
Description of Unit: **Emergency Generator**

Potential Greenhouse Gas (GHG) Emission Calculations[2]

Pollutant	Uncontrolled Emission Factor[2]	Factor Units[2]	Emissions (lb/hr)	Emissions (TPY)	Global Warming Potential (GWP)[2]	CO2e Emissions (lb/hr)	CO2e Emissions (TPY)
CO_2	53.06	kg CO_2/MMBtu	386.03	19.30	1.00	386.03	19.30
CH_4	0.001	kg CH_4/MMBtu	0.01	0.00	25.00	0.18	0.01
N_2O	0.0001	kg N_2O/MMBtu	0.00	0.00	298.00	0.22	0.01
TOTAL GHGs	--	--	**386.03**	**19.30**	--	--	--
TOTAL GHGs (CO_2e)	--	--	--	--	--	**386.42**	**19.32**

[1] Heat input based on fuel consumption and permitted HP.

[2] Based on 40 CFR 98 Subpart C, 98.33(a)(1)(i), Tier 1 Methodology, Equation C-1 and using source specific heat input.

GHG Emissions (lb/hr) = EF_{GHG} (kg/MMBtu) * 2.204623 lb/kg * Source Specific Heat Input (MMbtu/hr)
GHG Emissions (TPY) = GHG Emissions (lb/hr) * Annual Hoperating Hours (hr/yr) * 1 Ton/2000 lb
CO_2e Emissions (TPY) = Σ (GHG Emissions (tpy) * GWP)

Where:

EF_{GHG} = Fuel-specific default CO_2, CH_4, or N_2O emission factors from Table C-1 for CO_2 (Natural gas - Weighted U.S. Average) and Table C-2 for CH_4 and N_2O (Natural Gas) of 40 CFR Part 98, Subpart C (kg/MMBtu)
Heat Input = Btu/hp-hr x Site-rated hp x (1 MMBtu/1,000,000 Btu) = MMBtu/hr
GWP = Global Warming Potentials, 40 CFR 98, Subpart A, Table A-1

	2-Stroke Lean-Burn Engines		4-Stroke Lean-Burn Engines		4-Stroke Rich-Burn Engines			Natural Gas Turbines		Natural Gas External Combustion
HAP	Emission Factor	Emission Factor	Emission Factor	Emission Factor	Emission Factor	Emission Factor	Controlled EF	Emission Factor	Emission Factor	Emission Factor
	(lbs/MMBtu)	(g/hp-hr)	(lbs/MMBtu)	(g/hp-hr)	(lbs/MMBtu)	(g/hp-hr)	(g/hp-hr)	(lbs/MMBtu)	(g/hp-hr)	(lbs/MMscf)
1,1,2,2-Tetrachloroethane	6.63E-05	3.6E-04	4.00E-05	2.2E-04	2.53E-05	1.4E-04	2.8E-05			
1,1,2-Trichloroethane	5.27E-05	2.9E-04	3.18E-05	1.7E-04	1.53E-05	8.3E-05	1.7E-05			
1,3-Butadiene	8.20E-04	4.5E-03	2.67E-04	1.5E-03	6.63E-04	3.6E-03	7.2E-04	4.3E-07	2.3E-06	
1,3-Dichloropropene	4.38E-05	2.4E-04	2.64E-05	1.4E-04	1.27E-05	6.9E-05	1.4E-05			
2,2,4-Trimethylpentane	8.46E-04	4.6E-03	2.50E-04	1.4E-03						
2-Methylnaphthalene	2.14E-05	1.2E-04	3.32E-05	1.8E-04						2.4E-05
Acenaphthene	1.33E-06	7.2E-06	1.25E-06	6.8E-06						1.8E-06
Acenaphthylene	3.17E-06	1.7E-05	5.53E-06	3.0E-05						1.8E-06
Acetaldehyde	7.76E-03	4.2E-02	8.36E-03	4.6E-02	2.79E-03	1.5E-02	3.0E-03	4.0E-05	2.2E-04	
Acrolein	7.78E-03	4.2E-02	5.14E-03	2.8E-02	2.63E-03	1.4E-02	2.9E-03	6.4E-06	3.5E-05	
Anthracene	7.18E-07	3.9E-06								
Benz(a)anthracene	3.36E-07	1.8E-06								1.8E-06
Benzene	1.94E-03	1.1E-02	4.40E-04	2.4E-03	1.58E-03	8.6E-03	1.7E-03	1.2E-05	6.5E-05	2.1E-03
Benzo(a)pyrene	5.68E-09	3.1E-08								1.2E-06
Benzo(b)fluoranthene	8.51E-09	4.6E-08	1.66E-07	9.0E-07						1.8E-06
Benzo(e)pyrene	2.34E-08	1.3E-07	4.15E-07	2.3E-06						
Benzo(g,h,i)perylene	2.48E-08	1.3E-07	4.14E-07	2.3E-06						1.2E-06
Benzo(k)fluoranthene	4.26E-09	2.3E-08								1.8E-06
Biphenyl	3.95E-06	2.2E-05	2.12E-04	1.2E-03						
Carbon Tetrachloride	6.07E-05	3.3E-04	3.67E-05	2.0E-04	1.77E-05	9.6E-05	1.9E-05			
Chlorobenzene	4.44E-05	2.4E-04	3.04E-05	1.7E-04	1.29E-05	7.0E-05	1.4E-05			
Chloroform	4.71E-05	2.6E-04	2.85E-05	1.6E-04	1.37E-05	7.5E-05	1.5E-05			
Chrysene	6.72E-07	3.7E-06	6.93E-07	3.8E-06						1.8E-06
Dichlorobenzene										1.2E-03
Ethylbenzene	1.08E-04	5.9E-04	3.97E-05	2.2E-04	2.48E-05	1.3E-04	2.7E-05	3.2E-05	1.7E-04	
Ethylene Dibromide	7.34E-05	4.0E-04	4.43E-05	2.4E-04	2.13E-05	1.2E-04	2.3E-05			
Fluoranthene	3.61E-07	2.0E-06	1.11E-06	6.0E-06						3.0E-06
Fluorene	1.69E-06	9.2E-06	5.67E-06	3.1E-05						2.8E-06
Formaldehyde	5.52E-02	3.0E-01	5.28E-02	2.9E-01	2.05E-02	1.1E-01	2.2E-02	7.1E-04	3.9E-03	7.5E-02
Indeno(1,2,3-c,d)pyrene	9.93E-09	5.4E-08								1.8E-06
Methanol	2.48E-03	1.3E-02	2.50E-03	1.4E-02	3.06E-03	1.7E-02	3.3E-03			
Methylene Chloride	1.47E-04	8.0E-04	2.00E-05	1.1E-04	4.12E-05	2.2E-04	4.5E-05			
n-Hexane	4.45E-04	2.4E-03	1.11E-03	6.0E-03						1.8E+00
Naphthalene	9.63E-05	5.2E-04	7.44E-05	4.0E-04	9.71E-05	5.3E-04	1.1E-04	1.3E-06	7.1E-06	6.1E-04
PAH	1.34E-04	7.3E-04	2.69E-05	1.5E-04	1.41E-04	7.7E-04	1.5E-04	2.2E-06	1.2E-05	2.1E-05
Perylene	4.97E-09	2.7E-08								
Phenanthrene	3.53E-06	1.9E-05	1.04E-05	5.7E-05						1.7E-05
Phenol	4.21E-05	2.3E-04	2.40E-05	1.3E-04						
Propylene Oxide								2.9E-05	1.6E-04	
Pyrene	5.84E-07	3.2E-06	1.36E-06	7.4E-06						5.0E-06
Styrene	5.48E-05	3.0E-04	2.36E-05	1.3E-04	1.19E-05	6.5E-05	1.3E-05			
Tetrachloroethane			2.48E-06	1.3E-05						
Toluene	9.63E-04	5.2E-03	4.08E-04	2.2E-03	5.58E-04	3.0E-03	6.1E-04	1.3E-04	7.1E-04	3.4E-03
Vinyl Chloride	2.47E-05	1.3E-04	1.49E-05	8.1E-05	7.18E-06	3.9E-05	7.8E-06			
Xylene	2.68E-04	1.5E-03	1.84E-04	1.0E-03	1.94E-04	1.1E-03	2.1E-04	6.4E-05	3.5E-04	
Mercury										2.6E-04
Total HAPs	0.080	0.43	0.072	0.3930	0.032	0.1765	0.0353	0.0010	0.0056	1.8827

AP-42 emission factors converted to g/hp-hr as follows:lb/MMBtu * 12000 Btu/hp-hr * 453.6 g/lb * 1/10^6
Natural Gas-Fired Engines based on AP-42 Section 3.2 (7/00)
Natural Gas-Fired Turbines based on AP-42 Section 3.1 (4/00)
External Natural Gas Combustion based on AP-42 1.4 (7/98)