

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

N779059281

FACILITY: Muskegon Development Company -- Straub Facility		SRN / ID: N7790
LOCATION: NE NW SEC 10 T20N R3W, HARRISON		DISTRICT: Bay City
CITY: HARRISON		COUNTY: CLARE
CONTACT: Dave Bell ,		ACTIVITY DATE: 07/20/2021
STAFF: Nathanael Gentle	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Onsite Inspection.		
RESOLVED COMPLAINTS:		

On July 20, 2021, AQD staff conducted a scheduled onsite inspection at the Muskegon Development Company- Straub Facility, SRN N7790. Staff arrived onsite at 10:19 AM and departed at 11:30 AM. 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 staff were assisted onsite by Mr. Dave Bell, Mr. Bennet Myler and Mr. John West. Requested records were provided by Mr. Bennet Myler and Mr. Dave Bell.

Facility Description and History

The Muskegon Development Company is headquartered in Mount Pleasant Michigan. Their Straub Facility is located at NE NW SEC 10 T20N R3W, Harrison, Clare County. Coordinates for the facility are 44.146034, -84.660382. Located on private property, the site is accessed by dirt roads. For the onsite inspection, AQD staff met onsite personnel at the dirt road entrance located on N Athey Ave, 1.15 miles south of Clarosky Rd. From there, Muskegon Development Company personnel led the way to the Straub facility.

The Straub facility is reported to be fed by 8 wells. Wells feeding the facility draw material from both the Detroit River Sour Zone and the Richfield Zone. Condensate consisting of oil, natural gas and other liquids is fed into the facility to a heater treater. The heater treater separates the three components. Oil is sent to two onsite tank batteries, each with a 400 bl capacity. PTI No. 136-07 lists the two onsite tank batteries as being 210 barrels each. Facility personnel confirmed the tanks are in fact 400 bl each. Brine is sent to a single 210 bl tank. Gas separated by the heater treater is used as fuel for the heater treater. All remaining gas not used as fuel is sent to the flare. Vapors from the onsite tank batteries are also sent to flare. Gas going to the flare passes through a separator to remove any excess liquid not removed in the heater treater. Material is not sent to the facility at night. Wells are turned off in the evening and turned back on in the morning by field staff.

As a facility that processes sour gas, the Straub facility is classified as a synthetic minor source for SOx. One PTI is associated with the facility, PTI No. 136-07. The PTI was issued on June 6, 2008. Prior to the issuance of PTI No. 136-07 in 2008, the facility was part of a Renewable Operating Permit (ROP) that contained 4 Central processing Facilities (CPF), including the Straub, FB, Sour Zone and Chapman CPFs. Based on a memorandum on January 12, 2007, from EPA addressing oil

and gas industry sources, Muskegon Development Company retained the Sour Zone CPF in the ROP and the remaining facilities were issued new minor opt-out permits or shut-down.

The Straub facility was last inspected in March 2017. During the 2017 inspection, the facility was found to be in compliance. One complaint is on record with the AQD for the facility. In January 2009, EGLE received a complaint for offsite odors from the facility. No offsite odors were detected during the July 20, 2021 inspection. MAERS reports for the facility are typically received in a timely manner.

EUHEATERTREATER

Condensate entering the facility is first sent to a heater treater rated at 350,000 Btu/hr. Gas separated by the heater treater goes back for fuel to power the heater treater. Excess gas not used for fuel is sent to the flare. The heater treater is equipped with a device to monitor and record the volumetric flow rate of gas going to the pilot and main burners, Special Condition (S.C.) 2.3. Information from the meter can be viewed remotely from the Muskegon Development Company office in Mount Pleasant. Additionally, field staff check the meters at the beginning of every day after wells are turned on to ensure they are working properly. Monthly records of the daily volumetric flow rate of gas going to EUHEATERTREATER pilot and main burners and daily H₂S mass flowrate to EUHEATERTREATER are maintained, S.C. 2.7. Records for the last 12 months were provided and reviewed. Appropriate records appear to be in place. During the period of July 2020 through June 2021, the highest daily volumetric flow rate of gas going to EUHEATERTREATER pilot and main burners occurred on 3/1/2021 with a flow rate of 6.35 MCFD. The highest H₂S mass flowrate to EUHEATERTREATER was 22.8 lb/day on 3/1/2021. There were 10 days during the 12-month period in which daily volumetric flow rate of gas to EUHEATERTREATER was 0 MCFD and H₂S mass flowrate was 0 lb/day.

Routine maintenance is conducted on EUHEATERTREATER and maintenance records are maintained, S.C. 2.8. Records for the last 12 months of all significant maintenance activities were requested and provided. The pilot of the heater treater is checked daily. The pilot guard, heater treater burner, and valve shut off are inspected monthly. The stack of the heater treater is cleaned routinely, approximately once a month. A standardized checklist is used by personnel to document equipment inspection and repairs, S.C. 2.1. In addition to routine maintenance, repairs and maintenance are conducted on the heater treater as they are needed to ensure equipment is operating properly.

EUHEATERTREATER is not operated unless EUFLARESYSTEM is operating properly, S.C. 2.2. In the event the pilot on EUFLARESYSTEM goes out, material flow to the facility is shut down.

EUFLARESYSTEM

The Muskegon Development Company - Straub Facility is equipped with a flare system designed to burn the sour gas from the heater treater and vapors from various relief vents and tank vapors associated with the oil and brine storage tanks. EUFLARESYSTEM is equipped with a device to monitor and record volumetric flow of gas going to the flare, S.C. 1.3. The device is monitored daily to verify it is operating properly. Data is recorded digitally, and reports are pulled monthly, S.C. 1.4. During the onsite inspection, an instantaneous flow rate of 40 FCM was observed.

Representative hydrogen sulfide concentrations are measured monthly using colorimetric detector tubes, S.C. 1.4. Gas samples are collected from gas coming out of the heater treater. Samples are collected by pulling a valve and inserting the collector tubes into the gas stream. The representative samples are used to calculate the mass flow rates of H₂S which are converted to mass flow rate of SO₂.

Monthly records of representative hydrogen sulfide concentrations, daily volumetric flow rate of gas going to the flare and daily hydrogen sulfide mass flow rate to the EUFLARESYSTEM are maintained. Records for the last 12 months were provided and reviewed. Gas concentrations flowing to the site remain very consistent. Onsite personnel reported the H₂S concentration to commonly be measured at 4%. Monthly records of representative sample collections for the last 12 months, July 2020 to June 2021, all measured 4% H₂S. Samples were collected every month; the time of month each sample was collected varied from month to month during the 12-month period. During the 12-month record period the highest daily gas flow rate to the flare was on May 10, 2021 with a flare gas rate of 40.04 MCFD. The highest flare mass flow rate of H₂S was also on May 10, 2021 with a rate of 143.5 lb/day. S.C. 1.1 states the amount of hydrogen sulfide burned in EUFLARESYSTEM shall not exceed 258.8 pounds per calendar day; the facility was well below their daily limit. There were 8 days during the 12-month period in which daily volumetric flow rate of gas to EUFLARESYSTEM was 0 MCFD and H₂S mass flowrate was 0 lb/day.

Routine maintenance is conducted on EUFLARESYSTEM and maintenance records are maintained, S.C. 1.7. Records for the last 12 months of all significant maintenance activities were requested and provided. The flare pilot is inspected monthly and after each flare shut-down or shut-in. The pilot is changed on an as needed basis. The flare flame out detector is tested for proper operation monthly. Operation is also recorded after each flare outage. Other maintenance such as valve replacement and cleaning out the stack are conducted as needed.

EUFLARESYSTEM is equipped with a heat sensing camera pointed at the pilot flame. If the temperature drops below the set point, a pneumatic valves trips, shutting in the facility and ceasing material flow from wells to the heater treater, S.C. 3.5. Records are maintained of flare outages and maintenance completed to get the system relight.

FGFACILITY

Oil condensate and brine solution separated out in the heater treater are sent to onsite storage tanks. All storage tanks are vented to the flare, S.C. 3.4. Oil and brine stored in onsite tanks is trucked off site. All load out stations are equipped with a vapor return system, S.C. 3.6. The vapor return systems send the vapors to the line that goes to the flare.

Onsite procedures at the Straub facility require onsite personnel to run through a daily checklist. As part of the daily checklist, daily observations of flare opacity are conducted, S.C. 3.8. Observers note whether the flare opacity is over or under 20% opacity and the date and time the observation was conducted. If opacity above 20% is observed an "O" is wrote on the checklist and corrective measures are taken. If opacity observations are under 20%, an "U" is wrote on the checklist. Observation records are maintained. During the 12-month period of records reviewed, one instance on June 22, 2021 at 7 AM, an "O" was marked on the observation sheet with a note written above saying the field was shut in. AQD staff inquired as to what the cause of this excess opacity was and what was done to correct it. Personnel at Muskegon Development Company said

the pilot on the flare was out that day and would not re-light. The field had automatically shut-in, ceasing all gas flow to the facility. Needed repairs were made to the pilot. Personnel were unsure as to why their pumper wrote an "O" for opacity as the flare would not have been operating to observe. Excess opacity was not observed from the operating flare during the onsite inspection.

All 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. Onsite personnel report the switches are set to trigger and shut down wells at approximately 75 lbs, normal operating pressure is around 50 lbs.

Fencing is maintained around all pieces of equipment onsite. In addition, numerous warning signs are posted, S.C. 3.7. These measures are in place to prevent access to equipment by unauthorized individuals.

The emission rate of SO₂ for the facility is limited to 89 TPY. S.C. 3.10 requires SO₂ emissions be calculated monthly for the preceding 12-month rolling time period. Records for the last 12 months were provided and reviewed. Calculations are completed using H₂S sampling and flow rate data. During the reviewed record period, the lowest 12-month rolling period occurred at the end of March 2021 with 16.7 TPY SO₂. The highest 12-month rolling value occurred at the end of July 2020 with 22.9 TPY SO₂. Emission calculations for SO₂ are well below the facilities permitted limit of 89 TPY.

Summary

The Muskegon Development Company – Straub facility is a central processing facility located in Clare County, MI. The facility is a synthetic minor source of SO_x. One PTI is associated with the facility, PTI No. 136-07. Wells feeding the facility draw material from both the Detroit River Sour Zone and the Richfield Zone. Condensate consisting of oil, natural gas and other liquids is fed into the facility to a heater treater. The heater treater separates the three components. Oil and brine are sent to onsite storage tanks to be later trucked out. Gas separated in the heater treater is cycled back as fuel for the unit. Excess gas from the heater treater and vapors from stored material are combusted in a flare. During the onsite inspection, the facility was operating. Appropriate records are maintained and were provided for review. At this time, the facility appears to be in compliance.

NAME *Nathanael Dentel*

8/12/2021

DATE

SUPERVISOR *Chris Hare*