

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

P044626045

FACILITY: CORE ENERGY LLC		SRN / ID: P0446
LOCATION: SEC 36 (Lat: 45 02' 11.6" - Long: 84 30' 39.5"), DOVER TWP		DISTRICT: Gaylord
CITY: DOVER TWP		COUNTY: OTSEGO
CONTACT:		ACTIVITY DATE: 07/11/2014
STAFF: Bill Rogers	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection		
RESOLVED COMPLAINTS:		

On July 11, 2014, I inspected the Core Energy Dover 36 CPF. This is a large facility with several compressor engines, heater treaters, and other equipment, but did not have any permits until recently.

There is much more equipment on site than included in the permit. This may be a violation of Rule 201 of the Michigan Air Pollution Control Rules, but it is possible the equipment is exempt. I will ask the company for clarification on this issue.

In addition I found the engine stacks do not meet the diameter and elevation conditions specified in Permit 82-13. Because there are four engines on site while only two are listed in the permit, I could not tell which engine was which. However permit conditions set engine exhaust elevation on two engines as 50 feet or higher. I judged, estimating by eye, that the highest engine exhaust present was less than 50 feet above ground, although it may have been that high. The other three were definitely much lower than 50 feet. Therefore at least one of the two permitted engines had its exhaust lower than 50 feet above ground level, in violation of permit; both may have been lower than 50 feet.

In addition, there is a glycol dehydrator on site. This would not need a permit if it processes Antrim Formation gas only, but it is still required by Federal regulations to demonstrate that its benzene emissions are less than 0.90 megagrams (about one ton) per year or to install extensive pollution control equipment. I will ask the company for clarification on this issue.

#### Engines:

Permit 82-13 includes two engines. EUENGINE1 has a catalytic oxidizer "to control CO emissions" according to the permit. EUENGINE2 has no oxidizer.

On site I found four engines.

East Engine: Probably EUENGINE1. This is a large natural gas-fired engine with a catalytic oxidizer. It is labeled NGCS 75 in metal numbers welded to the engine mount, identifying it as Natural Gas Compression Services Unit 75. The exhaust is about 12 inches diameter and exhausts through the side of the shed.

Permit 82-13, Table FGENGINEs, Condition VIII.1, requires EUENGINE1's exhaust to be a maximum of 12 inches diameter at an elevation of no less than 50 feet above ground level, exhausting unobstructed vertically upward. The stack I observed (photos attached) appeared to be at an elevation of 30-40 feet, but I was judging by eye only and could have been mistaken. There was no opacity from this stack.

The engine was operating at the time of my inspection. I attempted to take temperatures of the catalytic oxidizer with our infrared thermometer. I got a temperature on the inlet side of 705 degrees f and outlet 606 degrees f. Temperatures should rise across a catalytic oxidizer which is operating properly. Measured on the outside of the catalytic oxidizer these temperatures are not conclusive, but do not indicate the catalytic oxidizer is operating properly.

According to engine gauges coolant temperature was 190 degrees f, compressor oil temperature was 160 degrees f, compressor oil pressure was 53 PSI. According to the digital display on an engine control box the engine had recorded 60,329 hours, was running at 1035 RPM, 21 volts, 51 PSI (engine oil pressure presumably) and 186 degrees f (coolant temperature, presumably).

Adjacent to this engine were two 300-gallon drum on stilt style tanks. One was labeled as Oil, SAE 40, and the other as Multipurpose Oil.

**Middle Engine:** Located northwest of the first engine. It is a small to medium sized natural gas-fired compressor engine. It has no catalytic oxidizer. It is labeled as NGCS 157 in metal numbers welded to the engine mount. It was operating at the time of my inspection. Engine instruments indicated 965 RPM, engine oil pressure 55 psi, compressor oil pressure 50 psi.

The engine exhaust was approximately 8 inches diameter. It exhausted through the side of the building and then was directed upward by a pipe elbow to discharge unobstructed vertically upward at an elevation of about 24 feet. A photo of this exhaust is attached. There was no opacity from this stack.

There was one 300-gallon drum on stilts style tank near this engine. It was labeled Multipurpose Oil.

There were stained soils inside the building, as if oil had been spilled there.

**West Engine:** Located southwest of the second engine and west of the first engine. It is a large natural gas-fired compressor engine. It has no catalytic oxidizer. It is labeled as GCS 117 in metal numbers welded to the engine mount. It was operating at the time of my inspection. Engine instruments indicated 912 RPM, engine coolant temperature 200 degrees f, compressor oil temperature 175 degrees f, engine oil pressure 50 PSI, compressor oil pressure 60 PSI. A clipboard hanging from the instrument panel identified this engine as Dover 36 Core Energy.

The exhaust appeared to be about 12 inches diameter, passing through the side of the building to a horizontal muffler outside. After the muffler the exhaust is directed upward by a pipe elbow to exhaust unobstructed vertically upward at a height of about 12 feet above ground level. A photograph of this exhaust is attached. There was no opacity from this stack.

There were three drum on stilt style tanks near this engine. One was unlabeled. One was labeled as cylinder oil and one as low-ash gas engine oil.

**Small Engine:** The fourth engine on site was a small one about the size of a truck engine. It did not have a catalytic oxidizer. It was not operating at the time of my inspection. It exhausted vertically through the roof of the building at a height of perhaps 25 feet. A photograph of this exhaust is attached.

#### **Other Equipment:**

**Glycol Dehydrator:** There is a large glycol dehydrator on site. It is west of the West Engine. A photograph of the glycol dehydrator is attached.

**Heater Treaters:** I counted 11 heater treaters on site. They are located in a double row south of the compressor shed. They appear to be about the size of heater treaters and line heaters I have seen at other natural gas facilities which range from about 10 to 12 million BTU per hour heat input, and would therefore be exempt from permit requirements individually. However, their aggregate emissions may be of concern.

#### **Violation Discussion:**

**Stack Heights:** Depending on the size of the "middle" and "west" engines, there may be a violation of Rule 201 for installing and operating a large engine without the required Permit to Install. Based on personal experience I judge that the "small" engine is definitely too small to require an Air Use Permit, but formal confirmation of this from the permittee would be useful.

Permit 82-13, Table FGEngines, Condition VIII.1 and VIII.2, give required stack dimensions for SVENGINE1 and SVENGINE2, the stacks for EUENGINE1 and EUENGINE2 respectively. I believe "east" engine is EUENGINE1. I don't know whether EUENGINE2 is "middle" or "west" engine.

In any case, the required stack height for EUENGINE1 and EUENGINE2 is 50 feet or higher. In my opinion the stack of "east" engine was probably not 50 feet or higher above ground level, in violation of the applicable permit condition. I might be wrong in this case. For EUENGINE2, whether this is "middle" or "west" engine, the stack height is clearly less than 50 feet, in violation of the applicable permit condition.

Off-Permit Equipment: I found two engines, eleven heater treaters, and a glycol dehydrator on site. While some of these items are no doubt exempt, at least one of the engines appears as if it is of a size that would require a permit yet is unpermitted, in violation of Rule 201.

The heater treaters are probably small enough that each, individually, would be exempt from permit requirements. However if all eleven were installed as part of one project then permit requirements would depend on their aggregate size and emissions, and determining permit applicability for all the heater treaters together is less certain. It would be good to get clarification from the company on this.

Whether or not it should be permitted, the glycol dehydrator must still comply with NESHAP HHP 40 CFR 63.1282 and either demonstrate production is low enough to be exempt, benzene emissions are low enough to be exempt, or emissions control to reduce benzene emissions is in place. Records proving their means of compliance with HHP are required. I will ask the company for these records.

There is other equipment on site I couldn't identify. I thought it might be gas fractionation equipment of some kind. If so there are other Federal regulations that apply. I will ask the company for clarification on this.

Opt-Out Permit Issues: This facility is an opt out facility. The emission limits on the two permitted engines were chosen to keep emissions below the significance level for a Title V Renewable Operating Permit. However, the permit does not contain any facility-wide emission limit and there are two engines, eleven heater-treaters, and a dehy not included in the permitted equipment. Therefore emissions for the facility as a whole will be considerably higher than emissions from the two permitted engines alone. We need a site-wide potential to emit calculation to show whether or not the facility has the potential to exceed Title V significance levels, including the permitted engines operating at their emission limits and the unpermitted equipment operating at its maximum potential emission rates.

Records: I requested records as required by permits. The company provided emissions information and maintenance information on one engine. These records are attached.

The following records were not provided in violation of conditions of Permit 82-13, Table FGEngines: Hours of operation of EUENGINE1 without its add-on control device, as required by Condition VI.3; NOx emissions for EUENGINE2 as required by Condition VI.4; and CO emissions for EUENGINE2 as required by Condition VI.5. Condition VI.6 requires records showing EUENGINE2 was not operated before its stack was raised, but as the engine was in fact operating and the stack has not been raised this condition is moot.

MAP plan: A MAP for this facility was received October 2, 2013. AQD approved it December 23, 2013. The plan is not adequate as it addresses only two engines, not the four on site.

NAME William J Rogers Jr

DATE 7/24/14

SUPERVISOR 

