

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

ACTIVITY REPORT: Scheduled Inspection

K268839084

FACILITY: B.O.P. FEDERAL CORRECTIONAL INSTITUTE		SRN / ID: K2688
LOCATION: Box 9999, East Arkona Road, MILAN		DISTRICT: Jackson
CITY: MILAN		COUNTY: WASHTENAW
CONTACT: Brian Smith, Facility Manager		ACTIVITY DATE: 03/27/2017
STAFF: Diane Kavanaugh-Vetort	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: SM/OPT-OUT NOx. FCE/PCE. Conducted complete scheduled compliance inspection.		
RESOLVED COMPLAINTS:		

On March 27, 2017, I conducted a complete scheduled compliance inspection, of the Bureau of Prisons Federal Correctional Institute in Milan (BOP). The inspection was announced prior because this is a Federal prison and the current contacts are new. The prior power plant operator recently retired. The last compliance inspection was in 2013. Brian Smith, is the new Facility Manager and is the appropriate contact for the BOP Prison. Unicor (separate Company) is responsible for the Paint Rack Burn off oven inside the prison. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations specifically, Michigan Air Pollution Control Act 451, Part 55, the administrative rules, the facility's Air Use Permits to Install (PTI) No. 281-00A (Opt-Out) for the Powerhouse: (3) boilers and (2) diesel generators and PTI No.12-99 for a Paint rack burn off oven. BOP is also subject to the federal New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60, Subpart Dc.

Prior to the 2013 inspection I reviewed two then recently promulgated federal standards that likely applied to BOP's powerhouse boilers (natural gas and oil) and two diesel generators. These are the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial and Institutional Boilers, 40 CFR Part 63, Subpart JJJJJJ (or Area Source Boiler MACT); and the NESHAP for Reciprocating Internal Combustion Engines (RICE), 40 CFR 63, Subpart ZZZZ (or RICE MACT). The RICE MACT refers to and includes the NSPS Subpart IIII (diesel generators) and NSPS Subpart JJJJ (gasoline). At this time it is still true that the DEQ-AQD has not requested or obtained the delegation of authority to implement and enforce these Area Source MACT standards. I informed BOP of the potential applicable requirements, and provided them with information regarding the standards in 2013 and now again in 2017.

AQD review prior to today's inspection indicates the Boilers at BOP may qualify as natural gas with oil used only during gas curtailment (see definition in Boiler MACT). Natural gas fuel is the primary fuel BOP uses except for monthly testing with oil. AQD also believes the emergency generators are subject to the RICE MACT as existing, large, emergency CI-ICE.

Upon my arrival at the facility at @ 9:30 AM, I drove to the powerhouse building located on the west side of the prison and outside the main prison fence. I met with Jason (?), Powerhouse operator. Powerhouse Foreman, Rob Ballachino, worked overnight and was off today. I introduced myself, provided identification, and stated the purpose of the inspection. I gave Jason a copy of the DEQ AQD Permit Exemptions Booklet, recently updated.

Jason accompanied me during the physical powerhouse inspection. Prior to the inspection we conducted a pre-inspection conference in the control room, and discussed various requirements of PTI No. 281-00A. Our discussion related to BOP's monitoring and record keeping of fuel usage, operating hours, maintenance and Start-up, Shut-down, Malfunction (SSM). BOP is maintaining their required operating records in various formats. BOP conducts and documents regular testing and maintenance of all the EU/FG. Monitoring is limited to fuel oil tank levels, natural gas metering, operating hours, and periodic efficiency and fuel testing to maintain the operating systems. There is no add-on pollution control equipment or emission monitoring equipment.

Jason explained that the significant change since the last inspection is that they upgraded the boiler operational control system to a digital, automated control system. BOP boilers now have variable frequency drive motors which improves operating efficiency. Digital screen shows oxygen, fuel type, water system parameters, and efficiency settings - I observed the control panel at Boiler #3 read 83% efficiency and Boiler # 3, is the only boiler operating today.

Per Jason they are conducting an internal inspection that includes a 3rd party annual maintenance of Boilers #1 (smaller) and #2 (larger same as #3). He said they are both opened up now. Next week or soon after these are completed he said they will then do the internal inspection/maintenance on #3.

COMPLIANCE INSPECTION

During the plant inspection I observed BOP's three natural gas/oil fired boilers (FG-BOILERS), and two diesel fired generators (FG-GENERATORS). BOP constructed the current steam generation plant for general comfort heating and hot water heating following issuance of the current permit in June 2003. This replaced an older powerhouse located within the prison. Jason confirmed what I understood previously that as a "prison" they are required to be connected to two power substations on the grid and also have supplemental power to be self sustaining outside of the prison in case of emergency inside.

PTI No. 281-00A is an Opt-Out permit limiting only emissions of nitrogen oxides (NOx) from the EU/FG: EU-BOILER1 (10.46 MMBTU/hr nat. gas/diesel-fired), EU-BOILER2 (29.30 MMBTU/hr nat. gas/diesel-fired), EU-BOILER3 (29.30 MMBTU/hr nat. gas/diesel-fired) and EU-GENERATOR1 (1020 KW or 1367.8 HP), EU-GENERATOR2 (1020 KW or 1367.8 HP).

The FG-BOILERS have the following NOx emission limits:

0.024 pounds (lb) per gallon Diesel (performance test)

100 lbs per MMSCF natural gas (performance test)

29.7 tons per year (tpy) 12 month rolling time period as determined at the end of each month. (calculations)

The FG-GENERATORS have the following NOx emission limits:

0.604 lb per gallon (performance test)

52.3 tpy (calculations)

The PTI contains a facility wide NOx emission limit incorporating *all equipment at the facility* including grandfathered or exempt equipment in order to restrict their emissions to below major source levels (100 tpy NOx) and therefore opt-out of Title V applicability.

FG-FACILITY NOx limit = 89.9 tpy

BOP conducted a performance stack test of EU-BOILER1 and EU-BOILER3, and EU-GENERATOR1 on November 12 & 14, and December 17, 2003. EU-BOILER2 and EU-GENERATOR2 were not tested. It appears this was because they are the same type/size as BLR3 and GEN1. The emission factors (EF) are used to calculate BOP's emissions of NOx.

The test results demonstrated compliance and EFs are as follows:

EU-BOILER1 0.017 lb/gal diesel 0.013 lbs MMcf natural gas

EU-BOILER3 0.021 lb/gal diesel 0.06 lbs MMcf natural gas

EU-GENERATOR1 0.37 lb/gal diesel NA

Jason said that they conduct monthly testing of both the FG-BOILERS and FG-GENERATORS with low sulfur diesel for at least 1 hour to make sure the alternate fuel system is operable. I was informed and the records show that BOP continues to operate FG-BOILERS on natural gas only. Jason said BOP continues to run only one Boiler per month. As stated above during the inspection only EU-BOILER3 was operating. Jason said they still rotate monthly between EU-BOILER2 and 3. The smallest EU-BOILER1 is only run in the summer months.

Jason presented to me several of their Record Keeping Binders and hard copy forms which I observed on shelves in the control room. I requested copies be sent to me electronically and allowed time for the primary operator Mr. Ballachino to return and compile this with Brian Smith. Jason noted all requested records. He and I went through the permit conditions and some of these highlighted for him.

1. (Observed on-site) FG-GENERATORS log book. This is used to record the monthly testing of the Units to make sure they are in good condition if needed.

2. (Observed on-site) BOP's Power Plant Daily Operation Form (boilers). The form shows the list of parameter readings for the day and month-to-date as applicable. It indicates both the daily hours of the boiler operating and shows total boiler hours operated since last inspection. BOP also attaches a Fuel oil inventory print out to this form each day. It indicates the level in the diesel Tank 1 and Tank 2.

3. (Received by email 4/6/17) Summary Spreadsheets of NOx emissions and fuel usage for each FG-BOILER and FG-GENERATOR. Monthly and 12 month rolling summaries are included for 2015, 2016 and 2017. Permit requires NOx emissions be determined on a 12 month rolling time basis. For 2016/17 the following is reported by BOP:

- FG-BOILERS 2016 annual fuel usage totals: 91.33 MMscf natural gas and 867 gallons fuel oil.
- FG-BOILERS NOx emissions 12 month rolling ending February 2017 = 45.76 lbs. < 29.7 tpy limit
- FG-GENERATORS 2016 annual fuel usage is 1363.6 gallons diesel.
- FG-GENERATORS operated short duration each month for 2016 = 39.30 hrs total. < 2400 hrs limit
- FG-GENERATORS NOx emissions 12 month rolling ending February 2017 = 504.27 lbs. < 52.3 tpy limit

The reported NOx emissions are well below the FG FACILITY NOx emission limit of 89.9 tpy 12 month rolling time period. $45.75 + 504.27 = 550.02$ lbs NOx.

4. (Received by email 4/6/17) A copy of the Fuel Oil invoice to BOP. Fuel is required to be a low sulfur diesel of no more than 0.05% by weight sulfur. RKA Petroleum Companies, Romulus (800-875-FUEL) oil supplier delivered on 1/19/2017 shows 3000 gallons of #2 Dyed Premium ULS Diesel with sulfur content maximum 0.0015 wt%.

FG-BOILERS

I observed EU-BOILER3 was the only one operating today. I observed that BOP maintains hand written daily record keeping forms on the boilers.

We physically inspected the condition of the boilers and they appeared to be in very good condition and housekeeping in the powerhouse was excellent. Boiler #1 and #2 both had both ends opened up for the planned inspection/maintenance. Natural gas meters are located at each BLR on the right side near floor (silver box). Each boiler has a digital continuous hour recorder. There is one main meter coming into the plant and since they run only one boiler at a time it is fairly easy to track usage.

BOP has been submitting MAERs annually since 2005 and therefore has been reporting their emissions. The PTI also requires BOP implement a start-up, shut-down, malfunction plan (SSM Plan) for FG-BOILERS. Compliant.

FG-GENERATORS

We inspected the two diesel fired generators in a separate locked room and which were not operating. They are only operated for emergency purposes in the event of a power outage. BOP conducts monthly short duration (1-2 HR normally) tests just to keep them in operating order. I informed Jason that they are very likely subject to the newer federal RICE MACT standard for HAPs. While they would be considered an existing source (pre-2006), it is noted that BOP's PTI allows for 1200 operating hours per year per generator or 2400 hours total. I advised BOP to review the standard specifically how it refers to the 40 CFR 60 Subpart IIII for compression ignition (CI) RICE as well. They need to be aware of how this applies to their generators and follow the notification and compliance provisions.

PTI 281-00A Condition 1.5 requires a device to monitor and record fuel usage and for generators the diesel fuel oil meter is in the control room. BOP has two 4000 gallon above ground storage tanks (outside) and a day tank inside the building next to the Generators. Jason and I inspected these and they appeared to be in good condition.

PTI 281-00A Condition 2.3 limits FG-GENERATORS to not operate more than a combined total of 2400 hours per 12 month rolling time period as determined at the end of the calendar month. Per log book they occasionally run longer than 1 hour per month for some additional testing and are compliant with this limit.

PAINT BURN OFF OVEN (UNICOR)

PTI No. 12-99 is for a Model PRT-524 Controlled Pyrolysis Cleaning Furnace (paint rack burn-off oven). This is located inside the actual Milan Prison and was not physically inspected on this date. Per past manager we are welcome to inspect it however it is necessary to complete forms to notify/gain access and I determined it was not necessary at this time. BOP is not the owner/operator and it is contracted to another company, UNICOR as employment for the prisoners. They manufacture metal office furniture. The Special Conditions of the PTI require they not operate the Burn Off Oven unless a minimum temperature of 1400 degrees F is maintained in the afterburner. BOP (or UNICOR) is required to monitor and record the temperature continuously, which was demonstrated. They are also required to operate it in accordance with manufacturer's specifications and with a stack with diameter of 14 inches and 28 ft above ground level. AQD did not verify since it was determined unnecessary at this time due to its location and the fact that AQD is not aware of any complaints regarding this source.


I requested that Jason follow up with Brian about obtaining the temperature records in summary form, from UNICOR, that operates the Burn-off oven. Past inspection they brought hard copy circular charts of the required temperature recordkeeping for my review. The two paint lines were determined to be Rule 287(d) exempt Powder Coating and were operating 3 shifts. They included a wash section then the powder booths and associated ovens. 4/6/17 Email from Brian included information from Unicor. One copy of a circular chart shows it appears to be operating in compliance and actually is being operated at or above the required temperature of 1400 degrees F.

NSPS Subpart Dc (applicable to FG-BOILERS only)

BOP FG-BOILERS are subject to Subpart Dc due to their size, installation date, and use of natural gas and fuel oil as fuel. Subpart Dc requires that BOP monitor and record fuel usage per boiler. BOP boilers each have a natural gas fuel meter (also required by PTI Condition 1.5) so this is not an issue for them to track. They use the same low sulfur content diesel as in the FG-GENERATORS and the NSPS allows certification of diesel fuel shipments as demonstration of compliance with the sulfur content limit not to exceed 0.05 % by weight. SEE ABOVE UNDER RECORDS and attached to this report.

COMPLIANCE SUMMARY

It appears that BOP Federal Prison is in substantial compliance with their PTIs and the federal NSPS at this time. Following the inspection I received an email from Brian requesting additional time to submit required records. AQD extended to April 5th. Records were received from BOP on April 6, 2017.

NAME  DATE 4/6/17 SUPERVISOR 