

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

ACTIVITY REPORT: Scheduled Inspection

N139548159

FACILITY: Cadillac Renewable Energy Facility		SRN / ID: N1395
LOCATION: 1525 Miltner St., CADILLAC		DISTRICT: Gaylord
CITY: CADILLAC		COUNTY: WEXFORD
CONTACT: Jeff Strong , Operations Manager		ACTIVITY DATE: 03/20/2019
STAFF: Rob Dickman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection of this major source.		
RESOLVED COMPLAINTS:		

Cadillac Renewable Energy LLC is a wood-fired electric utility plant located within the Cadillac city limits. The facility receives chipped wood by truck and uses it to fuel a single spreader-stoker boiler to produce steam. The steam is used by the associated generator to produce up to 41 megawatts of electricity at full capacity. Natural gas is used as a startup fuel for the boiler. The facility is equipped with Selective Non-Catalytic Reduction (SNCR) for NOx control and a Multi-clone and Electrostatic Precipitator (ESP) for particulate control. The fly ash and bottom ash are collected, treated with water, and transported to a landfill or recycled for agricultural uses.

AQD staff visited the Cadillac Renewable Energy LLC facility to perform an inspection. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) No. MI-ROP-N1395-2014a. Jeff Strong, Plant Manager; Ryan Putvin, Operations Manager; and Scott Clark, Maintenance Manager accompanied me during the inspection. Following are the findings of this inspection:

SOURCEWIDE CONDITIONS

Emission Limits

There are no source wide emissions limits; therefore, this section is not applicable.

Material Limits

There are no source wide material limits; therefore, this section is not applicable.

Process or Operational Restrictions

The facility is required to have and implement a Fugitive Emissions Plan (FEP) for the plant yard, material storage piles and all material handling operations. This plan was last updated in February of 2018 and was included as part of the ROP renewal application. There is no record of this, or previous versions of this plan being approved. This plan will be reviewed and approved as part of the ROP renewal process. Housekeeping at the facility appeared good considering this is early spring.

Design or Equipment Parameters

There are no source wide design or equipment parameters; therefore, this section is not applicable.

Testing and Sampling Requirements

There are no source wide testing or sampling requirements; therefore, this section is not applicable.

Monitoring and/or Recordkeeping Requirements

There are records that are required to be kept per the FEP including washing and sweeping of, and dust suppressant application to plant roads, storage piles, and material handling operations. Typically, the facility does treat the fuel storage pile which consists mostly of wood chips and there are little to no fugitive emissions associated with it. They also do not treat the ash pile as the ash is wetted upon collection and stored in an enclosed building. Plant roads at the time of the inspection were in good repair. A review of associated records indicates this facility maintains the roads as needed.

Reporting

Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions

There are no source wide stack or vent restrictions; therefore, this section is not applicable.

Other Requirements

There are no source wide other requirements; therefore, this section is not applicable.

EUW-HDLG – The wood storage and handling emission unit consists of covered conveyors and other equipment which transport and feed wood to the boiler for combustion and subsequent electricity generation.

Emission Limits

Fugitive emissions from the wood fuel storage and handling are not to exceed 5% opacity. Compliance with this is through non-Method 9 certified emission observations that are to be performed at least once daily. Records of these observations are kept electronically and were reviewed. Readings are taken at least four times daily and recorded. The last 12 months of these records appeared readily available for review. Two dates, October 18, 2018 and December 23, 2018 were selected at random to review in detail. The required records on those days were being kept and appeared complete. No records were noted where the opacity was greater than 5%.

Material Limits

There are no material limits associated with this equipment; therefore, this section is not applicable.

Process or Operational Restrictions

There are no process or operational restrictions associated with this equipment; therefore, this section is not applicable.

Design or Equipment Parameters

There are no design or equipment parameters associated with this equipment; therefore, this section is not applicable.

Testing and Sampling Requirements

There are no testing or sampling requirements associated with this equipment; therefore, this section is not applicable.

Monitoring and/or Recordkeeping Requirements

Records of required daily observations are to be kept along with any repairs or remedial action as a result of them. These records are kept electronically and were reviewed. Readings are taken at least four times daily and recorded. The last 12 months of these records appeared readily available for review. Two dates, October 18, 2018 and December 23, 2018 were selected at random to review in detail. The required records on those days were being kept and appeared complete. No records were noted where the opacity was greater than 5%. Accordingly, no corresponding records of repairs or remedial action concerning this equipment were noted.

Reporting

Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions

There are no stack or vent restrictions associated with this equipment; therefore, this section is not applicable.

Other Requirements

There are no other requirements associated with this equipment; therefore, this section is not applicable.

EUBLR – The electric generation emission unit consists of the wood boiler, a selective non-catalytic reduction (SNCR) system, a multiclone dust collector, and an electrostatic precipitator (ESP). Natural gas is used as a startup fuel and for flame stabilization. The boiler has a spreader-stoker design.

Emission Limits

Particulate matter emissions are limited to 15.7 pounds per hour (pph) and 0.03 pounds per million BTU heat input (#/MMBtu). Stack testing is the method used to demonstrate compliance with these emission limits. Stack testing performed in 2017 indicated the particulate emissions from the emission unit were 2.8 pph and 0.0054 #/MMBtu.

Opacity from the stack is limited to 10%. Compliance with this limit is through operation of a Continuous Opacity Monitoring System (COMS). Records of excess opacity or monitoring system downtime are compiled and reported quarterly. These reports were previously reviewed, documented, and demonstrated compliance. An instant reading taken on site during the inspection indicated opacity at 2.8%.

Benzo-a-pyrene (BAP) emissions are limited to 0.0054 pph and 10 micrograms per cubic meter corrected to standard conditions. Stack testing is the method used to demonstrate compliance with these emission limits. Stack testing performed in 2017 indicated BAP emissions from the emission unit stack were 1.63E-6 pph and 0.0046 micrograms per cubic meter corrected to standard conditions.

Nitrogen oxides (NOx) emissions are limited to 78.5 pph and 0.15 #/MMBtu. Compliance with this limit is through operation of a Continuous Emissions Rate Monitoring System (CERMS). Records of excess emissions or monitoring system downtime are compiled and reported quarterly. These reports were previously reviewed, documented, and demonstrated compliance. An instant reading taken on site during the inspection indicated NOx emissions at 41.0 pph.

Carbon Monoxide (CO) emissions are limited to 209.2 pph and 0.40 #/MMBtu. Compliance with this limit is through operation of a Continuous Emissions Rate Monitoring System (CERMS). Records of excess emissions or monitoring system downtime are compiled and reported quarterly. These reports were previously reviewed, documented, and demonstrated compliance. An instant reading taken on site during the inspection indicated CO emissions at 35 pph.

Volatile Organic Compound (VOC) emissions are limited to 22.5 pph and 0.043 #/MMBtu. Stack testing is the method used to demonstrate compliance with these emission limits. Stack testing performed in 2017 indicated VOC emissions from the emission unit stack were 0.5 pph and 0.00097 micrograms per cubic meter corrected to standard conditions.

Material Limits

Natural gas usage at startup of the unit is limited to 107,000 standard cubic feet per hour (scf/hr) and 464 million cubic feet per year. Compliance with these limitations is demonstrated through daily recording of natural gas usage. A review of records demonstrated the total natural gas usage in 2018 was 42,303 standard cubic feet and a maximum usage rate of 1204 scf/hour.

Additionally, no chemically treated wood is to be used for fuel. At the time of the inspection, only clean wood and wood waste was noted on site.

Process/Operational Restrictions

Control equipment for the boiler (multiclone, electrostatic precipitator (ESP), and selective non-catalytic reduction (SNCR) system) are required to be installed and operating when the boiler is operating. This equipment is configured to not be able to operate when the boiler is down. All control equipment was in operation at the time of the inspection as was the boiler. Compliant COMS and CERMS data reviewed on site indicated compliant operation of this control equipment.

The facility is required to have a malfunction abatement plan (MAP) for the above listed control equipment. This plan is in on file and the newest version of it was submitted with the facility ROP renewal application. It will be evaluated as part of the renewal process.

The COMS and CERMS are to be installed, calibrated, and maintained in accordance with 40 CFR Part 60 requirements. These systems have been in place for several years and are configured per these requirements. The daily, quarterly, and annual QA/QC requirements for them have been performed, reviewed, and documented.

Testing and Sampling Requirements

Stack testing for the compounds below is required at least once every five years. Following is a description of the limits for each pollutant and the most recent testing results:

As stated under the Emissions Limits heading of this section, Particulate matter, Benzo-a-pyrene (BAP), and Volatile Organic Compound (VOC) emissions were tested in 2017 and indicated compliance.

The COMS is required to be audited annually. However, the facility has taken a proactive approach and has adopted 40 CFR 60, Appendix F, Procedure 3. Under this procedure, the COMS is audited quarterly. A review of 4th quarter 2018 audit results indicated compliance.

The COMS and CERMS are to be installed, calibrated, and maintained in accordance with 40 CFR Part 60 requirements. These systems have been in place for several years and are configured per these requirements. The daily, quarterly, and annual QA/QC requirements for them have been performed, reviewed, and documented.

Monitoring and/or Recordkeeping Requirements

The COMS at the facility is used assure compliance with particulate emission limits. The opacity limit from the boiler is 10% based on a six-minute average and an excursion for particulate is defined as two consecutive one-hour block averages of 7%. The facility monitors and records opacity continuously. Exceedances and excursions are compiled and reported at least quarterly including times of COMS downtime.

CERMS and COMS data is required to be recorded and compiled in units of the applicable emission units for each monitored pollutant. The data acquisition system (DAS) for these systems has been configured to calculate emissions in the required units.

The facility is required to record occurrences of start-up, shut down, and malfunction. These records are being kept as part of a hand-written maintenance log and also electronically as part of a maintenance log. This log was reviewed and appeared complete

The facility is also required to keep records of the amount of natural gas and wood used for fuel in units of the applicable standard. The facility monitors natural gas usage daily, as applicable and monitors wood fuel continuously as part of the process parameters. Records of this are being kept, were readily available for review, and appeared complete.

Reporting

Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Also, required reporting relating to stack testing, COMS and CERMS quality assurance testing, and Compliance Assurance Monitoring (CAM) has all been completed in a timely manner, has previously been reviewed, and the reviews have been documented.

Stack/Vent Restrictions

The stack on the outlet of the ESP is to have a maximum diameter of 108 inches and a minimum height of 188 feet. The stack has not been altered since construction of the facility and appears compliant with these parameters.

Other Requirements

This emission unit is required to have a malfunction abatement plan (MAP) for the above listed control equipment. This plan is in on file and the newest version of it was submitted with the facility ROP renewal application. It will be evaluated as part of the renewal process.

If the CAM plan is found to be inadequate, the facility is to submit an amended version for review. No amendments to the CAM plan have been received and none of the CAM reporting from the facility would indicate the plan is inadequate. Additionally, the facility is required to comply with all provisions of CAM (40 CFR 64). By complying with the conditions listed in this section of the ROP, the facility has been in compliance with CAM.

The facility is required to comply with certain provisions of 40 CFR 97 (Cross-State Air Pollution Rule (CASPR)). Specifically, Subparts AAAAA, BBBBB, and CCCCC of Part 97. The facility complies with AAAAA and BBBBB through the continuous monitoring of NO_x and with CCCCC through the limited use of natural gas at startup.

Finally, the facility is to comply with the applicable requirements of 40 CFR 63 Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. The AQD is not delegated the regulatory authority for this area source MACT; therefore, the special conditions for the Boiler Area Source MACT contained were not reviewed by the AQD.

EUA-HDLG – The ash storage and handling emission unit consists of screw feeders and other equipment which collect and dispose of the ash generated in the electricity generation process. This process is controlled by an ash wetting system.

Emission Limits

Fugitive emissions from this equipment is not to exceed 5% opacity. Compliance with this is through non-Method 9 certified emission observations that are to be performed at least once daily. Records of these observations are to be kept. These records are kept electronically and were reviewed. Non-certified visible emission readings are taken at least six times daily and recorded. The last 12 months of these records appeared readily available for review. Three dates, July 18, 2018, November 20, 2018 and March 6, 2019 were selected at random to review in detail. The required records on those days were being kept and appeared complete. No records were noted where the opacity was greater than 5%.

There are no material limits associated with this equipment; therefore, this section is not applicable.

Process or Operational Restrictions

The ash handling system is not to be operated unless the wetting system is operating. At the time of the inspection, this system was in operation.

Design or Equipment Parameters

There are no design or equipment parameters associated with this equipment; therefore, this section is not applicable.

Testing and Sampling Requirements

There are no testing or sampling requirements associated with this equipment; therefore, this section is not applicable.

Monitoring and/or Recordkeeping Requirements

Fugitive emissions from this equipment is not to exceed 5% opacity. Compliance with this is through non-Method 9 certified emission observations that are to be performed at least once daily. Records of these observations are to be kept. These records are kept electronically and were reviewed. Non-certified visible emission readings are taken at least six times daily and recorded. The last 12 months of these records appeared readily available for review. Three dates, July 18, 2018, November 20, 2018 and March 6, 2019 were selected at random to review in detail. The required records on those days were being kept and appeared complete. No records were noted where the opacity was greater than 5%.

Reporting

Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions

There are no stack or vent restrictions associated with this equipment; therefore, this section is not applicable.

Other Requirements

There are no other requirements associated with this equipment; therefore, this section is not applicable.

EUMACTJJJJJ

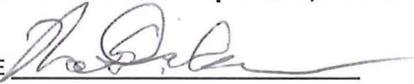
EUBLR at the stationary source is subject to the National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers promulgated in 40 CFR, Part 63, Subparts A and JJJJJJ (Boiler Area Source MACT). The ROP contains special conditions provided by Cadillac Renewable Energy for applicable requirements from 40 CFR, Part 63, Subparts A and JJJJJJ. The AQD is not delegated the regulatory authority for this area source MACT; therefore, the special conditions for the Boiler Area Source MACT contained in EUMACTJJJJJ were not reviewed by the AQD.

FGMACTZZZZ

These are stationary reciprocating internal combustion engines (RICE) located at area source of HAP emissions. One diesel fired emergency backup fire pump (EUFIREPUMP) rated at 130 hp (97 kw) and one diesel fired emergency generator (EUEMERGEN) rated at 469 HP (350 kw).

EUFIREPUMP and EUEMERGEN at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ (RICE Area Source MACT). The ROP contains special conditions provided by Cadillac Renewable Energy for applicable requirements from 40 CFR, Part 63, Subparts A and ZZZZ. The AQD is not delegated the regulatory authority for this area source MACT; therefore, the special conditions for the RICE Area Source MACT contained in FGMACTZZZZ were not reviewed by the AQD.

At the time of this inspection, this facility was in compliance with their air permitting.

NAME 

DATE 4/15/19

SUPERVISOR 