

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

N116032495

FACILITY: Viking Energy of McBain		SRN / ID: N1160
LOCATION: 6751 W. Gerwoude Dr., MCBAIN		DISTRICT: Cadillac
CITY: MCBAIN		COUNTY: MISSAUKEE
CONTACT: Thomas Vine, Plant Manager		ACTIVITY DATE: 12/10/2015
STAFF: Bill Rogers	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted inspection		
RESOLVED COMPLAINTS:		

On December 10, 2015, I inspected Viking Energy of McBain. I met with Tom Vine, the plant manager. Dean Taylor, Operations Manager, showed me around the plant.

I didn't find any violations during my inspection.

Source Description:

Viking Energy is a wood fired electricity generating plant. Its permit allows it to burn wood, tire derived fuel (TDF), particleboard and plywood, construction and demolition wood, and creosote treated wood. The facility includes one traveling grate boiler powering a 17 megawatt electric generator; material storage piles for the various fuels, all of which are delivered by truck; and a diesel powered electric generator for emergency use.

The facility is a major source under Title V, and therefore operates under a Title V Renewable Operating Permit. It is considered a minor source for hazardous air pollutants. It is considered a synthetic minor under Prevention of Significant Deterioration regulations, 40 CFR 52.21 (PSD), because it has accepted legally enforceable limits on nitrogen oxides, sulfur dioxide, and carbon monoxide to below PSD levels.

EUBOILER at the facility is subject to New Source Performance Standards for boilers, 40 CFR 60 Subparts A and Db. It is subject to Maximum Achievable Control Technology Standards for Industrial, Commercial and Institutional Boilers and Process Heaters, Area Sources, 40 CFR 63 Subparts A and JJJJJ. It is subject to federal Compliance Assurance Monitoring under 40 CFR 64.

EUGENERATOR, the diesel emergency generator, is subject to Maximum Achievable Control Technology Standards for Reciprocating Internal Combustion Engines, Area Sources, 40 CFR 63 Subparts A and ZZZZ.

Source-Wide Conditions:

The facility's Renewable Operating Permit (ROP) Source-Wide Conditions table requires a program for fugitive emissions control for the facility. During my inspection, fugitive emissions appeared to be well controlled. Mr. Taylor told me they check the facility once per shift to find sources of fugitive dust. They have parking lots washed once a month March through September. The most recent check for fugitive emissions listed in their plant records was the day before my inspection.

Although not strictly speaking part of the facility fugitive emissions program, I asked plant personnel about a truck I had seen trailing considerable black dust on the highway near the plant. Plant personnel told me this might have been collected material from their electrostatic precipitators. Mr. Taylor said they would load trucks with fly ash first and then put bottom ash on top; the bottom ash is wetter and more coarse in particle size, so this should reduce ash blowing out of trucks.

EURMHANDLING, Raw Material Handling

Condition I.1 sets a 5% opacity limit on material handling equipment such as the stacker, hogger, and conveyors. Mr. Taylor took me on a walk around outside the plant. I didn't see any dust from the piles or material handling operations. This complies with the permit conditions.

Condition VI.1 requires observing each emission point in the raw material handling group daily. According to records Mr. Taylor showed me they are checking the wood system, ash system, and wood yard daily as required by permit. The most recent check had been the day before my inspection.

EUBOILER, 230 mmBTU/hr spreader stoker boiler.

The electrostatic precipitator was operating at the time of my inspection. It has three stages in series.

Field 1, 250 volts AC, 25 amps primary; 150 mA, 38 kV secondary, 93 sparks/min

Field 2, 250 volts AC, 35 amps primary; 200 mA, 40 kV secondary, 60 sparks/min

Field 3, 200 volts AC, 15 amps primary; 50 mA, 38 kV secondary, 0 sparks/min

When I looked at the control panel, plant power output was 17.5 MW. Opacity 4.7%, CO 73.8 ppm, NOx 137.5 ppm, O₂ 5.6%, SO₂ 119.1 ppm, stack temperature 350 degrees f.

Table EUBOILER, Condition I.3, limits particulate matter less than 10 microns (PM10) to 98.9 tons per year. The facility emission report for 2014, the most recent full year available, reports PM10 emissions of 45 tons. This complies with the permit condition.

Condition I.4 limits Sulfur Dioxide (SO₂) to 0.25 pounds per million BTU heat input. According to monitor readings at the time of my inspection SO₂ was 0.205 pounds per million BTU. This complies with the permit limit.

Condition I.6 limits Sulfur Dioxide (SO₂) to 247.2 tons per year. The 2014 emissions reported were 198 tons. This complies with the permit condition.

Condition I.7 limits Nitrogen Oxides (NO_x) to 0.25 pounds per million BTU heat input. According to monitor readings at the time of my inspection NO_x was 0.211 pounds per million BTU. This complies with the permit limit.

Condition I.9 limits Nitrogen Oxides (NO_x) emissions to 247.2 tons per year. The 2014 emissions reported were 156 tons. This complies with the permit condition.

Condition I.10 limits Carbon Monoxide (CO) emissions to 0.25 pounds per million BTU heat input. According to monitor readings at the time of my inspection CO was 0.067 pounds per million BTU. This complies with the permit limit.

Condition I.12 limits Carbon Monoxide (CO) emissions to 247.2 tons per year. The 2014 emissions reported were 130 tons. This complies with the permit condition.

Condition I.15 limits Volatile Organic Compound (VOC) emissions to 19.1 tons per year. The 2014 emissions reported were 2 tons. This complies with the permit condition.

Condition I.18 limits lead emissions to 0.5 tons per year. The 2014 emissions reported were 37 pounds, or about 0.018 tons. This complies with the permit condition.

Condition II.1 limits natural gas to 490,200,000 cubic feet per 12 month rolling time period. Condition VI.10 requires recording monthly natural gas usage and calculating 12 month rolling time period gas usage. The company was recording this information as required. Until the date of my inspection in December the company had burned 1,561,000 cubic feet and in the most recent 12 month rolling time period they had burned 3,517,000 cubic feet. This complies with the permit conditions.

Condition II.2 limits construction and demolition wood to 96,336 tons per 12 month rolling period; Condition VI.11 requires recording 12 month total use. Mr. Taylor told me the facility had not burned any construction and demolition wood in the past 12 months. Records are kept. This complies with the permit conditions.

Condition II.4 limits creosote treated wood to 189,300 tons per 12 month rolling period; Condition VI.11 requires recording 12 month total use. 12 month total use for creosote treated wood was recorded as 28,753 tons. This complies with the permit conditions.

Condition II.6 limits particle board and plywood to 35,604 tons per 12 month rolling period; Condition

VI.11 requires recording 12 month total use. Mr. Taylor told me the facility had not burned any of these materials in the past 12 months. Records are kept. This complies with the permit conditions.

Condition II.8 limits TDF to 16,060 tons per 12 month rolling period; Condition VI.11 requires recording 12 month total use. TDF in the past 12 months was a total of 8481 tons. This complies with the permit conditions.

There are daily limits for these various materials. TDF and creosote treated wood are being burned regularly. Condition II.5 limits creosote treated wood to 528 tons per day. Condition II.9 limits TDF to 44 tons per day. Condition VI.12 requires recording how much of each of these various fuels are recorded per day. During the day before my inspection, the facility burned 69.84 tons of creosote treated wood, 32 tons of TDF, and none of the other various fuels listed. This complies with the permit conditions.

Condition III.2 requires that cyclones and electrostatic precipitator be installed and operating properly. These devices were installed and operating. Based on opacity readings, it appeared they were operating properly, in compliance with the permit condition.

Condition VI.13 requires recording the amount of wood burned per day. During the day before my inspection the facility burned 409.22 tons of wood. This information is being recorded. This complies with the permit condition.

Condition VI.15 requires a log of hours of operation. This is being kept. Hours online and offline are being recorded. The facility had operated 216 hours in December up until the day of my inspection. This complies with the permit condition.

Condition VI.17 requires recording opacity. Opacity is being recorded. Some example opacity values are attached. Opacity was running 3 to 5 percent, approximately, during my inspection, according to the opacity monitor. I could not see any opacity in the exhaust when I observed the stack from offsite. The data recording complies with the permit condition, and the opacity recorded and observed complies with the 20% opacity limit under Rule 301 of the Michigan Administrative Rules for Air Pollution Control.

Condition VIII.1 requires the main stack have a maximum diameter of 72 inches and a minimum height of 150 feet. I did not check this in detail, but by eye the stack appeared to be about those dimensions.

Condition IX.1 requires a Fuel Procurement and Handling Plan for alternative wood fuels and TDF. Mr. Taylor showed me their copy of this plan. AQD approved this plan on March 28, 2008.

Condition IX.3 requires an Emergency Response Plan for problems which might arise from handling or using alternative wood fuels and TDF. Mr. Taylor showed me their plan. It was most recently revised in 2014.

Ash Handling

Table EUASHHANDLING, Condition I.1, sets a 5% opacity limit on ash handling. I did not observe any opacity from the ash handling during my inspection.

Condition V.1 requires observing EUASHHANDLING for opacity each day. Mr. Taylor showed me that plant personnel record this as part of their general plant opacity and dust checks.

Emergency Generator

Table EUGENERATOR, Condition I.1, sets a sulfur dioxide emission limit "equivalent to using oil with a 0.5% sulfur content and a heat value of 18,000 BTU per pound." Mr. Vine showed me receipts for the plant's most recent diesel fuel purchase. The facility is using off-road low sulfur diesel fuel, rated as 18,489 BTU per pound, with a sulfur concentration of 15 ppm. As 0.5% sulfur is 5000 ppm, fuel oil with 15 ppm is lower and therefore complies with the permit condition.

Condition IV.1 requires a non-resettable hour meter. The generator has such a meter, which complies with the permit condition. At the time of my inspection it indicated the generator had run for a total of 305 hours.

Cold Cleaner

Table FGCOLDCLEANERS sets conditions for the cold cleaner on site. The facility has one cold cleaner which I recognized as the mineral spirits-based type common in repair shops.

Condition II.1 prohibits cleaning solvents with more than 5% of various halogenated compounds. This type of cold cleaner uses solvents which are not halogenated. This complies with the permit condition.

Condition IV.1 requires an air/vapor interface of no more than 10 square feet, and that emissions are released only into the general in-plant environment. The cold cleaner is in the maintenance shop and only releases to the inside of the shop. It is small, perhaps a foot and a half by two feet or a bit more. This complies with the permit condition.

Condition IV.3 requires a cover kept closed when the cold cleaner is not in use. The cold cleaner was not in use; it had not been for some time, according to Mr. Taylor. It had miscellaneous items stored by being stacked on top of it. The cover was closed. This complies with the permit condition.

Comments:

Plant maintenance appeared to be good.

A plant employee told me Viking might replace the CO monitor with a unit using newer technology. This could happen as soon as next year.

NAME William J Rogers L DATE 12/18/2015 SUPERVISOR 