

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

December 19, 2017

PERMIT TO INSTALL
57-13A

ISSUED TO
Beaumont Hospital - Dearborn

LOCATED AT
18101 Oakwood Boulevard
Dearborn, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
J4912

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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: September 1, 2017	
DATE PERMIT TO INSTALL APPROVED: December 19, 2017	SIGNATURE: 
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

Section	Page
Alphabetical Listing of Common Abbreviations / Acronyms	2
General Conditions	3
Special Conditions	5
Emission Unit Summary Table.....	5
Flexible Group Summary Table	5
Special Conditions for FG-EMGRICE1-2.....	6
Special Conditions for FG-BOILER5-7	8
Special Conditions for FG-BOILER5-7	11
Appendix 1	13

Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO ₂ e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO ₂	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

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 (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU00001	A 2,885 brake horsepower (bhp) diesel-fueled emergency reciprocating internal combustion engine manufactured in 2004.	2004	FG-EMGRICE1-2
EU00002	A 2,885 brake horsepower (bhp) diesel-fueled emergency reciprocating internal combustion engine manufactured in 2004.	2004	FG-EMGRICE1-2
EU00005	A 33.5 MMBtu/hr natural gas fired boiler.	1989	FG-BOILER5-7
EU00006	A 33.5 MMBtu/hr natural gas fired boiler.	1989	FG-BOILER5-7
EU00007	A 32.7 MMBtu/hr natural gas fired boiler.	2004	FG-BOILER5-7, FG-NSPSDc

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 336.1290.

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-EMGRICE1-2	Two 2,885 brake horsepower (bhp) diesel-fueled emergency engines manufactured in 2004.	EU00001, EU00002
FG-BOILER5-7	Two 33.5 and one 32.7 MMBtu/hr natural gas fired boilers.	EU00005, EU00006, EU00007
FG-NSPSDc	Small industrial, commercial, and institutional steam generating units subject to Standards of Performance NSPS Dc.	EU00007

The following conditions apply to: FG-EMGRICE1-2

DESCRIPTION: Two 2,885 bhp diesel-fueled emergency engines manufactured in 2004.

Flexible Group ID: FG-EMGRICE1-2

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	31.6 tpy ^a (total for 2 engines)	12-month rolling time period as determined at the end of each calendar month	FG-EMGRICE1-2	SC VI.4	R 336.1205(3)

^a NOx emissions based on an emission factor of 46.6 pounds NOx/100 gallons diesel fuel for each emergency engine.

II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel, in FG-EMGRICE1-2 with the maximum sulfur content of 15 ppm (0.0015 percent) by weight. **(R 336.1225, R 336.1702)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate each engine in FG-EMGRICE1-2 for more than 500 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**
2. The permittee shall install, maintain, and operate each engine in FG-EMGRICE1-2 according to the manufacturer written instructions, or procedures developed by the owner/operator and approved by the engine manufacturer, over the entire life of the engine. **(R 336.1225, R 336.1702, R 336.1912, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain each engine in FG-EMGRICE1-2 with a non-resettable hours meter to track the operating hours. **(R 336.1205(1)(a) & (3))**
2. The nameplate capacity of each engine in FG-EMGRICE1-2 shall not exceed 2,885 bhp, as certified by the equipment manufacturer. **(R 336.1225, R 336.1702)**

V. TESTING/SAMPLING

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

NA

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 monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702, 40 CFR 52.21 (c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the hours of operation of FG-EMGRICE1-2 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(1)(a) & (3))**
3. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in FG-EMGRICE1-2, demonstrating that the fuel sulfur content meets the requirement of SC II.1. The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(R 336.1205(1)(a) & (3))**
4. The permittee shall monitor and record, in a satisfactory manner, monthly NOx emission calculations for FG-EMGRICE1-2 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **((R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SV00001	16.0	18.0	R 336.1225, 40 CFR 52.21 (c) & (d)
2. SV00002	16.0	18.0	R 336.1225, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENTS

NA

The following conditions apply to: FG-BOILER5-7

DESCRIPTION: Two 33.5 MMBtu/hr and one 32.7 MMBtu/hr natural gas-fired boilers.

Emission Units: EU-00005, EU-00006, EU-00007

POLLUTION CONTROL EQUIPMENT: Low NOx burner on EU-00007, to control NOx emissions.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	21.6 tpy ^a (total for all 3 boilers)	12-month rolling time period as determined at the end of each calendar month	FG-BOILER5-7	SC VI.4	R 336.1205(3)
2. CO	18.14 tpy ^b (total for all 3 boilers)	12-month rolling time period as determined at the end of each calendar month	FG-BOILER5-7	SC VI.5	R 336.1205(3)

^a NOx emissions were based on an emission factor of 100 lbs NOx/MMscf of natural gas fuel and 20 lbs NOx/1,000 gallons of diesel fuel.

^b CO emissions were based on an emission factor of 84 lbs CO/MMscf of natural gas fuel and 5 lbs CO/1,000 gallons of diesel fuel.

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Natural Gas	432 million cubic feet per year	12-month rolling time period as determined at the end of each calendar month	FG-BOILER5-7	SC VI.2	R 336.1205(1)(a) & (3), R 336.1225, R 336.1702
2. Diesel Fuel	623,100 gallons per year	12-month rolling time period as determined at the end of each calendar month	FG-BOILER5-7	SC VI.3	R 336.1205(1)(a) & (3), R 336.1225, R 336.1702

3. The permittee shall burn only pipeline quality natural gas (with a maximum sulfur content of 2,000 grains per million scf) or diesel fuel (with the maximum sulfur content of 15 ppm (0.0015 percent) by weight), in FG-BOILER5-7. **(R 336.1225, R 336.1702)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate FG-BOILER5-7 in accordance with manufacturer's recommendations for safe and proper operation to minimize emissions during periods of startup, shutdown and malfunction. **(R 336.1225, R 336.1702, R 336.1912, 40 CFR 52.21(c) & (d))**

2. The permittee shall only use diesel fuel, in FG-BOILER5-7 during periods of gas curtailment, gas supply interruption, startups, or periodic testing. Periodic testing shall not exceed combined total of 48 hours per calendar year. **(40 CFR 63.11195(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The heat input capacity shall not exceed a maximum of 33.5 million BTU per hour for each EU-00005 and EU-00006, and 32.7 million BTU per hour for EU-00007. **(R 336.1225, R 336.1702)**
2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record the fuel use for FG-BOILER5-7 on a monthly basis. **(R 336.1205(1)(a) & (3))**
3. The permittee shall operate EU-00007 with low NO_x burners installed, maintained, and operated in a satisfactory manner. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

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

1. Upon request from the district supervisor, the permittee shall verify NO_x and CO emission rates from FG-BOILER5-7, by testing at owner's expense, in accordance with Department requirements or by providing documentation as required in SC VI.2. No less than 60 days prior to testing, the permittee must submit a complete stack-testing plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004)**

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 and as described in Appendix 1, to the AQD District Supervisor, by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702, 40 CFR 52.21 (c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the natural gas fuel usage for FG-BOILER5-7 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702)**
3. The permittee shall monitor and record, in a satisfactory manner, the diesel fuel usage for FG-BOILER5-7 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702)**
4. The permittee shall monitor and record, in a satisfactory manner, monthly NO_x emission calculations for FG-BOILER5-7 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3))**
5. The permittee shall monitor and record, in a satisfactory manner, monthly CO emission calculations for FG-BOILER5-7 on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3))**
6. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in FG-BOILER5-7, demonstrating that the fuel sulfur content meets the requirement of SC II.3. The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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. SV00005, SV00006, SV00007 (combined into one stack)	48.0	104.0	R 336.1225, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENTS

NA

The following conditions apply to: FG-NSPSDc

DESCRIPTION: Small industrial, commercial, and institutional steam generating units subject to Standards of Performance NSPS Dc.

Emission Units: EU-00007

POLLUTION CONTROL EQUIPMENT: Low NOx burner to control NOx emissions.

I. EMISSION LIMITS

1. Visible emissions from FG-NSPSDc shall not exceed 20 percent opacity for a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity except as specified in the federal Standards of Performance for New Stationary Sources, 40 CFR Part 60 Subparts A and SUBPART. **(40 CFR 60.43c(c) & (d))**

II. MATERIAL LIMITS

1. The permittee shall not burn diesel fuel with a sulfur content greater than 0.5 percent by weight, in FG-NSPSDc. **(40 CFR 60.42c(d))**

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

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

1. Following issuance of the PTI, the facility shall conduct the initial opacity monitoring for FG-NSPSDc during the first scheduled fuel oil operation and shall comply with federal Standards of Performance for New Stationary Sources which require evaluation of visible emissions using Method 9 of appendix A-4 performance test, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and Dc. Visible emission observation procedures must have prior approval by the AQD Technical Programs Unit and District Office. No less than ten (10) days prior to the anticipated test date, the permittee shall notify the AQD District Supervisor of the test date. If after the anticipated test date has been submitted, there is a delay in conducting the test, the permittee shall submit to the AQD District Supervisor notice of the new test date. This notification shall take place a minimum of three (3) days prior to the rescheduled test taking place. The permittee must submit a complete report of opacity observations to the AQD Technical Programs Unit and District Office within 30 days following the last date of the test. **(40 CFR Part 60 Subparts A & Dc, 40 CFR 60.45c(a)(8))**
2. The frequency of subsequent Method 9 of appendix A-4 performance tests will be determined by the opacity from the most recent test conducted in accordance with 40 CFR 60.47c(a)(1) and within the last 12 calendar months or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later. **40 CFR 60.47c(a)(1)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor and record, in a satisfactory manner, the natural gas fuel usage for FG-NSPSDc on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(40 CFR 60.48c(g)(3))**
2. The permittee shall monitor and record, in a satisfactory manner, the diesel fuel usage for FG-NSPSDc on a monthly and 12-month rolling time period basis. All records shall be kept on file and made available to the Department upon request. **(40 CFR 60.48c(g)(3))**
3. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in FG-NSPSDc, demonstrating that the fuel sulfur content meets the requirement of SC II.1. The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(40 CFR 60.48c(e)(11))**

VII. REPORTING

1. The permittee shall submit performance test data from the initial and subsequent performance tests. In addition to the applicable requirements of 40 CFR 60.7, the permittee shall submit excess emission reports for any excess emission that occur during the reporting period and maintain records according to the requirements of 60.48c(c)(1) through (3). **(40 CFR 60.48c(b) and 60.48c(c))**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and Dc, as they apply to each emission unit. **(40 CFR Part 60 Subparts A & Dc)**

APPENDIX 1 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-EMGRICE1-2, FG-BOILER5-7, and FG-NSPSDc. The permittee shall use emission factors from vendor data or from source specific testing (if test data is available, use most recent test data), as available for each emission unit. The permittee shall use emission factors contained in the most recent AP-42 (Compilation of Air Pollutant Emission Factors) or FIRE (Factor Information Retrieval) database if vendor or testing data is not available. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions. The permittee shall document the source of each emission factor used in the calculations.

Calculation for NOx Emissions from the emergency engines

The following calculation for NOx emissions shall utilize the actual diesel fuel usage and the actual hours of operation.

Diesel Fuel

Pollutant = [(lbs/gal) x (gal/hr) x (hrs/month) x (1 ton/2000 lbs)] = tons of Pollutant per month

Where:

lbs/gal = Pollutant Emission Factor in pounds of pollutant per gallon of diesel fuel

gal/hr = Gallons per hour of diesel fuel burned in each engine

hrs/month = Actual hours each engine is operated per month while burning diesel fuel

Calculation for NOx & CO Emissions from the boilers

The following calculation for NOx and CO emissions shall utilize the actual gas usage and the actual hours of operation.

Natural Gas Fuel

Pollutant = [(lbs/MMscf) x (scf/month) x (1 ton/2000 lbs)] = tons of Pollutant per month

Where:

lbs/MMscf = Pollutant Emission Factor in pounds of pollutant per million standard cubic feet

scf/month = Amount of natural gas fuel burned in each boiler per month

Diesel Fuel

Pollutant = [(lbs/gal) x (gal/hr) x (hrs/month) x (1 ton/2000 lbs)] = tons of Pollutant per month

Where:

lbs/gal = Pollutant Emission Factor in pounds of pollutant per gallon of diesel fuel

gal/hr = Gallons per hour of diesel fuel burned in each boiler

hrs/month = Actual hours each boiler is operated per month while burning diesel fuel