

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N168556954

FACILITY: TES Filer City Station		SRN / ID: N1685
LOCATION: 700 Mee Street, FILER CITY		DISTRICT: Cadillac
CITY: FILER CITY		COUNTY: MANISTEE
CONTACT: Austin Swiatlowski , IC&E Tech		ACTIVITY DATE: 12/17/2020
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-Site Inspection (Records Review are reported under "Site Review" under Separate Cover).		
RESOLVED COMPLAINTS:		

On Thursday, December 17, 2020, Caryn Owens of the Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted an On-Site field inspection of TES Filer City Station (TES) (SRN: N1685) located at 700 Mee Street in Filer City, Manistee County, Michigan. This facility is a power generating plant that uses multiple fuel types such as, coal, shredded tires, and wood in two separate stoker boilers that produce steam for a turbine to produce energy. The company produces approximately 60 megawatts of electricity per day, and additionally sends 50,000 pounds of steam to the adjacent Property for operational purposes.

The field inspection was to determine compliance with the Renewable Operating Permit (ROP) MI-ROP-N1685-2015b. As previously stated in the Records Review of the facility, the site is currently a major source of hazardous air pollutants (HAPs), and is subject to the following: New Source Performance Standards (NSPS) Standards of Performance for Electric Utility Steam Generating Units promulgated in 40 CFR Part 60 Subpart Da; the National Emission Standard for Hazardous Air Pollutants (NESHAP) for: Stationary Reciprocating Internal Combustion Engines in 40 CFR Part 63 Subpart ZZZZ (RICE MACT); and the NESHAP for Coal and Oil Fired Electric Steam Utility Steam Generating Units promulgated in 40 CFR Part 63 Subparts A and UUUUU.

Summary:

The activities covered during the field inspection and the previously conducted records review of the facility indicate the facility is in compliance with ROP MI-ROP-N1685-2015b. Specific on-site permit conditions that were reviewed are discussed below.

On-site Inspection:

The facility currently operates two spreader stoker boilers. Each boiler is rated at 384 MMBTU per hour heat input and is currently combusting coal, wood, and tire derived fuel (TDF). Each boiler is equipped with a dry scrubber to control sulfur dioxide and acid gas emissions, and a baghouse to control particulate matter. Each boiler system uses a separate unit and contains their own exit points which are vented to the atmosphere through a single 250-foot tall main stack, which assists the site for maintenance work on the boiler systems. The steam from the boilers is used to

power the onsite turbine and sold to the adjacent company for process operations. Other sources of emissions at the facility are fugitive dust from the coal pile and onsite truck traffic, an emergency natural gas fired generator, and a diesel fired emergency fire pump. The emissions from these are uncontrolled.

During the field inspection it was overcast, wind speeds about 5 to 10 miles per hour out of the east, and approximately 28 degrees Fahrenheit. The site was clean and well maintained, and no odors were present. I met with Mr. Chris Bosma, the Plant Operator, for a facility inspection who accompanied me through the facility to observe the permitted emission units and associated processes. Majority of the inspection was conducted outside, except for the fire pump building where I was able to read the non-resettable hour meter on the engine.

During the inspection both boilers were operating and the facility was filling the bunkers by conveyors with coal and tire derived fuel (TDF). The source has two bunkers that each feed into the associated boiler. The wood and TDF share the same conveyor that loads the material into the bunkers.

The amount of TDF and wood are weighed off the conveyor loading the material into the bunkers, and the company monitors the amount based on scaled trucks when they are unloaded. No visible emissions were observed in the TDF/wood conveyor area during the inspection.

During the inspection, I received copies of: the Plant and Boiler Master and the current continuous emission monitoring system (CEMS) readouts.

I was not able to access the control room during the inspection due to COVID-19 concerns, however, the Plant Master printout indicated the following:

Turbine	Boiler 1 Year 2020	Boiler 2 Year 2020	Boiler 1 Year 2019	Boiler 2 Year 2019
SO2 Reduction Rate (from Plant Master) %	98	98	99	99

During the 2019 Inspection completed on May 1, 2019, the outlet temperature of the stack for EUBOILER01 was 169.0 degrees Fahrenheit and the flow was 1.18“ wc, and

the outlet temperature of EUBOILER02 was 160.0 degrees Fahrenheit and the flow was 1.73“ wc. During the current inspection, the outlet stack temperature of EUBOILER01 was 178.5 degrees Fahrenheit and the flow was 0.92“ wc, and the outlet stack temperature of EUBOILER02 was 176.7 degrees Fahrenheit and the flow was 1.01“ wc. The operational parameters from previous inspection reports compared to current field operational parameters appear to be similar.

On-site Permit Review:

Source-Wide Conditions: Includes all process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment. During the inspection, I had the facility take a photo to show me the logbook in the control room that shows the maintenance area maintains records of dust suppressant applied to storage piles and roadways as well as dates in which the roadways and parking areas are swept.

During the inspection the roadways were clean, roads and areas around the plant are paved. Sprinklers are installed in the coal storage area which provides complete coverage. At the time of the inspection there were no visible emissions from storage piles or from the plant yard and roads.

TES has a consent order from the EPA that states TES cannot accept any deliveries of petroleum coke unless the facility installs a continuous Federal Equivalent Method (FEM) real-time particulate matter (PM-10) monitor and at least one FRM PM-10 filter-based monitor operating every third day at the facility. As of this date, TES has not installed the required PM-10 monitors and does not currently have petroleum coke stored at the site, nor currently use petroleum coke as fuel for the boilers.

EULIMESTORAGE: The lime storage and handling system consists of all lime handling and storage equipment including blowers, augers, conveyors, silos, and slurry tank up to the lime scrubbers that is controlled by a lime silo bin vent filter. The lime is used in the scrubbers for the boilers to reduce sulfur dioxide (SO₂) emissions.

Particulate matter (PM) emissions from the lime storage silo are limited to 0.03 grains per dry standard cubic foot of exhaust gases and the visible emission (VE) limit from the entire lime storage and handling system is 5% opacity based upon a six-minute average. The facility shows compliance with the PM limit by conducting non-certified VE observations. If any visible emissions are observed, facility personnel record its presence and takes corrective actions. During the field inspection, no VE's were observed from the lime storage and handling areas.

The bin vent filters have been installed and operating for many years, proper operation is verified through VE observations, and as previously stated, no VEs were observed during the inspection, and no VEs were noted in the entries reviewed in the daily logbook.

Non-certified visible emission observations are required to be performed at least once each time the silo is being filled and stack testing may be required upon request of the AQD. The lime storage silo is filled approximately 5 times per week. The logbook located in the control room contained adequate documentation to demonstrate that the observations are being performed when the silo is being filled. Stack testing has not been requested by the AQD.

EUASHUNLOAD: The ash/by-products unloading system consists of all fly ash collection and transfer equipment conveyors, augers, piping, and silos along with an unloading baghouse. It also includes all bottom ash handling equipment including augers, conveyors and silos on EUBOILER01 and EUBOILER02. A rotary unloader adds moisture to the ash/by-products from the silo and loads ash/by-products into dump trucks through an enclosed tube. This emission unit is controlled by the ash silo bin vent filter, ash unloading baghouse, fly ash removal system baghouse, bottom ash system cyclone, and bottom ash removal system baghouse.

Similar to EULIMESTORAGE above, PM emissions from EUASHUNLOAD storage silo is limited to 0.03 grains per dry standard cubic foot of exhaust gases and the VE limit from the entire ash/by-products unloading system is 5% opacity based upon a six-minute average. The facility shows compliance for the limits by conducting non-certified VE observations. If any visible emissions are observed, facility personnel records it and takes corrective actions. Based on the records I reviewed, VE checks indicated compliance with the 5% opacity limit.

During the inspection, the ash silo bin vent filter, ash unloading baghouse, fly ash removal system baghouse, bottom ash system cyclone, and bottom ash removal system baghouse appeared to be installed and operating properly. Proper operation is verified through VE observations, and during the inspection no VEs were observed. Additionally, no VEs were noted in the entries reviewed in the daily logbook.

Non-certified visible emission observations are required to be performed at least once each time the silo is being filled and stack testing may be required upon request of the AQD. The logbook located in the control room contained adequate documentation to demonstrate that the observations are being performed when the silo is being filled. Stack testing has not been requested by the AQD.

EUEMERGEN: A 175 kW (275 HP) existing natural gas-fired emergency generator. The EUEMERGEN is uncontrolled.

According to Mr. Bosma, EUEMERGEN is operated about 30 minutes per week. The facility inspects the EUEMERGEN on a weekly and annual basis in accordance with manufacturer's recommendations.

At the time of the inspection EUEMERGEN was equipped with a non-resettable hours meter and had operated for a total of 1147.0 hours since it was installed.

EUFIREPUMP: A 139 kW (187 HP) existing diesel-fired emergency fire pump used to power the emergency fire water pump. The diesel engine is uncontrolled.

According to Mr. Bosma, EUFIREPUMP is operated about 30 minutes per month to test the engine. The facility inspects the EUFIREPUMP on a monthly basis in accordance with manufacturer's recommendations.

At the time of the inspection EUFIREPUMP was equipped with a non-resettable hour meter and had operated for a total of 606.7 hours since it was installed.

FGBOILERS: This Flexible Group consists of EUBOILER01 and EUBOILER02 and their associated dry scrubbing system and baghouses used for control. Each boiler is a spreader-stoker firing configuration. The primary fuel is coal with the following supplemental fuels: wood, TDF, and natural gas. The nominal heat input rating of each boiler is 384 MMBTU/hr including two low nitrogen oxide (NOx) natural gas-fired burners per boiler, with each burner rated at 100 MMBTU/hr. Additionally, each boiler has low NOx natural gas-fired burners.

Compliance with the SO₂, NO_x, and CO, emissions from the FGBOILERS are demonstrated by CEMS. Emissions for PM and Total non-methane hydrocarbons (NMHC) are demonstrated by stack testing. Records of the emission limits are kept electronically and calculated through the source Data Acquisition System (DAS). These emissions are addresses in the Records Review previously completed for the facility.

Opacity from the FGBOILERS is limited to 10% and is continuously recorded using a continuous opacity monitor system (COMS). Based on the records during the inspection, opacity was 2.47% for EUBOILER01 and 1.26% for EUBOILER02, well below the 10% emission limits.

SO₂ emissions from each boiler are limited to 0.5 lb/MMBtu heat input (based upon a 30-day average) and 0.7 lb/MMBtu heat input (based upon a 24-hour daily average). The facility implements CEMS to demonstrate compliance with the numerous emission limits. At the time of the inspection, the CEMS indicated SO₂ was at 6.2 ppm, 0.018 lb/MMBtu, and 6.3 lb/hr in EUBOILER01. The CEMS indicated SO₂ was at 7.1 ppm, 0.024 lb/MMBtu, and 7.6 lb/hr for EUBOILER02. Additional SO₂ records are discussed more in depth in the Records Review previously completed for the facility.

NO_x emissions from each boiler are limited to 0.60 lb/MMBtu heat input, based upon a 30-day rolling average. NO_x emissions are also limited to 2,018 tons per 12-month rolling time period from both boilers combined. Similar to SO₂, the NO_x emissions are monitored and recorded via CEMS to demonstrate compliance with the emission limits. Records reviewed at the time of the inspection indicated NO_x emissions from EUBOILER01 were 0.491 lb/MMBtu and EUBOILER02 were 0.472 lb/MMBtu. Additional NO_x records are discussed more in depth in the Records Review previously completed for the facility.

Carbon monoxide (CO) emissions from each boiler is limited to 0.3 lb/MMBtu heat input, based upon a 24-hour rolling average and 115.2 pounds per hour based upon a 24-hour rolling average. Total CO emission limits from the boilers are limited to 1,009.2 tons per 12-month rolling time period. As with SO₂ and NO_x, CO emissions are also monitored and recorded by the CEMS. Records of CO emissions from EUBOILER01 reviewed during the inspection were 0.026 lb/MMBtu and 9.2 pounds per hour. CO emissions from EUBOILER02 reviewed during the inspection were 0.029 lb/MMBtu and 9.3 pounds per hour.

At the time of the inspection, charge rate of wood to the EUBOILER01 was 4,899 lb/hr and EUBOILER02 was 4,790 lb/hr based on the CEMS information. The facility cannot exceed 820,000 pounds (410 tons) per day.

The TDF feed rate is limited to 2 tons per hour, based upon a daily average per boiler. At the time of the inspection, TDF flow rate to EUBOILER01 was 471 lb/hr (0.235 ton/hr) and EUBOILER02 TDF flow rate was 530 lb/hr (0.265 tons/hr).

Construction and demolition material (C/D material) and Petroleum coke were not used at the facility during the inspection.

The facility is also not allowed to operate the boilers unless the baghouses and scrubbers are installed and operating properly. Based on the low opacity readings, it can be assumed that the baghouses are operating properly. Based on the SO₂ reduction efficiency of greater than 90% it appears that the scrubbers are operating properly. As previously stated, during the inspection, EUBOILER01 had

opacity of 2.47% and a SO₂ reduction of 98%, and EUBOILER02 had opacity of 1.26% and a SO₂ reduction of 98%.

Stack/Vent Restrictions for FGBOILERS have not changed from the previous inspection and appear to be accurate.

FGFUELSTORAGE: This Flexible Group consists of the coal and coal/petroleum coke piles (EU_{COALPETCKSTORAGE}), wood piles (EU_{WOODSTORAGE}), construction demolition material piles (EU_{CDMTSTORAGE}), as applicable, and all fuel handling equipment including augers, conveyors, and hopper up to EUBOILER01 and EUBOILER02. The wood handling area contains a baghouse for particulate control.

Particulate matter emissions from the EU_{WOODSTORAGE} area are limited to 0.10 pounds per 1,000 pounds of exhaust gases and the visible emission (VE) limit from EU_{COALPETCKSTORAGE} area is 5% opacity based upon a six-minute average. The methods of compliance for the limits are non-certified VE observations. If any visible emissions are observed, facility personnel record its presence and takes corrective actions. VE checks indicated compliance with the 5% opacity limit.

As mentioned previously, non-certified VE observations from the coal storage pile and the wood handling baghouse are performed at least once per day. The observations are noted in the daily logbook in the control room as well as any corrective actions, if performed. As previously stated, the C/D material storage and petroleum coke is included in the VE requirement but there is currently not any C/D or petroleum coke material on site.

As of the date of this report, AQD has not requested TES to determine compliance with 40 CFR Part 60 Subpart Y opacity standards, since there have not been VEs observed from FGFUELSTORAGE piles.

NAME _____

DATE _____

SUPERVISOR _____