

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

P117368896

FACILITY: Hound Resources, LLC - White River Production		SRN / ID: P1173
LOCATION: 11165 Chase Road, MONTAGUE		DISTRICT: Grand Rapids
CITY: MONTAGUE		COUNTY: MUSKEGON
CONTACT: Julie Johnston , Vice President		ACTIVITY DATE: 08/31/2023
STAFF: Chris Robinson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: FY '23 on-site inspection to determine the facility's compliance status with PTI No. 119-22 and any other applicable air quality rules and regulations.		
RESOLVED COMPLAINTS:		

A) Introduction

Staff Chris Robinson (CR) from Michigan's Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) conducted an inspection at Hound Resources, LLC's White River Production facility (White River, SRN P1173) on August 31, 2023. White River was acquired from Omimex Energy in 2022. White River is located at 11165 Chase Road in Montague. The purpose of this inspection was to determine the facility's compliance status with the requirements of the federal Clean Air Act; Part 55 (Michigan's Air Pollution Control Rules) of Act 451 of the Natural Resources and Environmental Protection Act (NREPA); Permit to Install (PTI) 119-22 and any other applicable state and federal air quality rules and regulations.

Typically, AQD inspections are unannounced. However, since this facility is a remote unmanned station, the inspection was scheduled in advance to ensure proper staff will be onsite. CR did not observe any odors or visible emissions prior to entry; however, a slight sour gas (H₂S) odor was observed on site near the buildings and process equipment. CR had an RKI GX-2009 H₂S meter on during the inspection and no readings were detected. CR met with Tom Phillips, Production Foremen. Identification was provided and CR informed Tom of the purpose of the inspection.

Weather conditions were cloudy with a temperature of approximately 67 degrees Fahrenheit and northeast winds at approximately 12 mph (www.weatherunderground.com).

B) Facility Description

White River is an oil/gas production facility, constructed in 2007, that extracts natural gas/crude oil from five (5) wells. This mixture is considered to be "sour" since it contains more than 1 grain of hydrogen sulfide or more than 10 grains of total sulfur per 100 standard cubic feet. Typically, the extracted mixture is first sent to the single low-pressure separator to separate of the low-pressure oil. The oil is then piped into two (2) 30,000 gallon above ground storage tanks. The remaining mixture is then sent through one (1) of four (4) high pressure packs that separates the remaining oil from the natural gas. This oil is also piped to the above ground storage tanks. A small amount of the natural gas separated is used to operate the facility's combustion sources such as the high/low separators, engine, amine plant and dehydration plant. Before it can be used as fuel it is sent through the amine plant for removal of H₂S and then through a Tri-ethylene glycol dehydrator for water removal. Any remaining natural gas or acid gas produced by the amine plant is captured by the facility's vapor recovery unit and eventually reinjected back into the formation. The stored oil is eventually loaded onto trucks and sold.

C) Regulatory Evaluation / Compliance Evaluation**1) PTI 119-22**

EUDEHY

This emission unit consists of a Tri ethylene Glycol dehydrator for removing saturated water vapor from the natural gas used for onsite combustion only. Emissions are vented to a vapor recovery unit or emergency/pressure relief valve that, when initiated for emergencies only, directs fuel to the flare.

The regenerator still is vented to the VRU and is interlocked in a way that prevents use of the dehydrator unless the VRU or flare is operating. The actual annual average flow rate is less than 85,000 cubic meters per day. The facility monitors gas flow to the EUDEHY by use of a flow meter. Based on this flow meter at the time of the inspection a total of 3,071.60 mcf of gas had gone to this emission unit which is approximately 17.41 mcf/day. Records are being maintained.

This emission unit appears to be subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Oil and Natural Gas Production Facilities as promulgated in **40 CFR Part 63, Subpart HH** since it is an area source for HAPS. However, AQD does not have area source delegation for this MACT.

EUSOURGASPLANT

Hydrogen sulfide is removed from the sour gas by the amine process and the residue gas is combusted in equipment onsite and the oil is sold. Hydrogen sulfide/acid gas is sent to an acid gas injection (AGI) system to be completely re-injected into oil or gas bearing geologic strata. There is also an emergency/ pressure relief flare; 7.5 gpm Max circulation rate, normal rate 5 gpm.

The facility submitted a preventative maintenance/malfunction abatement plan and an H2S monitoring plan as required. Per discussions, the acid gas injection plant operates whenever the amine plant is operating. The emergency flare and pressure release valve is installed and maintained as needed. During abnormal conditions the wells are "shut in" which discontinues use of all equipment onsite. The facility has an H2S monitoring system that is equipped with audible and visual alarms with call out. Any exceedances (>10 ppm) will result in the facility being "shut in".

The facility is recording gas volume through the amine plant and measuring the treated gas concentration monthly. Total flow through the amine plant at the time of this inspection was 3,071.60 mcf with a daily rate of approximately 17.41 mcf/day. Maintenance is being logged, no malfunctions or abnormal conditions have occurred since permitting in 2022. The property appears to be properly posted with fencing, berms, locked gate, and warning signs to prevent unauthorized individuals from entering.

Special Condition VI.4 requires the facility to record the time and duration of each incidence of emergency flaring of sour gas. Per discussions with Mr. Phillips and a review of records the facility does not appear to fully meet this requirement. A checklist/maintenance lg is being completed which only documents if the technician onsite observed the flare operating. Per Mr. Phillips the facility believed they were only required to track when the flares pilot was operating which is not the intent behind the requirement. CR discussed this in detail and reviewed alarm procedures. Although runtime may not be tracked directly the facility may be able to track alarms to determine when the flare operated. Otherwise, there is no monitoring system that directly reports when the flare operates. Mr. Phillips will discuss and as an interim he will track alarms. This will most likely overestimate flare usage.

EUENGINE01

The engine at the facility was originally installed in 2006 as a CAT G3306TA (Manufactured in April 1983, w/ 203 hp at 800 rpm). In 2019, the engine was replaced by a CAT G3306NA (Manufactured in Feb 1995, w/ 145 hp at 1800rpm). The natural gas used for fuel is treated from extracted sour gas. Per monthly records the H₂S concentration of the treated gas being combusted ranged from 2 ppm to 9 ppm thus far in 2023. The facility is limited to an H₂S concentration based on AQD's definition of sour gas which is any gas containing more than 1 grain of H₂S or 10 grains of total sulfur per 100 cubic feet. These are the equivalent to a concentration of 16ppm. Fuel combusted in EUENGINE01 appears to have a concentration less than the maximum allowed by the permit.

The facility submitted their PM/MAP as required and all maintenance is be logged. No engine change-outs have occurred. Stack dimensions were not measured but discussed and visually appear to meet the requirements. The engine is equipped with an hour meter which had a total runtime of 35,473 hours.

Since the facility is an Area Source for Hazardous Air Pollutants (HAPS) and the engine is not for emergencies the existing compressor engine appears to be subject to the NESHAP as promulgated in **40 CFR Part 63, Subpart ZZZZ (RICE MACT)**. Since it was installed in 2019 the only requirement of the RICE MACT is to comply with the NSPS for Stationary Spark Ignition Internal Combustion Engines as promulgated in **40 CFR Part 60, Subpart JJJJ**. Since the engine is less than 500 hp and was not manufactured after July 1, 2008, or modified/reconstructed after June 12, 2006, it does not appear that the compressor engine is subject to this NSPS.

FGPRODUCTION

This Flexible Group includes all of the sour gas and oil production equipment located at this facility. A VRU is installed and appears to be maintained well. Any vapors from the entire system included the acid gas from the amine plant and vapors from the tank battery are collected by the VRU and either reinjected into the formation or, in the case of an emergency, sent through the emergency relief valve for combustion in the flare. The flare manufacturer is "Flare King" and is equipped with a continuous pilot that is fueled on propane only. Any abnormal conditions, including flare loss will result in the facility being "shut in".

A PM/MAP has been received as required and per discussions with Mr. Phillips, the entire system is interlocked in a way that would prevent operation of any equipment without operating the VRU. Maintenance is being logged as required. Stack measurements were not verified but based on discussions and observations they appear to meet the permitted requirements.

2) Rule 201 Permitting Exemptions

The entire facility, except for the extraction wells, was constructed as one project in 2007. During permitting in 2022 it was determined that the "Project" would have exceeded the significant threshold for SO₂ at 53.3 tpy (Based on Permit's Evaluation for PTI 119-22).

In addition, a letter dated May 18, 2007, from EGLE to Omimex Energy discussing their Claybanks 2 facility, a Potential to Emit (PTE) and actual emissions table for all of their facilities was provided. Based on that table White River's NO_x PTE was 41.6 tons per year (tpy) with actual NO_x emissions reported as 37.0 tpy. These emissions only addressed the compressor engine. The facility's actual

NOx emissions most likely exceeded the significance threshold for NOx and CO of 40 tpy each since no other equipment was factored into the calculations. However, since the operating schedule would have been unknown prior to construction, the facility's PTE should have been used to determine significance and since it was over 40 tpy (41.6), the facility was required to be permitted prior to construction in 2007. Therefore, Per Michigan's Rule 278 the facility is not allowed to use any Rule 201 permitting exemptions for any equipment installed during the original 2007 "Project".

3) Additional State and Federal Air Quality Rules and Regulations not discussed above

- Part 4 of Michigan's Air Pollution Control Rules:

Michigan's Part 4 Rules pertain to sulfur bearing compounds, more specifically Rule 403 applies to Oil and Natural gas producing or transporting facilities and natural gas-processing facilities. White River is an oil/natural gas producing facility and is therefore subject to these Rules. In the past the facility did not consider their Amine plant a sweetening facility since AQD's definition of a sweetening facility does not include a facility or process that operates in an enclosed system.

Rule 119(cc) "sweetening facility" means a facility or process that removes hydrogen sulfide or sulfur-containing compounds, or both, from a sour gas, sour crude oil, or sour condensate stream and converts it to sweet gas, sweet crude, or sweet condensate. The term "sweetening facility" does not include a facility or process that operates in an enclosed system and does not emit hydrogen sulfide to the outer air.

Since some of the extracted natural gas is sweetened and sent to process and the sour gas can be routed to the emergency flare for combustion, the facility is not considered to be operating in a closed-loop system. Therefore, the amine plant is not excluded from Michigan's definition of a "Sweetening Facility" and all requirements of Rule 403 are applicable, which have been incorporated into PTI 119-22.

- Michigan Air Pollution Control Rules, Rule 403(6):

A new sweetening- facility shall not be installed at a distance of less than 1,300 feet from an existing residence, unless otherwise authorized by the department. Such authorization shall depend upon a satisfactory showing by a permit applicant that an odor nuisance shall not result from a lesser setback distance.

Based on Google Earth the nearest residence to the Amine plant is to the northeast. This residence appears in a 1993 aerial map confirming it predates the construction of the amine plant. Therefore, the setback requirement applies. Issuance of PTI 119-22 on August 29, 2022, authorized the construction and operation of this plant.

- New Source Performance Standards (NSPS) for Crude Oil and Natural Gas Facilities promulgated in **40 CFR Part 60, Subparts OOOO and OOOOa** do not apply to White River since this facility was constructed prior to August 23, 2011.

- Stationary Source Determination:

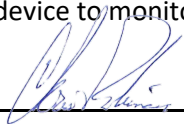
White River extracts oil/gas from five (5) wells all appearing to be adjacent to the facility. More specifically, they are within a quarter mile (1,320-ft) from the facility with the farthest being approximately 1,250 ft from the well to the nearest onsite structure. Since the wells are within a quarter of a mile from the facility the

wells should be aggregated to the facility and included as one stationary Source. Therefore, PTE calculations should include emissions generated from these wells and the equipment used to maintain these wells (Summit Petroleum vs United States Environmental Protection Agency, 2012).

D) Compliance Determination

Based on the observations and a records review Hound Resource's White River Production facility appears to be operating in compliance with PTI No. 119-22 and applicable air quality rules and regulations. However, the facility must determine a method for tracking flare runtime based on equipment currently being used or install a device to monitor and record this information directly.

NAME

DATE 9/7/2023

SUPERVISOR

