

B2811
March

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B281127089

FACILITY: DTE - Electric Company TRENTON CHANNEL		SRN / ID: B2811
LOCATION: 4695 W JEFFERSON AVE, TRENTON		DISTRICT: Detroit
CITY: TRENTON		COUNTY: WAYNE
CONTACT: Mark Nederveld, Environmental Engineer		ACTIVITY DATE: 08/23/2016
STAFF: Jonathan Lamb	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted inspection, FY '16		
RESOLVED COMPLAINTS:		

INSPECTED BY: Jonathan Lamb, AQD-Detroit Office
PERSONNEL PRESENT: Mark Nederveld, Environmental Engineer
CONTACT PHONE NUMBER: 734-218-0008 (Mr. Nederveld)

FACILITY BACKGROUND:

DTE Electric Company, Trenton Channel Power Plant (DTE Trenton Channel), is a coal-fired electrical generating plant located along the Detroit River in Trenton, Michigan. The facility was originally constructed in 1924; the only active electric generating unit (EGU) currently at the facility is Unit 9, which was constructed in 1965.

DTE Trenton Channel is a New Source Review major source for carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO₂), and particulate matter (PM). The source is also a Clean Air Act Section 112 major source for Hazardous Air Pollutants (HAPs), primarily due to the emissions of hydrogen chloride (HCl). Therefore, the source is subject to the Title V program. Unit 9 is also subject to the MACT standards at 40 CFR 63, Subpart UUUUU, and Unit 9 and its electrostatic precipitator (ESP) control is subject to the federal Compliance Assurance Monitoring (CAM) regulation at 40 CFR 64. The diesel Slocum peaker units and emergency generators at the site are subject to the MACT standards at 40 CFR 63, Subpart ZZZZ.

COMPLAINT/COMPLIANCE HISTORY:

On July 24, 2009, and again on March 13, 2013, U.S. EPA Region 5 issued a Notice of Violation and Finding of Violation (NOV/FOV) to DTE Energy for the Trenton Channel, Monroe, St. Clair, River Rouge, and Belle River power plants. EPA cites violations of Rule 301, major New Source Review, NSPS Da, and Title V at the River Rouge power plant. The asserted violations remain unresolved as of the date of this report. Until resolved, the AQD will report DTE Trenton Channel as not in compliance, based on EPA's findings.

PROCESS DESCRIPTION AND EQUIPMENT:

Most coal used at the facility is delivered via rail and is unloaded at the Rail Car Dumper, located on the west side of West Jefferson, across the street from the power plant. To unload the coal, each railcar goes in the enclosed coal dumper and is flipped, dumping the coal from the railcar into the coal feeder bin. This process is controlled by a baghouse. The coal then transported conveyed over West Jefferson via an enclosed conveyor to the coal storage piles, which are segregated based on type of coal. During this transfer, the conveyor crane is adjusted to minimize drop height to reduce fugitive emissions; water sprays are also used to reduce fugitive dust. Some coal (mostly eastern coal) is also delivered via freighter from the Detroit River; water sprayers are used to control fugitive emissions during unloading.

The coal storage piles sit on top of grates, which allow the coal to drop to below-ground conveyors which carry the coal to coal bunkers inside the plant. Coal from the bunkers is fed into the coal mill feeder, which drops the coal into the coal mill, which pulverizes the coal to size 50 mesh. There are six coal mills for unit 9. The pulverized coal is then fed into the boiler using exhaust fans to be burned as fuel. The boiler uses a blend of western subbituminous and eastern bituminous coal, usually at a ratio of roughly 85% western/15% eastern coal; this ratio may vary depending on the market price of coal, coal availability, or to meet regulatory emission limits. Fuel oil is used to fire the boiler during startup; the facility uses an ultra low sulfur No. 2 diesel fuel.

The pulverize coal is fed into Boiler 9A, which is a 520 MW, tangentially-fired boiler. As the boiler burns the fuel and creates heat, the unit generates steam, which is piped to a turbine to create electricity for the grid. Emissions from the boiler are controlled by an ESP and a dry sorbent injection (DSI) and activated carbon

injection (ACI) system. The DSI/ACI system was installed in April 2016 to demonstrate MATS compliance required in Subpart UUUUU, and is injected upstream of the ESP. The DSI uses trona to reduce HCl emissions and ACI uses activated carbon to control Hg emissions. The trona and activated carbon are delivered via pneumatic truck and pumped into and stored in three 200-ton capacity silos.

All emissions from the ESP are exhausted through a 587-foot stack and are monitored using a continuous emission monitoring system (CEMS) and a continuous opacity monitoring system (COMS) to monitor and record emissions and opacity on a continuous basis. Particulate waste from the burning of coal include bottom ash, which is a heavier material which collects at the bottom of the boiler, and lighter fly ash, which is collected from the ESP. There are three bottom ash storage silos and one fly ash silos; both the bottom ash and fly ash are loaded into trucks and taken to DTE's Sibley Quarry for disposal.

At the time of inspection, Unit 9 was in a forced shut down, so Boiler 9A was not operating during the inspection. The installation of three natural gas-fired auxiliary boilers, permitted under Permit to Install (PTI) No. 227-15, was underway, with an expected completion date of late October 2016. The High Side Boilers (Boilers 16 through 19) were shut down in April 2016, and were not evaluated during this inspection.

APPLICABLE RULES/ PERMIT CONDITIONS:

Trenton Channel was issued ROP No. 199600204 on September 22, 2008; the application is currently going through renewal. However, since the issuance of the ROP, Trenton Channel has been issued three PTIs which have superseded many of the conditions listed in ROP No. 199600204. As such, the conditions of the following PTIs were evaluated in determining compliance during this FCE, in addition to the conditions of ROP No. 199600204 which remain applicable:

- PTI No. 125-11C, issued April 29, 2016
- PTI No. 227-15, issued April 29, 2016
- PTI No. 178-14, issued February 4, 2015

for determining compliance, records from August 2015 through August 2016 were reviewed, except where otherwise specified. Records can be found in the orange facility file.

PTI No. 125-11C, Special Conditions:

FG-BOILER_9A&16-19 - Boiler 9A and Boilers 16 through 19. Associated Emission Unit IDs: EU-BOILER_9A, EU-BOILER#16, EU-BOILER#17, EU-BOILER#18, and EU-BOILER#19.

In accordance with PTI No. 125-11C, flexible group FG-BOILER_9A&16-19 dissolved on April 16, 2016, and the permittee was required to comply with the Special Conditions found in EU-BOILER_9A. Since the inspection was conducted on August 23, 2016, after flexible group FG-BOILER_9A&16-19 became obsolete, the Special Conditions associated with this flexible group were not evaluated for the purpose of demonstrating compliance with PTI No. 125-11C.

EU-BOILER_9A – Boiler 9A, a tangentially-fired boiler with 520 MW nameplate capacity.

I. EMISSION LIMITS

The permittee shall comply with the following emission limits effective April 16, 2016, through December 31, 2016:

Pollutant	Limit	Actual Emissions	Compliance Status
1. SO2	90.78 tons per calendar day	Highest daily total SO2 emissions was 67.42 tons on July 12, 2016.	IN COMPLIANCE
2. SO2	16,505 tons for time period of April 16, 2016, through December 31, 2016	2,100 tons of SO2 reported for the time period April 16 through August 31, 2016.	IN COMPLIANCE
3. PM	0.15 pounds per 1000 pounds exhaust gases on a wet basis, corrected to 50% excess air	0.016 pounds per 1000 pounds exhaust gas on a wet basis, corrected to 50% excess air. ¹	IN COMPLIANCE

¹Based on testing of PM emission rates performed on August 18, 2008.

II. MATERIAL LIMITS

1. IN COMPLIANCE. Monthly average sulfur content of coal did not exceed the permit limit of 0.83 lb/MMBtu as fired to EU-BOILER_9A. The highest monthly average sulfur content during the compliance period was 0.58 lb/MMBtu in April 2016. Facility uses continuous emission monitors (CEM) and associated data acquisition and handling system (DAHS) to demonstrate compliance with this condition.
2. IN COMPLIANCE. The facility uses "ultra low sulfur No. 1 diesel", which has a sulfur content of 0.0015 percent by weight (15 ppm), in EU-BOILER_9A, which is below the permit limit of 0.3 percent sulfur by weight.

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. The only fuels burned in EU-BOILER_9A are coal and ultra low sulfur No. 2 diesel fuel.
2. IN COMPLIANCE. EU-BOILER_9A is equipped with low NOx burners, which are properly installed, operated, and maintained.
3. IN COMPLIANCE. EU-BOILER_9A is operated with the electrostatic precipitator (ESP) installed and operating properly. Proper operation of the ESP is demonstrated through review of the continuous opacity monitors (COMS) data and inspection and maintenance records for the ESP.
4. IN COMPLIANCE. Facility maintains and implements a malfunction abatement plan (MAP) for EU-BOILER_9A which addresses the Low NOx Burners and ESP.

IV. DESIGN/EQUIPMENT PARAMETERS

1. IN COMPLIANCE. ESP design specifications meet the permit requirements.
2. IN COMPLIANCE. Each transformer-rectifier set of the ESP is capable of operating at the optimum spark-limited mode and meters and displays the primary RMS voltage and amperage, the average secondary amperage, and average spark rate. DTE staff monitors these parameters to make sure all the transformers are operating properly.

V. TESTING/SAMPLING

1. NOT EVALUATED. Facility has five years from date of issuance of PTI No. 125-11C to verify the particulate emission rate from EU-BOILER_9A by testing. As such, the facility has until April 29, 2021, to comply with this condition. The most recent testing for PM emission rates was performed on August 18, 2008, and showed a PM emission rate of 0.016 lb/1000 lb exhaust gas on a wet basis, corrected to 50% excess air, in compliance with the permit limit of 0.15 lb/1000 lb exhaust gas on a wet basis, corrected to 50% excess air.

VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. Facility monitors and records the sulfur dioxide, nitrogen oxide, stack gas flow, carbon dioxide, and opacity on a continuous basis in EU-BOILER_9A in accordance with the monitoring requirements of 40 CFR Part 75.
2. IN COMPLIANCE. Facility maintains records of fuel oil specifications of the fuel oil burned in EU-BOILER9A. The amount of fuel oil combusted in EU-BOILER_9A is maintained on a calendar day basis.
3. IN COMPLIANCE. Facility maintains records of the sulfur content, amount, and type of coal as it is fired in EU-BOILER_9A.
4. IN COMPLIANCE. Facility maintains a quality assurance and quality control program as described in 40 CFR Part 75 for the continuous monitoring devices installed.
5. NOT APPLICABLE. This condition does not go into effect until January 1, 2017.

VII. REPORTING

1. IN COMPLIANCE. Facility submits a written report to AQD for each calendar quarter which includes days of operation and average daily sulfur dioxide emission rates.
2. IN COMPLIANCE. Facility submits a written report to AQD for each calendar quarter which includes the information required in this condition to demonstrate proper operation of the COMS.
3. NOT APPLICABLE. This condition does not go into effect until January 1, 2017.

VIII. STACK/VENT RESTRICTIONS

1. IN COMPLIANCE. According to facility documentation, stack SV0007 appears to meet permit specifications.

IX. OTHER REQUIREMENTS

1 and 2. NOT EVALUATED. Compliance with the acid rain permitting provisions of 40 CFR Part 72.1 to 72.94, as outlined in the Phase II Acid Rain Permit and incorporated in ROP No. 199600204 as Appendix 9, is evaluated by the U.S. EPA.

3. NOT EVALUATED. Compliance with the NOx Budget Trading permitting provisions of 40 CFR Part 96.1 to 96.88, as outlined in the NOx Budget Trading permit as issued by AQD is evaluated by the U.S. EPA.

4. IN COMPLIANCE. Based on the information reviewed during this inspection, the facility is in compliance with the applicable provisions of the National Emission Standards for Hazardous Air Pollutants as set forth in 40 CFR Part 63 Subparts A and UUUUU for EU-BOILER_9A.

PTI No. 178-14, Special Conditions:

FG-DSI/ACI – MATS Compliance Project (40 CFR Part 63, Subpart UUUUU) for Boiler 9A, including the installation of dry sorbent injection (DSI) and activated carbon injection (ACI) systems on Boiler 9A. Associated Emission Unit ID: EU-BOILER9A.

I. EMISSION LIMITS

1a. IN COMPLIANCE. Facility reported a PM emission rate of 0.01 lb/MMBtu, in compliance with the MATS emission limit of 0.03 lb/MMBtu. Compliance was demonstrated using PM CEMS values averaged over a 30-boiler operating day average from June 5 through July 12, 2016.

2a. IN COMPLIANCE. Facility reported an HCl emission rate of 0.001 lb/MMBtu, in compliance with the MATS emission limit of 0.002 lb/MMBtu. Compliance was demonstrated through stack testing performed on June 21, 2016. Facility is required to perform quarterly testing of HCl emission rates to demonstrate continuous compliance.

3a. IN COMPLIANCE. Facility reported an Hg emission rate of 0.5 lb/TBtu, in compliance with the MATS emission limit of 1.2 lb/TBtu. Compliance was demonstrated using sorbent trap system (STS) monitoring averaged over a 30-boiler operating day average from June 5 through July 12, 2016.

II. MATERIAL LIMITS

1. IN COMPLIANCE. Facility provided notification of compliance with the initial compliance standards for material limits in accordance with 40 CFR Part 63, Subpart UUUUU for FG-DSI/ACI. Notification was received by AQD on September 9, 2016.

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. Facility certifies compliance with the work standards and operating limits for FG-DSI/ACI, according to 40 CFR Part 63, Subpart UUUUU, Tables 3 and 4. These requirements are included in the MATS Site-Specific Monitoring Plan.

2. IN COMPLIANCE. Facility operates and maintains FG-DSI/ACI, including associated air pollution control equipment and monitoring equipment, in a satisfactory manner.

IV. DESIGN/EQUIPMENT PARAMETERS

1 and 2. NOT APPLICABLE. No changes to FG-DSI/ACI have been made which have affected the applicability of 40 CFR Part 63, Subpart UUUUU for FG-DSI/ACI.

V. TESTING/SAMPLING

1. IN COMPLIANCE. Initial compliance demonstration for EU-BOILER9A of FG-DSI/ACI to demonstrate compliance with the applicable emission rates of FG-DSI/ACI, I.1a., I.2a., and I.3a. was performed as required per 40 CFR Part 63, Subpart UUUUU. Notification of Compliance was received by AQD on September 8, 2016.

VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. Facility maintains records of each occurrence, measurement, maintenance, corrective action, report, and record, as applicable according to 40 CFR Part 63, Subpart UUUUU.
2. IN COMPLIANCE. Facility maintains a site-specific monitoring plan for the continuous monitoring system.
3. NOT EVALUATED. Facility maintains records of all periodic tune-ups performed for EU-BOILER9A, as specified in 40 CFR.10021(e), but since FG-DSI/ACI has been in operation less than a year, an annual report of these tune-ups has not yet been compiled.
4. IN COMPLIANCE. Facility maintains the following records of the following information for startups, shutdowns, and malfunctions:
 - a. Each occurrence and duration of each startup and/or shutdown;
 - b. Each occurrence and duration of each malfunction of an operation or the air pollution control or monitoring equipment;
 - c. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal manner of operation;
 - d. Records of the types and amounts of fuel used during each startup or shutdown.

VII. REPORTING

1. IN COMPLIANCE. Facility has submitted the required notifications, per 40 CFR Part 63, Subpart UUUUU, including initial compliance notification, which was received by AQD on September 8, 2016.
2. IN COMPLIANCE. Facility reported no deviations of the applicable limits in Tables 1 through 4 of 40 CFR Part 63, Subpart UUUUU, since FG-DSI/ACI went into operation.

IX. OTHER REQUIREMENTS

1. IN COMPLIANCE. Based on the information reviewed during this inspection, the facility appears to be in compliance with the applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subparts A and UUUUU, for Coal and Oil-fired Electric Utility Steam Generating Units, as it applies to FG-DSI/ACI.

FG-ISLAND – DSI and ACI sorbents delivered and conveyed pneumatically to the appropriate storage silo. Associated Emission Unit IDs: EU-TCP9A-DSI_SILO1, EU-TCP9A-DSI_SILO2, EU-TCP9A-ACI_SILO.

I. EMISSION LIMITS

1. NOT DETERMINED. Facility is required to perform Method 9 visible emission readings of each emission unit of FG-ISLAND at a minimum of once per calendar year. At the time of inspection, Method 9 visible emission readings had yet to be performed in 2016.
- 2, 3, and 4. NOT DETERMINED. AQD has not required testing to determine the PM, PM10, and PM2.5 emission rates from each bin vent filter or dust collector for FG-ISLAND. While not an underlying applicable requirement for these limits, daily visible emissions per FG-ISLAND, VI.1 are performed on the silos to demonstrate sufficient compliance at this time.

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. A fugitive dust plan for all material handling operations of FG-ISLAND is implemented and maintained.
2. IN COMPLIANCE. A malfunction abatement plan (MAP) for FG-ISLAND is implemented and maintained.
3. IN COMPLIANCE. Facility does not operate FG-ISLAND for more than 12 hours per day. Records are maintained to demonstrate compliance.

IV. DESIGN/EQUIPMENT PARAMETERS

1. IN COMPLIANCE. All conveying systems are enclosed and each silo is equipped with a filter, which is properly installed and maintained in accordance with the MAP.

V. TESTING/SAMPLING

1. NOT EVALUATED. AQD has not requested testing of the PM emission rates from each emission unit of FG-ISLAND.
2. NOT EVALUATED. AQD has not requested testing of the PM10 or PM2.5 emission rates from each emission unit of FG-ISLAND.
3. NOT DETERMINED. At the date of inspection, annual Method 9 visible emission readings of each emission unit of FG-ISLAND has yet to be performed in 2016.

VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. Non-certified visible emission readings are performed on a daily basis when FG-ISLAND is operating.
2. IN COMPLIANCE. Facility monitors and records the hours of operation of FG-ISLAND in a daily basis.

VII. REPORTING

1. IN COMPLIANCE. Facility provided notification to AQD of the installation of FG-ISLAND within 30 days of completion of the activity.

VIII. STACK/VENT RESTRICTIONS

- 1, 2, and 3. IN COMPLIANCE. According to facility documentation, silo stacks SV-TCP9A_SILO1, SV-TCP9A_SILO2, and SV-TCP9A-ACI_SILO meet permit specifications.

ROP No. 199600204, Special Conditions:

SECTION 1

EG09 – Boiler No. 9A

The conditions of ROP 199600204 for EG09 (Boiler No. 9A) have been superseded by the conditions of PTI No. 125-11C, EU-BOILER_9A.

FG-BLR_16-19 – Boiler Nos. 16, 17, 18, and 19

These boilers have been idled and were not evaluated as part of this inspection.

FG-BLR-9&16-19 – Boiler Nos. 9A, 16, 17, 18, and 19

The conditions of ROP 199600204 for FG-BLR-9&16-19 were superseded by the conditions of PTI No. 125-11C, FG-BOILER_9A&16-19. This flexible group was dissolved on April 16, 2016, and was not evaluated during this inspection.

FGCOLDCLEANERS – Any new cold cleaner (placed into operation after July 1, 1979) that is exempt from NSR permitting by R 336.1281(h) or R 336.1285(r)(iv)

I. DESIGN PARAMETERS; C. OTHER DESIGN PARAMETERS

1. IN COMPLIANCE. Cold cleaners are installed with covers that are kept closed when parts are not being cleaned.
2. NOT APPLICABLE. Vapor pressure of solvent (Zep 143) is less than 0.3 psia and is not heated.
3. IN COMPLIANCE. Cold cleaner allows parts to be drained.

II. MATERIAL USAGE/EMISSION LIMITS

1. IN COMPLIANCE. Cold cleaners use Zep 143 as the cleaning solvent, which is 90-100% aliphatic naphtha and does not contain any of the compounds listed in this condition.

III.A. MONITORING/RECORDKEEPING

3. IN COMPLIANCE. Facility maintains the required records for the cold cleaners, including installation date, identification, and cleaning solvent information.

VII. REPORTING

1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.

2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.

3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.

V. OPERATIONAL PARAMETERS

1. IN COMPLIANCE. All cold cleaners have an air/vapor interface less than 10 square feet and are used for cleaning metal parts only.

2. IN COMPLIANCE. Any waste solvent is stored in closed containers.

3. IN COMPLIANCE. Parts are drained for no less than 15 seconds.

4. IN COMPLIANCE. Routine maintenance is performed in accordance with manufacturer recommendations.

5. IN COMPLIANCE. Vapor pressure of cleaning solvent is less than 0.6 psia.

VI. OTHER REQUIREMENTS

1. IN COMPLIANCE. Facility posts written operating procedures near each cold cleaner.

2. IN COMPLIANCE. Facility has not installed any new equipment in FGCOLDCLEANERS which would require a minor or significant modification to the ROP.

FGRULE290 – Any existing or future emission unit that emits air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290. The only emission units currently identified as operating under Rule 290 are all related to coal handling operations.

II. MATERIAL USAGE/EMISSION LIMITS

B.1. IN COMPLIANCE. Coal handling operations emit less than 1,000 pounds uncontrolled/500 pounds of particulate emissions per month. Monthly emission were not reviewed during this inspection, but based on a review of particulate emissions reported to MAERS for 2015, no coal handling unit exceeded 90 pounds of particulate emissions for the year nor did the combined particulate emissions for all coal handling units exceed 500 pounds for the year, so this condition appears to be in compliance with the Rule 290 limits.

III. COMPLIANCE EVALUATION; A. MONITORING/RECORDKEEPING

3.1. IN COMPLIANCE. Required records of emissions from FGRULE290 are maintained on a monthly basis.

3.2. IN COMPLIANCE. Facility maintains an inventory of each emission unit covered by FGRULE290.

3.3. IN COMPLIANCE. Monthly visible emission readings are performed on all coal handling equipment covered by FGRULE290.

VII. REPORTING

1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.

2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.

3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.

V. OPERATIONAL PARAMETERS

1. IN COMPLIANCE. The provisions of FGRULE290 apply to each emission unit operating under R 336.1290.

2. IN COMPLIANCE. All control devices associated with FGRULE290 is installed, maintained, and operated in a satisfactory manner.

