

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

September 10, 2019
REVISED February 28, 2020

**PERMIT TO INSTALL
139-19**

ISSUED TO
DTE Energy Company – Trenton Channel Power Plant

LOCATED AT
4695 West Jefferson Avenue
Trenton, Michigan 48183

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
B2811

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: August 21, 2019	
DATE PERMIT TO INSTALL APPROVED: September 10, 2019	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-BOILER_9A	Boiler No. 9A, tangentially fired boiler, 520 MW nameplate capacity, with dry wire Electrostatic precipitators and Low-NOx burners. Emissions are vented to the ambient air through stack SV0007.	01-01-1965 / 11-21-2000	EU-BOILER_9A

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.

EU-BOILER_9A
EMISSION UNIT CONDITIONS

DESCRIPTION

Boiler 9A; Tangentially fired boiler with 520 MW nameplate capacity.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Low NO_x burners and dry wire electrostatic precipitator

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. SO ₂	90.78 tons per day	Calendar day	EU-BOILER_9A	SC VI.1, SC VI.2, SC VI.3, SC VI.5	R 336.2804, 40 CFR 52.21(d), Section 110 of CAA
2. SO ₂	23,841 tpy	12-month rolling time period, as determined at the end of each calendar month	EU-BOILER_9A	SC VI.1, SC VI.2, SC VI.3, SC VI.5	R 336.2804, 40 CFR 52.21(d), Section 110 of CAA
3. SO ₂	5,907 pph	720 – clock hour rolling average, as determined at the end of each calendar day	EU-BOILER_9A	SC VI.1, SC VI.2, SC VI.3, SC VI.5	R 336.2804, 40 CFR 52.21(d), Section 110 of CAA
4. PM	0.15 pounds per 1,000 pounds exhaust gases on a wet basis, corrected to 50% excess air.	Hourly	EU-BOILER_9A	SC V.1	R 336.1331

II. MATERIAL LIMIT(S)

1. The sulfur content of the coal as fired to EU-BOILER_9A shall not exceed 0.83 pound per million BTU's heat input, based on a monthly average. The permittee shall demonstrate compliance with this limit using either continuous emission monitors (CEM) and associated data acquisition and handling system (DAHS) or based on the sulfur content and heat content in the coal. **(R336.1201(3), R 336.1401, Michigan State Implementation Plan)**
2. The sulfur content of the distillate oil (No. 2 fuel oil) as fired in EU-BOILER_9A shall not exceed 0.3 percent by weight. **(R 336.1401, Michigan State Implementation Plan)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Permittee shall only burn coal or distillate fuel oil (No. 2 fuel oil) in EU-BOILER_9A. **(R 336.1401)**
2. EU-BOILER_9A shall be operated with low NO_x burners installed and operated properly. **(40 CFR Part 52.21(b)(2)(iii)(h), R 336.1910)**

3. EU-BOILER_9A shall be operated with the electrostatic precipitators (ESP) installed and operating properly to ensure that the stack emissions meet the applicable emission limits. **(R336.1301, R336.1331, R336.1910)**
4. Permittee shall maintain and implement a Malfunction Abatement Plan (MAP) for EU-BOILER_9A. The MAP will address the Low NO_x Burners and the Electrostatic Precipitator. In addition, the MAP will also address abnormal conditions, startup/shutdown, malfunctions and excess emissions. **(R 336.1911)**
5. The permittee shall follow the Elevated Mercury Emissions Response Plan which was approved by EPA Administrative Consent Order EPA-5-19-113(a)-MI-2. This plan will remain in place beyond the term of the Consent Order, through the point at which the plant is retired. Amendments to the plan shall be approved by the AQD District Supervisor prior to being made. **(R 336.1201, Administrative Consent Order EPA-5-19-113(a)-MI-2)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate the ESP unless each is equipped with a saturable core reactor, silicon-controlled rectifier linear reactor, or equivalent type automatic control system. **(R 336.1910)**
2. Each transformer-rectifier set of the ESP shall be capable of operating at the optimum spark-limited mode and shall meter and display the primary RMS voltage and amperage, the average secondary amperage, and the average spark rate. The requirements to meter and display average spark rate shall not apply if the automatic controller employs solid state circuitry to preset power levels based on sparking rate limits. **(R 336.1910)**

V. TESTING/SAMPLING

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

1. The permittee shall verify the particulate matter emission rate from EU-BOILER_9A no later than April 29, 2021 by testing at the owner's expense, in accordance with Department requirements. Stack testing procedures and the location of the stack testing ports shall be in accordance with federal EPA Method 5 or other AQD approved test method. No less than 30 days prior to testing, a complete test plan shall be submitted 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 336.1331)**

VI. MONITORING/RECORDKEEPING

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

1. Permittee shall monitor and record the sulfur dioxide, nitrogen oxide, stack gas flow, carbon dioxide, and opacity on a continuous basis in a manner and with instrumentation acceptable to the Air Quality Division and according to the monitoring requirements in 40 CFR Part 75. **(R 336.1401, 40 CFR 75)**
2. The permittee shall maintain a complete record of fuel oil specifications and/or fuel analysis for each delivery, or storage tank, of fuel oil, and the amount of fuel oil combusted on a calendar day basis in EU-BOILER_9A in lieu of Part 75, quality-assured data to calculate the calendar month average (tons/month) and the calendar year average (tons/year) Sulfur Dioxide mass emissions. These records may include purchase records for ASTM specification fuel oil, specifications or analysis specified by the vendor at the time of delivery, analytical results from laboratory testing, or any other records pre-approved by the District Supervisor to demonstrate compliance with the percent sulfur limit in fuel oil. All such records shall be maintained for a period of at least five years following the date of such records and made available to the Division upon request. **(R 336.1401, R 336.1201(3), Michigan State Implementation Plan)**
3. For compliance with SC II.1, the permittee shall keep records of the sulfur content, amount, and type of coal as it is fired in EU-BOILER_9A in lieu of Part 75, quality-assured data to calculate the calendar month average (tons/month) and the calendar year average (tons/year) Sulfur Dioxide mass emissions. All such records shall be maintained for a period of at least five years following the date of such records and made available to the Division upon request. **(R 336.1401, R 336.1201(3), Michigan State Implementation Plan)**

4. The permittee shall implement and maintain a quality assurance and quality control program as described in 40 CFR Part 75 for the continuous monitoring devices installed. **(40 CFR Part 75, R 336.1401(1), 40 CFR Part 52.21(d), Michigan State Implementation Plan, R 336.2804, Section 110 CAA)**
5. On and after January 1, 2017 the permittee shall monitor and record SO₂ emissions and exhaust gas flow on a continuous basis following the monitoring requirements in 40 CFR Part 75. The continuous emission monitoring system (CEMS) for SO₂, specified in 40 CFR Part 75, shall be used for compliance demonstrations with the SO₂ emission limitations in subdivision (a) during each calendar day in which the SO₂ CEMS collects at least one quality-assured monitor operating hour, as defined in 40 CFR Part 72.2. When a SO₂ CEMS collects at least one hour but less than twenty-four hours of quality-assured data, resulting in between one and twenty-three hours, inclusive, within the calendar day in which the SO₂ CEMS is not operating or operating "out-of-control" as defined in 40 CFR Part 72.2, the company shall implement the procedure in Subpart D of 40 CFR Part 75 to calculate SO₂ emissions for hours in which quality-assured data was not collected. When a SO₂ CEMS fails to collect at least one quality-assured monitor operating hour within a calendar day, the company shall determine the SO₂ emission rate for each hour without quality-assured CEMS data by collecting at least one sample during the calendar day to determine the heat content and sulfur content of the coal combusted within the emission unit and by determining the amount of coal combusted in the emission unit during the calendar day, using methods acceptable to the department. **(R 336.2804, 40 CFR 52.21(d), Section 110 CAA)**
6. The permittee shall maintain a record of all actions taken to comply with the Elevated Mercury Emissions Response Plan as required by SC III.5. The permittee shall keep these on file at the facility make them available to the Department upon request. **(R 336.1201, Administrative Consent Order EPA-5-19-113(a)-MI-2)**

VII. REPORTING

1. Permittee shall submit to the District Supervisor of the Air Quality Division, within 30 days of the end of the calendar quarter, a written report for each calendar quarter which shall include days of operation and sulfur dioxide daily emission rate averages. **(R336.1401, R 336.1201(3))**
2. For the continuous monitoring system for the measurement of opacity, The permittee shall submit to the District Supervisor and Technical Programs Unit Supervisor, Air Quality Division, within 30 days of the end of the calendar quarter, a written report for each calendar quarter which shall include all of the following information:
 - a) Excess emissions, corrective action taken and the nature and cause of excess emissions, if known, as follows: For opacity measurements, the report shall consist of the magnitude, in actual percent opacity, of all 6-minute averages of opacity more than the applicable opacity standard for each hour of operation (all allowable exceptions are to be deducted prior to determining the excess averages of opacity). Average values shall be obtained by integration over the averaging period or by arithmetically averaging a minimum of 24 equally spaced, instantaneous opacity measurements per 6 minutes.
 - b) The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of repairs or adjustments made.
 - c) If the monitoring system has not been inoperative, repaired, or adjusted, and if no excess emissions occurred, a statement attesting to this fact. **(R 336.1201(3), R336.2170(1); Title 1 (Air Pollution Prevention and Control) of the Clean Air Act, Section 114(a))**
3. Starting with the first calendar quarter of 2017 and every quarter thereafter, as described in 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report and summary report in an acceptable format to the department within 30 days following the end of each calendar quarter. The summary report shall follow the format of Figure 1 in 40 CFR 60.7(d). The excess emission report shall include the following information:
 - a) A report of each exceedance above the SO₂ limitations. This includes the date, time, magnitude, cause and corrective actions for all occurrences during the reporting period.
 - b) A report of all periods of continuous emission monitoring system downtime, any downtime sampling and analysis completed, and corrective action.
 - c) A report of any periods that any component of the continuous emission monitoring system exceeds the instrument range.

- d) If no exceedances or continuous emission monitoring system downtime occurred during the reporting period, the company shall report that fact.
(R 336.2804, 40 CFR 52.21(d), Section 110 CAA)

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. SV0007	192	561.5	40 CFR Part 52.21 Subparts (c) and (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the acid rain permitting provisions of 40 CFR Part 72.1 to 72.94 as outlined in a complete Phase II Acid Rain permit issued by the AQD. The Phase II Acid Rain Permit is incorporated into ROP No. 199600204 as Appendix 9. **(R 336.1299)**
2. The permittee shall not allow the emission of an air pollutant to exceed the amount of any emission allowances that an affected source lawfully holds as of the allowance transfer deadline pursuant to R 336.1299 and 40 CFR Part 72.9(c)(1)(i). **(R 336.1201(3))**
3. Permittee shall comply with a NO_x Budget Trading permitting provisions of 40 CFR Part 96.1 to 96.88 as outlined in any complete NO_x Budget Trading permit issued by the AQD. **(R 336.1802)**
4. The permittee shall comply with all applicable provisions of the National Emissions Standards for Hazardous Air Pollutants as set forth in 40 CFR Part 63 Subparts A and UUUUU for EU-BOILER_9A. All records shall be kept on file for a period of at least five years and made available to the AQD upon request. **(40 CFR 63 Subparts A and UUUUU)**

Footnotes:

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