

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

April 21, 2020

**PERMIT TO INSTALL
331-98C**

ISSUED TO
DTE Electric Company, Belle River Peakers

LOCATED AT
4505 King Road
China Township, Michigan 48054

IN THE COUNTY OF
Saint Clair

STATE REGISTRATION NUMBER
B2796

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: March 9, 2020	
DATE PERMIT TO INSTALL APPROVED: April 21, 2020	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install 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 this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit 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 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. 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 Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department 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 condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. 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). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

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
EU-CTG12-1-BP	CTG 12-1. Belle River 82.4 MW nominally rated natural gas-fired simple cycle peaking combustion turbine generator. Equipped with dry low-NOx burner.	01-01-1999 07-23-2001	FG-CTG-BP
EU-CTG12-2-BP	CTG 12-2. Belle River 82.4 MW nominally rated natural gas-fired simple cycle peaking combustion turbine generator. Equipped with dry low-NOx burner.	01-01-1999 07-23-2001	FG-CTG-BP
EU-CTG13-1-BP	CTG 13-1. Belle River 82.4 MW nominally rated natural gas-fired simple cycle peaking combustion turbine generator. Equipped with dry low-NOx burner	01-01-1999 07-23-2001	FG-CTG-BP

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

FLEXIBLE GROUP SPECIAL CONDITIONS

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
FG-CTG-BP	Three (3) Belle River natural gas-fired, simple cycle combustion turbine generator peaking units. Each equipped with dry low-NOx burners nominally rated at 82.4 megawatts at ISO conditions.	EU-CTG12-1-BP EU-CTG12-2-BP EU-CTG13-1-BP

**FG-CTG-BP
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Three (3) natural gas-fired simple cycle combustion turbine generator (CTG) peaking units each nominally rated at 82.4 MW located at Belle River Power Plant. The combustion turbines are equipped with dry low-NOx burners.

Emission Unit: EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP

POLLUTION CONTROL EQUIPMENT

Dry Low-NOx Burners

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	9 ppm by volume at 15% oxygen & on a dry gas basis	Average of all operating hours in a calendar day, excluding startup, shutdown and malfunction	Each turbine during steady state operations	SC V.1,	R 336.1205(1) (a) & (b), R 336.2810, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 60.332 (a)(1)
2. NOx	60 ppm by volume at 15% oxygen & on a dry gas basis	Hourly	Each turbine	SC IV.2	R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d), 40 CFR 52.21(j)
3. NOx	230 tons per year	Based on a rolling 12-month period, as determined at the end of each month excluding startup, shutdown and malfunction	FG-CTG-BP	SC V.1, VI.3 and Appendix 7-BP	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), R 336.1205(1) (a) & (b), 40 CFR 52.21(j)
4. CO	25 ppm by volume at 15% oxygen & on a dry gas basis	Average of all operating hours in a calendar day, excluding startup, shutdown and malfunction	Each turbine	SC V.1	R 336.1205(1) (a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 52.21(j)
5. CO	382 tons per year	Based on a rolling 12-month period, as determined at the end of each month, excluding startup, shutdown and malfunction	FG-CTG-BP	SC V.1, VI.3 and Appendix 7-BP	R 336.1205(1) (a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 52.21(j)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
6. PM ₁₀	9 pounds per hour	Average of all operating hours in a calendar day, excluding startup, shutdown and malfunction	Each turbine	SC V.2	R 336.1205(1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j)
7. PM ₁₀	50.4 tons per year	Based on a rolling 12-month period, as determined at the end of each month, excluding startup, shutdown and malfunction	FG-CTG-BP	SC V.2 and Appendix 7-BP	R 336.1205(1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j)
8. Opacity	10%, except for uncombined water vapor	6-minute average, excluding startup, shutdown and malfunction	Each turbine	SC V.3	R 336.1301(1)(c) 40 CFR 52.21(j)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Natural Gas	13,600 MMscf	Based on a rolling 12-month period, as determined at the end of each month	FG-CTG-BP	SC VI.4	R 336.1205(1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j)
2. Sulfur in Natural Gas	0.8 grain per 100 standard cu. ft.	As-fired	FG-CTG-BP	SC III.1	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), R 336.1702(a), 40 CFR 52.21, 40 CFR 60.333(b)

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn pipeline quality natural gas in each turbine. **(R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), R 336.1702(a), 40 CFR 52.21(j), 40 CFR 60.333(b))**
- The total hours for startup and shutdown for FG-CTG-BP shall not exceed 500 hours per turbine per 12-month rolling time period as determined at the end of each calendar month. Startup is defined as the period of time from initiation of combustion firing until the unit reaches steady state operation (e.g., when premix operating mode is achieved). Shutdown is defined as that period of time from the initial lowering of the turbine output, with the intent to shut down, until the point at which the combustion process has stopped. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
- The permittee shall not operate FG-CTG-BP unless all provisions of the Federal Prevention of Significant Deterioration regulations, 40 CFR 52.21, are met. **(40 CFR 52.21)**

4. The permittee shall maintain and implement the approved "Emission Minimization Plan" describing how emissions will be minimized during startup(s), shutdown(s) and malfunction(s). The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. Alternative plans or modifications to the approved plan must be approved by the District Supervisor. **(R 336.1911, R 336.1912, R 336.2810, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain each turbine with a dry low-NOx combustor. **(R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j))**
2. The permittee shall install, calibrate, maintain, and operate devices or equipment to monitor and record the NOx emissions and oxygen (O₂) or (CO₂) content of the exhaust gas from each turbine in FG-CTG-BP on a continuous basis, and to meet the timelines and reporting requirements as described in Appendix 3-BP. The Continuous Emission Monitoring System (CEMS) shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 2 for NOx and PS 3 for O₂ or CO₂ of Appendix B to 40 CFR Part 60. **(R 336.1205(1)(a) & (b), R 336.2150(1)(b), (d), and (e), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), R 336.2810, 40 CFR 60.13 40 CFR 75.12(d)(2), 40 CFR 72.12(c), 40 CFR Part 75 Appendix B & F)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall conduct NOx and CO emission rate testing, at owner's expense, for each turbine at least once every 20 calendar quarters. NOx and CO emissions testing will be conducted at two operating load points, one at maximum load and one other mid load. Testing shall be performed using approved EPA Test Methods listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA 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 shall notify the AQD no less than 7 days prior to the anticipated test date. 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 336.1205(1)(a) & (b), R 336.1902, R 336.2001, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j), 40 CFR 60.8 & 60.335, 40 CFR 75 Appendix E2)**
2. The permittee shall verify PM10 emission rates from each turbine by testing, at owner's expense, in accordance with Department requirements will be required once every five years. Testing must be done for each turbine at 70% and 100% of base load. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA 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 shall notify the AQD no less than 7 days prior to the anticipated test date. 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 336.1205(1)(a) & (b), R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j))**
3. The permittee shall conduct federal Reference Method 9 visible emissions reading for each turbine at least once per 1200 hours of operation. **(R 336.1301, 40 CFR 52.21(j))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205(3))**
2. The permittee shall keep a record of federal Reference Method 9 visible emissions reading conducted for each turbine at least once per 1200 hours of operation. **(R 336.1301, 40 CFR 52.21(j))**
3. The permittee shall calculate NO_x, CO, and PM₁₀ emission rates on a monthly and previous 12-month rolling time period basis. These emission calculations shall be based upon **Appendix 7-BP. (R 336.1205((1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), R 336.2810, 40 CFR 52.21(j), 40 CFR 60 Subpart GG)**
4. The permittee shall monitor the nitrogen content in the fuel in accordance with 40 CFR 60.334(h)(2) if an allowance for fuel bound nitrogen is claimed. **(40 CFR 60.334(h)(2))**
5. For each turbine, the permittee shall continuously monitor and record hourly the natural gas usage with instrumentation in a manner acceptable to the AQD District Supervisor. **(R 336.1205(1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j))**
6. For each turbine, the permittee shall keep records of hours of startup and shutdown. **(R 336.1205(1)(a) & (b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 52.21(j))**

See Appendix 3-BP

VII. REPORTING

1. After CEMS are installed, the permittee shall report NO_x and either O₂ or CO₂ emissions in accordance with 40 CFR Part 75 within 30 days following the end of each calendar quarter. **(R 336.1213(3), 40 CFR 75.64)**
2. After NO_x CEMs installed, in accordance with 40 CFR 60.7(c) & (d), the permittee shall submit two copies of an excess emission report (EER) and monitoring system performance report in an acceptable format to the AQD District Supervisor and the TPU Supervisor within 30 days following the end of each calendar quarter. The monitoring system performance report shall follow the format of Figure 1 in 40 CFR 60.7(d). The NO_x excess emissions (EER) shall include the following information:
 - a) A report of each exceedance above specified permit limits for NO_x. This includes the date, time, magnitude, cause and corrective actions of all occurrences during the reporting period.
 - b) A report of all periods of CEMS downtime and corrective action.
 - c) A report of the total operating time of each combustion turbine in FG-CTG-BP during the reporting period.
 - d) A report of any periods that the CEMS exceeds the instrument range.
 - e) If no exceedances or CEMS downtime occurred during the reporting period, the permittee shall report that fact.

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 Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-CTG13-1	228 x 108	56	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
2. SV-CTG12-1	228 x 108	56	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
3. SV-CTG12-2	228 x 108	56	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR 60, Subparts A and GG, as they apply to FG-CTG-BP. **(40 CFR 60, Subparts A and GG)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX BP

Appendix 3-BP. Monitoring Requirements

The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in FG-BR-CTG.

Continuous Emission Monitoring System

The CEMS performance specifications defined in 40 CFR Part 75, Appendix B are adopted.

Methods of measurement, frequency of measurement and recordkeeping methods for CEMS required under 40 CFR 75 are outlined in the most recent version of the Acid Rain Program – Belle River Peakers Monitoring Plan.

The data reduction procedures defined in 40 CFR 75.12(c) will be used calculate hourly, quarterly, and annual NO_x emission rates (in lb/MMBtu) by combining the NO_x concentration (in ppm), diluent concentration (in percent O₂ or CO₂), and percent moisture (if applicable) measurements according to the procedures in Appendix F of 40 CFR Part 75. Additionally, the CEMS shall ensure that the data obtained is directly correlated with the emission limits established in FGCTG-BP SC I.1.

The data conversion procedures defined in Appendix F in 40 CFR Part 75 will calculate the hourly heat input, MMBtu.

Appendix 7-BP. 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 FG-CTG-BP:

Natural gas usage is monitored continuously but recorded once per hour and calculated and recorded on a monthly basis.

From stack testing, emission factors for CO and PM10 are developed in lbs. pollutant/million cubic feet of natural gas, for the corresponding loads specified in FG-CTG-BP SC V.2 (CO) and V.3 (PM10). Emission factors for each pollutant are calculated using the average emissions derived from the last representative stack test on a pollutant-specific basis. The emission factors, along with the fuel monitoring requirement, shall be used to calculate and record emissions for each hour to ensure compliance with PM10's calendar day average, and CO's and PM10's rolling 12-month period emission limits.

Once CEMS are installed, compliance with the NO_x emission limits based on hourly and 12-month rolling time periods will be determined using the hourly NO_x emission rate (lb/MMBtu) and hourly heat rate (MMBtu/hr) values, described in Appendix 3-BP and 40 CFR Part 75 Appendix F indicated below. The NO_x emission limit for steady state operations which are based on the average of all operating hours in a calendar day shall continue to be based upon testing results.

Use the following procedures to convert continuous emission monitoring system measurements of NO_x concentration (ppm) and diluent concentration (percentage) into NO_x emission rates (in lb/mmBtu). Perform measurements of NO_x and diluent (O₂ or CO₂) concentrations on the same moisture (wet or dry) basis.

When the NO_x continuous emission monitoring system uses O₂ as the diluent, and measurements are performed on a dry basis, use the following conversion procedure:

$$E = K C_A F \frac{20.9}{20.9 - \%O_2}$$

When the NO_x continuous emission monitoring system uses CO₂ as the diluent, use the following conversion procedure:

$$E = K C_h F_c \frac{100}{\%CO_2}$$

where:

K = 1.194×10^{-7} (lb/dscf)/ppm NO_x.

E = Pollutant emissions during unit operation, lb/mmBtu.

Ch = Hourly average pollutant concentration during unit operation, ppm.

%O₂, %CO₂ = Oxygen or carbon dioxide volume during unit operation (expressed as percent O₂ or CO₂).