

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

N116038835

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| FACILITY: Viking Energy of McBain | | SRN / ID: N1160 |
| LOCATION: 6751 W. Gerwoude Dr., MCBAIN | | DISTRICT: Gaylord |
| CITY: MCBAIN | | COUNTY: MISSAUKEE |
| CONTACT: Dean Taylor , Operations Manager | | ACTIVITY DATE: 02/28/2017 |
| STAFF: Bill Rogers | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MAJOR |
| SUBJECT: Scheduled inspection for FCE | | |
| RESOLVED COMPLAINTS: | | |

On February 28, 2017, I inspected Viking Energy of McBain. 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 JJJJJJ. 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. He showed me the computer records where they record this. The most recent check for fugitive emissions listed in their plant records was the day before my inspection.

EURMHANDLING, Raw Material Handling

Condition I.1 sets a 5% opacity limit on material handling equipment such as the stacker, hogger, and conveyors. Before going into the plant, I observed it from outside for about 15 minutes, including the fuel piles. There was no dust. 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, 53 sparks/min, 34 kV

Field 2, 65 sparks/min, 31 kV

Field 3, 18 sparks/min, 33 kV

The CEMs and COM were operating at the time of my inspection. Opacity was 6.4%. CO was 0.093 pounds/million BTU, NOx 0.24 pounds/million BTU, SOx 0.225 pounds/million BTU.

Table EUBOILER, Condition I.3, limits particulate matter less than 10 microns (PM10) to 98.9 tons per year. The facility emission report for 2016, reports PM10 as 10.55 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 0.225 pounds per million BTU. This complies with the permit limit.

Condition I.6 limits Sulfur Dioxide (SO₂) to 247.2 tons per year. The 2016 emissions reported were 225 tons. This complies with the permit condition.

Condition I.7 limits Nitrogen Oxides (NOx) to 0.25 pounds per million BTU heat input. According to monitor readings at the time of my inspection NOx was 0.240 pounds per million BTU. This complies with the permit limit.

Condition I.9 limits Nitrogen Oxides (NOx) emissions to 247.2 tons per year. The 2016 emissions reported were 225 tons. This complies with the permit condition.

Note: Although the SO₂ and NOx both amounted to 225 tons, the actual numbers the company reported are in pounds, and differ. The company reported 450,549 pounds NOx and 449,479 pounds SO₂. Had the numbers been exactly the same I would have suspected a data problem, but this is not the case.

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 0.093 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 2016 emissions reported were 85 tons. This complies with the permit condition.

Condition I.15 limits Volatile Organic Compound (VOC) emissions to 19.1 tons per year. The 2016 emissions reported were 1 ton. This complies with the permit condition.

Condition I.18 limits lead emissions to 0.5 tons per year. The 2016 emissions reported were 36 pounds, or about 0.018 tons. This complies with the permit condition.

Note: Lead emissions are based on emission factors measured in a recent stack test. Therefore the results are more likely to represent actual emissions here than they would using some EPA general emission factor.

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. According to their 2016 report they used 3,962,000 cubic feet of natural gas in the year. 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. There wasn't any demolition wood on site, apparently the company is not burning any at present. Mr. Taylor showed me the fuel use records; they are being kept as required. 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. Records are being kept as required. 2016 total creosote treated wood was recorded as 34,175 tons. 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 used in 2016 was 11,989 tons. Records are being kept. 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. Mr. Taylor showed me During the day before my inspection the facility burned 335.57 tons of wood. This information is being recorded. This complies with the permit condition.

Condition VI.15 requires a log of hours of operation. Mr. Taylor showed me the records. Hours online and offline are being recorded. This complies with the permit condition.

Condition VI.17 requires recording opacity. Opacity is being recorded. Opacity was 6.4% when I checked the control panel. I could not see any opacity from the stack while I was outside the plant, but skies were overcast and there was light fog or mist, so reading opacity by eye wouldn't be reliable. 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." An example fuel specification sheet is attached. It lists the fuel as ultra low sulfur, 15 ppm sulfur content maximum. This is lower than the sulfur content required in the permit, 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 306 hours. During my inspection last year I recorded this as 305 hours, so the engine has run one hour in the past year.

Cold Cleaner

Table FGCOLDCLEANERS sets conditions for the cold cleaner on site. I didn't search out cold cleaners, but Mr. Taylor showed me that the records required are being kept, in compliance with the permit conditions.

Comments:

The CO monitor was replaced during the past year. The new one seems to be operating well.

Opacity from the stack appeared to be low. However, since it was an overcast day with fog or mist, there was bad contrast for reading opacity. The best I can say is that I didn't see anything to make me doubt the accuracy of the COM system.

Maintenance appears to be good.

NAME William J Rogers, Jr

DATE 3/8/17

SUPERVISOR SN