

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

January 31, 2018

**PERMIT TO INSTALL
163-17**

ISSUED TO
Dearborn Industrial Generation, LLC

LOCATED AT
2400 Miller Road
Dearborn, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
N6631

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:

November 15, 2017

DATE PERMIT TO INSTALL APPROVED:

January 31, 2018

SIGNATURE:

SIGNATURE:

DATE PERMIT VOIDED:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

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
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM ₁₀	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM _{2.5}	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 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
EUCTG1 ^A	One simple cycle General Electric Model PG7241 combustion turbine. The turbine is fired exclusively with pipeline quality natural gas and has a design heat input rating of 1,638 MMBTU per hour at ISO conditions. The rated output capacity of the unit is approximately 181 megawatts at ISO conditions.	6/01/1999 8/12/2015 11/30/2017	FGPLANT
EUCTG2 ^A	One combined cycle General Electric Model PG7241 combustion turbine. The turbine is fired exclusively with pipeline quality natural gas and has a design heat input rating of 1,626 MMBTU per hour. The heated and pressurized exhaust gases from the turbine are utilized to power an electric generator shaft and are then sent to an unfired heat recovery steam generator. The rated output capacity of the unit is approximately 179 megawatts.	7/23/2001 8/12/2015	FGPLANT
EUCTG3 ^A	One combined cycle General Electric Model PG7241 combustion turbine. The turbine is fired exclusively with pipeline quality natural gas and has a design heat input rating of 1,626 MMBTU per hour. The heated and pressurized exhaust gases from the turbine are utilized to power an electric generator shaft and are then sent to an unfired heat recovery steam generator. The rated output capacity of the unit is approximately 179 megawatts.	7/9/2001 8/12/2015	FGPLANT
EUBOILER1 ^A	One boiler capable of firing either natural gas or a combination of natural gas and blast furnace gas (BFG). When exclusively firing natural gas, the boiler is rated at a design heat input of 763 MMBTU per hour, and while firing natural gas and BFG, the boiler is rated at a design heat input of 746 MMBTU per hour. While operating on either fuel, the boiler has a design output capacity of 500,000 pounds of steam per hour.	8/7/2001	FGPLANT

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUBOILER2 ^A	One boiler capable of firing either natural gas or a combination of natural gas and blast furnace gas (BFG). When exclusively firing natural gas, the boiler is rated at a design heat input of 763 MMBTU per hour, and while firing natural gas and BFG, the boiler is rated at a design heat input of 746 MMBTU per hour. While operating on either fuel, the boiler has a design output capacity of 500,000 pounds of steam per hour.	8/7/2001	FGPLANT
EUBOILER3 ^A	One boiler capable of firing either natural gas or a combination of natural gas and blast furnace gas (BFG). When exclusively firing natural gas, the boiler is rated at a design heat input of 763 MMBTU per hour, and while firing natural gas and BFG, the boiler is rated at a design heat input of 746 MMBTU per hour. While operating on either fuel, the boiler has a design output capacity of 500,000 pounds of steam per hour.	8/7/2001	FGPLANT
<p>^A These emission units have other requirements in a ROP or PTI contained in either emission unit or flexible group special conditions.</p> <p>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.</p>			

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
FGPLANT	This emission group contains three turbines and three boilers.	EUCTG1, EUCTG2, EUCTG3, EUBOILER1, EUBOILER2, EUBOILER3

The following conditions apply to:
FGPLANT

DESCRIPTION: This emission group contains three turbines and three boilers.

Emission Units: EUCTG1, EUCTG2, EUCTG3, EUBOILER1, EUBOILER2, EUBOILER3

POLLUTION CONTROL EQUIPMENT: All three combustion turbines are equipped with dry low NOx combustors.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Formaldehyde	36 tpy	12-month rolling time period as determined at the end of each calendar month.	FGPLANT	SC VI.4	R 336.1205(1)(a), R 336.1225

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any unit in FGPLANT past July 30, 2018 unless an operation and maintenance (O&M) plan has been submitted, and is implemented and maintained. The O&M plan shall, at a minimum, specify the following:
 - a. The regular procedures for operation.
 - b. Parameters that will be monitored to evaluate operation.
 - c. The activities that constitute routine maintenance and repair.
 - d. The procedure that will be followed to address a test result that is higher than the emission factors listed in SC V.1.

The permittee shall amend the O&M plan if the above requirements need to be changed, if they do not adequately address proper procedures for equipment in FGPLANT, or upon request from the AQD District Supervisor. The permittee shall submit the O&M plan and any amendments to the O&M plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the O&M plan or amended O&M plan shall be considered approved. **(R 336.1205(1)(a), R 336.1225)**

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. The permittee shall conduct testing to verify the formaldehyde emission factor from each unit in FGPLANT by testing at the owner's expense, in accordance with Department requirements, according to the following schedule:
 - a. Two times by January 31, 2019. One test shall be performed in the summer and one in the winter.

- b. Each subsequent test shall be performed once per year in the worst-case season. The worst-case season is determined by reviewing which season produced the highest emissions for all units combined, unless the AQD District Supervisor determines otherwise based upon operating scenarios. The emission factor results shall be compared to the following:

Equipment Category	Emission Factor (lb/MMBTU)	Emission Factor 75% Threshold (lb/MMBTU)
Boilers	1.12E-3	8.38E-4
Simple-cycle Turbine	8.67E-4	6.50E-4
Combined-cycle Turbine	1.36E-3	1.02E-3

- c. Starting after the results of SC V.1(b), if two consecutive results for each Equipment Category are less than 75 percent of their respective emission factor, then the subsequent test for that Equipment Category may be performed once every three years in the worst-case season. The 75 percent thresholds are provided in the table above.
- d. If a test results in an Equipment Category emission factor at or above the 75 percent threshold, then the subsequent tests for that Equipment Category shall revert back to an annual timeframe as described in SC V.1(b).
- e. If a test results in an emission factor above the listed emission factor for that Equipment Category, then procedures shall be enacted to address future emissions according to the O&M plan required in SC III.1.
- f. If one unit in each Equipment Category is determined to be the worst-case unit on a consistent basis, then the permittee may request that testing only be performed on that unit for that Equipment Category. A consistent basis is determined with the use of trend charts encompassing 5 tests. The request must be approved by the AQD District Supervisor, and must be made for each testing cycle.

Testing shall be performed using an approved EPA Method listed in 40 CFR Part 63, 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 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), R 336.1225, 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 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(1)(a) & (3), R 336.1225)**
2. The permittee shall keep, in a satisfactory manner, test reports for FGPLANT required by SC V.1 on file at the facility. **(R 336.1205(1)(a), R 336.1225, R 336.2001, R 336.2003, R 336.2004)**
3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling fuel use records (in MMBTU or kscf) for each unit in FGPLANT as needed to calculate the formaldehyde emission rate in SC I.1. **(R 336.1205(1)(a), R 336.1225)**
4. The permittee shall calculate and keep, in a satisfactory manner, monthly and 12-month rolling formaldehyde emission records for each unit in FGPLANT and the total combined formaldehyde emission record for FGPLANT, consistent with the document entitled "Protocol for Demonstrating Continuous Compliance with the Emission Limitations of ROP-MI-N6631-2012" dated April 12, 2016, or subsequent revisions to this document as provided under condition VI.5. **(R 336.1205(1)(a), R 336.1225)**

5. If it becomes necessary to revise, modify, or update the document entitled "Protocol for Demonstrating Continuous Compliance with the Emission Limitations of ROP-MI-N6631-2012" dated April 12, 2016, the permittee shall resubmit the document to the District Supervisor for review and written approval before implementing such revisions, modifications, or updates. **(R 336.1205(1)(a), R 336.1225)**
6. The permittee shall keep, in a satisfactory manner, records of annual blast furnace gas and total gas volume received by the three boilers, as well as the percentage of the blast furnace gas received on an annual basis. If the boilers receive less than 90 percent blast furnace gas on an annual basis, then the boilers are not considered "Blast furnace gas fuel-fired boilers" and the units become subject to the applicable requirements of 40 CFR Part 63 Subpart DDDDD. **(40 CFR Part 63 Subpart DDDDD, 40 CFR 63.7491(k), 40 CFR 63.7575)**

VII. REPORTING

1. If testing results in emission factors above the listed emission factors in SC V.1, the permittee shall submit notification of the high results, an analysis of the circumstances that revolved around the high tested values, and any intended action to address future emissions. The notification shall be submitted within 90 days following the last date of the test. **(R 336.1205(1)(a), R 336.1225)**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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