

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

FCE Summary Report

Facility : Michigan Public Power Agency		SRN : N7113
Location : 1750 Prough Road SW		District : Gaylord
		County : KALKASKA
City : KALKASKA	State: MI	Zip Code : 49646
Compliance Status :		Compliance
Source Class : MAJOR	Staff : Sharon LeBlanc	
FCE Begin Date : 1/1/2017	FCE Completion Date :	2/8/2018
Comments : Scheduled site inspection for Fiscal Year 2018. Note compliance issue was self reported and corrective actions have been initiated. sgl		

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
02/08/2018	Scheduled Inspection	Compliance	Scheduled site inspection of NG-Fired Peaking station located at 1750 Prough Road, Kalkaska Michigan. The facility is an unmanned facility operated by Traverse City Light & Power Staff. Non compliance issue was self-reported and corrective actions have been initiated. sgl

12/20/2017	Stack Test	Compliance	<p>Document received is a revised report for emissions re-testing activities conducted on May 10, 2017. Previous version of report was received on 6/28/2017 and was prepared by McHale Emissions Measurement Services.</p> <p>Initial testing was conducted on April 11-12, 2017, by Network Environmental. The referenced activities resulted in a failure for EUTURBINE1B. Testing was stopped midway thru testing to avoid non-compliance and test report for activities indicated turbine failure. Test report was prepared by Network and submitted on June 9, 2017.</p> <p>Subsequent retesting was conducted on May 10, 2017, by McHale Emissions Measurement Services with the initial report received on June 29, 2017. Several errors were noted in the referenced report, and resulted in the resubmittal of a corrected document dated November 6, 2017. Document was received by District Office on November 14, 2017. AQD TPU review of the document on 11/21/2017 indicated that testing was performed in accordance with EPA Methods referenced, and that the results are acceptable and can be used to determine compliance.</p> <p>ROP conditions at the time of testing (FGTURBINES V.1 & 2) requires testing for NOx emission rates for 4 different load conditions in ppmvd @ 15% O2 and in lbs/hr once every 5 years. However, it should be noted that the cover letter for the test protocol indicated that the testing was being conducted to "evaluate and re-establish the correlation curve for the water to fuel ratio pursuant to the ROP". It would appear that the testing was conducted to meet both the correlation curve and verification testing requirements under the ROP. Previous Stack testing appears to have been conducted on Oct. 16 & 17, 2012 (less than 5 years from the most recent testing activities). Most recent test results indicate that</p>
------------	------------	------------	--

12/20/2017	Stack Test	Compliance	<p>NOx emissions were below limits of 25 ppmvd @ 15% O2 (average per operating day) and 130 ppmvd @ 15% O2 (test protocol) (40 CFR 60.332(a)(1).</p> <p>Turbine 1A - NOx emissions range from 20.1 - 20.5 ppmvd @ 15% O2 -</p> <p>Turbine 1B - NOx emissions ranged from 20.9 - 22.4 ppmvd @ 15% O2</p> <p>Use of test data to update the Parameter Monitoring Plan (PMP) for the facility is required as part of condition IX.4. The data is also used to correlate parameters and emissions for the facility's Predictive Emissions Monitoring System (PEMS) also known as a Parametric Emissions Monitoring System, The latest plan in District files was submitted on March 4, 2014. A review of MACES indicates that an update to the plan was requested as part of the previous stack test report review (6/28/17). Based on the recent test data it appears that the appropriate water injection rate will need to be modified to reflect the <9000 pph rate previously identified for loads of 70% to 95%. Specifically the water flow (lbs/hr) at 70% load for Unit 1-A is below the range outlined in the 2014 document.</p>
10/09/2017	ROP Semi 1 Cert	Compliance	<p>MI-ROP-N7113-2016. 1st Semi-Annual Report Certification. During the reporting period the permittee reported all monitoring and associated recordkeeping requirements of the ROP were met and there were no deviations. No objection.</p>
10/09/2017	Excess Emissions (CEM)	Compliance	<p>No excess emissions were reported during the reporting period.</p>
08/25/2017	Stack Test	Compliance	<p>Revised Emissions Test Report - Stack test results to demonstrate compliance with ROP NOx limits. NOx concentrations from turbines A and B are below the 25 ppm@15% O2 ROP limit. AQD will request the permit update the Parameter Monitoring Plan based on test results.</p>

Activity Date	Activity Type	Compliance Status	Comments
06/30/2017	Stack Test	Compliance	Testing was stopped due to problems with changing the water flow rate. At the time the testing was stopped, the facility was in compliance. If they continued, they would most likely be out of compliance. The facility is retesting using a different testing company.
05/22/2017	MAERS	Compliance	See MAERS for further Info. - Checked SCC codes, all fit. Made sure all emission units were included. I had the company include emissions data for EU-FPENGINE, EU-GASHEATR, and EU-HEATBLR.
05/10/2017	Stack Test Observation	Compliance	Stack Testing for both Turbines, follow-up from April 12, 2017 stack testing event.
04/14/2017	Telephone Notes	Compliance	Conference Call with Keith Parrott of MPPA, AQD, and NTH on how to proceed with Stack testing
04/12/2017	Stack Test Observation	Compliance	Stack Testing Observations
03/31/2017	ROP Annual Cert	Compliance	One deviation reported. Corrective action was promptly taken upon discovery by the facility and the issue has been resolved.
03/31/2017	ROP SEMI 2 CERT	Compliance	MI-ROP-N7113-2016. Semi-Annual Report Certification 2 July-December 2016. During the reporting period the permittee reported all monitoring and associated recordkeeping requirements of the ROP were met and there were no deviations. No objection.
03/31/2017	Excess Emissions (CEM)	Compliance	Reported excess emissions are related to startup and shutdown activities of the peaking plant. Excess emissions were 0.3% of the operating time.
03/31/2017	Stack Test	Compliance	Test Protocol - Source Emission Testing of Two Combustion Gas Turbines for MPPA Kalkaska Power Plant. On April 12, 2017, Jeremy Howe/AQD-TPU sent permittee a letter approving the proposed test plan.

Name:

Shirley White

Date:

3/8/2018

Supervisor:

SN

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

N711343282

FACILITY: Michigan Public Power Agency		SRN / ID: N7113
LOCATION: 1750 Prough Road SW, KALKASKA		DISTRICT: Gaylord
CITY: KALKASKA		COUNTY: KALKASKA
CONTACT: Matt Burk , Power Feneration Services Lead		ACTIVITY DATE: 02/08/2018
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled site inspection of NG-Fired Peaking station located at 1750 Prough Road, Kalkaska Michigan. The facility is an unmanned facility operated by Traverse City Light & Power Staff. Non compliance issue was self-reported and corrective actions have been initiated. sgl		
RESOLVED COMPLAINTS:		

On Thursday, February 8, 2018, AQD District Staff mobilized to the Michigan Public Power Agency – Kalkaska CT#1 Facility (MPPA-Kalkaska) to conduct an unannounced, scheduled site inspection. The referenced facility is located at 1750 Prough Road, Kalkaska, Kalkaska County, Michigan. (N7113). The referenced facility is a peaking unit, providing electricity during peak load periods. Mr. Matt Burk, Doug Izzard and other Traverse City Light & Power Staff provided information regarding the site and site activities.

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7113-2016 and Permit to Install (PTI) 25-02B. The Facility is in the process of having the referenced PTI incorporated into the ROP.

The previous site inspection was conducted on May 6, 2016. The facility was determined to be in compliance at the time of the inspection.

FACILITY

The MPPA-Kalkaska Facility is an unmanned peaking station located at 1750 Prough Road, Kalkaska, Michigan. The facility is in an industrial area southeast of the City of Kalkaska occupied by other energy related facilities. A drive-by of the area identified a limited number of industrial properties (predominantly oil and gas) including Merit Energy (B4292), Wolverine Power Supply (N6522), DTE Kalkaska Compressor Station (N3341) Kalkaska Gas Processing Plant (B8972), and undeveloped parcels in the immediate vicinity of the MPPA-Kalkaska Facility. A limited number of residential properties are located along the south side of Thomas Road.

The facility was constructed in 2002 and is reported to be ran for short periods of time to provide additional power during periods of high load. The Facility may run one or both turbines as required and is reported to be able to be started and brought on-line quickly and remotely. When in operation, an operator is normally onsite to monitor the activities, which can also be monitored remotely from Company offices in Traverse City. Noteworthy to visitors is the unique lightening array system utilized onsite which has been reported to have prevented damage to the Facility during the approximately 10 years since it was installed onsite.

The Facility is controlled using operating software that is programmed using operating curves of water to fuel ratios established during testing. The software is reported to shut down the Facility should any parameters exceed the ranges and thresholds established during testing. At the time of the inspection the facility would be operating within ranges established during the 2012 testing. The Facility anticipated updating the ranges and thresholds as a result of stack testing conducted May 10, 2017.

Changes at the facility included: replacement of EUHTRBOILER as well as an upgrade of turbine control hardware and software in 2017. On January 9, 2018, AQD District Staff received notification that Matt Burk had taken the position of Power Generation Services Lead for the facility

Weather conditions at the time of the site inspection consisted of overcast skies, with snow flurries, finally clearing to sunny skies at the end of the site inspection. The turbines were not operating at the time of the site inspection, having operated for a very short interval earlier in the morning, prior to inspector arrival.

PERMITTING

As indicated above, the MPPA-Kalkaska Facility is presently operating under ROP MI-ROP-N7113-2016, which was approved on July 1, 2016. On November 22, 2017, the Facility submitted an application for a

minor modification to the referenced ROP, to incorporate PTI 25-02B, which was approved on September 1, 2017. The Initial PTI 25-02 was approved on May 13, 2002, and was rolled into the ROP on August 5, 2005.

At the time of the site inspection, the Minor Modification (MI-ROP-N7113-2016a) was under US Environmental Protection Agency (USEPA) review. The 45-day US EPA review period ended on Wednesday, February 21, 2018. No USEPA comments were received, and the ROP modification was issued.

REGULATORY

The MPPA-Kalkaska Facility has the following classifications based on Potential to Emit (PTE):

CLASSIFICATION	PARAMETER	COMMENT
Major	NOx	PSD synthetic minor for NOx
Minor	SO2, CO, Pb, PM, VOC	
Area	HAPs	

In addition, the source is subject to the following:

EMISSION UNIT	40 CFR SUBPART	TITLE
Source	Part 70	State Operating Permit Program
EU-TURBINE1A & EU-TURBINE1B	Part 75	Federal Acid Rain Program
EU-TURBINE1A & EU-TURBINE1B	Part 97, Subpart AAAAA	Federal Transport Rule NOx Annual Trading Program
EU-TURBINE1A & EU-TURBINE1B	Part 97, Subpart BBBBB	Transport Rule NOx Ozone Trading Program
EU-TURBINE1A & EU-TURBINE1B	Part 97, Subpart CCCCC	Transport Rule SO2 Group 1 Trading Program
EU-TURBINE1A & EU-TURBINE1B	Part 60, Subpart A and GG	Standards of Performance for Stationary Gas Turbines
EU-FPENGINE	Part 63, Subpart A and ZZZZ	National Emission Standards for HAPs for Stationary Reciprocating Internal Combustion Engines (RICE)

Note that EUPENGINE has been determined to not be subject to 40 CFR Part 60 Subpart JJJJ for Spark Ignition RICE based on an installation date of 2002 (prior to 2006 applicability date). In addition, the facility is not subject to 40 CFR Part 60 Subpart KKKK, which is for turbines greater than 10 MMBtu/hr heat input at peak load constructed, modified or reconstructed after February 18, 2005 (after the 2002 construction date).

EQUIPMENT

EUs identified in the ROP EU Summary Table consist of:

- EU-TURBINE1A,
- EU-TURBINE1B,

Two NG-fired, simple cycle, 273.15 MMBtu/Hr nominal heat input, Pratt and Whitney FT8-1 Twin Pac turbine set (FG-TURBINES). They are nominally rated at 55 MW and 546.3 MMBtu/Hr combined. The two EUs are equipped with low NOx-burners and water injection for pollution controls. The water injection system controls the flame temperature in turbine engine (AKA gas generator) to manage NOx emissions. Demineralized water is drawn from the storage tank, pressurized and then injected through the fuel nozzles into the turbine combustion chambers. The startup procedures are fully automated once the start sequence is initiated by the operator. NG is obtained by directly from the pipeline and is reported to be conditioned by heating (if necessary) prior to use as fuel.

- EU-FPENGINE

One 210 HP diesel engine used as backup power for the fire pump. The EU is reported to be an emergency generator, used once per year for maintenance purposes, and in case of emergency when the primary electric motor for the pump is unavailable. The main energy source for the fire pump is reported to be electrical energy off the grid. Permit conditions associated with the referenced EU are required under 40 CFR Part 63, Subpart ZZZZ for RICE.

All three of the above EUs were reported to have been installed in 2002. In addition to the above referenced EUs, a review of MAERS for the calendar years of 2015 and 2016 identified the following additional EUs which are reported to be exempt from permitting under Rule 282 (2)(b)(i):

- EU-HEATBLR

250,000 Btu/Hr boiler used for seasonal heating the building enclosing the turbines. Installed in 2002. The unit was replaced in 2017 with a replacement boiler system rated from 45,000 to 260,000 BTU/Hr for enclosure heating. A review of exemptions indicates that the unit may be exempt from permitting under rule 282(2)(b) for space heaters.

- EU-GASHEATER

1MMBtu/Hr heat input, inline NG-fired heater for incoming NG fuel for FG-TURBINES. Installed in 2006. This EU has been identified in previous site inspection reports as being exempt from permitting under Rule 282 (b)(i).

Additional equipment onsite consists of:

- One approximately 210,000-gallon water tank of water for fire suppression, and
- One approximately 330,000-gallon tank of demineralized water for NOx control

COMPLIANCE

At the time of report preparation, no complaints are of record for the facility and no Violation Notices (VNs) have been issued to the facility. Compliance status for the facility had been based on information provided during the February 8, 2018, site inspection, as well as on supplemental data and reports submitted upon request or to meet permit requirements identified under MI-ROP-N7113-2016 and PTI 25-02B for EUs associated with the Facility. Each EU will be addressed independently.

FG-TURBINES -

The two simple-cycle turbines (EU-TURBINE1A and EUTURBINE1B) onsite represent the major emissions source(s) for the Facility. The pair of simple-cycle turbines have exhaust stacks of 114 inches in diameter and 60 feet above land surface, in compliance with SC VIII.1 & 2 which limits the stacks to a maximum of 150-inches in diameter and a minimum of 45 feet in height.

OPERATION LIMITS - With respect to FG-TURBINES, the referenced EUs burn NG for fuel (SC III.1) and are reported to be operated in compliance with both an AQD approved Startup, Shutdown and Malfunction Plan (SSMP) (SC III.2) and Parameter Monitoring Plan (PMP) (SC III.3 and IX.4). The referenced plans were submitted on February 24, 2014 (and approved on March 3, 2014). The documents describe both the Data Control System and Program Logic Control interactions and the safety measures and alarms programmed to insure proper operations. As previously noted, the system is automated, and should water injection not initiate at the specified exhaust temperature of 925 degrees Fahrenheit, or water pressure drop, the system will automatically initiate shutdown actions or corrective actions.

Copies of the Hourly Emissions & Operations Report indicate that system continuously monitor and record at minimum:

- NG consumption (hscf/Hr) (SC IV .1 & 3)
- Heat inputs (mmBtu/Hr)
- Megawatts
- Inlet temperature and Exhaust temperature (degrees Fahrenheit)
- NOx (lb/mmBtu and lb/Hr) and
- Operation of the water injection system (water injection rate in gal/Hr, water to fuel ratio and the compressor discharge pressure) (SC IV.2 & 3).

Comparison of operational parameters reported for 3 hours of operation on December 31, 2017 with the SSMP/PMP appeared to indicate some inconsistencies. In part it appears that the inconsistencies are due to the maximum operational load at any point being limited by the maximum exhaust gas temperature. More specifically, the units are designed to operate up to the 320 MMBtu heat rate but are dependent on ambient conditions and limited by exhaust temperature. On cold days the turbines can operate at their full output while still maintaining the proper exhaust temperature. The last couple stack tests were not able to be scheduled during the colder temperatures. When the heat rate is above the highest tested value the facility uses substitute data as allowed under 40 CFR Part 75, Appendix E, Data Substitution.

The data is presented below:

EMISSION UNIT	% LOAD	NG CONSUMPTION (HSCF/HR)	HEAT INPUT (MMBTU/HR)	WATER INJECTION (Gallons/HR)	Average WFR	WFR LIMIT*	EXHAUST TEMP (Degrees F)
EU-TURBINE1A	-	2732-2757	286-288.7	1206-1242	0.820-0.837	-	1243-1253
SSMP/PMP CT-A	90-100	2467 -2695.5	246.7-269.6	1380-1536	1.038-1.057	0.897 - 0.929	NR
EU-TURBINE1B	-	2884-2904	302-304	1614-1644	1.040-1644	-	1239-1256
SSMP/PMP CT-B	90-100	2684.1 – 2923.9	268.4-292.4	1470 -1614	1.017 -1.023	0.896 - 0.921	NR

*The water to fuel ratio limit is a minimum rate. The SSMP/PMP did not identify the exhaust temperature and so is not included above.

The Facility reported that the 2014 SSMP/PMP data (above) presented operational ranges defined during the 2012 testing but did not clearly define the operational ranges that showed compliance. They said that the practice was to use the highest average heat input from the previous stack test as the upper limit. This resulted in any average heat inputs above the tested value as being outside the acceptable range, and implementation of 40 CFR Part 75 Appendix E. As a result, MPPA is working with their consultant to update the plan not only to incorporate the 2017 stack test data, but to show compliance ranges chosen based on the 40 CFR Part 75 Appendix E rules.

In addition to the above referenced revision, the facility self-reported that on January 5, 2018, the facility exceeded the 16-hour operating limit (40 CFR Part 75 Appendix E 2.3.1) which triggered supplemental testing to re-determine the NOx emission rate to heat input correlation. Notification of the intent to conduct the required stack testing was received by AQD on February 20, 2018. Stack test activities are tentatively scheduled for April 4-5, 2018. At the time of report preparation, the test plan had yet to be received by AQD TPU Staff.

MATERIAL LIMITS -Per permit, FGTURBINES are limited to a total use of not to exceed 595.6 million cubic feet of NG (based on 12-month rolling total) (SC II.1), with a sulfur content of 1.5 grains per 100 standard cubic feet (or 23.6 ppmv) (SC II.2). Data provided by the Facility for the period of January 2016 through January 2018 indicated total gas usage ranging from 187.54 MCF to 552.89 MCF for the 12-month rolling time period, in compliance with the permit limit. In addition, laboratory analytical data provided by the Facility reported total sulfur levels of 1.2 ppmv or less.

EMISSION LIMITS – Emission limits associated with FG-TURBINES have historically included for NOx both 12-month rolling totals (SC I.3) as well as daily emission averages (SC I.1) and Visible Emission (VE) limits (SC I.4). During the most recent ROP modification, the facility has requested and permitted the following changes to the permit:

POLLUTANT	PREVIOUS LIMIT	NEW LIMIT
NOx (SC I.1)	25 ppmv dry at 15% oxygen, average of all operating hours in a calendar day	31 lb/hr per turbine
Visible Emissions (VE)		No Limit

(SC I.4)	10% opacity except for uncombined water vapor
----------	---

A review of operational records for the period of April 2016 through January 2018 indicated maximum lb/24-hour average NOx emissions for EUTURBINE1A and EUTURBINE1B of 20.8 lb/ 24-hr and 21.5 lb/24-hr. Data for the apx. 1 hour of operation the morning of February 8, 2018, indicated NOx emission rates (recorded every minute) of for EUTURBINE1A and EUTURBINE1B of 21.3-21.8 lb/hr and 21.8 – 22.1 lb/hr, respectively.

Quarterly VEs (6-minute averages) were required under the ROP (SC I.4), prior to the most recent ROP modification activities. Records provided as part of the Facility's semi-annual reporting for 2017 indicated compliance with the 10% opacity limit.

A review of annual emissions reporting for 2015 and 2016 indicated that for MAERS purposes, annual emissions for NOx and SO2 are reported to be determined using Predictive Emission Monitoring (PEM), which was confirmed by Facility Representatives. Annual emissions for CO, PM10, PM2.5 and VOC are determined using MAERS emission factors. Data reported since the last site inspection includes the following:

DATE	12 MONTH ROLLING NOX LIMIT (tpy) (SC I.3)	REPORTED EMISSIONS (tpy)	SOURCE
2016	34.6	15.8	MAERS
2017	34.6	7.4	Facility

TESTING ACTIVITIES -Verification testing of NOx emissions is required under SC V.1 and V.2. Testing is conducted every 5 years in compliance with the permit condition(s) and is summarized below:

EMISSION UNIT	PARAMETER	EMISSION LIMIT (SC I.1)	TEST RESULTS (October 16 & 17, 2012)	TEST RESULTS (May 10, 2017)
EU-TURBINE1A	NOx	25 ppmv dry @ 15% oxygen	17.3 -17.7 ppmv dry @ 15% O2	20-21 ppmv dry @ 15% O2
EU-TURBINE1B	NOx	25 ppmv dry @ 15% oxygen	17.4 – 18.6 ppmv dry @ 15% O2	21-22 ppmv dry @ 15% O2

Copies of test protocols (SC VII.4), 7-day notifications (SC VII.5) and test reports (SC VII.6) for the 2017 testing activities were received in a timely manner. Test results are used by the Facility to determine proper water-to-fuel ratios and operating loads to maintain compliance with permit limits.

It should be noted that the required 2017 testing activities had initially been attempted on April 12, 2017. This first attempt at testing services were provided by Network Environmental and was ended prior to completion when NOx emissions from EUTURBINE1B were at 25.6 ppmv and could not be decreased during testing by adjusting the water injection rate. Based on electronic documentation in the district files, and discussions with Facility Representatives, issues with the operating software. The Facility had consulted a turbine company to evaluate the system controls and make adjustments to the turbines. A complete upgrade of control hardware and software was completed in June 2017. The second testing activities were conducted by McHale & Associates, Inc. on May 10, 2017.

MONITORING/RECORDKEEPING –In compliance with the permit, the facility maintains daily, monthly and 12-month rolling turbine operational records which include;

- NG usage/fuel consumption (SC VI.1 &3),
- Average operating load (megawatts) (SC VI.1), and
- Water-to-fuel ratio for each turbine during operation (SC VI.1 & 3).

MACES- Activity Report

The records were provided for review upon request. NOx emissions for the facility are calculated per calendar month and as a 12-month rolling total (SC VI.2). The facility uses the PEMs to determine NOx emissions.

REPORTING - In compliance with their permit, the facility has submitted annual (SC VII.3) and semi-annual (SC VII.2 & 7) reports of monitoring and deviations in a timely manner. Submittals have been complete and in compliance with permit conditions.

OTHER REQUIREMENTS- Conditions within this section of the ROP include high level citations for Federal Standards/Requirements. SC IX.1 requires compliance with all applicable provisions of 40 CFR Part 60, Subparts A and GG (NSPS for Stationary Turbines). Based on compliance with permit conditions required per the referenced regulations, it appears that the Facility is operating in general compliance with the Subpart.

SC IX.2 & 3, require compliance the Acid Rain Permitting Provisions as well as with the Acid Rain SO2 requirements. As part of the 2016 ROP renewal process, an Acid Rain Permit was issued and incorporated into the ROP in compliance with SC IX.2. Compliance with the SO2 requirements of the Acid Rain program by the Facility is determined by USEPA.

With respect to the following Transport Rule Programs, Michigan is only authorized as the permitting authority, compliance is determined by USEPA :

- NOx Annual Trading Program (40 CFR Part 97, Subpart AAAAA) (SC IX.5)
- NOx Ozone Trading Program (40 CFR Part 97, Subpart BBBBB) (SC IX.6) and
- SO2 Group 1 Trading Program (40 CFR Part 97, Subpart CCCCC) (SC IX.7)

SC IX.4 requires the Facility to maintain a PMP onsite. As previously indicated the Facility has developed the appropriate plan, and District Staff confirmed that a copy of the PMP was onsite at the time of the February 8, 2018, site inspection.

EU-FPENGINE

The referenced EU has no restrictions with respect to stack height, emission or material limits and testing/sampling requirements. Other permit conditions are discussed below.

OPERATION LIMITS – Process and operational restrictions associated with EU-FPENGINE consist of operational limits associated with emergency engines of <500 Hp required under 40 CFR Part 63, Subpart ZZZZ and include:

- Operation and maintenance of any emergency RICE, associated air pollution control equipment and associated monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions (SC III.1 and VI.2)
- No more than 100 hours of operation for non-emergency activities including maintenance, testing, emergency demand response and no-more than 50-hours of the 100 hours of operation in other non-emergency situations. (SC III.2 and VI.2)

The EU is equipped with a non-resettable hour meter (SC IV.1), and the above referenced required records were reviewed onsite. Total hours of operation were well below the referenced operational limits. No emergency operation was reported.

Based on discussions with Facility Representatives, maintenance and operating logs it appears that EU-FPENGINE is maintained and operated in compliance with the following condition for the emergency RICE;

- In a manner consistent with safety and good air pollution practices for minimizing emissions (SC III.1)
- In accordance with the manufacturer's emission related written instructions or one developed by the Facility (SC III.4) and
- Minimizing the engines time at idle during startup to a not to exceed 30 minutes. (SC III.5)

MACES- Activity Report

The Facility reports that maintenance activities are conducted on a semiannual schedule and are recorded on activity log sheets. The log sheets were provided upon request and verified completion of maintenance activities in compliance with the conditions. Required maintenance activities include emergency engines of < 500 Hp completing the following activities every 500 hours of operation or annually, whichever comes first:

- oil and filter changes (SC III.3.a) and
- inspection of all hoses and belts (SC III.3.c)

As well as inspection of air cleaner (for compression ignition units) or spark plugs (for spark ignition units) every 1,000 hours of operation or annually whichever comes first and replace as necessary (SC III.3.b).

RECORD KEEPING & MONITORING - Existing emergency RICE of less than or equal to 500 HP are required to keep records of:

- Maintenance conducted on the RICE unit (SC VI.1)
- Action taken during period of malfunction to minimize emissions, including corrective actions to restore the equipment (SC VI.4) and
- Each occurrence and the duration of each malfunction of operation of the engine, or the air pollution control and monitoring equipment, (SC VI.3)

As reported above, the Facility provided copies of the above referenced records, in compliance with the permit. The records indicated that no malfunctions are associated with the equipment.

REPORTING -In compliance with their permit, the facility has submitted annual (SC VII.3) and semi-annual (SC VII.2 & 7) reports of monitoring and deviations in a timely manner.

SUMMARY

On Thursday, February 8, 2018, AQD District Staff mobilized to the Michigan Public Power Agency – Kalkaska CT#1 Facility (MPPA-Kalkaska) to conduct an unannounced, scheduled site inspection. The referenced facility is located at 1750 Prough Road, Kalkaska, Kalkaska County, Michigan. (N7113). The referenced facility is a peaking unit, providing electricity during peak load periods. Facility Representatives provided information regarding the site and site activities.

Not operating at the time of the inspection, the MPPA-Kalkaska Facility is an unmanned peaking station. The Facility is controlled using operating software that is programmed using operating curves of water to fuel ratios established during testing. The software is reported to shut down the Facility should any parameters exceed the ranges and thresholds established during testing.

The referenced facility operates under Renewable Operating Permit (ROP) MI-ROP-N7113-2016 and Permit to Install (PTI) 25-02B. The Facility is in the process of having the referenced PTI incorporated into the ROP. The permit modification to incorporate the referenced PTI was issue following the completion of EPA 45-day review on February 21, 2018.

The previous site inspection was conducted on May 6, 2016. The facility was determined to be in compliance at the time of the inspection. Based on information obtained as part of the February 8, 2018 site inspection, it appears that with the exception of the self-reported exceedance of the 16-hour operation limit in 40 CFR Part 75 Appendix E 2.3.1 that the Facility is operating in general compliance with the permit conditions. The Facility has scheduled the appropriate corrective actions, stack testing to re-determine the NOx emission rate to heat input correlation as required by Rule. That testing date is presently scheduled for April 4-5, 2018. In addition, the facility is in the process of updating the PMP to incorporate 2017 stack test data as well as better clarify operating ranges for compliance.

NAME Sharon LeBlanc

DATE 3/8/2018

SUPERVISOR SN