

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

N644432088

FACILITY: Ener Vest Operating ASE 5		SRN / ID: N6444
LOCATION: T30N-R2W, Section 35, GAYLORD		DISTRICT: Cadillac
CITY: GAYLORD		COUNTY: OTSEGO
CONTACT: Jeff Riling , OPERATIONS MANAGER		ACTIVITY DATE: 10/22/2015
STAFF: Caryn Owens	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection & Records Review		
RESOLVED COMPLAINTS:		

On Thursday, October 22, 2015, Caryn Owens of the Department of Environmental Quality (DEQ) – Air Quality Division (AQD) conducted a scheduled field inspection of Enervest Operating, LLC (Enervest) – ASE-5/5B CPF (N6444) located in the northeast quarter, of the northeast quarter, of the northwest quarter of Section 35, Township 30 North, Range 2 West in Chester Township, Otsego County, Michigan. More specifically, the site is located approximately 1.5 miles from Turtle Lake Road, where one would follow Bass Lake trail to the east, past where it turns into a dirt road. Follow Bass Lake Trail to Old Jailhouse Trail, and take that road to the north. The facility is located off a two-track approximately 1/10 mile northwest of Old Jailhouse Road. The purpose of this inspection was to determine the facility's compliance with permit to install (PTI) 44-05B. This facility is considered an opt-out source due to the PTI Condition VII.1 under Reporting, which is in regards to changing out engines at the facility. DEQ was unaccompanied during the field inspection, an inspection brochure was not given to anyone at this facility, but a brochure will be emailed to the company with this inspection report. The site is an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) from Oil and Natural Gas Production facilities (40 CFR, Part 63, Subpart HH), and NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ – RICE MACT). The State of Michigan does not have delegated authority of the area source NESHAPs, and thus these areas were not reviewed by the DEQ at this time.

### Evaluation Summary

Based on the activities reviewed during this full compliance evaluation (FCE), Enervest – ASE-5/5B CPF is not in compliance with the emission limits of nitrogen oxides (NOx) for EUENGINE1. A violation notice was submitted to the company on November 10, 2015. Specific permit conditions that were reviewed are discussed below.

### Source Description

The natural gas enters onsite where it passes through separators, and then the natural gas flows through the glycol dehydrator system to remove water from the gas stream. The natural gas is routed to the compressor engines to control the pressure to be sent further down the pipeline. The brine water removed from the gas stream is routed to the onsite tank battery for disposal by reinjection. Enervest is claiming exemption Rule 336.1284(e) for the above ground storage tank in the tank battery since it stores sweet condensate in a tank less than 40,000 gallons.

### On-site Inspection:

During the field inspection it was mostly cloudy with wind speeds approximately 5-10 miles per hour out of the west, and approximately 50degrees Fahrenheit. The facility consisted of: a separator building; two compressor engine buildings; a glycol dehydrator system enclosed in a building; and a tank battery area containing one 100-barrel (bbl) storage tank. The facility was fenced in, and the gate was open during the field inspection. DEQ observed a steam plume from the glycol dehydrator stack, and slight petroleum-like odors were in the area of the glycol dehydrator, but the odors were not present off site. No other visible emissions were observed during the field inspection.

The compressor engine located in the building on the western portion of the site was a 346 horsepower (hp) Ajax DCP 360 engine, without a control device. The engine was operating at 397 revolutions per minute (RPMs), 35 pounds per square inch (psi), and had two separate temperatures on the read-out. Temperature 1 was at 676 degrees Fahrenheit, and Temperature 2 was at 397 degrees Fahrenheit. The maintenance sheet by the engine identified the engine as DCP 360, ASE 5, Unit # 999810 XX20990-018.

The compressor engine located in the building on the east-northeastern portion of the site was a 1,800 hp Caterpillar 3408 NA engine operating at 1,667 RPM, 60 psi, and 200 degrees Fahrenheit. The engine was equipped with an air to fuel ratio control (AFRC) device, which read 0.746v1127. There appeared to be a catalyst

connected to the exhaust pipe of the engine, but it appeared to be disconnected or would need a handheld device to read the inlet and outlet temperatures, and differential pressure of the catalyst. The engine is permitted without a catalyst, and Enervest is reporting uncontrolled emissions from both engines at the site. The engine was identified on the engine block as 102221.

### **Records Review:**

**EUDEHY:** A glycol dehydration system used to process gas from the Antrim formation and remove water from the gas stream prior to transporting the natural gas further down the pipeline.

- **Emission Limits:** No material limits were applicable for EUDEHY.
- **Materials/Fuels:** Based on the records reviewed, no stripping gas is used in EUDEHY.
- EUDEHY is subject to the NESHAP from Oil and Natural Gas Production facilities for area sources promulgated in 40 CFR, Part 63, Subpart HH. The site is an area source and the State of Michigan has not been given delegated authority of 40 CFR Part 63 Subpart HH for area sources. The remainder compliance analysis of EUDEHY was based on 40 CFR, Part 63, Subpart HH conditions, therefore; DEQ did not review the remainder of the conditions for EUDEHY.

### **FGENGINES**

Two natural gas fired reciprocating compressor engines. One of the engines is a 346 hp Ajax DCP 360 compressor engine (EUENGINE1), and the other engine is a 1,800 hp Caterpillar 3408 NA engine (EUENGINE2). Even though the CAT 3408 NA engine is equipped with a catalyst, the emissions were calculated with no emission control, and the Malfunction Abatement Plan (MAP) does not claim control on the compressor engine.

- **Emission Limits:** EUENGINE1 (346 hp Ajax DCP 360 engine) is limited to 22 tons of NOx per 12-month rolling time period and 5 tons of CO per 12-month rolling time period. Based on the records reviewed from September 2014 through September 2015, the highest emissions for EUENGINE1 were 23.739 tons of NOx per 12-month rolling time period, and 5.296 tons of CO per 12-month rolling time period.

EUENGINE2 (1,800 hp Caterpillar 3408 NA engine) is limited to 51 tons of NOx per 12-month rolling time period and 4 tons of CO per 12-month rolling time period. Based on the records reviewed from September 2014 through September 2015, the highest emissions for EUENGINE2 were 27.448 tons of NOx per 12-month rolling time period, and 1.870 tons of CO per 12-month rolling time period.

Based on the emission records, EUENGINE1 exceeds the emissions limits for NOx. EUENGINE2 is in compliance with the emission limits. A violation letter was sent to the company on November 10, 2015.

- **Materials/Fuels:** No material limits were applicable for FGENGINES.
- **Process/Operational Parameters:** The facility submitted a MAP on August 9, 2012. Based on review of the MAP and maintenance records, the engines were shut down while performing general maintenance such as: replacing filters, valves, spark plugs, oxygen sensors, and/or repair leaks. The records did not show maintenance concerns with EUENGINE1 or EUENGINE2, and Enervest appears to be following the MAP for the facility. The MAP did not include control on the engines, and emissions from the EUENGINE2 were calculated without control.
- **Testing Sampling Equipment:** The facility used engine specific emission factors to calculate the emissions for NOx and CO for FGENGINES. Performance testing has not been completed at this facility.
- **Monitoring/Recordkeeping:** The facility monitors the natural gas usage for both EUENGINE1 and EUENGINE2 on a continuous basis and records the monthly fuel use for each engine at the facility. The facility records monthly and 12-month rolling time period calculations for NOx and CO. The 12-month rolling time period emissions are discussed above under emission limits. The natural gas usage, and monthly and 12-month rolling time period emissions records are attached.

- **Reporting:** The facility has not swapped out an engine at the facility since the PTI was issued.
- **Stack/Vent Restrictions:** Based on visible observations during the field inspection, the stacks of EUENGINE1 and EUENGINE2 appeared to be in compliance with permitted diameter and height limits.
- **Other Requirements**  
The facility is subject to the federal provisions of the area source RICE MACT specified in 40 CFR, Part 63, Subparts A and ZZZZ.

**FGFACILITY:** All process equipment at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.

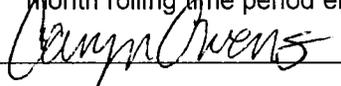
- **Emission Limits:**  
FGFACILITY is limited to 89 tons of NOx per 12-month rolling time period. Based on the records reviewed from September 2014 through September 2015, the highest emissions for both engines was 51.227 tons of NOx per 12-month rolling time period, which is below the permitted limits for FGFACILITY. The emissions from EUDEHY reboiler were not included in FGFACILITY, however, the NOx emissions from the reboiler of a glycol dehydrator system from the Antrim formation are typically minimal. The facility is within the permitted emission limits for FGFACILITY. DEQ will talk to Mr. Wayne Cockrum, the consultant for Enervest, and inform him that all the applicable calculations and records are submitted to the DEQ for future inspections of the facility.

- **Material Limits:**  
According to Enervest and ECT, the company's consultant, only sweet natural gas is burned at the facility.

- **Testing:**  
According to an SPL Certificate of Analysis of the sales gas, no H<sub>2</sub>S is burned at the facility.

- **Monitoring/Recordkeeping:**  
The facility records monthly and 12-month rolling time period NOx calculations for FGFACILITY. The 12-month rolling time period emissions are discussed above under emission limits. The monthly and 12-month rolling time period emissions records are attached.

NAME



DATE

11/10/15

SUPERVISOR

