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

N607274142

FACILITY: Muzyl Oil Company - Elmer 17B		**SRN / ID:** N6072
LOCATION: SW SE SW T28N R02E SEC 17, ELMER TWP		**DISTRICT:** Cadillac
CITY: ELMER TWP		**COUNTY:** OSCODA
CONTACT: Nelson R. Fairchild , Consultant		**ACTIVITY DATE:** 10/09/2024
STAFF: Tammie Puite	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Inspect for VOID request.		
RESOLVED COMPLAINTS:		

From Lewiston, head East on County Road 612, Turn South on Town Line Road, head East on Pennsylvania Crossing Road, Stay on Pennsulvania Crossing Road (Right) when you come to the V intersection. Follow South East for 1.5 Miles (Becomes Oak Lake Road). Facility is on the Right side of the road 1/8 of mile back in. This facility is a booster facility located in Elmer Township, Oscoda County. At this facility, sweet natural gas from low-pressure Antrim formation wells flow to the facility via buried flowlines. Upon reaching the facility, the gas is then pumped via a CAT 3304 NA, 95 HP engine to the Muzyl Oil – Elmer 26, N6074 for processing.

Becky Radulski, Sharon LeBlanc, and I performed an inspection on this source with respect to Permit to Install (PTI) 624-96, and a request to void the PTI do to the facility being exempt. The inspection consisted of an onsite inspection of equipment and an analysis of the engine's potential to emit emissions.

Upon arrival on site, no odors were noted downwind and no visible emissions from any point were noted. The facility was in operation. The grounds and facility were maintained, and it was evident that company personnel frequent the site. The engine did have a small oil leak that was being captured before being absorbed by the ground. The stack had a muffler that was venting straight up through the roof, and the rear doors were open to allow for airflow to the back of the engine. The only other equipment on site that appeared to be operating was the separator.

An inventory of pertinent equipment at the facility was as follows:

- Caterpillar model 3304 NA booster compressor, is an inline 4 cylinder, 95 HP engine with no catalytic emission control. Skid number C 500. Serial # N4F02004. 71 KW, 1800 RPM, Meter 1518 RPM.
- 400 barrel (bbl) capacity Aboveground Storage Tank (AST).
- Glycol dehydrator that was dismantled and all gauges reading zero.
- Oil & Water separator operating at 40 PSI
- O2 Analyzer operating at 0.37 PPM

NOx emissions for the facility are calculated to be no more than 14.5 TPY based on the Engine Spec sheet provided by Caterpillar.

The facility pulls gas only from Antrim formations, HAPs need not be calculated as natural gas produced from this formation does not contain HAPs. Natural gas extracted from this formation is considered "sweet" by definition.

The AST tank is exempt from permitting under Rule 336.1284(2)(e).

This facility is currently not subject to 40 CFR 60 Subpart KKK as no natural gas liquids are processed.

This facility is no longer required to report annual emissions, and a request has been made to VOID the PTI, due to all equipment onsite meeting the requirements for exemptions.

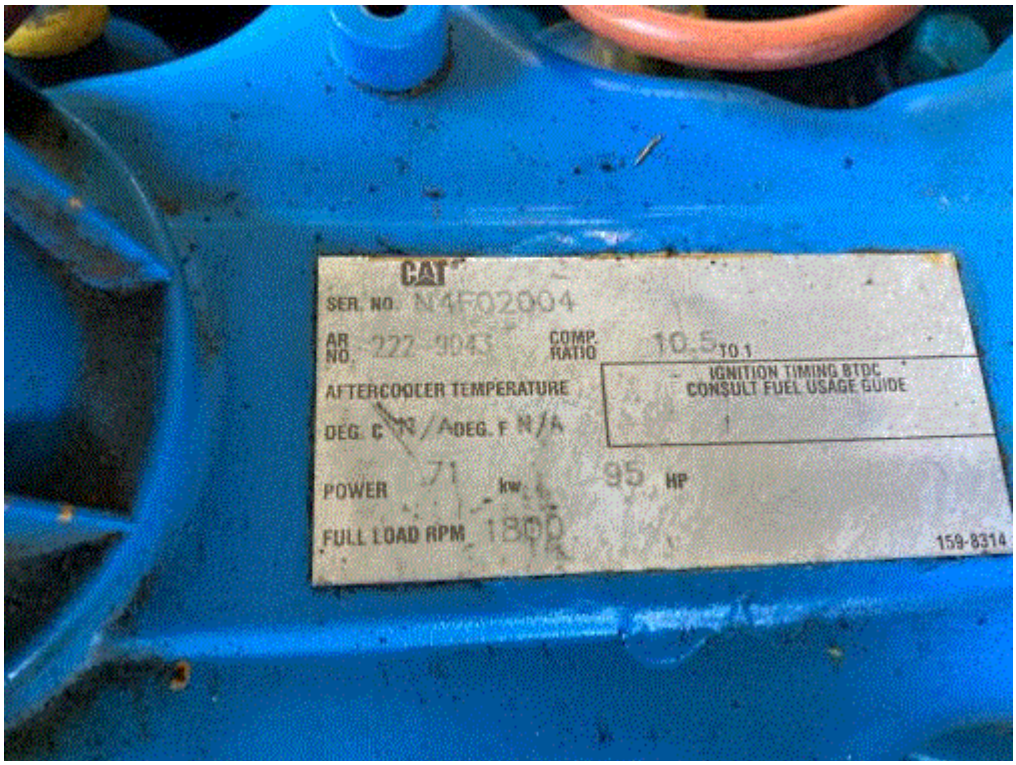

Image 1(Serial # Tag) : N4F02004, 95HP - Skid C500

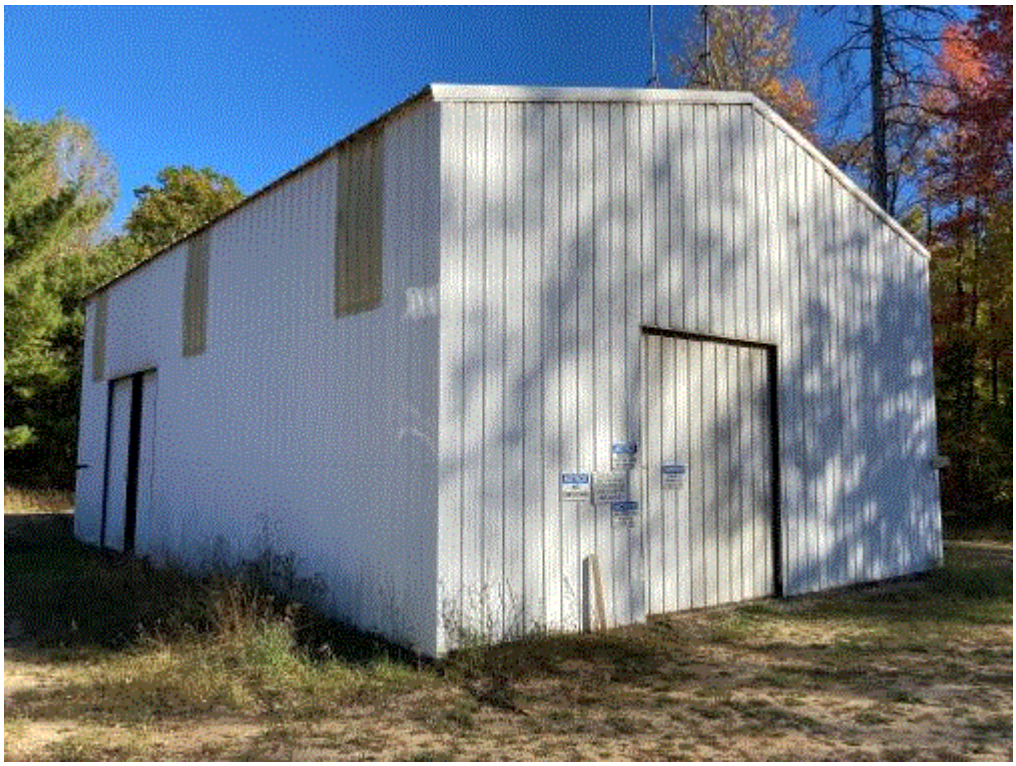

Image 2(N6072) : Building housing the Equipment

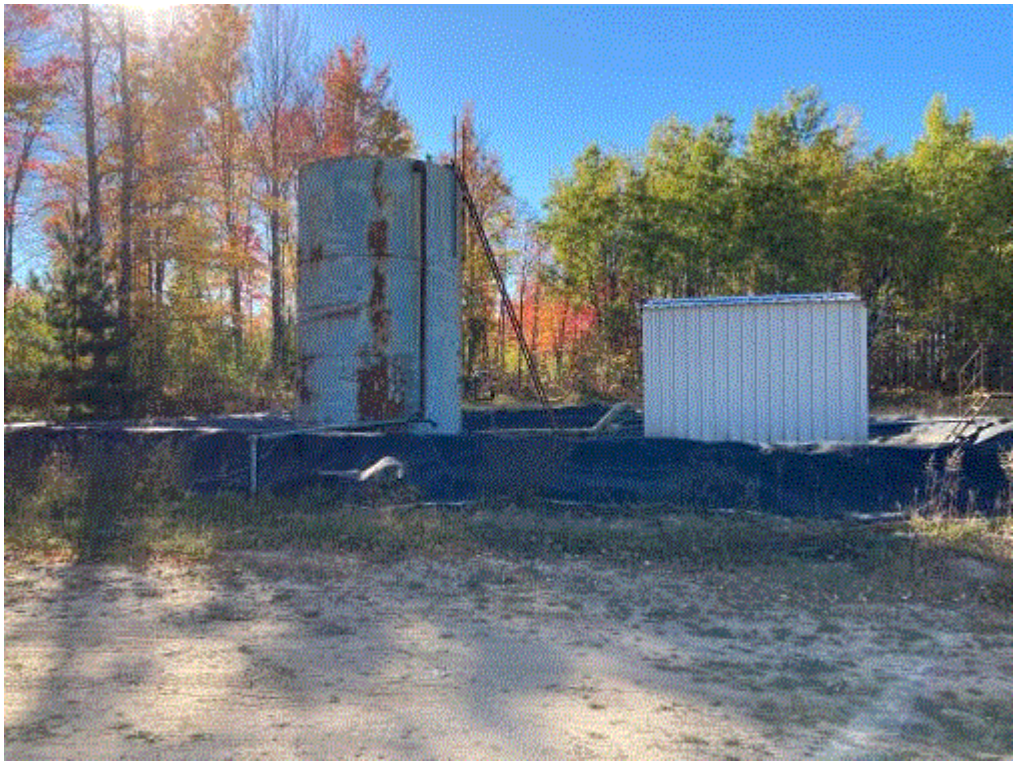

Image 3(400 BBL Tank) : AST Tank and Shed

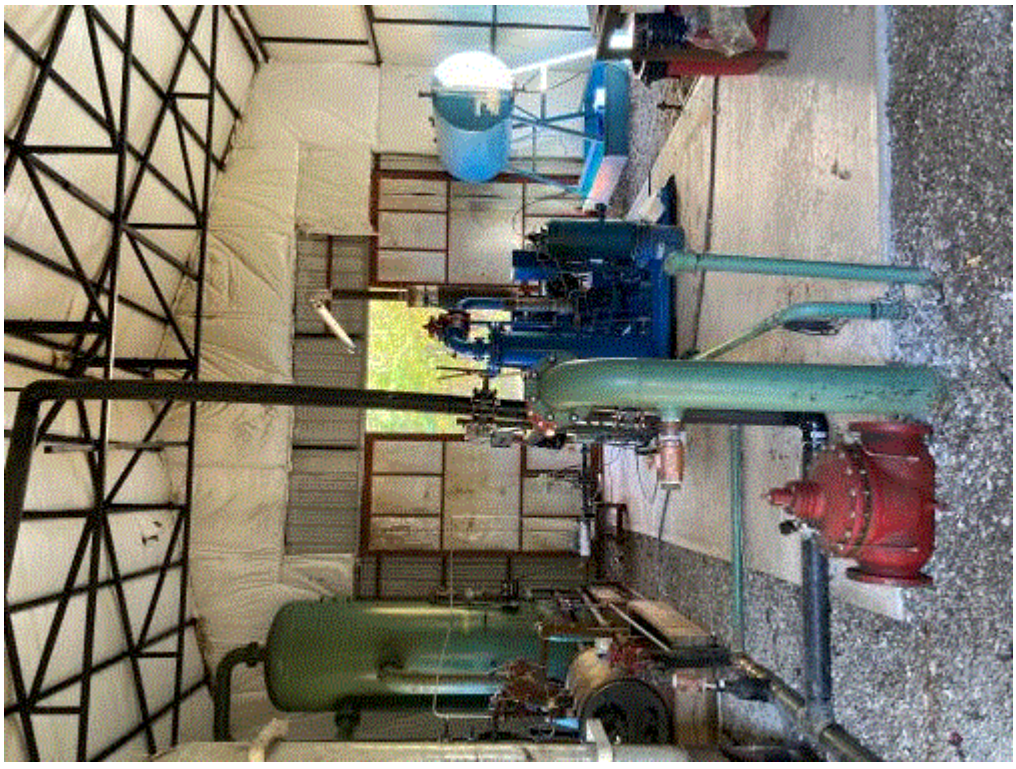

Image 4(Inside building) : Showing the small engine, and good housekeeping.

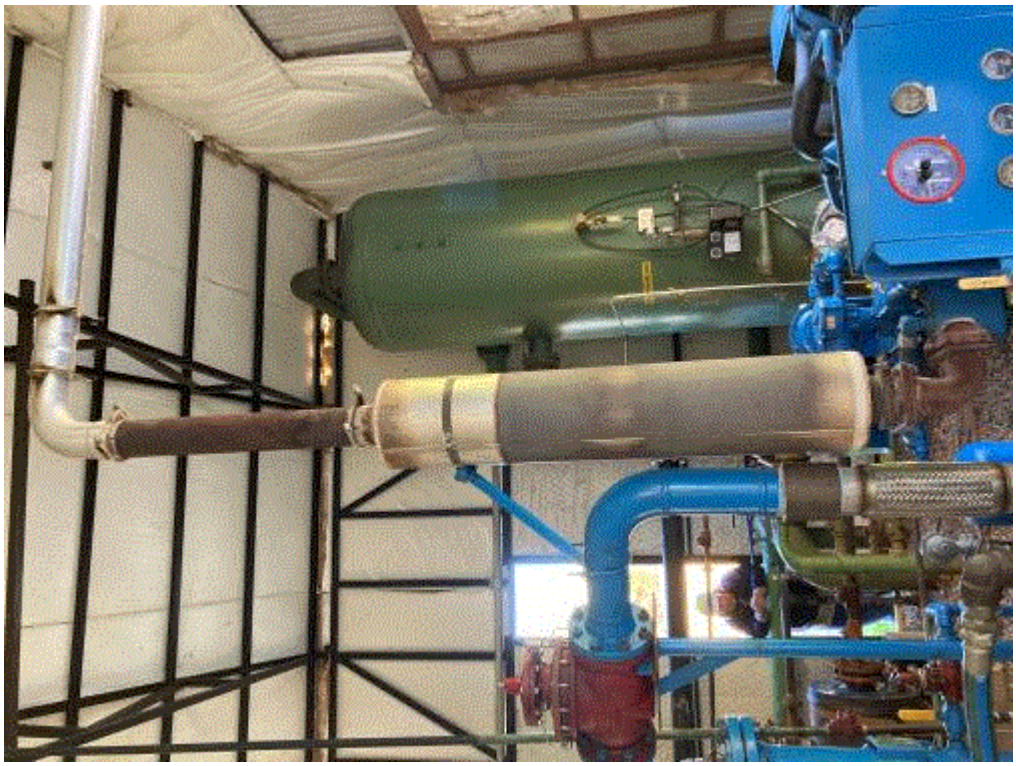

Image 5(Engine Stack) : Engine Stack with Muffler

NAME _____ DATE 12-2-24 SUPERVISOR _____

Muzyl Oil Corporation

922 N. Center Avenue
P.O. Box 673
Gaylord, MI 49734

(989) 732-8100

March 7, 2024

EGLE Air Quality Division
Permit Section
P.O. Box 30260
Lansing, MI 48909-7760

RE: Elmer 17B Facility, Permit Termination Request, SNR: N6072, PTI#: 624-96

Dear AQD,

In February 2024 Muzyl Oil Corporation removed the Cat 379 HCTA natural gas compressor from the Elmer 17B facility. The Antrim dehy unit was also shut down and disconnected. A small Cat 3304 NA booster compressor was set at the Elmer 17B to move the gas to the Elmer 26 facility where the final compression and dehy is done. No changes in compression or dehy were made at the Elmer 26 facility. Manufacturer specifications (see attached spec sheet) were used for the Cat 3304 NA to calculate Potential to Emmit (PTE) and maximum heat input. Based on the calculations (see table below) the Cat 3304 NA is below both significant thresholds as per R366.1119(e) and the 10,000,000 Btu/hour maximum heat input R 336.1285 (2) (g) thus Muzly would like to request that permit N6072 (624-96) be terminated.

			Engine Mfg. Factors			PTE based on Mfg. Factors		
Project Name	Engine	HP	Fuel (Btu/bhp-hr)	Nox (g/hp-hr)	CO (g/hp-hr)	Max Heat Input (Btu/hr)	Nox (tpy)	CO (tpy)
Elmer 17B (N6072)	Cat 3304NA	95	7640	15.8	1.6	725,800	14.49	1.47

If you have any questions or need additional information, please contact Nelson Fairchild at NelsonFairchild64@outlook.com or phone at (817)-223-9572.

Thank you,

William J. Muzyl
President

CC: Shane Nixon, District Supervisor AQD Cadillac and Gaylord Districts
Nelson Fairchild

G3304 NA Gas Industrial Engine Performance

CATERPILLAR

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft) at 77°F Design Temperature	500

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	95	71	48
Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7640	7917	10073
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	666	533	414
Air Mass Flow (Wet)	scfm	145	116	90
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.5	23.5	19.4
Inlet Manifold Temperature (10)	°F	100	100	131
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°F	1045	1004	988
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	461	351	276
Exhaust Gas Mass Flow (Wet)	lb/hr	702	561	438
Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	15.8	16.8	19.7
(Corr. 15% O2)	ppm	1174	1161	1086
Carbon Monoxide (CO) (9)	g/bhp-hr	1.6	1.7	1.8
(Corr. 15% O2)	ppm	201	191	160
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.4	2.4	3.2
(Corr. 15% O2)	ppm	520	473	519
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.36	0.36	0.48
(Corr. 15% O2)	ppm	78	71	78
Exhaust Oxygen (9)	%	3.1	2.9	1.7
Lambda		1.17	1.18	1.10
Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	12097	9401	7974
Work Output	Btu/min	4029	3022	2014
Heat Rejection to Jacket (2) (6)	Btu/min	4344	3502	3634
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	494	376	319
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	3106	2369	1826
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	2259	1693	1295
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A