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

B279840803

FACILITY: DTE - Electric Company DELRAY POWER PLANT		**SRN / ID:** B2798
LOCATION: 6603 W JEFFERSON, DETROIT		**DISTRICT:** Detroit
CITY: DETROIT		**COUNTY:** WAYNE
CONTACT: Joe Neruda , Environmental Specialist		**ACTIVITY DATE:** 07/21/2017
STAFF: Jorge Acevedo	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

COMPANY NAME :DTE Electric Delray Power Plant
FACILITY ADDRESS :6603 W. Jefferson, Detroit, MI 48121
STATE REGISTRAT. NUMBER :B2798
SIC CODE :4911
EPA SOURCE CLASS : A
EPA POLLUTANT CLASS : N,C
LEVEL OF INSPECTION : :PCE
DATE OF INSPECTION :07/21/17
TIME OF INSPECTION : 10:30 AM
DATE OF REPORT : 07/21/17
REASON FOR INSPECTION : Annual Compliance Inspection.
INSPECTED BY : Jorge Acevedo
PERSONNEL PRESENT : Joe Neruda
FACILITY PHONE NUMBER :313-897-0038
FACILITY FAX NUMBER :

INSPECTION NARRATIVE:

On July 21, 2017, I conducted a partial compliance evaluation of the DTE Electric Delray Power Plant (DTE). I arrived at 10:30 AM and met with Joe Neruda, Stephanie Zanke, and Chance Flannery of DTE.

The facility consists of two simple cycle combustion turbines which operate only during periods of peak demand. The facility is subject to Michigan's Renewable Operating Permit (ROP) program due to the facility being subject to Title IV (Acid Rain) of the Clean Air Act.

Operation of the turbines is remotely controlled from an operator situated at the River Rouge Detroit Edison facility or they can be started at the facility. Peakers, as they are called, follow the electricity usage and are used when the demand is greater than what the base load units can supply. This usually occurs during the hot summer months. Ultimately, the decision to power up the peakers lies with The Midwest Independent Transmission System Operator(MISO). MISO, according to their website "is an essential link in the safe, cost-effective delivery of electric power across much of North America. The MISO is committed to reliability, the nondiscriminatory operation of the bulk power transmission system, and to working with all stakeholders to create cost-effective and innovative solutions for our changing industry."

At the time of the inspection, the turbines were not operating; therefore, there was no opacity. Turbine 11-1 was undergoing maintenance. Mr. Neruda explained that the turbine has been undergoing maintenance since September 2016. Mr. Neruda provided documentation explaining why DTE believed the action was exempt under Rule 201. Looking at the ROP, the main compliance mechanism is record keeping. I proceeded to ask for the required records such as hours of operation, natural gas usage, and hydrogen sulfide content as required by the ROP. Mr. Neruda provided me with some records and he late emailed me the rest of the records. I filed them in the facility file.

We started the inspection by observing the four compressors which are used to increase the pressure of the natural gas supply to run the turbines. The compressors are driven by 900 HP electric motors. The

compressors increase the pressure of the gas to 300 psi. Two gas compressors are dedicated to turbine 11-1 and the other two are dedicated to turbine 12-1. Mr. Flannery explained that maintenance is done periodically on the compressors such as an annual oil change, change filter, changing gear box oil, inspect belts and fans.

Next, I observed turbine 11-1. It was not operating at the time of the inspection. It was undergoing maintenance at the time of the inspection. Mr. Flannery explained that it was undergoing a hot gas path upgrade. The rotors were taken out as well as the blades and bearings. New buckets were also being installed. We observed the air inlet for the turbine. Natural gas is mixed with air prior to entering the combustion turbine. The combustion turbine is air cooled, which helps the turbine's performance. Both turbines use a glycol coolant, which is contained in a closed system.

Next we observed Turbine 12-1. It was not operating at the time of the inspection. Turbine 12-1 is cooled using hydrogen, which makes the turbine run more efficiently. I observed the CO2 system which is used in the case of a fire at the turbine.

Next we observed the hydrogen tank farm. The hydrogen tank farm provides hydrogen to cool turbine 12-1. These tanks were horizontal and very skinny.

Next, I saw the main transformer, which takes the electrical energy produced onsite and converts the voltage from 13.8 kv to 120 kv for distribution on the electric grid. I also observed the Waterman transmission line which is at 345kV.

Finally, I observed three emergency generators. Mr. Flannery explained that they were installed because of a requirement to be able to provide Fermi Power Plant power within of 15 minutes of the area losing power. The generators each have a fuel tank and have a 1MW output. The generators exhaust through the roof and not a stack.

I concluded my inspection at 11:46 AM. On July 26, 2017, Mr. Neruda submitted additional information regarding the generators, the turbines capacity factor, and more information regarding the compressors. On August 25, 2017, I requested information regarding the hot gas path upgrade and fuel information for the generators. I received the final information regarding the maintenance project and emergency generators.

FACILITY BACKGROUND

Detroit Edison Delray Power Plant is a peaking power plant facility. Two simple cycle turbines, sometimes referred to as "peakers", are located at the facility and are utilized to meet current and projected electricity demands during periods of peak energy consumption. The turbines are manufactured by General Electric and are each rated at 71.1 MW(at ISO conditions). Each turbine is equipped with Dry Low NOx burners to reduce emissions of NOx, CO, and VOC. As the name implies, the turbines can startup and be able to distribute power in less than ten minutes.

COMPLAINT/COMPLIANCE HISTORY

There have not been any citizen complaints registered nor violations issued against Detroit Edison at this facility.

OUTSTANDING CONSENT ORDERS

None

OUTSTANDING LOVs
None

OPERATING SCHEDULE/PRODUCTION RATE

The turbines operate on an as needed basis.

PROCESS DESCRIPTION

The emissions that are possible come from the combustion of natural gas. Emissions of NOx, CO, and VOC are typical.

EQUIPMENT AND PROCESS CONTROLS

The facility consists of two simple cycle combustion turbines equipped with Dry Low NOx burners.

APPLICABLE RULES/PERMIT CONDITIONS:

Detroit Edison Delray is subject to the ROP because they are subject to the Acid Rain Program. ROP MI-ROP-B2798-2017 was finalized on May 17, 2017. There is only one emission unit, the two simple cycle turbines.

Permit Conditions are evaluated in Appendix A:

POLLUTION CONTROL EQUIPMENT NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Compliance Determination
1.Nitrogen oxides as nitrogen dioxide at 100% load	15.0 parts per million by volume on a dry gas basis, and at 15 % oxygen.[2]	Hourly	Compliance - Stack Testing was conducted on September 25, 2014 and October 30, 2014. NOx averaged below 15 ppm at several loads.
2. Nitrogen oxides as nitrogen dioxide at 100 % load	66.0 pounds[2] per hour	Hourly	Compliance Assumed Stack Testing was conducted on September 25, 2014 and October 30, 2014. NOx averaged below 15 ppm at several loads.
3. Nitrogen oxides as nitrogen dioxide at any load	89 tons[2] per year	12 month rolling time period as determined at the end of each calendar month	COMPLIANCE- The highest twelve month rolling average over the last two years was less than 89 TPY. Records were received.
4. Carbon monoxide at 100 % load	64.0 pounds[2] per hour	Hourly	Compliance- Stack Testing was conducted on September 25, 2014 and October 30, 2014. CO averaged below 64 lbs/hr at several loads.
5. Carbon monoxide at any load	87.9 tons[2] per year	12 month rolling time period as determined at the end of each calendar month	COMPLIANCE- The highest twelve month rolling average over the last two years was less than 87.9 TPY.
6. Sulfur dioxide	.015 percent on a dry gas basis and at 15 percent oxygen.[2]	NA	COMPLIANCE The facility is using natural gas. Received records stating sulfur content of natural gas.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Compliance Determination

1. Natural Gas	2747 million standard cubic ft.[2]	12 month rolling time period as determined at the end of each calendar month.	COMPLIANCE - The highest twelve month rolling average over the last two years was less than 2747 million standard cubic feet.
2. Sulfur in fuel	0.8 %[2] by weight	NA	COMPLIANCE The facility is using natural gas. Received records stating sulfur content of natural gas.

III. PROCESS/OPERATIONAL RESTRICTION(S)
NA

IV. DESIGN/EQUIPMENT PARAMETER(S)
NA

V. TESTING/SAMPLING
Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

In accordance with 40 CFR 75, Appendix E, NOx emission rates (ppmv) from each turbine will be verified at least once every 20 calendar quarters. Permittee shall perform NOx testing for at least four (4) approximately equally spaced operating load points, ranging from the maximum operating load to the minimum operating load. Testing procedures shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60, Appendix A. This test satisfies the NOx performance test requirements of 40 CFR 60, Subparts A and GG.
. (R336.1213(3), 40 CFR 60.8, 40 CFR 60.335, 40 CFR Part 75, Appendix E)

COMPLIANCE DTE conducted emission testing in September and October 2014 and passed.

Permittee shall conduct carbon monoxide emission rate testing for each turbine in conjunction with NOx testing and under the same test averaging period requirements. CO emissions testing will be conducted at two operating load points, one at maximum load and one other mid load.
(R336.1213(3), R336.12001, R 336.2003, R 336.2004)

COMPLIANCE DTE conducted emission testing in September and October 2014 and passed.

Not less than 30 days prior to the anticipated test date, a complete stack testing plan shall be submitted to the AQD District Supervisor for approval.

COMPLIANCE DTE conducted emission testing in September and October 2014 and passed.

(R336.1213(3))

Not less than 7 days before performance tests are to be conducted, the permittee shall notify the AQD District Supervisor, in writing, of the time and place of the performance tests and who shall conduct them.
(R 336.2001(3))

NONCOMPLIANCE Notification was not submitted 7 days prior to September testing. AQD TPU staff discussed with DTE staff.

See Appendix 5

VI. MONITORING/RECORDKEEPING
Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

Permittee shall monitor the monthly amount of natural gas used by each turbine each calendar month and the total natural gas usage for both turbines combined on a 12-month rolling time period as determined at the end of each calendar month. (R336.1213(3))

COMPLIANCE- DTE is currently monitoring the amount of natural gas each month. Record were provided.

Permittee shall keep records demonstrating the total sulfur content of gaseous fuels meets the definition of natural gas as specified in 40 CFR 60, Subpart GG. (R336.1213(3),40 CFR 60.334)

COMPLIANCE- DTE provided documentation that demonstrated the gaseous fuels used at the Delray Peaking plant meets the definition of natural gas.

Permittee shall continuously monitor and record compliance with the nitrogen oxides and carbon monoxide emission limits in this permit using the procedure described in the document "Continuous Compliance Protocol" for Delray Power Plant Units 11-1 and 12-1, submitted to the WCAQMD on March 16, 2000 by the Detroit Edison Company. (R336.1213(3))

COMPLIANCE- DTE monitors their natural gas usage each month and calculates their emissions on a monthly basis.

For each turbine, permittee shall monitor and record the capacity factor for each calendar year. If the capacity factor for each individual turbine exceeds 20% in any calendar year or exceeds 10% averaged over the three previous calendar years, a continuous monitor for Nitrogen Oxide must be installed, certified, and operated no later than December 31 of the following calendar year. (40 CFR 75.12 (d)(2), R336.1801(14)(c), R336.1213(3))

COMPLIANCE- DTE monitors their annual capacity factor on rolling 12 month basis.

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))

COMPLIANCE- No deviations occurred over the last year.

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

COMPLIANCE- Semi annual reporting has been on time.

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

COMPLIANCE- Annual certification has been submitted on time.

See Appendix 8

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
1. SV-001	108x228[2]	70[2]	40 CFR 52.21
2. SV-002	108x228[2]	70[2]	40 CFR 52.21

COMPLIANCE- I observed the stacks and they appeared to be in compliance, but no measurements were taken.

IX. OTHER REQUIREMENT(S)

The permittee shall not operate the turbines unless all of the applicable requirements for the Federal Standards of Performance for New Stationary Sources as specified in 40 CFR 60 Subparts A and GG are being met.
(40 CFR Part 60 Subparts A and GG)

COMPLIANCE- The use of low sulfur fuel keeps them in compliance.

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. Phase II Acid Rain Permit No. MI-AR-1728-2011 is hereby incorporated into this ROP as Appendix 9. (R 336.1299(2)(a))

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their Acid Rain Permit.

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 Rule 299(2)(a) and
40 CFR, Part 72.9(c)(1)(i). (R 336.1213)(10))

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their Acid Rain Permit.

The permittee shall comply with the CAIR SO2 Trading Program provisions of 40 CFR, Part 97.201 through 40 CFR, Part 97.288 as adopted and modified by R 336.1420 and as outlined in any complete CAIR SO2 permit issued by the AQD. The CAIR SO2 Permit No. MI-SO2-1728-2011 is hereby incorporated into this ROP as Appendix 10. (R336.1420)

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR SO2 Trading Program.

The permittee shall hold allowances for compliance deductions in the source's compliance account of the allowance transfer deadline in an amount not less than the total SO2 emissions for the control period from the source pursuant to 40 CFR, Part 97.254. (40 CFR, Part 97.254)

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR SO2 Program.

The permittee shall comply with the CAIR NOx Annual Trading Program provisions of 40 CFR, Part 97-101 through 40 CFR, Part 97-188 as adopted and modified by R 336.1802a, R 336.1803, R 336.1821 and

R 336.1830 through R 336.1834 and as outlined in any complete CAIR NOx Annual Permit issued by the AQD. The CAIR NOx Annual Permit No. MI-NOA-1728-2011 is hereby incorporated into the ROP as Appendix 11.
(R 336.1821)
COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR NOx Annual Trading Program.

The permittee shall hold allowances for compliance deductions in the source's compliance account of the allowance transfer deadline in an amount not less than the total NOx emissions for the control period from the source pursuant to 40 CFR, Part 97.154. (40 CFR, Part 97.154)

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR NOx Annual Trading Program.

The permittee shall comply with the CAIR Ozone NOx Trading Program provisions of 40 CFR, Part 97.301 through 40 CFR, 97.388 as adopted and modified by R 336.1802a, R 336.1803 and R 336.1821 through R 336.1826 and as outlined in any complete CAIR Ozone NOx Permit issued by the AQD. The CAIR Ozone NOx Permit No. MI-NOO-1728-2011 is hereby incorporated into this ROP as Appendix 12. (R 336.1821)

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR Ozone NOx Budget Permit.

The permittee shall hold allowances for compliance deductions in the source's compliance account of the allowance transfer deadline in an amount not less than the total NOx emissions for the control period from the source pursuant to 40 CFR, Part 97.354. (40 CFR, Part 97.354)

COMPLIANCE - Records are electronically submitted to EPA to determine compliance with their CAIR Ozone NOx Budget Permit.

Regarding the generators, fuel combusted at the DTE River Rouge for their peaking equipment is used at the Delray site. The BTU value was cited at 138000 which equates to 9.96 mmbtu/hr heat input capacity which is below the Rule 285(g) exemption threshold of 10 mmbut/hr.

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:
N/A

MAERS REPORT REVIEW:

Pollutant	2016 Emissions(TPY)
CO	5.66
NOx	9.3
PM	1.25
Sox	0.1
VOC	0.4

FINAL COMPLIANCE DETERMINATION:

Based on the inspection and review of the submitted records, it appears that the facility is operating in compliance with applicable regulations

NAME _____ DATE 9-29-17 SUPERVISOR W.M.