

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

P079648243

FACILITY: Upper Michigan Energy Resources Corp.		SRN / ID: P0796
LOCATION: 16017 Sarya Road, PELKIE		DISTRICT: Upper Peninsula
CITY: PELKIE		COUNTY: BARAGA
CONTACT: Laura Jarmuz , Senior Engineer - Environmental		ACTIVITY DATE: 03/15/2019
STAFF: Joe Scanlan	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: Scheduled initial inspection to observed stack testing and determine compliance with PTI# 34-17.		
RESOLVED COMPLAINTS:		

### FACILITY & REGULATORY DESCRIPTION

A.J. Mihm Generating Station electric generation facility is owned by Upper Michigan Energy Resources Corporation (UMERC) and will be operated by PIC for the first 12 months of operation. The facility is located near Pelkie (Baraga County) in a rural area on Sarya Road, just north of M-38. The A.J. Mihm facility is one of two generating stations constructed to replace the WEC Energy Group Presque Isle Power Plant (PIPP), which was retired from operation as Kuester went online for electrical production in March of 2019.

The three (EURICE1, EURICE2, and EURICE3) reciprocating internal combustion engines (RICE) are housed inside a building with an exterior resembling a warehouse with concrete walls, interior sound attenuation panels, a double-layer roof, using heavy-duty steel panels with sound attenuation, silencers on air intake and exhaust systems and ultra-low-noise radiators. Sound testing results indicate the facilities each operate between 25 and 36 decibels—the engines are difficult to hear from outside the building when operating.

All major functions in the generating station are monitored and controlled remotely by operators from Green Bay and Milwaukee, Wisconsin. Local, plant-based computer controls support the operation by continuously monitoring and reporting ignition conditions, pressures, temperatures, flow rates, etc. The facility employs total remote start, stop and loading functionality, with on-site personnel focused on maintenance and support activities. The main control room and offices are attached to the engine bay.

The RICE units are Wartsilla W18V50SG natural gas-fired, four-stroke, lean burn, spark-ignition units and are coupled to 18,817 kW electric generators. The facility produces a total net generating capacity of 128.1 MW. Each of the three engines have 18 cylinders, are 46 feet long and 20 feet tall and weigh approximately 325 tons. Each engine is cooled by 24 radiator fans that reject heat from a closed-loop circulating antifreeze (coolant) system. A.J. Mihm Generating Station has a total of 72 fans. Major overhaul on these engines occurs every 20,000 hours.

Engines have a full-load consumption of natural gas of 152 MMBtu per hour. The engines use selective catalytic reduction with urea injection for control of nitrogen oxides and an oxidation catalyst for control of carbon monoxide, volatile organic compounds and hazardous air pollutants. The exhaust system is located outside the building and includes silencers, air quality control systems and stacks. The three engine exhaust systems are then ducted to individual 65-foot stacks.

The RICE units are a new Title V source and are currently permitted under PTI# 34-17 and are subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ (RICE MACT) which enforces emission limits for NOx, CO, VOCs, PM10 and PM2.5. The emergency generator (EUEMERGEN) is a 1,470 HP (1,000 kW) natural gas-fueled emergency RICE unit and is also subject to 40 CFR Part 60 Subpart JJJJ. A 2.0 MMBtu natural gas-fired heater (EUHEATER1) is subject to 40 CFR Part 63, Subpart DDDDD.

UMERC is in the process of completing the initial ROP application for the A.J. Mihm station and has requested a pre-application meeting with district AQD staff. Initial ROP application deadline is 12 months after the date of notification of initial operation, which is February 5, 2020.

### INSPECTION

My contacts at the site were Ms. Laura Jarmuz (Senior Engineer,UMERC), Mr. Justin Kowalski (Senior Environmental Consultant, U MERC), and Mr. Jimmy Morales (O&M Supervisor, PIC). Ms. Jarmuz has been providing environmental oversight for U MERC during the construction of the generating station,

however her responsibilities will transfer to Mr. Kowalski who will remain the permanent U MERC representative on site. The generating station will be operated by Mr. Morales during the first year of operation, after which responsibilities will transfer to U MERC staff.

At the time of inspection the facility was undergoing initial compliance testing to meet the demonstration requirements for emission rates in accordance with PTI# 34-17 and 40 CFR Part 60 Subpart JJJJ. Mostardi Platt was the contractor hired to conduct the initial compliance testing. Mr. Tom Gasloli of EGLE AQD Technical Programs Unit was on site to observe the sampling and overall test. Gas and PM were sampled separately for each engine, each requiring 3 test runs per engine. EURICE2 was being tested on the day of my inspection; EURICE1 had completed testing the day prior (3/14/2019). EURICE2 was having issues with the urea injection system to the SCR—flow rate was fluctuating. Because of this NO<sub>x</sub> emissions for EURICE2 may be re-tested at a later date due to the need for troubleshooting the urea injection system.

EURICE2 operated at full load per test requirements. A continuous parameter monitoring system (CPMS) is installed at the inlet of each engines selective catalytic reduction (SCR) to continuously measure SCR and oxidation catalyst inlet temperature. I observed and recorded the following process data:

- Engine RPM -- 514
- kW output -- 18,980
- Inlet temperature of SCR oxidation catalyst -- 725°F
- Pressure drop of the SCR oxidation catalyst -- 0.10 psi
- Urea injection flow rate -- 5.9 gal/hr

All process data observed and recorded was within the test and engine operational parameters. Recordkeeping for all operational data is recorded and stored on site and also stored off site in a U MERC server.

#### SUMMARY

The facility is in compliance with PTI# 34-17, verified via emissions testing completed in March of 2019. Aside from the urea injection issues on EURICE2, there were no problems or issues with sampling, testing, or overall operation of the engines at time of inspection.

Test results were received on May 3, 2019. FG ENGINES has emission limits for NO<sub>x</sub>, CO, VOCs, PM<sub>10</sub> and PM<sub>2.5</sub> per 40 CFR Part 60 Subpart JJJJ (see attached).

FG ENGM ACT4Z has formaldehyde emissions established per 40 CFR Part 63 Subpart ZZZZ and are well within the RICE MACT emission rate limits; average formaldehyde emissions for the three engines was 0.4 ppmvd, far below the MACT limit of 14 ppmvd. Notification of compliance with the RICE MACT was received from the facility May 7, 2019.

Initial ROP application is due February 5, 2020, with expected issuance of initial ROP no later than February 2021.

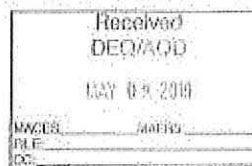


Upper Michigan Energy  
Resources Corporation  
231 W. Michigan St.  
Milwaukee, WI 53203

**UNITED PARCEL SERVICE**

May 2, 2019

Mr. Joseph Scanlan  
Michigan Department of Environment, Great Lakes, and Energy  
Air Quality Division  
1504 West Washington Street  
Marquette, MI 49855



**Subject: A.J. Mihm Generating Station  
Pelkie, Michigan  
Permit to Install 34-17 and 40 CFR Part 60 Subpart JJJJ  
EURICE1, EURICE2, and EURICE3 Compliance Emissions Test  
Report Submittal**

Dear Mr. Scanlan:

Upper Michigan Energy Resources Corporation (UMERC) respectfully submits the results of reciprocating internal combustion engines (RICE) initial compliance testing conducted at the A.J. Mihm Generating Station units EURICE1, EURICE2, and EURICE3 during the period March 14-16, 2019.

The results demonstrate compliance with the conditions of Permit To Install 34-17 and 40 CFR Part 60 Subpart JJJJ. A summary of results by emission unit is presented below.

Source	Pollutant	Test Result	Permit Limit
EURICE1	NOx	2.1 lb/hr	3.0 lb/hr
EURICE1	NOx	3.1 ppmvd @ 15% O2	82 ppmvd @ 15% O2
EURICE1	CO	1.0 lb/hr	5.5 lb/hr
EURICE1	CO	2.5 ppmvd @ 15% O2	270 ppmvd @ 15% O2
EURICE1	VOC	2.0 lb/hr	5.5 lb/hr
EURICE1	VOC	3.2 ppmvd @ 15% O2	60 ppmvd @ 15% O2
EURICE1	TPM	0.632 lb/hr	3.72 lb/hr

Source	Pollutant	Test Result	Permit Limit
EURICE2	NOx	5.0 ppmvd @ 15% O2	82 ppmvd @ 15% O2
EURICE2	CO	1.1 lb/hr	5.5 lb/hr
EURICE2	CO	2.9 ppmvd @ 15% O2	270 ppmvd @ 15% O2
EURICE2	VOC	2.8 lb/hr	5.5 lb/hr
EURICE2	VOC	4.8 ppmvd @ 15% O2	60 ppmvd @ 15% O2
EURICE2	TPM	0.435 lb/hr	3.72 lb/hr

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**Image 1(Test results1) :** Emission test results March 2019

Mr. Joseph Scorsone  
 A.J. MWH Generating Station Test Report Summary  
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Source	Pollutant	Test Result	Permit Limit
EURICE3	NOx	1.2 lb/hr	3.0 lb/hr
EURICE3	NOx	2.0 ppmvd @ 15% O2	62 ppmvd @ 15% O2
EURICE3	CO	2.6 lb/hr	5.5 lb/hr
EURICE3	CO	6.8 ppmvd @ 15% O2	270 ppmvd @ 15% O2
EURICE3	VOC	2.2 lb/hr	5.5 lb/hr
EURICE3	VOC	3.7 ppmvd @ 15% O2	60 ppmvd @ 15% O2
EURICE3	TPM	0.548 lb/hr	3.72 lb/hr

For EURICE2, NOx emissions on a lb/hr basis is not included in the summary due to the control device operation during the compliance testing. Further discussion is included in Appendix A of report for Mostardi Platt Project No. M190803.

Enclosed please find the following Mostardi Platt test reports:

- Compliance Emissions Test Report, Performed for: Upper Michigan Energy Resources Corporation, At The: A.J. MWH Generating Station, EURICE1 Outlet Duct, Pelkie, Michigan, Project No. M190803A, March 14, 2019
- Compliance Emissions Test Report, Performed for: Upper Michigan Energy Resources Corporation, At The: A.J. MWH Generating Station, EURICE2 Outlet Duct, Pelkie, Michigan, Project No. M190803B, March 15, 2019
- Compliance Emissions Test Report, Performed for: Upper Michigan Energy Resources Corporation, At The: A.J. MWH Generating Station, EURICE3 Outlet Duct, Pelkie, Michigan, Project No. M190803C, March 16, 2019

If you have any questions or need additional information, please contact me at (414) 221-2389 or [laura.jarmuz@wecenergygroup.com](mailto:laura.jarmuz@wecenergygroup.com).

Sincerely,



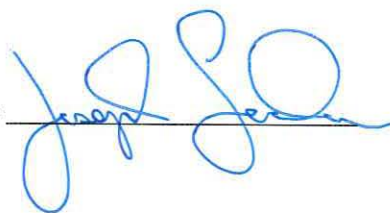
Laura Jarmuz  
 Senior Engineer

cc: Karen Kajlya-Mills, Technical Programs Unit, EGLE, Air Quality Division  
 Ed Lancaster, District Supervisor, EGLE, Air Quality Division—w/o enclosures  
 Scott Johnson, UMERC—electronic w/o enclosures  
 Justin Kowalski, UMERC—electronic w/o enclosures

Enclosures:

1. Mostardi Platt Project No. M190803A Report
2. Mostardi Platt Project No. M190803B Report
3. Mostardi Platt Project No. M190803C Report

**Image 2(Test results2) : Emission test results March 2019**

NAME 

DATE 8/9/19

SUPERVISOR 