

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

B264766644

FACILITY: LBWL - REO Town Plant		SRN / ID: B2647
LOCATION: 1201 South Washington Avenue, LANSING		DISTRICT: Lansing
CITY: LANSING		COUNTY: INGHAM
CONTACT: Nathan Hude , Environmental Services		ACTIVITY DATE: 03/07/2023
STAFF: Julie Brunner	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: As part of a Full Compliance Evaluation (FCE), AQD staff conducted a compliance inspection of LBWL – REO Town Plant		
RESOLVED COMPLAINTS:		

As part of a Full Compliance Evaluation (FCE), AQD staff conducted a compliance inspection of Lansing Board of Water and Light (LBWL) – REO Town Plant on March 7, 2023. The last compliance inspection was on March 17, 2021.

LBWL Contacts:

**Mr. Nathan Hude, Environmental Services Department, 517-702-6170,
nathan.hude@lbwl.com**

Facility Description:

The stationary source consists of one utility power plant that generates electricity and steam. REO Town Plant is a combined-cycle, cogeneration facility consisting of two natural gas-fired turbines, two heat recovery steam generators (HRSG) with duct burners, steam turbines, a natural gas-fired auxiliary boiler, two (2) natural gas-fired stand-by boilers, a natural gas-fired emergency engine, and a four-cell mechanical draft cooling tower. REO Town Plant was co-located with coal-fired Eckert and Moores Park Steam Stations. Moores Park Steam Station was shut down as part of the project to build the REO Town Plant. Eckert Station was permanently shut down on December 31, 2020. One unit remained available only for emergency operations status through May 31, 2021, at which point the entire plant was permanently taken offline and retired.

The REO Town Plant is located diagonally to the northeast of Eckert Station, and the two plants shared a steam distribution line to GM and downtown Lansing. The stationary source is located in central Lansing and the surrounding area is a mix of residential, commercial, and industrial properties. Also, Moores Park is located directly south of Eckert Station on the other side of the Grand River.

Regulatory Overview:

The facility operates per the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B2647-2018b. Following the shutdown of Eckert Station, AQD incorporated minor modification (MM) No. 202100138 into the ROP on November 18, 2021 for the removal of obsolete Eckert Station equipment (i.e., the coal-fired boilers and associated equipment). Eckert Station equipment is no longer permitted in the ROP

nor physically able to operate. The following units were removed from the ROP and are not identified in the existing ROP: EUBOILER1, EUBOILER2, EUBOILER3, EUBOILER4, EUBOILER5, EUBOILER6, EUASHECKERT, EUCOAL, EUENGINE1, EUENGINE2, EUENGINE3, and EUENGINE4. The Acid Rain permit for Eckert Station has also been voided.

The ROP was last renewed on March 6, 2018. The ROP renewal application was received on April 18, 2022. Modifications that are being rolled in with this renewal include:

Rule 215 Off-Permit Notifications – PTI 36-20, EUSBBOILER1 and EUSBBOILER2 also included in Part F of the renewal application.

MM Application No. 2023000018 - PTI 156-22 for the replacement of EUTURBINE2 with a new turbine of equivalent capacity, EUTURBINE2A.

LBWL – REO Town Plant is currently a major Prevention of Significant Deterioration (PSD) source due to the potential to emit of greater than 250 tons per year (tpy) of regulated pollutants. Potential emissions of carbon monoxide (CO) and nitrogen oxides (NOx) from this facility are greater than 250 tpy. It was demonstrated in the renewal application that the facility is a minor (area) source of hazardous air pollutants (HAPs) with the potential to emit (PTE) in less than 10 tpy of any single HAP and 25 tpy of aggregate HAPs. The facility is subject to the Title V - Renewable Operating Permit Program, and also the following federal regulations for air pollutants as discussed below.

40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units - The provisions of this subpart apply to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)). The natural gas-fired auxiliary boiler (EUAUXBOILER) at the REO Town Plant is subject.

40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units - The provisions of this subpart apply to each steam generating unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a heat input capacity from fuels combusted in the steam generating unit of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/h). The natural gas-fired stand-by boilers (EUSBBOILER1 and EUSBBOILER2) at the REO Town Plant are subject.

40 CFR 60, Subpart KKKK, Standards of Performance for Stationary Combustion Turbines - The provisions of this subpart apply to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005. The two (2) natural gas-fired turbines (EUTURBINE1 and EUTURBINE2) at the REO Town Plant are subject.

40 CFR 60, Subpart JJJJ, Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE) - The provisions of this subpart apply to SI ICE that commence construction (ordered) after June 12, 2006 for the natural gas-fired emergency engine (EUNGINE) at the REO Town Plant.

40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT) – This subpart establishes emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. For the natural gas-fired engine (EUNGINE), compliance with the RICE MACT is demonstrated through compliance with 40 CFR 63, Subpart JJJJ.

40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) - This subpart establishes emission limitations and operating limitations for HAPs emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP emissions. This regulation no longer applies because the facility is now an area source of HAPs.

40 CFR 63, Subpart JJJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources (Area Boiler MACT) - This subpart establishes emission limitations and operating limitations for industrial, commercial, and institutional boilers within a subcategory, as listed in 40 CFR 63.11200 and defined in 40 CFR 63.11237, located at an area source. This regulation doesn't apply to the natural gas-fired boilers at the REO Town Plant.

The natural gas-fired turbines at the REO Town Plant are subject to 40 CFR 72 Acid Rain Permit requirements which are in the ROP.

The Cross State Air Pollution Rule (CSAPR) requirements (40 CFR 97) - The natural gas-fired turbines at the REO Town Plant are subject to CSAPR.

The following is a list of emission units (EU) on ROP No. MI-ROP-B2647-2018b.

REO Town Plant:

EU	Description (Install Date/Mod Date)	Notes / Standards
EUCOOLTWR	A four-cell, mechanical draft cooling tower. (4/11/2013)	NA
EUNGINE	A nominally rated 12.8 MMBtu/hr (1,365 kW) natural gas-fired spark ignition internal combustion engine for emergency use. (5/8/2013)	40 CFR 60, Subpart JJJJ / 40 CFR 63, Subpart ZZZZ
EUAUXBOILER	A nominally rated 245 MMBtu/hr natural gas-fired auxiliary boiler. (7/1/2013)	40 CFR 60, Subpart Db
EUTURBINE1	A 430 MMBtu/hr natural gas-fired turbine with an electrical generator. (4/11/2013)	40 CFR 60, Subpart KKKK / 40 CFR 72 Acid Rain
EUTURBINE2	A 430 MMBtu/hr natural gas-fired turbine with an electrical generator. (4/15/2013)	40 CFR 60, Subpart KKKK / 40 CFR 72 Acid Rain
EUHRSG1	A heat recovery steam generator (HRSG) with a 71.4 MMBtu/hr natural gas-fired duct burner. (6/20/2013)	NA
EUHRSG2	A heat recovery steam generator (HRSG) with 71.4 MMBtu/hr natural gas-fired duct burner. (6/16/2013)	NA

PTIs not in the ROP:

PTI 36-20 – Rental Boilers located at the REO Town Plant, PTI issued 06/23/2020

EUSBBOILER1 Standby natural gas-fired boiler with a maximum rating of 99 MMBtu/hr and equipped with Low-NOx burners 40 CFR 60, Subpart Dc

EUSBBOILER2 Standby natural gas-fired boiler with a maximum rating of 99 MMBtu/hr and equipped with Low-NOx burners 40 CFR 60, Subpart Dc

PTI 156-22 –Replacement of EUTURBINE2 with a new turbine of equivalent capacity, EUTURBINE2A, PTI issued 12/2/2022

EUTURBINE2A A 430 MMBtu/hr natural gas-fired turbine with an electrical generator. (Replacement for EUTURBINE2 is projected to occur in May 2023.) 40 CFR 60, Subpart KKKK / 40 CFR 72 Acid Rain

Exempt Equipment:

EUPARTWASHER – Rule 281(2)(h), New cold cleaner placed into operation on or after July 1, 1979. (Not viewed with this inspection.)

Michigan Air Emission Reporting System (MAERS) - 2022 Reporting Year:

The report was submitted on March 7, 2023 and was audited. Plant-wide totals for 2022 are as follows:

CO - 334954.99 lbs (167.5 tons)

Lead – 0.02 lbs

NOx - 324889.67 lbs (162.4 tons)

PM10/2.5 - 27598.00/27597.72 lbs (13.8 tons)

SO₂ - 689.47 lbs (0.34 tons)

VOC - 13241.89 lbs (6.62 tons)

Inspection – REO Town Plant:

There were no odors from operations and no visible emissions from the stacks. Upon arrival at 1:10 pm, the weather was 40°F, wind NNE@13 MPH, and UV Index 4 moderate.

EUTURBINE1 and EUTURBINE2:

Both EUTURBINE1 and EUTURBINE2 were operating in combined-cycle, and producing steam and electricity (co-generation mode) during the inspection. The duct burners (DB) were operating on the HRSGs (which the operators refer to as boilers) at about 50% capacity. The turbines were operating at full capacity and producing about 40 MW of electricity each. The turbines operate as baseload units and are not load following. The turbines actually can only operate in combined-cycle due to operating in bypass mode for the HRSG would actually stress the unit.

The following is a snapshot of operations from the StackVision screen at 1:46 pm:

EUTURBINE1:

CTG1 - 357.4 MMBtu of heat input

DB1 - 32.2 MMBtu of heat input

NOx (CEMS) – 18.6 ppm@15% O₂ (instant), 19.1 ppm@15% O₂ (30-day), 26.5 pph (instant), 25.8 pph (24-hr)

CO (process monitor) – 16.71 ppm@15% O₂ (instant), 16.15 ppm@15% O₂ (1-hr), 14.60 pph (instant), 14.03 pph (1-hr)

EUTURBINE2:

CTG2 – 349.8 MMBtu of heat input

DB2 – 18.9 MMBtu of heat input

NOx (CEMS) – 22.7 ppm@15% O₂ (instant), 19.4 ppm@15% O₂ (30-day), 30.6 pph (instant), 25.8 pph (24-hr)

CO (process monitor) – 16.71 ppm@15% O₂ (instant), 16.15 ppm@15% O₂ (1-hr), 14.60 pph (instant), 30.7 pph (1-hr)

The following snapshot information was collected from the CEMS readouts at 15:09:29 (CEMS time) in the CEMS room:

EUTURBINE1:

NO uncorrected – 14.99 ppm

NO₂ uncorrected – 4.79 ppm

NO_x uncorrected – 19.78 ppm

O₂ – 14.663%

EUTURBINE2:

NO uncorrected – 17.5 ppm

NO₂ uncorrected – 6.0 ppm

NO_x uncorrected – 23.4 ppm

O₂ – 14.875%

Total operating hours on the turbines on 2/15/2023 were:

EUTURBINE1 – 62,288 hours

EUTURBINE2 – 61,171 hours

The total sulfur content of the pipeline quality natural gas is verified through gas sampling but the facility can also use a purchase contract or tariff sheet. (Natural Gas Tariff Sheet effective for service render on and after May 18, 2010 provided at the last inspection.) The results of gas sampling done in March 2020 showed that the sulfur content of the fuel does not exceed 0.060 lb SO₂/MMBtu heat input in the gas. Records of pipeline quality natural gas (SC III.1) are kept as required by SC VI.5.c for EUTURBINE1 and EUTURBINE2, and demonstrate compliance with the total sulfur limit in 40 CFR 60.4365(a).

A preventative maintenance program and malfunction abatement plan is implemented per the requirements in Special Condition (SC) III.1 for each turbine and duct burner. EUTURBINE1 and EUTURBINE2 have gone through one major overhaul. A major overhaul is completed per manufacturer specifications, and is based on operating hours on the turbine (around 36,000 hours) or if performance of the turbine degrades. The major overhaul on EUTURBINE1 was completed in September of 2018 and the hot section of the turbine was removed for an overhaul and exchanged for another in the exchange program. This is considered a like-kind replacement under a normal (preventative) maintenance program meeting the requirements of Rule 285(2) (a). The major overhaul on EUTURBINE2 was completed in May of 2019. The “OUTAGE PROJECT DESCRIPTION AND AIR PERMIT DOCUMENTATION” for the 36,000 Hr Inspection and Hot-Section Replacement was provided for EUTURBINE2. The maintenance is listed as preventative, and the like-kind replacement was “Hot Section that was removed from EUTURBINE1 in September of 2018 was overhauled

and placed into EUTURBINE2 as part of an exchange program.” Post-project unit % availability was listed as 100%, and post project maximum heat input was 430 MMBTU/hr which was the same as pre-project. No emissions increase was expected.

A second major overhaul of the units was supposed to occur at 50,000 operating hours. But, EUTURBINE2 is to be replaced (PTI 156-22). The major overhaul of EUTURBINE1 is scheduled in April/May of this year. The RMRR determination for EUTURBINE1 has been completed and was provided. The description of routine maintenance, replacement, or repair is 25,000-hr combustor rebuild/hot section refurbishment and 50,000-hr major overhaul. And, involves replacement of existing components with identical or functionally equivalent components.

**Unit Replacement Cost or Insurance Value for Complete Replacement:
\$39,918,744.00 (August 2021 HW Value)**

**Routine Maintenance, Replacement, or Repair Service Cost (excluding shipment):
8,648,000.00**

Calculated Percentage RMRR to Complete Replacement: 21.6% < 50%

Actual emissions after the project are not predicted to be above significant as operations before and after the project will be the same.

FGTURB/HRSG1 and FGTURB/HRSG2 were last tested for CO, PM, PM10, and PM2.5 in February of 2019. The next testing will occur in early 2024. EUTURBINE2A should be installed in time for the next 5 year testing on FGTURB/HRSG2. The testing completed to date meets the requirements in Section V for performance testing every 5 years.

The permittee is required to properly measure fuel flow to each turbine, duct burner, and the auxiliary boiler on a continuous basis per SC VI.3. The devices to monitor fuel flow are properly installed and operated. The fuel meters are calibrated annually per the requirements of Part 75 and this information is logged in StackVision (database). The fuel monitors on the turbines and duct burners were last calibrated on the following dates:

FGTURB/HRSG1 – 11/17/2022 (CTG), 11/18/2022 (DB)

FGTURB/HRSG2 – 11/25/2022 (CTG), 10/1/2022 (DB)

NOx emissions for each turbine are required per SC VI.2 to be measured using a CEMS. (CO is also measured using an uncertified CEMS as the data is used by the manufacturer and it is not a compliance tool.) The NOx CEMS annual RATA was

completed on FGTURB/HRSG1 and FGTURB/HRSG2 in late February/March of 2023. The NOx analyzer on the CEMS for FGTURB/HRSG1 was replaced 2/23/2022. The CEMS on FGTURB/HRSG2 was a “new CEMS” in 2021. The CEMS on this unit was replaced after the NO₂ converter malfunctioned and the CEMS was still reading low after the converter was replaced. The new CEMS are the latest model of ThermoFisher. The following is the tag information on the CEMS:

FGTURB/HRSG1 CEMS Serial No. 12114512141, Model Code: 42iQLS-ABBNA

FGTURB/HRSG2 CEMS Serial No. 1200416212, Model Code: 42iQLS-ABBNA

EUAUXBOILER:

The REO Town Plant auxiliary boiler is a Victory packaged boiler (3-SHP-BO-001) steam generator with ultra low NOx burners and a continuous oxygen trim system. The tags on the boiler have the year built of 2012, MFGS Serial/Job # 11340, and a maximum steaming capacity 175,000 lb/hr. EUAUXBOILER was not operating on the day of the inspection. The auxiliary boiler does not operate very often due to cost, but with Eckert Station retired, it operates more.

The following snapshot information was collected from the CEMS readouts at approximately 15:06:16 (CEMS time) in the CEMS room when the boiler was not operating:

EUAUXBOILER:

NO uncorrected – -0.073 ppm

NO₂ uncorrected – 0.032 ppm

NOx uncorrected – -0.041 ppm

O₂ – 21.057%

NOx emissions for EUAUXBOILER are required per SC VI.2 to be measured using a CEMS. The NOx analyzer on the CEMS was replaced 2/22/2022, and the CEMS was certified 3/8/2022. The NOx CEMS annual RATA was completed in late February/early March of 2023. The following is the tag information on the CEMS:

CEMS Serial No. 12114512143, Model Code: 42iQLS-ABBNA

A preventative maintenance program and malfunction abatement plan is implemented per the requirements in SC III.1 for EUAUXBOILER. EUAUXBOILER was last tested for CO, PM, PM10, and PM2.5 in February 2019. The next testing will occur in early 2024. This meets the testing requirements in Section V for performance testing every 5 years.

The Boiler MACT and the requirements on the ROP are no longer applicable based on the information submitted in the MM and ROP renewal applications. The Boiler MACT requirements will be removed with the ROP renewal. But for historical information, the last tune-up of the boiler was completed on April 28, 2018 and is required every 5 years per the requirements of the Boiler MACT, specifically 40 CFR 63.7515(d). A copy of the Aux Boiler Report was obtained at the inspection completed in December of 2018. The findings which demonstrate compliance included the following:

1. The single burner boiler operates reliably over the load range.
2. The boiler efficiency was 84.1% which matches the design criteria.
3. The burner design provides optimum combustion control.
4. The boiler and burner components are maintained properly and function per the design specifications.

EUNGINE:

The emergency non-certified engine at the REO Town Plant is part of a CAT generator set with the following tag information:

Engine Model: G3516B

Manufacture Year: 2012

Engine Output: 1,625 kVA, 1,300 kW*

Make: SR4B

Serial Nos. 4FN03092 (generator), ZBC00252 (engine)

*** The engine tag indicates that the engine is a little smaller than maximum design capacity of 1,356 kW (SC IV. 1) that was permitted.**

The engine had 187 hours on the clock when checked at the inspection. The engine is restricted to less than 500 hours per 12-month rolling time period per SC III.1, and no more than 100 hours for maintenance checks and readiness testing per SC III.2. The engine was operated for approximately 11 hours in 2021 (includes stack testing) and 2 hours in 2022 for maintenance checks and readiness testing. The engine operation is tested, approximately monthly. Copies of the operating and maintenance logs were obtained as part of the inspection. The logs show regular testing, reason

for operation, and maintenance (the last PM done by MichiganCAT was on 7/27/2022). The engine is meeting the NSPS and MACT requirements.

Emission testing is required every 3 years or 8,760 hours for a non-certified engine. Emission testing on the engine for emissions of NO_x, CO, and VOC per 40 CFR 60, Subpart JJJJ requirements was completed in March 2021 and the results were passing. The next testing will occur in early 2024. This meets the testing requirements in Section V for performance testing every 3 years for a non-certified engine.

EUCOOLTWR:

The four-celled mechanical draft cooling tower is vender certified for maximum drift rate of 0.001% or less as required by SC IV.1. Water samples are collected weekly and analyzed for total dissolved solids (TDS) content, and average monthly TDS is calculated from the weekly samples. Records including TDS content of the water and water recirculation rates used to calculate the average monthly particulate matter emission rates are all kept in a satisfactorily manner as required by SC VI.3.

EUSBBOILER1 and EUSBBOILER2 (PTI 36-20 – Stand-by Boilers):

Two (2) stand-by boilers (FGSBBOILERS) have been installed as allowed under PTI 36-20. The two (2) boilers are each nominally rated at 92.1 MMBtu/hr with low NO_x burners used for back-up steam for the downtown heating district. The boilers are semi-truck mounted (each sit on a skid), and a pole barn type shed with a stack has been built covering half of each boiler. Actual start-up date for EUSBBOILER1 and EUSBBOILER2 was December 28, 2020. They were rented from Nationwide Boiler Inc. but LBWL has since purchased them.

EUSBBOILER1 (West Boiler) – Tags show the boiler was built in 2014, Mfg. Serial No. RT4303G, Ohio Boiler Number 293847, Michigan Boiler Serial Number 453697

EUSBBOILER2 (East Boiler) – Tags show the boiler was built in 2014, Mfg. Serial No. RT4302G

The technical information with predicted boiler emission data shows the following:

**NATURAL GAS BOILER MFG NEBRASKA NOS-2A/S-64
AND MODEL**

BOILER CAPACITY, LB/HR 71,000

DESIGN PRESSURE, PSIG	350
BURNER MFG AND MODEL	FABER WB-1-30
FUEL FLOW, SCFH	92,100
FUEL HEAT INPUT, MMBTU	92.1
FLUE GAS OUTLET TEMP, DEG F	545
FLUE GAS FLOW, LB/HR	81,350
FLUE GAS SPECIFIC VOLUME, 25.1 CF/LB	
STACK OUTLET SIZE	56" diameter
STACK OUTLET FLOW AREA, SQ FT	17.10
STACK GAS EXIT VELOCITY, FPM	1,990
STACK GAS EXIT FLOW, ACFM	34,050

	PPMVD	#/MMBTU
NOx @ 3% O2	30	0.036
CO @ 3% O2	50	0.037
VOC @ 3% O2	10	0.004
PM10 @ 3% O2		0.005

SC VII.1 and 2 – Written notification of the date of initial startup of each boiler in FGSBBOILERS including the information specified in 40 CFR 60.48c, and completion of installation was provided January 7, 2021, meeting the requirements in 40 CFR 60.7 and Rule 201(7). The requirements of these special conditions have been fulfilled and they will not be included in the ROP renewal.

SC VIII.1 and 2 – The stacks on EUSBBOILER1 and EUSBBOILER2 are limited to a maximum exhaust diameter of 54 inches and a minimum height above ground of 65 feet. According to the technical information from Nationwide Boiler Inc. the stack outlet size on the boilers is 56 inches. Nathan provided construction information (at the last inspection) on the stack diameter and height to confirm the stack diameter was not greater than 54 inches and the stack height was at a minimum of 65 feet. The exhausted gases from EUSBBOILER1 and EUSBBOILER2 are discharged unobstructed vertically upwards to the ambient air.

EUSBBOILER1 and EUSBBOILER2 were subject to 40 CFR Part 63, Subpart DDDDD, and the applicable requirements are included in FGSBBOILERMACT on PTI 36-20. The initial notification of the actual date of startup (December 28, 2020) was provided January 7, 2021, meeting the requirements in 40 CFR 63.7545(c) and 40 CFR 63.9(b)(4)(v)(i). The last annual boiler tune-ups were completed January 26 and 27, 2023. The requirements for the Boiler MACT will not be included in the ROP renewal because the regulation is no longer applicable.

A notification of an off-permit change per Rule 215(3) using an M-001 Form was made once EUSBBOILER1 and EUSBBOILER2 were installed. The requirements of PTI 36-20 will be incorporated when ROP No. MI-ROP-B2647-2018b is renewed as allowed under the Rule 215(3) notification.

Records Review:

The following records (operating information kept in StackVision) were received for the inspection:

1. EUNGENINE – CAT Inspection and Preventative Maintenance documents for 7/27/2022; Operating Hours for Mar-2021 to Jan-2023 with description of reason/type of operation.

2022 MAERS:

CO - 28 lbs

NOx - 6 lbs

PM10/2.5 - 0.38/0.10 lbs

SO₂ - 0.03 lbs

VOC - 7 lbs

2. EUTURBINE1 (OSTG1) and EUTURBINE2 (OSTG2) - NOx CEMS data in ppm (30-day rolling average, 24-hour rolling average) report period 03/1/2022 through 02/28/2023, and pph (24-hour rolling average) 03/1/2022 through 02/28/2023 per month, and operating data for 3/7/2023 including steam flow, unit load, fuel use in gasflow (HSCFH), steam flow, and heat-in MMBTU as summarized below.

EUTURBINE1 (OSTG1):

NOx ppmv (30-day rolling average) max on 02/22/2022, 02/25/2022 to 02/28/2022 = 19.2 ppm at 15% O₂ < 25 ppm at 15% O₂

NOx pph (24-hour rolling average) max on 2/4/2023, 2/17/2023 = 28.5 pph < 39.6 pph and 42.5 pph (combined w/ duct burners)

2022 MAERS:

CO - 213330.00 lbs (106.7 tons)

NOx - 148200.00 lbs (74.1 tons) < 179.6 tpy (emission limit SC I.3)

PM10/2.5 - 14467.00 lbs (7.23 tons)

SO₂ - 252.64 lbs (0.13 tons)

VOC - 5475.00 lbs (2.74 tons)

EUTURBINE2 (OSTG2):

NOx ppmv (30-day rolling average) max on 03/1/2022 = 20.7 ppm at 15% O₂ < 25 ppm at 15% O₂

NOx pph (24-hour rolling average) max on 2/5/2023 = 32.4 pph < 39.6 pph and 42.5 pph (combined w/ duct burners)

2022 MAERS:

CO - 110139.00 lbs (55.1 tons)

NOx - 171400.00 lbs (85.7 tons) < 179.6 tpy (emission limit SC I.3)

PM10/2.5 - 11815.00 lbs (5.9 tons)

SO₂ - 247.95 lbs (0.124 tons)

VOC - 5347.00 lbs (2.67 tons)

The permit limits for NO_x in combined-cycle mode are 25 ppmv dry at 15% oxygen, and 39.6/42.5 pph on a 24-hour rolling basis and 179.6 tpy on a 12-month rolling time period. EUTURBINE1 (OSTG1) and EUTURBINE2 (OSTG2) are operating in compliance with the permitted emission limits. Based on data reviewed during the inspection, EUTURBINE1 (OSTG1) and EUTURBINE2 (OSTG2) are operated in compliance with the 40 CFR 60, Subpart KKKK and ROP No. MI-ROP-B2647-2018b.

3. EUAUXBOILER - NO_x CEMS hourly data in pph (24-hr rolling average), ppmv, and lb/MMBtu for 03/1/2021 through 02/28/2023 is summarized below.

Highest NO_x ppmv (30-day rolling average) on 01/28/2022 and 01/29/2022 = 13.2 ppm at 3% O₂ < 30 ppm at 3% O₂

Highest NO_x pph (24-hour rolling average) on 01/11/2022 = 3.1 pph < 10.2 pph

Highest NO_x lb/MMBtu (30-day rolling average) on 01/25/2022 until 02/04/2022 = 0.016 lb/MMBtu < 0.20 lb/MMBtu

2022 MAERS:

CO - 10151 lbs (5.1 tons)

NO_x - 4012 lbs (2.0 tons)

PM_{10/2.5} - 1139 lbs (0.57 tons)

SO₂ – 167.4 lbs (0.08 tons)

VOC - 1533 lbs (0.76 tons)

EUAUXBOILER is operating in compliance with the permitted emission limits.

4. EUCOOLTWR – Acceptable monthly records for March-2021 to Feb-2023, and the average particulate matter emission rate estimated in pph. The highest hourly emission of particulate matter for the time period was 0.0209 pph in April-2021. EUCOOLTWR is in compliance with the PM/PM₁₀/PM_{2.5} emission limits of 0.77 pph.

2022 MAERS:

PM10,FLTRBLE - 125.00 lbs

5. EUSBBOILER1 and EUSBBOILER2 – Monthly operating hours and fuel usage from December 2020 to February 2023 were provided. As of February 2023, EUSBBOILER1 and EUSBBOILER2 had operated a combined 929 hours for the 12-month rolling time period which is less than the 13,400 hours per 12-month rolling time period limit. The highest monthly usage of natural gas was 23.6 MMSCF in May of 2021.

2022 MAERS EUSBBOILER1:

CO - 401.30 lbs (0.20 tons)

NOx - 390.46 lbs (0.195 tons)

PM10/2.5 – 54.23 lbs (0.027 tons)

SO₂ – 6.60 lbs (0.0033 tons)

VOC – 43.38 lbs (0.022 tons)

2022 MAERS EUSBBOILER2:

CO - 905.69 lbs (0.45 tons)

NOx - 881.21 lbs (0.44 tons)

PM10/2.5 - 122.39 lbs (0.061 tons)

SO₂ – 14.85 lbs (0.0074 tons)

VOC – 97.91 lbs (0.049 tons)

EUSBBOILER1 and EUSBBOILER2 appear to be operating in compliance with permitted limits.

All records are kept in a satisfactory manner. Copies of records obtained in the course of this compliance inspection are to be located in Content Manager.

ROP and MACT Reporting:

LBWL submits quarterly, semi-annual, and annual ROP reports as required by ROP No. MI-ROP-B2647-2018b. The 1st quarter semi-annual 2022 for REO Town received 8/15/2022 showed no deviations. The 2nd quarter semi-annual 2022 for REO Town

received 1/10/2023 showed no deviations and the annual report for 2022 submitted at the same time showed no deviations for the year.

Summary:

Compliance with ROP No. MI-ROP-B2647-2018b, PTI 36-20, and state and federal regulations was demonstrated.

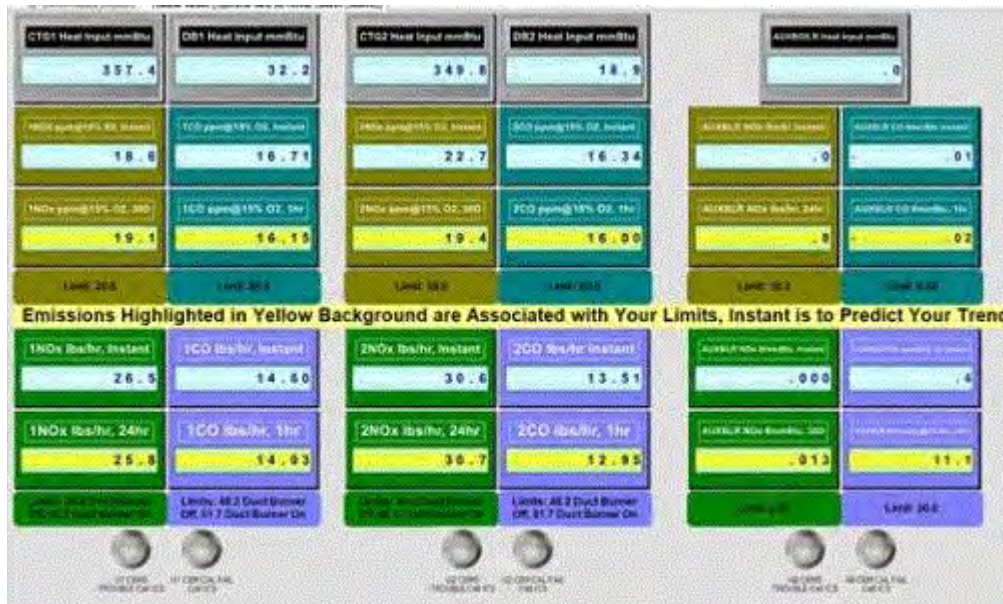


Image 1(Operating Screen) : Operating Screen 3-7-2023

NAME Julie L. Brunner

DATE 3/28/2023

SUPERVISOR RB