

B3012
MAY 14

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

B301229101

FACILITY: DETROIT THERMAL BLVD HEATING PLANT		SRN / ID: B3012
LOCATION: 475 BALTIMORE ST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Alan Greenberg , Director Environmental Affairs/NERC Compliance		ACTIVITY DATE: 03/26/2015
STAFF: Terseer Hemben	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: NOx from Boilers used for steam temperature boosting		
RESOLVED COMPLAINTS:		

INSPECTED BY : Terseer Hemben, MDEQ

PERSONNEL PRESENT (Cell) : Marcus Ellis, Quality Control Administrator (313) 912-7541

FACILITY PHONE NUMBER : (313)-972-4335

FACILITY FAX : (313) -871-2835

DATES OF INSPECTION : 03/26/2015

Detroit Thermal Boulevard Heating Plant

SRN: B3012; Permit #361-97

Précis: The inspection was based on the following regulatory requirements: Permit to Install # 361-97:

Rule 201(1), Rule 219, Rule 901, Rule 912, NSPS Subpart DC; SIP Rule no (s) 331

FACILITY BACKGROUND:

Detroit Thermal Boulevard (DTB) plant is located at 555 W. Baltimore Ave, Detroit, MI 48202, Wayne County. This facility is used as a substation for steam storage. In severe winter weather, the boilers are fired to make up for falling steam temperatures. Boosting of the steam temperature does not happen often. The equipment is rated at 600 horsepower: Boilers – 1 through 7, all deliver in total 145,000 lbs. of steam per hour. DTB plant distributes a load of 129,000 lbs. steam per hour. No condensate is recycled! Boilers 1 through 7 are forced draft, natural gas fired Clayton Model E-604 steam generators.

INSPECTION NARRATIVE

I arrived at the facility at 1000 hours. Purpose of the visit to DTB plant on March 26, 2015 was to conduct a scheduled compliance inspection. I met with the Quality Control Administrator (QCA), Mr. Marcus Ellis on arrival. Temperature at the hour was 39 F with wind speed 6 mph coming from the SW, and humidity 82%. I was admitted onto the facility by the QCA. We went through a pre-inspection interview in the building. We inspected the equipment and general floor area including seven boilers and ducts leading to the stacks. At the time of this inspection, the turbines were not in operation. We stepped outside and inspected the twin stacks for opacity and structural outlook. There was no visible activity emission through the stacks. I requested for emission records from DTB. Mr. Ellis promised to send the records to the AQD office within seven working days. We concluded the inspection with a post-inspection interview. I left the area at 1045 hours. The records were sent on April 5, 2015 via e-mail

PROCESS DESCRIPTION

The DTB plant uses seven boilers to generate steam for the New Center area. The heating plant consists of seven forced draft, natural gas-fired, 600-horsepower Clayton model no. E-604 - steam generators. The gross steam generation for this facility amounts to 145,000 lbs of steam per hour. Functionally, each

boiler contributes 2000 lb/hour of steam to the total output. Condensate or spent steam is vented at the point of usage. The facility does not return the spent steam for re-circulation.

COMPLAINT/COMPLIANCE HISTORY:

The Boulevard Heating facility has no past history of violations.

OUTSTANDING CONSENT ORDERS:

None

OUTSTANDING LOV'S:

None

OPERATING SCHEDULE/PRODUCTION RATE:

The DTB plant is designed to operate 24 hours per day, and 7 days a week throughout the year, when necessary.

EQUIPMENT AND PROCESS CONTROL:

Possible emissions come from the combustion of Natural gas. Regulated pollutants include NOx, CO, and VOC.

APPLICABLE RULES/PERMIT# 361-97 CONDITIONS:

The DTB plant has been operating under permit # 361-97 since September 23, 1997. The Boulevard plant inspection determined that each permit condition was:

1. In compliance- DTB demonstrated there had not been any modification to the equipment or process since the last inspection. Response from DTB stated during the inspection the inspector confirmed no changes were made to the facility since last inspection [Response# 1].
2. In compliance - DTB demonstrated the combined Nitrogen oxides NOx emission rate from the boilers did not exceed 97.8 tpy based on a 12-month rolling time period as determined at the end of each calendar month [SC. 17]. Records covering the last 12 months indicated the highest 12-month rolling time period NOx emission occurred in April, 2014 at 1.07 tpy. [Attachment Table pg. 5; Response# 2].
3. In compliance – DTB demonstrated that NOx emission from the 4 boilers associated with the West Stack when firing natural gas did not exceed 0.13 lbs. per million BTUs heat input, nor 12.76 lbs. /hour [SC. 18]. Response from DTB stated after the PTI# 361-97 was issued to Detroit Edison, the required emissions stack test was successfully conducted on the boilers served by the West Stack, which demonstrated compliance with these emission limitations. Since the acquisition of DTB plant by Detroit Thermal in 2003, the facility continued to operate in compliance with the emissions stack test results. Therefore continued compliance with these emission limitations is still assumed. The fuel usage records are assumed to be within the stack test results and limits. AQD acknowledges the presence of stack test emission records on file. No recent request for testing was made to DTB [Response # 3, Attachment pg. 5].
4. In compliance – DTB demonstrated that NOx emission from the 3 boilers associated with the East stack when firing natural gas did not exceed 0.13 lbs. per million BTUs heat input, nor 9.57 lbs. /hour [SC. 19]. Response from DTB was same as in Question# 3 [Response#4].
5. In compliance – DTB demonstrated per SIP Rule 331, the particulate emission from the 4 boilers associated with the West Stack did not exceed 0.02 lbs. per 1000 lbs. of exhaust gases, calculated on a dry gas basis, nor 1.36 lbs. /hour [SC 20]. Response from DTB was same for the West stack as stated in Question# 3 [Response# 5].
6. In compliance –DTB demonstrated per Rule 331, the particulate emission from the 3 boilers associated with the East stack does not exceed 0.02 lbs. per 1000 lbs. of exhaust gases, calculated on a dry gas basis, nor 1.02 lbs. /hour [SC. 21]. Response from DTB was same as in Question# 3 [Response# 6].
7. In compliance – DTB did not need to demonstrate that visible emissions from the boilers did not exceed 10% opacity based on a 6 minute average [SC. 22]. Response from DTB stated there were no applicable requirements in the permit for periodically measuring visible emissions for the Boulevard plant. Response# 7]. AQD confirms the assertion.

8. In compliance –DTB demonstrated the 7 boilers were only fired with natural gas (**SC. 23**). Response from DTB stated the 7 boilers only used natural gas [Response# 8].
9. In compliance – DTB demonstrated the natural gas usage in the boilers did not exceed 126.7 million cu. ft. per month (**SC. 24**). Emission records submitted by DTB indicated natural gas usage was within monthly limits [Attachment pg. 5].
10. In compliance - DTB demonstrated permittee maintained monthly records of the amount of natural gas fired in the boilers and records were kept on file for a period of at least 2 years and made available at request (**SC 25**). Records submitted by DTB in form of table reflected the monthly records were kept for at least two years [Response# 10, Attachment pg. 5].
11. In compliance – DTB demonstrated since commissioning of the boilers, there had been a verification testing for NOx emission rates by stack testing from the steam boilers using reference methods 7 or 7E and 1, respectively (**SC. 26**). Response from the DTB stated in April 1998, subsequent to the commissioning of the boilers at the Boulevard Plant, stack testing was successfully performed for NOx emission rates using reference method 7E [Response# 11]. AQD confirmed the information is on file.
12. In compliance - DTB demonstrated the exhaust gases from the boilers were discharged unobstructed vertically upwards to the ambient air from 2 individual Stacks with a maximum diameter of 48 inches at an exit point not less than 120 feet above ground level (SC. 28). Response from DTB stated “to the best of our knowledge, the stacks were constructed in accordance with the limitations in the permit to install, # 361-97, issued to Detroit Edison in 1997. Furthermore, and to the best of our knowledge, there has been no modification or reconstruction of either of the 2 individual stacks since the permit to install was issued and the facility constructed” [Response# 12].
13. In compliance – DTB demonstrated the initial start-up of the boilers was done following a written notification of the actual date in compliance with requirements of NSPS as specified in 40 CFR 60, Subpart A and Dc (**SC. 29**). Response from DTB stated the MDEQ requested written notification of the actual date of in compliance with requirements of NSPS as specified in 40 CFR 60, Subpart A and Dc. However, the notification preceded the DTB ownership of the plant. AQD confirmed the notification kept on file.

Inspection Areas of Focus: The 7 Boilers.

The Boilers were inspected for information identified on the plate/ tag in permit. All the boilers were not in operation at the time of inspection. However, the areas around the associated tanks and body of tanks had salt deposits and spills that needed blow down and clean up.

Opacity (10%)

The twin stacks were inspected. There was no activity coming out of the stacks. There was no basis for opacity reading.

Hygiene

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS

This DTB facility premise does not have nor is in need of fugitive dust plan.

FINAL COMPLIANCE DETERMINATION

The Detroit Thermal Boulevard facility was inspected. Record keeping, visible emissions, natural gas usage, and NOx emission limit records were examined. There were no visible emissions. Record keeping was proper and satisfactory. The DEQ-AQD determined Detroit Thermal Boulevard facility operated in compliance with the permit requirements during the emission reporting period.

NAME JLH

DATE 8/26/15

SUPERVISOR JK