

M4764
MANILA

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

M476428361

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|--|-------------------------------|---------------------------|
| FACILITY: FORD MOTOR CO ELM STREET BOILERHOUSE | | SRN / ID: M4764 |
| LOCATION: 1200 ELM ST, DEARBORN | | DISTRICT: Detroit |
| CITY: DEARBORN | | COUNTY: WAYNE |
| CONTACT: Elizabeth Kowalczyk, Environmental Engineer | | ACTIVITY DATE: 01/09/2015 |
| STAFF: Terseer Hemben | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MAJOR |
| SUBJECT: Boilers 4 and 5 | | |
| RESOLVED COMPLAINTS: | | |

ROP# MI-ROP-M4764-2014; SRN M4764

1200 Elm Street, Dearborn, MI

INSPECTED BY : Terseer Hemben, MDEQ
 PERSONNEL PRESENT: Chief Engr. Nathaniel Ampunan (Ford) Lori Brinkman (Ford)
 FACILITY PHONE NUMBER : (313)-390-3177
 FACILITY FAX : (313) -390-8360
 DATES OF INSPECTION : 1/9/2015

Précis: The compliance inspection was conducted according to the following permit rule conditions-
 Reviewed Regulatory Basis:

Federal Rule- 40 CFR 52, 40 CFR 60, Subparts A and Dc, 40 CFR parts 70

State Rule – 201, 401, 205, 213, 225, 2803, 2804, 910,

FACILITY BACKGROUND:

Ford Motor Company, Elm Street Boiler-house (FMCB) is located on 1200 Elm Street, Dearborn, Wayne County. Elm Street Boilerhouse is a major source for pollutants. The facility is subject to PSD regulations for major modifications. The boiler-house comprises 5 boilers labeled 1 through 5. Boilers 1, 2, and 3 are older natural gas/No. 2 oil fired equipment. These boilers are rated at 90,000 pounds of steam per hour. Currently, the back-up option of using No. 2 oil fuel has been disengaged. Boilers 4 and 5 were commissioned in 1997. Boilers 4 and 5 have the capacity to deliver 95,000 pounds of steam per hour. However, the commissioned boilers were limited to the capacity of 81,700 pounds of steam per hour in conformation to the NFPA. 8501 (1992 Edition), paragraph 4-5 of the standard code. Boile #5 discharges exhaust gases vertically through a bypass over 20 feet above the structure. Gases exit at temperature 300 F, and at the volumetric rate of 26,000 cfm.

The Ford Motor Company Elm Street Boiler house recently changed its special conditions in the ROP #MI-ROP-M4764-2014. Evaluation of emissions for this facility will therefore be based on the averaging conditions listed in the ROP. In essence, the permanently established operating conditions are functional. As a final check, the steam output in pounds and gas output in cubic feet are continually monitored and totalized on hourly basis. The Company eliminated the storage of No. 2 fuel oil on the site. No. 2 fuel oil bulk is fueled directly from a tanker via hose, and the hose is removed after service.

I arrived at the FMCB facility at 0945 hours. Temperature at the hour was 14 F with wind speed 16 mph coming from SW and humidity 74%. I signed in, sat in the lunch lounge section, and waited for Ms. Brinkman. Ms. Brinkman arrived at 1047 hours. We held a pre-inspection conference. Chief Ampunan was out at another facility handling some emergent surges in steam demand. Chief Ampunan joined us at 1108 hours. Lori and I discussed the operating status of the plant boilers. Finally, we inspected boilers 4 & 5 and returned to post-inspection conference session. I left the area at 1120 hours.

COMPLAINT/COMPLIANCE HISTORY:

The facility has a past history of violations.

OUTSTANDING CONSENT ORDERS:

None

OUTSTANDING LOV'S:

None

OPERATING SCHEDULE/PRODUCTION RATE:

Elm street boiler-house normally operates 24 hours per day, and 7 days a week. The facility's output is 90,000 pounds of steam per hour per boiler. Boilers are regularly shut down for scheduled maintenance. At the time of inspection Boilers #1, #2, #3, #4, & #5 were operating to meet the steam demand.

PROCESS DESCRIPTION:

The Elm Street Boiler house is designed to fire the five boilers with natural gas and no. 2 fuel oil as back-up. Currently, the no. 2 fuel oil option is disengaged from boilers 1, 2, & 3. The Boilers # 1, 2, &3 are grandfathered, however the facility is required to keep records of operations. The two newer boilers, numbered 4 and 5, are equipped with low NOx burners and the flue gas recirculation for NOx control. The source also has CFC equipment located throughout the facility.

Ford Motor Company Elm Street Boilerhouse was permitted to deviate from current stack configuration. The facility discharges uses from Boiler# 5 through the bypass stack only when fired using natural gas as fuel.

EQUIPMENT AND PROCESS CONTROL:

Table 1. lists the equipment and process conditions:

| Unit/Group ID | EU Description | Installation Date | ControlDevice | Flex. Group SV ID |
|---------------|---|-------------------|---------------|-------------------|
| EGBOIL 1 | Boiler #1 was manufactured by WT-Wickers, and is rated at 108 MMBTU/hr. Fired with natural gas; uses No.2 fuel oil. | 1/157 | NA | SVB-1 |
| EGBOIL 2 | Boiler #2 was manufactured by WT-Wickers, and is rated at 108 MMBTU/hr. Fired with natural gas; uses No.2 fuel oil. | 1/1/57 | NA | SVB-1 |
| EGBOIL 3 | Boiler #3 was manufactured by WT-Wickers, and is rated at 158 MMBTU/hr. Fired with natural gas; uses No.2 fuel oil. | 1/1/63 | NA | SVB-1 |
| EGBOIL 4 | Boiler # 4 is rated at 99.8 MMBTU/hr. Fired | 11/15/1997 | NA | SVB1 |

| | | | | |
|----------|---|------------|----|-------|
| EGBOIL 5 | with natural gas; uses No.2 fuel oil. Boiler # 5 Is rated at 99.8 MMBTU/hr. Fired with natural gas; uses No.2 fuel oil. | 11/15/1997 | NA | SVB-1 |
|----------|---|------------|----|-------|

APPLICABLE RULES/PERMIT# MI-ROP-M4764-2014 CONDITIONS:

The Elm street boilerhouse is currently is considered a major source under 40 CFR part 70 due to its potential to emit carbon monoxide and nitrogen oxides, each in excess of 100 tons per year. The facility is also considered to be a major source under the PSD regulations (40 CFR 52.21), due to its potential emissions of nitrogen oxides, in excess of 250 tons per year.

The Elm street boiler-house is not subject to R336.1220 for major offset sources. Boilers # 4 and #5 are subject to standards of performance for small Industrial Commercial-Institutional Steam Generating units (40 CFR Part 60 Subpart Dc). The facility is not subject to any National Emission Standard for Hazardous Air Pollutants (40 CFR parts 61 and 63).

Based on the conditions stated in the ROP, FMCB facility's compliance was determined relative to:

Boilers 1, 2, & 3-

The inspection and evaluation of following emission units indicated:

FGBoilers 1, 2, & 3

1. In compliance - FMCB demonstrated there has not been any modification to the boiler systems or process at the facility in the last 24 months. FMCB stated the burner management system controls were replaced on Boilers 1 and 2 in 2014. Ford considered the replacement a maintenance project that was not subject to Rule 201 requirements. AQD accepts the determination [Cover Pg. item# 1].
2. In compliance – FMCB confirmed the employee fired only natural gas in heating Boilers 1, 2, and 3. Response from FMCB stated due to the design of the boilers and configuration, Boilers 1, 2, and 3 were only able to fire natural gas [Cover Pg. item# 2].
3. In compliance – FMCB demonstrated the permittee maintained a complete record of fuel oil specifications and/or fuel analysis for each delivery, or storage tank, of fuel oil. These records could include purchase records for ASTM specification for fuel oil, specifications or analyses provided by the vendor at the time of delivery, analytical results from laboratory testing, or any other records found adequate to demonstrate compliance with the percent sulfur limit in fuel oil [SC. VI.1]. Response from FMCB stated there were no fuel oil records for Boilers 1, 2, and 3. The boilers were configured to fire only natural gas [Cover Pg. item# 3].
4. In compliance-FMCB demonstrated permittee promptly reported (a) deviations [SC-VII.1], (b) Semiannual deviations [SC-VII.2], and (c) Annual certification of compliance [SC-VII.3]. for boilers 1, 2, and 3. Response from FMCB indicated there were no deviations for the Elm Street Boilerhouse in 2014. Semi-annual compliance certifications were submitted on March 12, 2014 for reporting period 7/1/13 – 12/13/13, and September 15, 2014 for reporting period 1/1/14- 6/30/14. The annual compliance certification was submitted on March 12, 2014. AQD matched the submittal with records on file in MACES.

FGBoilers 4 & 5

5. In compliance - FMCB demonstrated the maximum emission limit for Nitrogen Oxides did not exceed 57.2 tons per year combined [sc-I.1]. Records for the last 12 months indicated the maximum Nitrogen Oxide emissions were 19.11 tons per year combined, based on a 12 month rolling time period [S1, R3, June].
6. In compliance – FMCB demonstrated the Maximum emission limit for Nitrogen Oxides when firing natural gas from each boiler, based on a 1 hour average did not exceed 0.06 pound per million BTUs heat input [SC-I.2]. Records for the last 12 months indicated the NOX emission rate was 0.05 lbs./MM BTU. The testing report was previously submitted to AQD office, and records are on file.
7. In compliance – FMCB demonstrated the Maximum emission limit for Nitrogen oxides when firing natural gas from each boiler, based on a 1 hour average did not exceed 0.10 pound per million BTUs heat input [SC-I.3]. Records for the last 12 months indicated no fuel oil was used for firing Boilers 4 and 5 [Cover Pg. item# 7].
8. In compliance – FMCB demonstrated the maximum amount of SO2 emitted per million BTUs heat input from each boiler did not exceed 0.31 pounds [SC-I.4]. Records for the last 12 months indicated the MAERS emission factor for SCC 1-02-006-02 was used to calculate Boiler 4 and 5 emissions. The factor of 0.6 lbs. Sox/MMCF, which is equivalent to 0.0006 lbs. Sox/MMBTU, when burning natural gas. FMCB did not burn fuel oil in 2014 [Cover Pg. item# 8].
9. In compliance – FMCB demonstrated the maximum amount of SO2 emitted per million BTUs heat input from each boiler did not exceed 120 ppmv, corrected to 50 percent excess air [SC-I.5]. Response from FMCB indicated no fuel oil was used in firing Boilers 4 and 5 in 2014 [Cover Pg. item# 9].
10. In compliance – FMCB demonstrated the maximum amount of SO2 emitted per million BTUs heat input from each boiler did not exceed 35.8 tons per year based on 12 month rolling time period as determined at the end of each calendar month [SC-I.6]. Records for the last 12 months indicated the maximum Sox emissions were 0.22 tons per year combined, based on a 12-month rolling time period [S1, R3, May-July].
11. In compliance – FMCB demonstrated the maximum amount of Carbon Monoxide emitted from each boiler based on 1 hour average did not exceed 10.0 pounds per hourly average [SC-I.7]. Records for the last 12 months stated that based on emission testing conducted on January 28, 2014, the CO emission rate was 0.0006 MMBTU, which is equivalent to 0.6lbs per hour was previously submitted to AQD office via certified mail on February 15, 2010 [Cover Pg. item# 11]. AQD verified the records are on file.
12. In compliance - FMCB demonstrated the maximum amount of Carbon Monoxide emitted from each boiler based on 1 hour average did not exceed 87.6 tons per year [SC-I.8]. Records submitted covering the last 12 months indicated the natural gas consumption and emission calculations for Boilers 4 and 5 showed maximum CO emissions were 0.23 tons per year combined, based on a 12 month-rolling time period [S1, R3, June-July].
13. In compliance – FMCB demonstrated the maximum fuel oil sulfur content for the boilers was 0.30% by weight [SC-II.1]. FMCB stated no fuel oil was used in firing Boilers 4 and 5 [Cover Pg. item# 13].
14. In compliance – FMCB demonstrated the maximum amount of No. 2 fuel oil used in each boiler did not exceed 708 gallons per hour [SC. II.2]. FMCB stated no fuel oil was used in firing Boilers 4 and 5 [Cover Pg. item# 14].
15. In compliance - FMCB demonstrated the maximum No. 2 fuel oil used in each boiler was 1,642, 210 gallons per year based upon a 12 calendar month rolling average, as determined at the end of each calendar month [SC- IIA.3]. FMCB stated no fuel oil was used in firing Boilers 4 and 5 [Cover Pg. item# 15].
16. In compliance – FMCB demonstrated the maximum amount of Natural Gas used in each boiler did not exceed 100,000 cubic feet per hour [SC-II.4]. Records for the last 12 months indicated the maximum amount of natural gas used occurred in Boiler 4 in January, 2014 amounted to

71,374 CF/hr., while Boiler# 5 consumed maximum of 60,325 CF/hr. in March, 2014. [S1, R1, & R2].

17. In compliance – FMCB demonstrated the permittee only fired natural gas and/or No. 2 fuel oil in the boilers [SC-III.1]. FMCB stated natural gas was the only fuel consumed in Boilers 4 and 5 in 2014. Quarterly reports are on AQD file [Cover Pg. item# 17].
18. In compliance – FMCB demonstrated the permittee did not discharge emissions through EUBOIL5 bypass stack for more than 2,160 hours per 12 month rolling time period as determined at the end of each calendar month [SC III.2]. Records for the last 12 months indicated the bypass stack only operated 168 hours [S1, R3, May].
19. In compliance – FMCB demonstrated the permittee only fired natural gas in EUBOIL5 while discharging emissions through EUBOIL5 bypass stack [SC III.3].Response from the FMCB stated natural gas was the only fuel consumed in Boiler 5 in 2014 [Cover Pg. item# 19].
20. In compliance – FMCB demonstrated the Permittee did not operate either of the boilers unless the associated low NOx burner system and flue gas circulation system was installed and operating properly [SC-IV.1 (2 sic)]. Records for the last 12 months indicted recent inspections on Boilers 4 and 5 showed the low NOx burner and gas circulating systems operated properly. The most recent DJ Conley Associates boiler inspection and calibrations records are attached [DJ, Pg. 1 & 2].
21. In compliance – FMCB demonstrated if the permittee analyzed (a) the Sulfur content of fuel oil, and (b) Fuel oil heating value using ASTM method as applicable when, and only when the fuel oil usage exceeded 5000 gallons [SC-V.1]. Response from FMCB stated no fuel oil was consumed in Boilers 4 or 5 in 2014 [Cover Pg. item# 21].
22. In compliance – FMCB demonstrated that within 12 months of ROP issuance the permittee verified the CO and NOx emission rates from one boiler by testing at owner/s expense [SC-V.2]. Response from FMCB stated that permit MI-ROP-M4764-2009a issued in August 2009 required stack testing on the boilers. Emission testing was conducted on January 20, 2010. The emission testing report was submitted to AQD office via certified mail on February 15, 2010. AQD acknowledges the records are on file [Cover Pg. # 22].
23. In compliance – FMCB demonstrated the permittee kept and maintained records of (a) Quantity of No. 2 fuel oil received in gallons, (b) Quantity of No. 2 fuel oil individual boiler usage in gallons, and (c) Fuel supplier certification records listing sulfur content, in weight percent, and heating value for all fuel oil shipments received [SC-VI.1]. Response from FMCB stated no fuel oil was used in firing Boilers 4 and 5 [Cover Pg. item# 23].
24. In compliance – FMCB demonstrated permittee maintained and kept records for Natural gas individual boiler 4 and 5 hourly usage rate – monthly prorated from monthly usage rate [SC-VI.2]. Records for the last 12 months indicated hourly usage rates for both boilers indicated compliance [S1, R1, & R2].
25. In compliance – FMCB Please demonstrated permittee promptly reported (a) deviations [SC-VII.1], (b) Semiannual deviations [SC-VII.2], and (c) Annual certification of compliance [SC-VII.3]., (d) Fuel certification records for boilers 4 and 5. Response from FMCB indicated all compliance reports and certification were submitted to AQD office. That there were no deviations in 2014. Semi-annual compliance certifications were submitted on March 12, 2014 for reporting period 7/1/14 – 12/31/14, and September 15, 2014 for reporting period 1/1/14 - 6/30/14. The annual compliance certification was submitted on March 12, 2014

Similarly, Quarterly fuel usage and certification reports required by Special Condition VII.4 and appendix 8.B of the ROP were submitted on January 17, 2014, April 22, 2014, July 29, 2014, and October 15, 2014 [Cover Pg. item# 25]

26. In compliance – FMCB demonstrated that permittee complied with the applicable requirements of 40 CFR, Part 60 Subparts A and Dc. [SC-IX.1]. Response from FMCB indicated that Boilers 4 and 5 complied with all applicable Federal and State performance and operating requirements [Cover Pg. item# 26].

Inspection Areas of Focus:

- 1. Boilers

Boilers were operating in a satisfactory manner. The hygiene around the equipment and facility was in

satisfactory manner.

- 2. Stacks/Main stack opacity

There was no opacity from stacks. Stacks were discharging waste gases unobstructed vertically to the

ambient air.

- 3. No. 2 Fuel oil supply method was achieved per need through takers and loaded through hoses.
- 4. Hygiene-the facility was clean exteriorly and interiorly. There were no open cans or containers holding organic liquids on the premises. All equipment were labeled appropriately. The quality control laboratory for utility monitoring was satisfactorily maintained.

MAERS Reporting:

The FMCB is yet to submit 2014 MAERS report.

Conclusion:

The inspection of FMCB was conducted for compliance with emission requirements. The facility's records were examined. In determination, FMCB operated in compliance with the ROP conditions issued to the Company.

NAME th

DATE 7/28/15 SUPERVISOR JK