

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

N319548906

FACILITY: BAY CITY ELECTRIC LIGHT & POWER		SRN / ID: N3195
LOCATION: 619 S HENRY ST, BAY CITY		DISTRICT: Saginaw Bay
CITY: BAY CITY		COUNTY: BAY
CONTACT: Leland Technil , Generation plant Supervisor		ACTIVITY DATE: 05/08/2019
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Determine compliance with PTI #823-91B and air regulations.		
RESOLVED COMPLAINTS:		

I (KLB) conducted an announced inspection at the City of Bay City Electric Light & Power (BC EL&P) Henry Street generating station. The BC EL&P was issued air permit, PTI #823-91B in 2015 for two dual fuel generators, each 7750 kilowatts. The facility is also subject 40 CFR Part 63 Subpart ZZZZ.

I met with Mr. Lee Techlin, Generation and Maintenance Supervisor, for the BC EL&P. We viewed the electric power generators (#3 & #4), including metering devices, fuel handling equipment, and the required records for the emission units

We viewed the engine operating hours, kilowatts generated, diesel fuel use, and natural gas fuel use meters. The meters are the source of readings taken for required reporting parameters. The most current records are maintained in the generator building by the onsite operators. The daily operating information is transferred onto a spreadsheet and required calculations are performed to determine compliance with the emission limits in PTI#823-91B

MAERs reported emissions for 2018:

Pollutant	Lbs
CO	5407.42
NOX	36327.74
PM10,FLTRBLE	285.86
PM10,PRIMARY	228.47
PM2.5,FLTRBL	228.47
PM2.5,PRIMRY	228.47
SO2	273.84
TOC	331.59
VOC	1649.46

Upon arrival I did not noticed any visible emissions form the engine exhaust stack.

Attached

Diesel fuel supplier June 19, 2018 Ultra Low Diesel Fuel delivery documents

Photo of Engine#3 and #4 manufacturer plate

Feb 2017 through April 2019 Graphs

- Monthly Fuel use
- Yearly fuel use v. limit
- SO2 Limit v. actual emissions
- NOx limit v. actual emissions

February 2017 through January 2019

- SO2 24 hour emissions
- NOx TPY and lbs/MMBTU emissions
- Natural gas usage
- Diesel fuel usage

File review

2017, 2018, 2019 40 CFR Part 63 Subpart ZZZZ area source RICE MACT semi-annual reports

MAERS 2018 emissions

May 2016 Stack test report

PTI 823-19B Eval form

**FGENGINES: Compliant**

Two dual fuel fired, compression ignition Reciprocating Internal Combustion Engine (RICE) generators each fitted with a catalytic oxidizer for CO control. The units are operated as peaking units. The RICE initially fire up on diesel fuel with the transition to a 95% NG and 5% diesel mix occurring over 20-30 minutes.

I recorded the following from each engines manufacture plate information.

Engine	Plate rating	Year	Hours * May 8, 2019
EU00001 (#3)	7790	1992	402.7
EU00002 (#4)	7790	1992	402.7
*Since 2013 Rebuild			

The file information for the PTI state the engines are 7750 kWh, not 7790. All previous permit information available reviewed listed the engines as 7750kWh each. I will inform the permittee and request a PTI application be submitted or other appropriate action be taken to correct the error.

**Emission limits**

The range of 24 hour SO2 lbs emitted /MMBTU between February 2017 and January 2019 was zero to 221.85 lbs/month. The site uses an emission constant of 0.0397 lbs SO2/MMBtu. The emissions for the months of February 2017, August 2018, and January 2019 are below.

Pollutant	Limit	Time Period / Operating Scenario	Feb 2017	Aug 2018	Jan 2019
1. SO <sub>2</sub>	0.56 lb/MMBTU heat input	24-hour	Not operating	51.07 lbs/month	31.06 lbs/month
<sup>a</sup> Equivalent to using diesel fuel with a 0.5% sulfur content and a heat value of 18,000 BTUs per pound.					

The records for February 2017 through January 2019 are attached.

**Material Limits**

The fuel usage for both engines during the months of February 2017, August 2018, and January 2019 are below.

Fuel	Limit	Time Period / Operating Scenario	Feb 2017	Aug 2018	Jan 2019
1. Natural gas	1,405,900 dscf/day	Monthly average	Not Operating	33,064.52 dscf/day	17,774.19 dscf/day
2. Diesel	890 gal/day	Monthly average	Not Operating	41 gal/day	24.97 gal/day

**Process/Operational restrictions**

None required in the PTI

**Design/Equipment parameter conditions, or Testing/Sampling**

SC VI.1 requires the facility to monitor and record the natural gas usage. A manual record of the reading from the gas company meter taken before an engine is started and when an engine is stopped is entered in the facilities electronic tracking system.

SC VI.2 requires the facility to monitor and record the diesel fuel usage. A manual record of the reading from the day tank glass column taken before an engine is started and when an engine is stopped is entered in the facilities electronic tracking system.

#### Testing/Sampling

None currently except those required by 40 CFR Part 63 Subpart ZZZZ for Area Source facilities that are over 300 bhp, existing, dual fired, non-emergency, compression ignition engines at an area source. Stack testing is required once every three years or 8760 hours of operation. Stack testing was ongoing during the inspection. The Engine #4 was not achieving consistent CO destruction of >70%. The catalyst location is exposed to the weather. Cleaning or changing the catalyst was thought to be the first trouble shooting to attempt. No visible emissions from the engine exhaust stack were noticed. The Engine #4 was brought offline and Engine#3 was started for testing. The Engine #4 catalyst will be replaced and tested reschedule for completion prior to the end of the year.

#### Monitoring and Record Keeping

SC VI.1 requires the facility to keep all required calculations and make them available to the AQD. During the inspection the facility produced calculations for February 2017 through January 2019.

SC VI.2 requires the facility to monitor and record the natural gas usage. A manual record of the reading from the gas company meter taken before an engine is started and when an engine is stopped is entered in the facilities electronic tracking system.

SC VI.3 requires the facility to monitor and record the diesel fuel usage. A manual record of the reading from the day tank glass column taken before an engine is started and when an engine is stopped is entered in the facilities electronic tracking system.

VI.4 requires the facility to keep monthly calculation records for diesel and natural gas usage. During the inspection the facility produced the fuel usage information for February 2017 through January 2019.

SC VI.5 The generator is required to burn low sulfur diesel fuel (0.5% sulfur content). The diesel oil supplier certifies a maximum sulfur content of 15 ppm. A copy of the most recent fuel oil purchase w/sulfur content certification from January 18, 2018 is attached. Based on the information the fuel provided to BCE is in compliance with permit limits.

#### Reporting

Review of semiannual MACT ZZZZ reports found no reported deviations or periods when the CMS was out of control.

#### Stack/Vents

The following stack/vent information was confirmed during the inspection:

Exhaust gases from the stacks listed in the table below discharge unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Description
1. SV00001	34	75	Engine#3
2. SV00002	34	75	Engine #4

#### FGFACILITY

The monthly operating hours, natural gas usage, distillate oil usage, and emissions for February 2017 through January 2019 for engine #3 and #4 were reviewed.

#### Emission Limits

The range of 12 month rolling NOx emissions February 2017 and January 2019 was 1.25 to 2.82 TPY. The NOx emissions for the months of February 2017, August 2018, and January 2019 are below.

Pollutant	Limit	Time Period / Operating Scenario	Feb 2017	Aug 2018	Jan 2019
1. NOx	99.9 tpy	12-month rolling time period as determined at the end of each calendar month.	2.66 tpy	2.82 tpy	2.65 tpy

### Material Limits

The fuel usage for both engines during the months of February 2017, August 2018, and January 2019 are below.

Fuel	Limit	Time Period / Operating Scenario	Feb 2017	Aug 2018	Jan 2019
3. Natural gas	74,600,000 dscf/yr	12-month rolling time period as determined at the end of each calendar month.	8,598,000 dscf/yr	9,842,000dscf/yr	9,349,000 dscf/yr
4. Diesel	64,500 gal/yr	12-month rolling time period as determined at the end of each calendar month.	14,563 gal/yr	13,207 gal/yr	12,135 gal/yr

### Process/Operational restrictions

None required in the PTI

### Design/Equipment parameter

SC IV.1 requires the facility to have a device to satisfactorily monitor and record the diesel fuel usage. A day tank has a meter to measure gallons used and a glass column and ruler used to determine fuel usage.

SC IV.2 requires the facility to have a device to satisfactorily monitor and record the natural gas usage. The site uses the gas company meter for readings. An initial reading is taken before an engine is started and a reading take when an engine is stopped.

N

### Testing/Sampling

SC V.1 requires performance test for NOx at the stack test after the 2015 PTI issuance. The most recent previous stack test was conducted in May of 2016. The facility tested to establish the NOx emission rate during the 2016 test.

The facility also conducts testing required by 40 CFR Part 63, Subpart ZZZZ. Testing has been conducted every three years since the catalyst installation in 2013. Testing was performed during the inspection on May 8, 2019 on Engine #3. The Engine #4 was not achieving consistent CO destruction of >70%. The catalyst location is exposed to the weather. Cleaning or changing the catalyst was thought to be the first trouble shooting to attempt. The Engine was brought offline and Engine#3 was started for testing. The Engine #4 catalyst will be replaced and tested reschedule for completion prior to the end of the year.

### Monitoring/Recordkeeping

