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

N779074895

FACILITY: Muskegon Operating Company, LLC -- Straub		**SRN / ID:** N7790
LOCATION: NE NW SEC 10 T20N R3W, HARRISON		**DISTRICT:** Bay City
CITY: HARRISON		**COUNTY:** CLARE
CONTACT:		**ACTIVITY DATE:** 11/21/2024
STAFF: Erin Sheridan	**COMPLIANCE STATUS:**	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled full compliance evaluation for FY25.		
RESOLVED COMPLAINTS:		

On November 21st, 2024, Air Quality Division (AQD) District staff conducted a scheduled onsite inspection at the Muskegon Operating Company – Straub Facility (SRN #N7790). Staff arrived onsite at 2:10 PM and departed at 3:05 PM. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment Great Lakes and Energy, Air Quality Division (AQD) Administrative Rules; and to evaluate compliance with the facilities Permit to Install (PTI), PTI No. 136-07. AQD District Staff were assisted onsite by Dave Bell and John West, site engineers for Muskegon Operating Company – Straub Facility. Requested records were provided by Bennett Myler and Dave Bell.

Facility Description and History

The Muskegon Operating Company's headquarters is in Mount Pleasant, Michigan. The Straub Facility is located at NE NW Sec 10 T20N R3W, Harrison, Michigan. For the onsite inspection, AQD staff met onsite personnel at the facility entrance located on North Athey Avenue. The facility is on private property and accessible via dirt roads; Muskegon Operating Company personnel led AQD staff to the Straub Facility.

The Straub Facility is classified as a synthetic minor source for SOx because they are processing sour gas. One Permit to Install (PTI) is associated with the facility, PTI No. 136-07. The PTI was issued on June 5, 2008. When the Straub facility was initially permitted in 1985, the facility was part of a Renewable Operating Permit (ROP) that contained four (4) central processing facilities (CPF): Straub, FB, Sour Zone, and Chapman. These four (4) facilities were part of Administrative Consent Order (ACO) No. AQD 4-2009 associated with SRN #N0924. Consent Order 4-2009 was issued for multiple violations across the four (4) facilities, most significant being failure to fuel flare pilots with sweet gas or propane, improper operation of the facility flare and pilot and failure to report deviations from the ROP. Based on a memorandum on January 12, 2007, from EPA addressing oil and gas industry sources, Muskegon Operating Company separated these facilities into separate stationary sources, subsequently separate SRNs. The memo stated the CPFs are not in close proximity to each other and should not be considered a single source. The Sour Zone Facility maintained the old SRN #N0924 and the Straub facility was issued SRN #N7790The earlier consent order 4-2009 is the only ACO related to the Straub Facility and has since been terminated. ROP conditions associated with Consent Order 4-2009 were included in Consent Order 10- 2013. ACO No. AQD 10-2013 and does not include the Straub Facility.

The Straub Facility is fed by seven (7) wells: Douglas 2, Holbrock Bicknell 1, Holbrock Bicknell 2, Second National Bank 1, Straub 1, Straub Unit 1-10, and Straub Unit 2-10. PTI No. 136-07 states that the facility is fed by six (6) wells: Douglass 2, Holbrook-Bicknell 1, Holbrook-Bicknell 2, Second National Bank 1, Stafford 3, and Straub 1. PTI No. 136-07 also states that the facility cannot process any other wells without prior notification to the AQD District Supervisor (Special Condition (S.C.) 3.2). During initial review of previous inspection reports, it was found that during the 2021 inspection the facility was being fed by eight (8) wells. A violation notice was not issued, and further investigation was not conducted after the 2021 inspection. Prior notification documentation was not found in AQD or Muskegon Operating Company records. More information regarding the variation of wells was requested from Muskegon Operating Company – Straub Facility personnel which included the date of installation and start of operation, the hydrogen sulfide content of new wells upon commencement of processing, and any changes not previously documented. Muskegon Operating Company personnel provided the following information: Stafford 3 was plugged and abandoned in 2018, Straub Unit 1-10 was drilled and completed in 2018 and produces from the Detroit River Sour Zone with a starting hydrogen sulfide concentration of 3%, and Straub Unit 2-10 was drilled and completed in 2018 and produces from the Richfield Zone with a starting hydrogen sulfide concentration of 0%. Records associated with the facility's emission/material usage show that the facility is sufficiently below their limits, regardless of the change in wells since the issuance of PTI No. 136-07. I reviewed the permit evaluation (136-07) and the allowable sulfur dioxide emission limit had been increased to allow them to rework some of their older wells and possibly add some new wells to the CPF. Therefore, while required, a notification was more of a courtesy as the emissions had already been evaluated. A violation notice was not sent; a reminder of the prior notification permit requirement for wells not listed in PTI No.136-07 was sent to the company to ensure compliance going forward.

Wells feeding the Straub Facility draw material from the Detroit River Sour Zone and the Richfield Zone. Condensate consisting of oil, natural gas, and other liquids from is fed into the facility. A combination of condensates from all eight (8) wells is fed to the heater treater where the three components are separated. The oil is sent to two, 400 bl, onsite tanks. Brine is sent to a single 210 bl tank. PTI No. 136-07 indicates that there are two 210 bl storage tanks on site. The modification of onsite tanks meets an exemption to permitting; R 336.1284 (2)(f). The natural gas separated by the heater treater is used as fuel for the heater treater. Any excess natural gas that is not able to be used as fuel, is sent to the flare. Vapors from the onsite tanks, both oil and brine, are also sent to the flare. Natural gas being sent to the flare is sent through a pipe; the pipe has bottles placed at the low points to filter unwanted liquid that was not removed in the heater treater. Material is not fed to the facility at night. Wells are turned off each evening and on every morning by field staff.

The Straub Facility was last inspected in July of 2021. During the 2021 inspection, the facility was found to be in compliance. One complaint is on record with the AQD for the Straub Facility. In January of 2009, AQD received an offsite odor complaint associated with the gas wells onsite. No offsite odors were detected during the 2024 inspection.

EUHEATERTREATER

Condensate feeding the facility is first sent to a heater treater rated at 250,000 Btu/hr. The natural gas separated by the heater treater feeds back to the heater treater as a fuel source. Excess gas that is not used to power the heater treater is sent to the flare. The heater treater is equipped with a device to monitor and record volumetric flow rate of gas going to the pilot and main burners (S.C. 2.3); this device was viewed during onsite inspection activities by AQD staff. Reports of monitoring data from meters are sent to a server in Kalkaska daily. In addition, contractors come out quarterly to inspect and maintain the heater treater and its meters (S.C. 2.8). A variety of records from the previous 12 months were requested from Muskegon Operating Company personnel on November 13th, 2024. Monthly records of the daily volumetric flow rate of gas going to EUHEATERTREATER pilot and main burners and daily hydrogen sulfide mass flowrate to EUHEATERTREATER are maintained in a satisfactory manner (S.C. 2.7). Hydrogen sulfide concentrations are checked monthly using colorimetric detector tubes (S.C. 2.5). The Straub Facility onsite staff stated that they use Gas Tech tubes that have a hydrogen sulfide range of 2-20%; the typical result from this test is a 4% hydrogen sulfide concentration. The highest daily volumetric flow rate of gas going to EUHEATERTREATER pilot and main burners in the past 12 months occurred on March 18th, 2024, with a flow rate of 5.54 MCFD. The highest hydrogen sulfide mass flowrate to EUHEATERTREATER was also on March 18th, 2024, with a rate of 19.5 lb/day. There was a total of 13 days during the 12-month period in which daily volumetric flow rate of gas to EUHEATERTREATER was 0 MCFD and hydrogen sulfide mass flow rate was 0 lb/day.

Routine maintenance is conducted and recorded for EUHEATERTREATER (S.C. 2.8). All significant maintenance activities for the last 12 months were requested and provided. The pilot of the heater treater is checked by onsite staff daily. The pilot guard, heater treater burner, and valve shut off are inspected monthly. A standardized checklist is used to document equipment inspection and repairs (S.C. 2.1). Records indicated that from September 1st, 2024, through September 4th, 2024, the pilot was not lit. Muskegon Operating Company personnel stated that the pilot was not lit due to a cleaning process of the heater treater during this time. Shut down of all gas fueling heater treater commenced within seconds of the heater treater pilot flame going out (S.C. 2.4). Straub Facility staff also stated that EUHEATERTREATER is not operated and immediately shuts down if EUFLARESYSTEM is not operating properly (S.C. 2.2). The stack on EUHEATERTREATER was observed during inspection activities, exact measurements were not taken but height and dimensions seemed to be adequate with what is required in PTI No. 136-07 (S.C. 2.9).

EUFLARESYSTEM

The Muskegon Operating Company – Straub Facility is equipped with a flare system designed to burn sour gas from the heater treater, vapors from various relief vents, and tank vapors associated with the oil and brine storage tanks (S.C. 3.4). One pipe runs above another pipe to the flare; the above pipe is from the tanks and the pipe closer to the ground is from the heater treater. EUFLARESYSTEM has a device to monitor and record volumetric flow rate of gas going to the flare which is checked daily by both onsite personnel and at offsite servers located in Kalkaska (S.C. 1.3 and S.C. 1.4). In addition, a contractor comes to the facility quarterly to inspect and maintain or repair (as needed) the monitoring devices. Hydrogen sulfide concentration is monitored using colorimetric detector tubes and checked monthly via digitally recorded data and reports from the collected Gas Tube samples (S.C.

1.4). The hydrogen sulfide concentration samples are used to calculate the mass flow rates of hydrogen sulfide; flow rates of hydrogen sulfide are then converted to mass flow rate of sulfur dioxide. Monitors were observed during onsite inspection activities by AQD staff and seemed to be operating properly.

Monthly records related to EUFLARESYSTEM for the last 12 months were requested and provided; Muskegon Operating Company – Straub Facility seems to be maintaining appropriate emission and maintenance records in a satisfactory manner. Hydrogen sulfide concentration remained consistent throughout the 12-month period. All monthly records showed the hydrogen sulfide concentration being measured at 4% besides the month of April 2024, which showed a 3% concentration of hydrogen sulfide. The highest daily gas flow rate to the flare in the last 12 months was on June 17th, 2024, with a flare gas rate of 34.83 MCFD. The highest flare mass flow rate of hydrogen sulfide in the last 12 months was also on June 17th, 2024, with a rate of 124.9 lb/day. This amount is well below the permitted limit of 258.8 lb/day hydrogen sulfide burned in EUFLARESYTEM (S.C. 1.1). There were 17 days during the 12-month period in which daily volumetric flow rate of gas to EUFLARESYSTEM was 0 MCFD and hydrogen sulfide mass flow rate was 0 lb/day.

Routine maintenance is conducted on EUFLARESYSTEM, and maintenance records are maintained (S.C. 1.7). All records of significant maintenance activities for the last 12 months were requested and provided. The pilot flame is checked daily by onsite personnel to ensure it is lit. The flare pilot is inspected monthly and after each flare shutdown. The pilot is changed when necessary. Quarterly inspections and maintenance or repair (as needed) are conducted for EUFLARESYSTEM. There were two instances in the last 12 months where the flare was recorded as "not lit": both in February of 2024. Muskegon Operating Company personnel stated that these instances occurred due to weather conditions putting the flare out. EUFLARESYTEM has a heat sensing camera pointed at the pilot flame. If the temperature drops below the set point, a pneumatic valve trips and shuts in the facility. This mechanism ensures that material flow from wells to the heater treater ceases within seconds (S.C. 3.5). There is also an automatic re-lighter that commences if the pilot flame were to blow out. Muskegon Operating personnel stated that this process occurred during any period of flare pilot outage in the last 12 months.

FGFACILITY

The oil and brine that is stored at the Straub Facility in storage tanks is trucked offsite. As the truck loads the oil for transportation, the gas inside the truck is displaced and vacuumed back into the storage tank. The process of returning gas back to the storage tanks is considered a vapor return system and is operating on all storage tanks during load out (S.C. 3.6).

As part of the daily checklist mentioned above, daily observations of flare opacity are conducted (S.C. 3.8). Onsite personnel note whether the flare opacity is over or under 20% opacity along with the date and time of observations. During the 12-month period of records reviewed, no instances of flare opacity above 20% were reported. If excess visible emissions are observed, procedures are in place to resolve this matter. The procedure includes checking the bottles that separate excess liquid from natural gas being sent from the heater treater to ensure there is not a buildup and no liquid is getting to the flare. No visible emissions of excess opacity were observed during the onsite inspection.

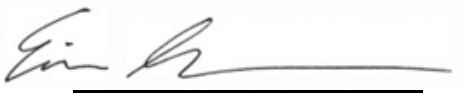
All eight wells feeding the facility are equipped with murphy switches. The murphy switches are set to shut down a well before the pressure reaches a company determined safety set-point (S.C. 3.5).

Fencing and warning signs were maintained around all pieces of equipment observed onsite (S.C. 3.7). Although the Straub Facility is located on private property, the fencing and warning signs are in place to ensure prevention of access to equipment by unauthorized individuals.

Sulfur dioxide emissions are to be calculated monthly for the previous 12-month rolling time period and shall not exceed 89 tons per year (S.C. 3.10). Records provided by Muskegon operating Company personnel were provided and, after review, seem to be sufficiently kept and under the permitted emission limits. Calculations are completed using hydrogen sulfide sampling and flow rate data. The lowest sulfur dioxide content during the reviewed 12-month rolling period occurred at the end of October 2024, with 11.53 tons per year of sulfur dioxide. The highest recorded sulfur dioxide content during the 12-month rolling period occurred at the end of November 2023, with 22.60 tons per year sulfur dioxide.

Summary

The Muskegon Operating Company – Straub Facility is a central processing facility located in Clare County, Michigan. The facility is a synthetic minor opt-out source of SOx. One PTI is associated with the facility, PTI No. 136-07. Eight wells draw material to the facility from the Detroit River Sour Zone and the Richfield Zone. Condensate consisting of oil, natural gas, and other liquids (brine) is fed into the facility to a heater treater. The heater treater separates the three components; the oil and brine are sent to onsite storage tanks and the natural gas is used to fuel the heater treater. Excess natural gas not used to fuel the heater treater and vapors from storage tanks/relief valves are sent to the flare. The facility was operating during the onsite inspection. After onsite inspections activities and review of requested records, Muskegon Operating Company – Straub Facility seems to be in compliance.



NAME

DATE 12/10/2024 SUPERVISOR