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

N676750127

FACILITY: New Covert Generating Company, LLC		**SRN / ID:** N6767
LOCATION: 26000 77th Street, COVERT		**DISTRICT:** Kalamazoo
CITY: COVERT		**COUNTY:** VAN BUREN
CONTACT: Chris Head , Operations Manager		**ACTIVITY DATE:** 07/26/2019
STAFF: Amanda Chapel	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled inspection of the facility		
RESOLVED COMPLAINTS:		

On July 15, 2019 AQD's Amanda Chapel and Rachel Benaway (staff) conducted an unannounced air quality inspection of New Covert Generating (facility) located in Covert, Van Buren County. The purpose of the inspection was to determine compliance with the Renewable operating Permit (ROP) MI-ROP-N6767-2014c and Permit to Install 186-17 and all applicable state and federal air regulations. The following will summarize plant operations and facility compliance status.

The facility currently has an active ROP, MI-ROP-N6767-2014c, as well as an active PTI 186-17. The ROP contains conditions for an emergency generator, emergency fire pump, auxiliary boiler, three (3) 256 MMBtu/hr heat input capacity duct burners, three (3) natural gas fired Mitsubishi model 501G combustion turbines, cold cleaners, and a gas heater. PTI 186-17 also contains conditions for thee (3) natural gas fired Mitsubishi model 501G turbines, three (3) 256 MMBtu/hr heat input capacity duct burners, and three (3) cooling towers.

The facility obtained the PTI 186-17 in April 2019 in order to begin upgrades to their existing turbines. As of the time of the inspection, Unit 2 and Unit 3 had undergone the upgrade process and are therefore now subject to the conditions contained in the PTI. Unit 1 is scheduled to be upgraded in the spring of 2020. Since it has not yet been upgraded, it is still subject to the conditions contained in the ROP. For this reason, Units 2 and 3 were evaluated using the conditions contained in the PTI and Unit 1 was evaluated using conditions in the ROP.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because the potential to emit CO, NO_x, and particulate matter less than 10 microns in diameter (PM-10), exceeds 100 tons per year, and the potential to emit of any single hazardous air pollutant (HAP) regulated by the federal Clean Air Act, Section 112, is equal to or more than 10 tons per year, and the potential to emit of all HAPs combined is more than 25 tons per year. Also, the potential to emit of GHG is 100,000 tons per year or more calculated as CO_{2e}, and 100 tons per year or more on a mass basis.

We arrived on site about 10 am. Based on the steam visible from the turbines, the facility was operating. There did not appear to be any visible emissions beyond the steam which is generated in the process. We were buzzed into the facility, parked, and entered the lobby where we asked if Mr. Chris Head, Operations Manager was in. We were informed that he was on vacation that week but Mr. Jeff Calkins, Sr. Control Room Operator could help us.

Mr. Calkins took us to a conference room where we sat down and I explained that we were there to do an air quality inspection. He said that he could do his best to find the records we were looking for but Mr. Chris Head would have access to everything we needed. I went through the conditions of the permits and asked about design capacity, operating hours, and other relevant information.

The facility only burns natural gas in the turbines and duct burners on site. They submitted the updated Malfunction Abatement Plan to the Department on June 17, 2019. They are limited by auxiliary steam availability and can only start up one unit at a time. Demand has been high recently for electricity and Mr. Calkins said they have been operating almost continuously and all three units were running that day.

The maximum design heat input capacity is listed in PTI 186-17 as 2,829 MMBtu/hr. With the turbine upgrade the max heat input capacity is about 2,600 MMBtu/hr. Before the upgrade it was 2,400 MMBtu/hr. The duct burners shall not exceed 256 MMBtu/hr and there are about 200 MMBtu/hr max. A Continuous Emissions Monitoring (CEMs) system is installed on year of the turbines monitoring NOx, CO, and O2 continuously. This is calibrated daily with annual calibrations for gas usage and RATA testing. The net heat rate for each CT/HRSG train shall not exceed 7,978 Btu/kWh. The facility has been averaging about

7,000 Btu/kWh. Mitsubishi specs say they should be averaging around 6,300-6,400 Btu/kWh. Testing has been done on both Unit 2 and Unit 3 to determine compliance with the PM10, PM2.5, VOC, H2SO4, and NH3 emission rates within 180 days of initial startup.

We did a general records review with Mr. Calkins but it became clear that we would need to return to do a complete records review when Mr. Head was present due to the large volume of records needed. Mr. Calkins then took us around the facility to see the operations.

First, we went out and observed the gas compressor with the EU-GASHEATER located at the southeast corner of the property. It was built and then essentially abandoned. It has not run since 2004 but the piping is still attached. This emission unit is subject to 40 CFR Part 63 Subpart DDDDD and the permit specifies that requirements for this regulation must be met by January 31, 2015. Since this EU has not run since 2004, those requirements have not been met.

We then proceeded into the main building, entering from a south door into the generator end of the gas turbines by Unit 1. We walked through the buildings and out to the north side of the main building by the turbines. The catalyst is delivered through piping. The ammonia fans are connected to the mixing chamber to make the catalyst to aid in more efficient generation.

Rachel, Mr. Calkins, and I climbed to the top of the large boiler which is connected to the tall stack on the turbine. From here, we were able to observe each of the units and well as view the top of the cooling towers. On the way back down, Mr. Calkins opened a side panel where you could view the flames of the duct burner firing. We observed the EU-AUXBOILER which is tracked manually. This is only used for startup and shutdown.

Once we returned to the ground, we walked over to the cooling tower associated with Unit 3. The cooling towers were inadvertently left out of the initial permitting despite being included in the original application. For this reason, they were included as an EU in PTI 186-17 with conditions as similar to the conditions they would have been required to have when the cooling towers were first installed. Samples from the water are taken weekly and analyzed. Records were obtained for this. The water is also treated for algae and has bromine pH control.

As we walked toward the building housing the diesel fire pump, we stopped into the CEMs housing unit for Unit 3. The CEMs was running and tracking the required pollutants. The CEMs is verified yearly. The building housing the EU-EMERGFIRE is located on the west side of the property. Annual maintenance is performed on this emission unit. As of 6/25/18 there was 526.1 hours on the non-resettable hours meter and on 7/15/19 there were 553.4 hours. The emission unit is tested once per week for about 20 minutes. The SOP on the engine itself indicates that annual maintenance includes; crankcase oil change, replace oil and fuel, air filter cleaned, and cooling water strainers cleaned.

The EU-EMERGENG is located south side of the main building. It is a diesel fired emergency generator engine, Caterpillar 3512 model from 2002. The fuel usage is tracked on daily rounds. The hours meter read 619 hours and there were 2,352.2 gallons of fuel left, according to the gauge.

We walked back into the main building, past the air compressors, and Mr. Calkins took us into the containment housing the main compressor for the turbine. We walked through the main building to the in-house lab to talk to the lab manager about the weekly water samples from the cooling tower. According to PTI 186-17, the permittee shall monitor and record the parameters needed to determine total dissolved solids (TDS) content of circulating water weekly and monthly determine the water recirculation rate. The facility sends a water sample to the lab to run TDS data weekly. A sample of the results from Trace Laboratory were obtained during the inspection. The water recirculation rate is based on pump manufacturers data. There are 2 main pumps with a capacity of 60,000 gallons per minute (gpm) and an auxiliary pump with a capacity of 16,500 gpm. When both main pumps are running, the facility assumes a recirculation rate of 115,000 gpm.

Finally, we entered the maintenance are where EU-COLDCLEANER is located. The parts washer is heated, and weekly temperature records were obtained during the inspection. Safety kleen services the cold cleaner. The solvent inside the cold cleaner is Armakleen 4 in 1 cleaner which was heated to 158.5 degrees Fahrenheit. An SDS was obtained for the solvent.

We returned to Mr. Calkins office and I thanked him for taking the time to show us around. Upon leaving

the site, I confirmed with the receptionist when Mr. Head would be back at the facility so we could come and do a complete records review. We left the site about 1:30 pm.

Records Review:

Rachel and I returned to site on July 24, 2019 to obtain the records required by MI-ROP-N6767-2014c and PTI 186-17.

Unit 1 is the only one still subject to the duct burner limits and FG-TURB/DB1-3 limits found in MI-ROP-N6767-2014c. For this reason, the records for Turbine 1 and Duct Burner 1 were evaluated against the limits and requirements in the ROP as well as the other emission units and flexible groups contained in the ROP and records for Turbines 1-2 and Duct Burner 1-2 against limits and requirements in the PTI as well as the limits for the cooling towers.

MI-ROP-N6767-2014c
EU-AUXBOIL
According to records, monthly hours of operation are tracked by the facility. It had not run in July 2019. There are columns for daily fuel use in both MSCF and MMBtu as well as hours fired. 12-month rolling operational hours are also being tracked. In January 2019, the 12-month rolling total of operating hours was 14.25 for the boiler. The boiler is serviced every October and a copy of the service report from is included in the records obtained on site during the review.

Mr. Head emailed the energy assessment done for the AUXBOILER on June 19, 2015. This report was prepared by Armstrong Service, Inc. and it meets the requirements for the energy assessment in the permit.

Records of the calendar date and occurrence and duration of each startup and shutdown are being tracked. The facility needs to add the time of each startup and shutdown to the records in order to fully meet that recordkeeping requirement. Fuel usage is also being tracked during startup and shutdown.

DB1
Duct burner 1 (DB1) has a 12-month rolling 4000-hour operational limit. Records show the 12-month rolling total is 2145.4 hours and had been run 377.8 hours in the month of July.

FG-TURB/DB1
Total startup and shutdown for unit 1 has a limit of 724 hours for a 12-month rolling time period. According to records, Unit 1 had 37 hours of startup and shutdown. 12-month rolling totals for regulated are as follows: 52.2 tpy CO, 61.5 tpy NOx, 4.9 tpy SO2, 6.5 tpy VOC, and 27.4 tpy PM10. The facility is also tracking monthly emissions. In July, Unit 1 emitted the following: 2.3 tons CO, 4 tons NOx, 0.33 tons SO2, 0.7 tons VOC, and 2.1 tons PM10. The facility tracks 24-hour rolling averages for pollutants as well. 24-hour rolling pollutant numbers for July 23 are as follows: 1.7-2.1 NOx ppm, 8.2-14.9 lb/hr CO, 8.4-9.0 lb/hr PM10, and 2.6-3.1 lb/hr VOC. All these limits are well below the allowed 24-hour rolling average limits in the permit.

Formaldehyde is required to be tracked under the ROP. Monthly formaldehyde emissions for April was 454 lbs, May was 391 lbs, and June 173 lbs. The 12-month rolling formaldehyde emissions are 2.8 tons with a permit limit of 8.1 tons per 12-month rolling time period. The facility appears to be in compliance with this limit.

Records were also obtained showing the monthly hours of startup/shutdown as well as a 12-month rolling average of startup and shutdown hours. In June 2019, Unit 1 started up for a total of 8.5 hours and the 12-month rolling total was 40 hours for startup. There were no shutdown hours logged in June and the rolling 12-month shutdown hours were 2.

Visible emission (VE) readings are required on turbine 1. The facility provided the work order showing the readings were performed in the first quarter and second quarter in 2019. The facility is required to track the hourly heat input for Unit 1. The data was provided for the hourly heat input 1-hour rate at the inspection. The highest 1-hour heat input rate on July 23, 2019 was at 8 pm or hour 20 with 2457.3.

FG-EMERGENCY

This includes the emergency diesel generator and the emergency diesel fire pump. Monthly hours are being tracked for both EUs. In March, the generator ran for 4 hours, 3 hours of which was non-maintenance, and the fire pump ran for 3 hours, 1 hour of which was non-maintenance related. All non-maintenance running reasons are documented. Both emergency generators are well below their 500-hour running limit. The sulfur content of the fuel used on site was tested and results show that it is 0.0003 lb/MMBtu.

FG-COLDCLEANER

The permit requires that weekly temperature readings are taken for the cold cleaner and recorded. The highest recorded weekly temperature for the cold cleaner was 164 degrees Fahrenheit. Operating instructions are attached to the cold cleaner and an SDS was obtained during the inspection.

PTI 186-17

FG-TURB/DB1-3

Turbines
This permit limits the turbines to 692 hours for startup and shutdown. At the time of inspection, Turbine 2 had 92 hours of startup/shutdown for a 12-month rolling time period and turbine 3 had 60 hours. The facility has a CEMs device installed on each of the three units which continuously monitors NOx, CO, and O2.

Hourly gas flow is monitored for each of the units. For the purposes of tracking, the facility assumes that all the gas that is flowing to the turbines and duct burners is being used. The highest hourly natural gas flow for turbine 2 on July 23 was at 10 pm with 22,383 hscf/hr and for turbine 3 it was at 10 pm with 22,539 hscf/hr.

Date and time of each startup and shutdown is manually logged in the EOH log in the control room by the control room operator. A screen shot of this log is included with the records. The shot shows the starts and stop for both Unit 2 and Unit 3 for 2019.

Duct Burners
Each duct burner subject to PTI 186-17 has an operational limit of 3,308 hours for a 12-month rolling time period. The current 12-month rolling average for duct burner 2 is 2020.7 hours and 1559.6 hours. Both of these are below the permit limit. The facility is also tracking monthly duct burner operational hours. Duct burner 2 operated for 11.4 hours in June and duct burner 3 operated for 294.2 hours according to records. The highest hourly natural gas usage for duct burner 2 on July 23 was at 2 pm with 1,628 hscf/hr and highest usage for duct burner 3 was at also at 2 pm with 1,316 hscf/hr.

NOx
The 12-month rolling total for NOx for turbine 2 was 57.2 tons though June 2019. The 12-month rolling total for turbine 3 was 61 tons. This is well below the permit limit of 116 tons per year. The NOx concentrations are being tracked hourly. On July 23, 2019 the highest hourly concentration for turbine 2 was 1.8 ppm @ 15% O2 and for turbine 3 it was also 1.8 ppm @ 15% O2. Rolling 24-hour NOx records were provided by the facility for July 23, 2019. The rolling 24-hour average NOx concentration was 1.8 ppm @ 15% O2 for turbine 2 and 1.7 ppm @ 15% O2 for turbine 3.

Monthly NOx concentrations were provided to staff after the records review via email. For turbine 2, the highest monthly NOx emissions were in March 2019 with 6.0 tons. The highest monthly emissions for NOx for turbine 3 were 5.7 in February 2019. The permit also requires 30-day rolling NOx concentrations to be tracked for the turbines and duct burners. The permit limit is 15 ppm @15% O2 for a 30-day rolling average. The facility provided a 30-day rolling average concentration for June 26 through July 25. The 30-day rolling average for unit 2 was 2.1 ppm @15% O2 and 1.9 ppm @15% O2 for unit 3.

In the Daily Emissions Report generated by the facility, the daily NOx concentrations are tracked. The average total NOx for July 23, 2019 for turbine 2 was 1.8 ppm @ 15% O2 and for turbine 3 was 1.7 ppm @15% O2.

CO
The 12-month rolling total for CO for turbine 2 was 11.3 tons though June 2019. The 12-month rolling

total for turbine 3 was 15 tons. This is well below the permit limit of 357 tons per year. The CO concentrations are being tracked hourly. On July 23, 2019 the highest hourly concentration for turbine 2 was 1.0 ppm @ 15% O2 and for turbine 3 it was also 1.1 ppm @ 15% O2. Rolling 24-hour CO records were provided by the facility for July 23, 2019. The rolling 24-hour average CO concentration was 0.1 ppm @ 15% O2 for turbine 2 and 0.3 ppm @ 15% O2 for turbine 3.

Monthly emissions are also being tracked for CO. The highest monthly CO emissions from turbine 2 was January 2019 with 0.7 tons. The highest monthly emissions for turbine 3 was also in January 2019 with 1.8 tons.

VOC
The 12-month rolling total for VOC for turbine 2 was 12.3 tons though June 2019. The 12-month rolling total for turbine 3 was 22.2 tons. This is well below the permit limit of 48 tons per year. The highest monthly VOC emissions for turbine 2 were in January and March with 1.1 tons each. The highest monthly VOC emissions for turbine 3 were in June 2019 with 1.5 tons.

SO2
Testing results showed the SO2 emissions from turbine 2 were measured at 0.0004 lb/mmBTU and turbine 3 was measured at 0.0004 lb/mmBTU. The permit limit is 0.060 lb/mmBTU. During the test, 100% conversion of sulfur in fuel to SO2 was assumed for the calculations. This represents the worst-case scenario.

H2SO4
Testing results showed the H2SO4 emissions from turbine 2 were measured at 0.10 lb/hr and emissions from turbine 3 were 0.05 lb/hr. The permit limit is 1.0 lb/hr. Testing shows compliance with this permit emission limit.

NH3 ppmvd @ 15% O2
Testing results showed the NH3 emissions from turbine 2 were measured at 5.1 ppmvd @ 15% 02 and emissions from turbine 3 were 2.5 ppmvd @ 15% O2. The permit limit is 10 ppmvd @ 15% O2. Testing shows compliance with this permit emission limit.

CO2e
The 12-month rolling total for CO2e for turbine 2 was 926,385.4 tons though June 2019. The 12-month rolling total for turbine 3 was 1,047,292.9 tons. This is well below the permit limit of 1,425,081 tons per year. The highest monthly CO2e emissions for turbine 2 were in April with 102,079.2 tons and for turbine 3 it was 86,210.1 tons in June 2019. The CO2e emissions for turbine 3 have been tracked since April when the turbine was upgraded.

PM10/PM2.5
The facility tracks all PM as PM10 in their records. The permit specifies permit limits of 10.7 pounds per hour (pph) for PM10 and PM2.5. The facility provided PM10 pound per hour records for July 24, 2019. The highest PM emission for turbine 2 is 5.4 pph and for turbine 3 is 5.9 pph. This is below the permit limit for both PM10 and PM2.5.

Net Heat Rate
The net heat rate for each turbine was emailed to staff after the left the facility as the report had to be generated. The highest monthly net heat rate for turbine 2 was 6,734 in February 2019 and for turbine 3 it was 7,072 in January 2019. Records for monthly net heat rate only go back to January 2019 because the turbines only became subject to the tracking requirement once they were upgraded. No 12-month rolling numbers were provided because a full 12 months of tracking has not been completed yet.

The facility appears to be in compliance with all emission limits and permit requirements found in MI-ROP-N6767-2014c and Permit to Install 186-17.

NAME Anna Argall DATE 8/29/19 SUPERVISOR RJL 9/3/19