

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Other

N092458270

FACILITY: MUSKEGON DEVELOPMENT--HEADQUARTERS--Sour Zone CPF		SRN / ID: N0924
LOCATION: SE SE Section 29, T21N, R3W, HOUGHTON LAKE		DISTRICT: Gaylord
CITY: HOUGHTON LAKE		COUNTY: ROSCOMMON
CONTACT: Bennett Myler ,		ACTIVITY DATE: 05/27/2021
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: April 2021 Monthly report submittal review. sgl		
RESOLVED COMPLAINTS:		

The Muskegon Development Company (MDC) Headquarters Field Sour Zone – Central Production Facility (CPF). The referenced Facility is located in the SE ¼, SE ¼ Section 29, Township 21 N, R 3 W, Houghton Lake, Roscommon County, Michigan and is assigned State Registration Number (SRN) N0924. The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N0924-2019, issued on September 3, 2019.

The Facility submits monthly reports, this document summarizes both limited historical data from previously submitted monthly reports as well as data submitted as part of the most recent submittal dated May 25, 2021, and received May 27, 2021. Data summarized in this review indicates that the Facility is operating within ROP limits.

FACILITY

The referenced Facility is an unmanned, fenced and gated CPF located within the Au Sable State Forest in the southeast portion of Roscommon Township, Roscommon County. Adjacent properties consist of leased oil and gas activities in undeveloped State forest. The facility was purchased by MDC in 1995.

The Facility collects a mixture of gas, crude oil, condensate and brine from flow lines from oil wells (three at present) in the surrounding area. The wells are reported to be “Detroit River Sour Wells”. An inline “heater treater” is used to heat the mixture and allow the various components to separate from the incoming mixture. At the time of the site inspection the heater treater was reported to only be operated in the winter when temperatures required it. The crude oil, condensate and brine are stored in tanks onsite, with the crude oil and condensate trucked offsite. The brine is re-injected into deep rock formations via a disposal well.

Natural Gas (NG) produced contains hydrogen sulfide at concentrations defined as “sour gas”. The NG is directed to an elevated flare onsite, where it is burned converting the hydrogen sulfide to sulfur dioxide which is less dangerous and less odiferous than hydrogen sulfide. The flare is equipped with safety systems to ensure that it operates properly whenever sour gas is being produced. No gas produced onsite is processed for sale.

EQUIPMENT

- EUFLARESYSTEM –

Installed in March 1985, the EU is designed to burn source gas from the heater treater and vapors from all emergency relief valves/vents and blowdown associated with the oil and brine storage tanks. The unit is equipped with a continuous flare, and an emergency shutdown for incoming

gas from the wells should the flare be extinguished. There is no pollution control equipment associated with the EU. At present should the flare go out, and emergency shut down occur MDC staff are mobilized out to relight the flare.

- **EUTANKBATTERY –**

Also installed in March 1985, this EU includes storage tanks for oil and brine and at the time of the ROP Renewal were identified as two 400-barrel stock tanks which would were identified as exempt from Rule 201 permitting under Rule 284(f) (AKA Rule 284 (2)(f)) at the time of ROP Renewal.

More recent site inspection indicates that a total of three tanks exist onsite with vapor recovery. Two 400-barrel (16,800 gallon) oil tanks with loadout, and one 200-barrel (8,400 gallon) brine tank. Vapor recovery was reported by the operator to go to EUFLARESYSTEM.

- **EUHEATERTREATER –**

This EU is the heater for treating produced oil and has a rating of 467,000 BTU/Hour. This EU was replaced in 2013. The unit is approximately 20 feet tall with a 40-foot stack (8-inches in diameter). Operation of the heater treater was reported to be more critical in production activities in the winter when the temps are colder.

PTI 194-18 was issued to allow for a change in fuel to sour gas. The permit application (194-18) was received the week of November 26, 2018 and was approved on December 26, 2018 and was rolled into the ROP during the recent renewal process. Switching of EUHEATERTREATER fuels was completed in March 2020.

REPORTING -

Under the ROP, the Facility is required to promptly report deviations pursuant to General Conditions 21 and 22 of the ROP, as well as report semi-annually and annually certification of compliance. A review of District Files indicates that reporting is conducted in a timely manner. In addition, the Facility reports on a monthly basis the following in compliance with SC VII.4:

- Daily volumetric flow rate of sour gas to flare
- Daily mass flow rate of H2S
- Representative H2S content of incoming gas
- Daily SO2 emissions from the facility.

EUHEATERTREATER – This EU was permitted under PTI 194-18 and rolled into the ROP at the most recent renewal. Records submitted by the Facility on a monthly basis have shown compliance with the permit limits and are summarized below:

MONTH	MASS H2S FLOW RATE (lbs/day)	H2S Concentration (SC V.1)	Fuel Gas Rate (MCFD) (SC VI.1)	SO2 Emissions from Heater Treater
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				(lbs/day) (SC VI.3)
March 2020	0 - 13	40,000	0 - 2.4	0 - 24.4
April 2020	0 - 7.7	40,000	0 - 2.2	0.1 - 14.5
May 2020	0 - 8.4	60,000	0 - 1.8	0 - 17.7
June 2020	0 - 17.5	40,000	0 - 4.9	0 - 33
July 2020	0 - 3.4	40,000	0.01 - 0.96	0 - 6.5
August 2020	0 - 16.7	50,000	0.01 - 3.73	0.1 - 31.4
September 2020	0.01 - 6.6	20,000	0.01 - 3.69	0.1 - 12.4
October 2020	0 - 17.1	50,000	0.01 - 3.82	0.1 - 32.2
November 2020	0.5 - 11.0	40,000	0.01 - 3.03	0.1 - 20.6
December 2020	0.4 - 8.9	40,000	0.1 - 2.48	0.7 - 16.7
January 2021	0.3 - 9.7	50,000	0.06 - 2.17	0.5 - 18.3
February 2021	0.59 - 6.38	50,000	0.1 - 28.6	0.2 - 53.7
March 2021	1.1 - 17.20	40,000	1.43 - 4.81	2.0 - 30.4
April 2021	2.46 - 16.6	50,000	0.7 - 3.7	4.5 - 31.2
LIMIT	50.2 lbs/day (SC III.2)			3.93 pph SO2 (SC I.1)

				(equates to 94.32 lb SO ₂ /day)
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EUFLARESYSTEM_ source gases from the heater treater, vapors from emergency relief valves, blowdown from oil and brine storage tanks and vapors from loadout vapor return systems are vented to EUFLARESYSTEM, in compliance with SC IV.1.

Month	Gas Flowrate to Flare (MCFD) (SC IV.2)	H ₂ S Mass Flowrate to Flare (lbs/day)	SO ₂ Emissions (lbs/day)
November 2019	7.02 – 17.53	28.3 – 70.7	53.2 – 132.9
December 2019	1.69 – 20.56	9.1 – 110.5	17.1 – 207.8
January 2020	5.35 – 9.78	17.8 – 36.0	33.5 – 74.1
February 2020	5.6 – 13.1	29.8 – 70.4	56.1 – 132.3
March 2020	2.9 – 13.4	15.6 – 71.9	38.5 – 135.2
April 2020	0.3 – 12.5	1.1 – 44.7	2.0 – 83.4
May 2020	2.6 – 19.3	14.0 – 103.8	26.3 – 195.2
June 2020	6.1 – 16.8	22.0 – 62.4	41.4 – 113.0
July 2020	5.8 – 16.77	20.8 – 60.1	39.1 – 113.0
August 2020	0.48 – 16.07	3.7 - 72	4.0 – 135.4
September 2020	0.03 – 9.09	0.1 – 16.3	0.1 – 30.6
October 2020	0.1 – 13.48	0.2 – 60.4	0.1 – 113.6
November 2020	0.1 – 8.15	0.4 – 29.2	0.7 – 54.9

December 2020	0.01 – 8.36	0.1 – 30	0.1 – 56.3
January 2021	0.03 – 4.76	0.1 – 21.3	0.3 - 32.3
February 2021	0.44 – 8.51	2.0 – 38.1	3.7 – 66.5
March 2021	0.03 – 6.03	0.1 – 24.1	0.2 – 45.4
April 2021	3.43 – 10.94	15.4 – 49.0	28.9 – 92.2
LIMIT	NA	367.4 lb/day (SCIII.2)	690.72 lbs/day (based on 28.78 lbs SO2/hr of SC I.1)

FACILITY EMISSIONS

12-Month Rolling Date	TOTAL SO2 EMISSIONS (Tons/Yr)
Sept. 2020	14.43
October 2020	13.27
November 2020	12.61
December 2020	11.42
January 2021	10.93
February 2021	10.29
March 2021	9.42
April 2021	9.75

Limit	126.06
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Totals reported for the April 2021 calendar month appear to be in general compliance with permit limits.

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Sharon LeBlanc Digitally signed by Sharon LeBlanc
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Shane Nixon Digitally signed by Shane Nixon
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SUPERVISOR _____

