

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

B630728813

FACILITY: City of Battle Creek Wastewater Treatment Plant		SRN / ID: B6307
LOCATION: 2000 River Rd. W, BATTLE CREEK		DISTRICT: Kalamazoo
CITY: BATTLE CREEK		COUNTY: CALHOUN
CONTACT: Richard Beardslee, Superintendent		ACTIVITY DATE: 03/05/2015
STAFF: Rex Lane	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Self Initiated Inspection		
RESOLVED COMPLAINTS:		

On March 5, 2015, Air Quality Division (AQD) staff (Rex Lane) and their supervisor (Mary Douglas) arrived at the City of Battle Creek Wastewater Treatment Plant (BCWWTP) located at 2000 West River Road at 10 am to conduct an unannounced air quality inspection. Prior to entering the office area, staff observed the attached steam plume from the exhaust stack for sewage sludge incinerator (SSI) # 1 and did not see any visible emissions where the plume dissipated. Staff also noted a sewage odor at the time of stack observation that ranged between a "1" (i.e just barely detectable) and "2" (i.e. distinct and definite odor) on AQD's odor scale (0-5).

Staff introduced themselves and Ms. Douglas to Mr. Richard Beardslee, BCWWTP Superintendent and Mr. Marvin Krause, BCWWTP Operations Group Supervisor and stated the purpose of their site visit. Staff provided BCWWTP staff with their inspector credentials and a copy of MDEQ's Environmental Inspections brochure. The last AQD inspection was on 11/4/10 and the facility was determined to be compliant at that time. The facility is permitted under Permit to Install (PTI) No. 83-07 for operation of two SSI's and ash handling equipment and is considered to be a synthetic minor source for carbon monoxide (CO). Federal regulations that apply to the facility include 40 CFR Part 61, Subparts A, C and E and 40 CFR Part 60, Subparts A, E, O and Mmmm. Required PPE is safety boots and gloves. Staff asked several questions prior to the site inspection related to facility operations.

According to plant personnel, the facility was initially constructed circa 1935 and is an activated sludge municipal WWTP. BCWWTP has a design flow capacity of 18 million gallons per day (MGD) and has an average daily flow of 9 MGD. The facility's sludge storage capacity for land application of sludge is 1 MG and 0.2 MG (dedicated 50,000 gallon tank/per centrifuge) for sewage sludge incineration. Sludge is lime stabilized and land applied when agricultural soils are not frozen at target solids content of +/- 10%. Sludge is incinerated during the winter months at target solids content of +/- 20%. SSI Unit # 1 and # 2 each have a rated design rate of approximately 4 tons sludge/hour, however, unit # 2 has not operated for at least the past ten years. On 2/12/15, MDEQ received a letter from BCWWTP informing the agency that they would decommission their SSI's prior to the 3/21/16 compliance date deadline under 40 CFR Part 60, Subpart Mmmm.

Mr. Krause then gave staff a tour of the facility. Information provided below is based on observations and discussions during the inspection and records requested and provided prior to and following the inspection:

PTI Exempt Equipment:

The facility has a total of nine natural gas-fired only boilers each with a heat input capacity less than 2 MMBtu/hour. These boilers are exempt from permitting under Rule 282(b)(i) and are exempt from regulation under 40 CFR Part 63, Subpart JJJJJJ because they are capable of firing natural gas only. Two Raypack boilers were installed in the Administration building in 2014 and are each rated at 1.8 MMBtu/hour. Two boilers are installed in the East Blower building with a 1.53 MMBtu/hour unit installed in 2013 and an older 0.9 MMBtu/hour unit. There are five boilers installed in the sludge incineration building in 1998 that are identical and equipped with non-resettable hour meters. All boilers had recent state boiler certification stickers.

The facility has two cold cleaner units that are exempt from permitting under Rule 281(h). One unit is located in the maintenance area of the Administration building and the second unit is in the sludge incineration building. Both units use reclaimed mineral spirits and the MSDS is attached to this report.

According to the MSDS, the solvent contains less than 0.1% tetrachloroethylene by weight, therefore, the cold cleaners are exempt from the halogenated solvent cleaning NESHAP (40 CFR Part 63, Subpart T). Staff provided BCWWTP personnel with new MDEQ cold cleaner labels to post by each unit.

The facility has two lime storage silos that are each rated at 50 tons capacity. The silos are equipped with bin vent filters and are exempt from permitting under Rule 284(k).

Presently, there are no stationary natural gas or diesel emergency generators installed at the facility per Mr. Krause.

PTI No. 83-07:

EUASH:

Special Condition (SC) 1.1 – No particulate testing has been requested to date.

SC 1.2 – Cyclone, ash handling system bag filter and ash silo bag filter appear to be properly installed.

SC 1.3 – Facility is maintaining weekly visible emission (VE) check records during operation of the ash handling system. Staff reviewed weekly VE records during the inspection for the time period 12/14/14 (incinerator unit # 1 startup) and 3/1/15. Visible emissions were noted on 1/18/15 and 3/1/15 and maintenance staff were promptly notified and it was determined that water feed to the ash loadout drum had been interrupted.

FGINCINERATORS:

SC 2.1a – Compliance with CO emission limit is demonstrated by complying with dry sludge incineration limit under SC 2.2 which is based on AP-42 emission factor; 31 lbs. CO/ton dry sludge incinerated.

SC 2.1b and 2.1c – Incinerator units # 1 and # 2 underwent stack testing in March 2001 and demonstrated compliance with applicable PM emission limits.

SC 2.1d and 2.1e - Incinerator units # 1 and # 2 underwent stack testing in March 2001 and demonstrated compliance with applicable mercury and beryllium emission limits. On 3/12/15, analytical test results for calendar year 2013 and 2014 were faxed to this office. The highest beryllium test results occurred in 2013 at 0.051 grams/day versus an emission limit of 3,200 grams/day. The highest mercury test results occurred in 2014 at 0.086 grams/day versus an emission limit of 10 grams/day.

SC 2.2 – The facility processed 2,826 tons of dry sludge in 2013 with the highest monthly total in March 2013 at 737 tons. The facility processed 3,097 tons of dry sludge in 2014 with the highest monthly total in March 2014 at 753 tons. Twelve-month rolling average records submitted on 3/12/15 range between 138 and 485 tons dry sludge for calendar year 2013 and 2014 versus a material limit of 4,380 tons dry sludge per 12-month rolling average.

SC 2.3 – Facility does not burn sludge in both incinerators simultaneously (i.e. Unit # 2 has not operated for at least the past ten years).

SC 2.4 – Incinerator unit # 1 and associated venturi and impingement scrubbers and afterburner were in operation during the inspection.

SC 2.5 – Facility has installed and operates a device to measure the weight of sludge charged to the incinerators. At the time of the inspection, the sludge feed rate was 4.3 tons/hour.

SC 2.6 – Facility has installed and operates temperature measuring devices in each hearth of the multiple hearth incinerator. Unit # 1 has a total of six hearths. Hearths # 1 and # 2 are drying zones located at the top of the incinerator, hearths # 3 and # 4 are combustion zone hearths and hearths # 5 and # 6 are cooling zone hearths. At the time of the inspection, the temperature (F) in each hearth is as follows: # 1 – 928; # 2 – 1482; # 3 – 1577; # 4 – 1425; # 5 – 504; # 6 – 126. The afterburner temperature was 936 degrees F.

SC 2.7 – Facility has installed and continuously operates and records the oxygen content of the operating incinerator exhaust gas. At the time of the inspection, the exit O₂ was 9.4% which is above the 9.35% value established during the March 2001 performance test.

SC 2.8 – Facility has installed and operates a fuel flow measuring device for each incinerator. At the time of the inspection, the natural gas flow rate was 2.786 MCF/hour.

SC 2.9 – Facility has installed and continuously operates and records the pressure drop of the exhaust flow through the wet scrubbing device. At the time of the inspection, the pressure drop was 24.96" of water which is above the 17.4" of water value established during the March 2001 performance test.

Attached is a daily incineration log for 3/4/15 that the operator logs on an hourly basis, the following parameters: sludge feed rate, gas fuel feed rate, pre-cooler water feed rate, tray scrubber water feed rate, seal water feed rate, venturi scrubber pressure drop and exit gas oxygen content.

SC 2.10 – Facility provides access to the sludge being charged to the incinerator for sampling purposes.

SC 2.11 – Testing required only if a concentration of 8.33 mg beryllium/kg dry sludge or greater is detected. Test results submitted by BCWWTP for 2013 and 2014 have been less than or equal to 1.0 mg/kg beryllium in the centrifuge cake.

SC 2.12 – The facility appears to be monitoring emissions and operating in compliance with 40 CFR Part 60, Subparts A and O, except as noted under SC 2.18.

SC 2.13 – The facility appears to be monitoring emissions and operating in compliance with 40 CFR Part 61, Subparts A, C and E.

SC 2.14 – Once per calendar year, the facility is required to determine the concentration of mercury in the sewage sludge using Method 105 or equivalent. Mercury test results were not available during the inspection and were provided to staff on 3/12/15. Test results submitted by BCWWTP for 2013 and 2014 have been less than 1.0 mg/kg mercury in the centrifuge cake.

SC 2.15 – Once every two months, the facility is required to determine the concentration of beryllium in the sewage sludge using one the approved Methods under 40 CFR Part 61, Subpart E. Beryllium test results were not available during the inspection and were provided to staff on 3/12/15.

SC 2.16 – The facility is required to record the results of a daily 6-minute visible emission check during daylight hours when one of the incinerators is burning sludge. Staff reviewed the daily log records for 2/9/15 through 3/5/15. No visible emissions were noted on the log during the observation period and noted time period.

SC 2.17 – The facility is required to maintain records of tons of dry sludge incinerated on a daily, monthly and 12-month rolling time period. Staff requested sludge feed records for the 2013/2014 and 2014/2015 operating seasons. These records were not available during the inspection and were provided to staff on 3/12/15. The facility's daily discharge monitoring report (DMR) is used to track tons of dry sludge incinerated on a daily basis.

SC 2.18 – The facility is required to submit excess emissions and monitoring systems performance report and/or summary report on a semi-annual basis to comply with 40 CFR 60.7. Under 40 CFR 60.7(c) the reports must be postmarked by 30th day following the end of each six month period. The report for the time period 7/1/2014 through 12/31/2014 is overdue. Not compliant.

SC 2.19 – The facility maintains records of incinerator exhaust gas oxygen content and scrubber pressure drop on the daily operator log.

SC 2.20a and 2.20b – Stack restrictions appear to be met

FGFACILITY:

SC 3.1a – According to Mr. Beardlee, the biosolids storage tank is kept under negative pressure during sludge storage and the tank gases are routed to the operating wet scrubber.

SC 3.1b – Facility appears to be operating the wet scrubbers in accordance with the preventative maintenance and malfunction abatement plan in Appendix 3.

At the time of the inspection and based on the review of records submitted following the inspection, the

facility is not in compliance with SC 2.18 of PTI No. 83-07. A violation notice will be sent to the facility for failure to submit a semi-annual excess emissions and monitoring systems performance report and/or summary report for the time period 7/1/14 – 12/31/14. -RIL

NAME RIL

DATE 3/16/15

SUPERVISOR YNO 3/16/2015