

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

N615024540

FACILITY: TRENDWELL ENERGY CORP - Vienna 31		SRN / ID: N6150
LOCATION: NW NE SE T30N R1E SEC 31, VIENNA TWP		DISTRICT: Gaylord
CITY: VIENNA TWP		COUNTY: MONTMORENCY
CONTACT: Danita Greene , Production and Environmental Compliance		ACTIVITY DATE: 03/11/2014
STAFF: Gloria Torello	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: 2014 Inspection.		
RESOLVED COMPLAINTS:		

Directions. The facility is located in Montmorency County, Vienna Township. Driving from M-32, turn south onto Matthews Road, and drive about 1.5 miles. The facility is located on the west side of Matthews Road. There is a red gate at the entrance of the access road. The facility is approximately 1/2 mile west of the Matthews Road gate.

Application. This is Antrim gas facility. The application included replacing a lean burn engine with one Cat 399 HCT, 930 HP rich burn engine with a catalytic converter (cc). The application indicates the Cat 398 HCTA 500 HP rich burn engine with a cc would remain on site. The CPF includes separators, scrubbers, a glycol dehydrator with vapor recovery.

Permit. Permit 708-96B included the two CAT engines: 398 and 399 both rich burn, and both with cc. The permit does not include conditions on the glycol dehydrator. Although the permitted NOx and CO emissions are less than 40 tpy, the facility is considered an opt-out because permit 708-96B includes FGENGINES condition VII.1 which allows the engines to be replaced. For this reason the facility will remain on AQD's opt-out list. In MACES, under Regulatory Summary, CO and NOx are marked Synthetic Minor; and 40 CFR Part 63 Subparts ZZZZ and HH are included.

MAP. The malfunction abatement plan (MAP) was approved by the AQD on April 16, 2014. The MAP includes the two CAT engines: 398 and 399 both with cc, neither engine have an AFRC.

MACTS. The engines are subject to 40 CFR Part 63 Subpart ZZZZ. The glycol dehydrator is subject to 40 CFR Part 63 Subpart HH . This is an area source (minor for HAPs). The EPA has not delegated these Subparts to MI AQD and these Subparts were not reviewed.

Records. Records were requested on March 12, 2014 and received on April 3, 2014.

MAERS. The 2013 MAERS included the two CAT engines: 398 and 399 both with cc, and one glycol dehydrator.

*On 7/9/14 Torello compared the Engine Emissions Analysis (test results) completed by Exterran to the submitted MAERS. Torello changed MAERS to include the NOx and CO "conversions" (control efficiencies) found in Exterran's analysis; and include the CO and NOx Emission Factor (Uncontrolled) in lb/MM scf provided by the permittee and found in the MAERS Activity & Emission attachment. With these changes, the Caterpillar engine 399 TA, 930 HP w/ cc (EUENGINE2) had 34.4 tons NOx emissions.

The permit, for EUENGINE 2, allows 9.32 tpy NOx. With these changes, in 2013 EUENGINE2 exceeded the permitted NOx emission limit.

Brochure: The inspection brochure will be forwarded to the permittee with the site inspection notes via email.

Compliance: In MACES Report Generator, it shows no violation notice was ever sent out for this facility.

Inspection. The glycol dehydrator is located outside of the building. One large tank is on-site in a retaining area. The engines were operating. No visible emissions from the engine stacks were observed. Visually, both engine stacks were the same height and appeared to meet the permit requirement of a minimum of 31.5 feet above ground level. The diameters of the two stacks differed, and the stacks appeared to meet the permit requirements of a maximum of 6 and 12 inches in diameter. Both engines had a catalytic converter.

Each engine had a clipboard with records of cc temperatures. On 3/11/14 the record for the Cat 399 included cc temps Inlet 923 F and Outlet 1022 F. Torello's cc temp observations for the Cat 399 were Inlet 923 F and Outlet 1018 F. On 3/11/14 the record for the Cat 398 included cc temps Inlet 850 F and Outlet 943 F. Torello's cc temp observations for the Cat 398 were Inlet 848 F and Outlet 941 F.

Permit Conditions. The conditions of permit 708-96B are discussed below.

FGENGINES

I.1-4, VI.6-7. The permittee submitted NOx and CO emission records for the two engines. The records show the reported emissions are below the permitted emission limits. The permittee calculates emissions using the same controlled emission factors as submitted with the 2013 MAERS. The records are not using the results from the testing/analysis required by the MAP.

III.1., VI.3. The AQD approved the MAP April 16, 2014. MAP maintenance logs/records are maintained and made available to AQD.

III.2, IV.1, VI.4 The permit limits the number of hours the engine may operate without control, and the permit requires keeping records of the number of hours the engine operated without control. Per the MAP, Appendix C, which is the Catalytic Converter Field Report, the report includes "Down Time, and Reason for Down Time." The records received showed no downtime.

*Also, in the MAP, Page 3, at 3.1, it states, "Monthly and 12-month rolling time period records will be maintained of the number of hours the engine is run without the catalytic convert in operation." When reviewing SRN N6142, per conversation with Danita Green of Trendwell, the monthly and 12-month rolling record will be added to Trendwell's record keeping, as this record currently is not made.

IV.2, VI.2, VI.5. Natural gas usage is monitored and logged. There is not a limit on natural gas usage.

V. 1. Testing.

The permittee provided the Engine Emissions Analysis, completed by Exterran, for both engines. Analysis is required per the MAP. For EUENGINE2, Cat 399, the analysis included:

- control efficiencies: NOx Conversion 21.8%, and CO Conversion 81.9% (in the 2013 MAERS the permittee claimed 90% NOx control, and 80% control for CO),
- Calculated Results NOx 34.4 tons (permitted 9.32 tpy), CO 7.9 tpy, (permitted 19.36 tpy).

*Information in the Engine Emissions Analysis completed by Exterran documents the permittee is not meeting the control efficiencies claimed ~~they claim~~ in MAERS. The permittee is exceeding their permit 708-98B, Cat 399 NOx emission limits.

VII.1. A review of the file reveals no notification from the permittee that the engine was changed out.

VIII. By visual estimate, the engines stacks meet the requirements of a minimum of 31.5 feet above ground level and a maximum of 6 and 12 inches in diameter.

FGFACILITY

II.1. This is an Antrim facility, sour gas is not burned at the facility.

V.1 AQD has not requested verification of H2S or sulfur content of the gas.

MAP

The AQD approved the MAP on April 16, 2014.

The MAP does not require the catalyst to have a higher outlet temperature as compared to the catalyst inlet temperature. Per Table 4, if the catalyst temperature is below 750 degrees F, or above 1350 degrees F, the catalyst will be inspected. The records show the catalyst outlet temperature is greater than the inlet temperature.

The MAP requires establishing a baseline differential pressure across the catalytic converter when a new catalytic converter insert is installed. If the pressures exceed the manufacturer's recommendation (typically 7-inches water column from baseline) the catalyst will be cleaned and inspected. Per conversation with Danita Green of Trendwell, and Brian Keelan a contractor and field supervisor 989-619-2808, Brian said yearly the catalyst element is replaced. After the replacement, "stack testing" (testing per the MAP) of the emissions is completed for NOx and CO reduction efficiencies, and emissions in tons per year. Brian said the differential pressure across the catalytic converter is established during the testing.

Brian sent Torello, via Danita, the test results for N6150 (and, N6142 and N7900). The test results for EUENGINE2, CAT 399, show NOx control is 21.8% and CO control is 81.9%.

The date of the test was "9/12/17" but this is a typo and the actual test date should read 9/12/13.

The test results show the Catalyst Pressure is taken during testing.

***Conclusion:**

The permittee needs to keep records per the MAP which includes: "Monthly and 12-month rolling time period records will be maintained of the number of hours the engine is run without the catalytic convert in operation." Torello has set up a telephone meeting with Danita on September 23, 2014 to follow up on this issue.

In future MAERS, when testing result control efficiency numbers are available, the permittee shall use the test result numbers instead of the control efficiency numbers from MAERS.

A Violation Notice will be sent to the permittee. The Cat 399, EUENGINE2 exceeded the NOx emission limit of 9.32 tpy. The violation is based on the Exterran Engine Emissions Analysis dated 9/12/17 (the date has a typo and should be 9/12/13).

*AQD will follow up on this.

NAME Gloria Torello DATE 7-14-14 SUPERVISOR 