

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

P110060424

FACILITY: Core Energy, Inc. - Chester 16		SRN / ID: P1100
LOCATION: SEC 22, T30N, R02W, CHESTER TWP		DISTRICT: Gaylord
CITY: CHESTER TWP		COUNTY: OTSEGO
CONTACT: Brian Dorr , Chief Operating Officer		ACTIVITY DATE: 10/07/2021
STAFF: Rob Dickman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection of this opt out source.		
RESOLVED COMPLAINTS:		

Core Energy, LLC (Core) operates multiple oil production facilities in Northern Michigan. Many of the facilities use carbon dioxide (CO₂) injection for enhanced oil recovery. One of those facilities is the Chester 16 Central Processing Facility located in Chester Township, Otsego County.

Oil and CO₂ are transmitted to and from the facility through flow lines. The total fluids are passed through heaters to be separated. The gas is compressed by natural gas-fired internal combustion-driven compressors. Saturated water vapor is removed by glycol dehydration and the CO₂ is injected back into the production fields for enhanced oil recovery. The oil is sent to storage tanks for sales.

Performed an inspection at this facility relating to Permit to Install (PTI) number 203-19. This permit was issued in March of 2020. A request for records required to be kept by the PTI was sent to the facility on October 4, 2021. Those records were received on October 6, 2021, and review of those records is included in this report.

Following is a list of permitted equipment on site:

- EUENGINE1 - CAT 3516: 1340 HP natural gas fired reciprocating engine uncontrolled.

Other processing equipment includes:

- One natural gas-fired Waukesha 310 68HP heat input rating 0.61 MMBTU/hr which is exempt from permitting under Rule R336.1285(2)(g).
- One glycol reboiler and heater. Both are natural gas fired with the glycol reboiler having a max heat input of 375,000 BTU/hr and the heater having a max heat input of 750,000 BTU/hr. Both are exempt from permitting under Rule R336.1282(2)(b)(i).
- Six 400 bbl above ground storage tanks exempt from permitting under Rule R336.1284(2)(e). Tanks have a Vapor Recovery Unit (VRU) that sends collected gases back to the compressor to be reinjected.
- One glycol dehydrator, natural gas fired, exempt under Rule R336.1282(2)(b)(i).

Following are the findings of this inspection:

EUENGINE1

This unit is a Caterpillar 3516: 1340 HP natural gas fired reciprocating engine uncontrolled. As this engine is uncontrolled, permitting conditions relating to control of the engine were not evaluated as part of this inspection. Vapors collected by the Vapor Recovery Unit (VRU) controlling emissions from the aboveground storage tank (AST) battery are sent to the engine for combustion. This compressor was installed September 2020 and first day of use was November 18, 2020, therefore, a full 12 months of records have not been taken. Natural gas burned at the facility is not from the supplying well, rather it is purchased pipeline natural gas. Collected gas is reinjected by this compressor to enhance oil production.

Emission Limits

Nitrogen Oxide (NOx) emissions from the engine are limited to 29.8 tons per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month, Carbon Monoxide (CO) emissions from the engine are limited to 34.5 tons per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month, Compliance with these limits is through monthly calculations based on production and engine emission factors. Records of these calculations were provided by the facility for the time period of November 2020 to August 2021. For NOx, emissions for this time period were 5.46 tons with the highest monthly emissions in January and March of 2021 at 0.6 tons. For CO, emissions for this time period were 6.34 tons with the highest monthly emissions in January of 2021 at 0.7 tons.

Material Limits

There are no material limits associated with this group, therefore, this section is not applicable

Process or Operational Restrictions

A Malfunction Abatement Plan is required for this engine. The latest version of this plan is dated October 19, 2020 and was approved on November 9, 2020.

Design or Equipment Parameters

The engine is required to have a device to measure natural gas usage. The engine is so equipped.

Testing or Sampling

NOx and CO emissions from EUENGINE1 are to be verified by stack testing if requested. No such request has been made and is not recommended at this time.

Monitoring and Recordkeeping

Continuous monitoring and recording of natural gas usage by each engine and maintaining of monthly records of the amount of natural gas used is required. Records provided by the facility for the period of November 2020 to August 2021 indicate these records are being kept. A sample of these records is attached to this report.

The facility is required to calculate NOx and CO emissions monthly and on a 12-month rolling time period basis to demonstrate compliance with emissions limits. Records provided by the facility for the period of November 2020 to August 2021 indicate these records are being kept. See Emission Limits section for more details

A log of all maintenance and repairs to each engine is to be maintained. Records provided by the facility for the period of November 2020 to August 2021 indicate these records are being kept. These records are attached to this report.

Reporting

If the facility chooses to replace an engine, it must be with an equal or lesser emitting engine. Additionally, they must notify the AQD of this swing and provide emissions documentation. This engine has not been replaced since issuance of the PTI.

Stack Restrictions

Stack maximum diameter is to be no more than 12 inches and minimum height above ground for the stack is to be no less than 30 feet. Restrictions for this engine appear to be compliant and do not appear to have been recently modified.

Other Requirements

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The engines are required to meet the conditions of 40 CFR 63, Subpart ZZZZ. The date of manufacture of this engine is November of 1997. It has not been reconstructed per the definition in the Subpart. In complying with the conditions of this PTI, the engine is in compliance with this Subpart.

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

NAME _____

DATE _____

SUPERVISOR _____