

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

B400159345

<b>FACILITY:</b> LBWL, Erickson Station	<b>SRN / ID:</b> B4001
<b>LOCATION:</b> 3725 South Canal Road, LANSING	<b>DISTRICT:</b> Lansing
<b>CITY:</b> LANSING	<b>COUNTY:</b> EATON
<b>CONTACT:</b> Nathan Hude , Environmental Services	<b>ACTIVITY DATE:</b> 06/29/2021
<b>STAFF:</b> Julie Brunner	<b>COMPLIANCE STATUS:</b> Compliance
	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> On-site compliance inspection of Lansing Board of Water and Light (LBWL) – Erickson Power Station as part of a Full Compliance Evaluation (FCE).	
<b>RESOLVED COMPLAINTS:</b>	

As part of a Full Compliance Evaluation (FCE), AQD staff conducted an on-site compliance inspection of Lansing Board of Water and Light (LBWL) – Erickson Power Station on June 29, 2021. The last compliance inspection was on August 29, 2019.

Arrived: 1:40 pm

Weather: 73°F, SW @ 7 MPH, UV Index 8

Departed: 4:40 pm

**Contacts:**

Mr. Nathan Hude, Environmental Services Department, 517-702-6170, [nathan.hude@lbwl.com](mailto:nathan.hude@lbwl.com)

**Facility Description:**

The stationary source consists of one utility power plant that generates electricity. Erickson Station has one (1) coal-fired boiler capable of generating electric power, a diesel fuel-fired auxiliary boiler, coal handling systems and storage, fly ash handling systems and storage silos, and exempt equipment including fuel storage tanks, emergency diesel fuel-fired fire pump, and mechanical draft cooling towers. The Erickson Station is scheduled to close by December 31, 2025.

Currently under construction adjacent to Erickson Station is the Delta Energy Plant (DEP), a combined-cycle, cogeneration facility consisting of three natural gas-fired turbines, two heat recovery steam generators (HRSG) with duct burners, a natural gas-fired auxiliary boiler, natural gas and diesel-fired emergency engines, and a mechanical draft cooling tower. DEP is being constructed under the requirements of PTI 74-18A. This PTI went through enhanced permitting for possible incorporation into the ROP as an administrative amendment.

LBWL – Erickson Station and DEP are considered to be one stationary source. They are co-located on the same property, have the same owner, and have the same 2-digit SIC code. The stationary source is located in west Lansing and the surrounding area is mainly commercial and industrial properties.

**Regulatory Overview:**

The facility operates per the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B4001-2015. The ROP was last renewed on December 8, 2015, and the ROP renewal application was submitted on

May 12, 2020. The ROP renewal application still needs to be amended to incorporate PTI 74-18A for DEP with the renewal.

LBWL Erickson Station (Erickson) 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), nitrogen oxides (NO<sub>x</sub>), and sulfur dioxide (SO<sub>2</sub>) at this facility are greater than 250 tpy. The facility is also major for hazardous air pollutants (HAPs) with the potential to emit (PTE) in equal or greater quantities of 10 tpy of any single HAP and 25 tpy of aggregate HAPs. The PTE of greenhouse gases (GHG) in carbon dioxide equivalents (CO<sub>2</sub>e) is greater than 75,000 tpy. CO<sub>2</sub>e is a calculation of the combined global warming potentials of six GHGs: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The facility is subject to the Title V - Renewable Operating Permit Program, and also the following federal regulations for air pollutants as discussed below.

The coal-fired boiler, EU001 is subject to the Acid Rain Program and the Cross-State Air Pollution Control Rule (CSAPR): Transport Rule NO<sub>x</sub> Annual Trading Program, Transport Rule NO<sub>x</sub> Ozone Trading Program, and the Transport Rule SO<sub>2</sub> Group 1 Trading Program. Michigan is the implementing authority only.

The coal-fired boiler, EU001, is considered an existing electrical generating unit (EGU) which is subject to 40 CFR 63 Subpart UUUUU, National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units (Utility MACT). This subpart establishes emission limitations and operating limitations for HAPs emitted from coal- and oil-fired utility boilers located at major sources of HAP emissions. The regulation is commonly referred to as MATS (Mercury and Air Toxics Standards).

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. The Cleaver Brooks No.2 oil-fired auxiliary boiler, EUAUXBLR, is subject to the Boiler MACT as an existing boiler (date of installation was June 4, 2010 or earlier) and was re-permitted as a "limited use" boiler in May 2015 (PTI 71-15).

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 diesel fuel-fired engine (EUFENGINE), compliance with the RICE MACT is demonstrated through compliance with 40 CFR 63, Subpart IIII.

40 CFR 60, Subpart IIII, Standards of Performance for Compression Ignition Internal Combustion Engines (CI ICE) - The provisions of this subpart apply to CI ICE that commence construction (ordered) after July 11, 2005 and manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. The Clark Fire Pump engine (EUFENGINE) is used for emergency purposes only and is subject to 40 CFR 63, Subpart IIII.

40 CFR 60, Subpart Y for Coal Preparation and Processing Plants – Affected facilities include thermal dryers, pneumatic coal-cleaning equipment, transfer and loading systems, and open storage piles. The coal handling system (EUCOAL) is subject.

The following is a list of emission units (EU) on ROP No. MI-ROP-B4001-2015:

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Install Notes / Standards
EU001	Babcock & Wilcox pulverized coal-fired boiler. No. 2 fuel oil can be used for startup and flame stabilization. The boiler is rated at 1668 MMBTU/hr. The boiler is equipped with low NOx burners (LNB) and over-fire air (OFA). Particulate matter from the boiler is controlled by an electrostatic precipitator (ESP). The single ESP was replaced 11/20/1998 with two ESPs of more efficient design.	7-1-1970 / 40 CFR 63, Subpart UUUUU / 40 CFR 72 Acid Rain / 40 CFR 97 CSAPR
EUAUXBLR	Cleaver Brooks limited use auxiliary boiler Model CBI89-500. Unit is fired on No. 2 oil and is used to supply plant heat when EU001 is not operating. Unit is ignited with liquefied petroleum gasoline (LPG). The unit has a 20,922,000 BTU/hr maximum design heat input.	5-7-1971 / 40 CFR 63, Subpart DDDDD
EUFENGINE	John Deere Power Systems 175 bhp 4-stroke Diesel Compression Ignition Clark Fire Pump Emergency Engine, Model JU6H-UFADM8. Maximum heat input is approximately 1.4 MMBTU/hr with a 6.8 L/cylinder displacement.	11-2013 / 40 CFR 60, Subpart IIII / 40 CFR 63, Subpart ZZZZ
EUASHDC1	Ash handling equipment, including a particulate control device, used to transfer ash from storage to 2 load out silos. (main dust collector).	10-1-1978 / 12-28-91
EUASHDC2	Ash handling equipment, including a particulate control device, used to load trucks from the load out silos. (load-out silo bin vent)	7-1-1970 / 11-2017 (?)
EUASHDC3	Ash handling equipment, including a particulate control device, used to transfer ash to 2 storage silos. (truck unloading dust collector).	10-1-1978 / 1-1-1982 / 10-12-2017

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Install Notes / Standards
EUASHDC4	Ash handling equipment, including a particulate control device, used to transfer ash to a mass storage building. (mass storage dust collector).	7-1-1970
EUASHDC5	Ash handling equipment, including a particulate control device, used to transfer ash from Erickson station to the storage facilities. (Erickson fly ash system baghouse)	7-1-1970
EUCOLDCLEANER	Thirty gallon parts washer for cleaning/degreasing parts using Stoddard solvent/mineral spirits.	1998

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**PTIs not in the ROP:**

PTI 43-20 – Incorporates the Consent Agreement and Final Order (CAFO) Docket No. CAA-05-2019-0040 requirements into a PTI for Erickson Station. The PTI was issued 10/08/2020. Minor modification (MM) application No. 202100033 to incorporate the PTI into ROP No. MI-ROP-B4001-2015 was submitted on February 18, 2021 and includes conditions for the following emission units.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification D.
EU001	Babcock & Wilcox pulverized coal-fired boiler. No. 2 fuel oil can be used for startup and flame stabilization. The boiler is rated at 1668 MMBTU/hr. The boiler is equipped with low NO <sub>x</sub> burners (LNB), over-fire air (OFA) and selective non-catalytic reduction (SNCR). Particulate matter from the boiler is controlled by an electrostatic precipitator (ESP). The single ESP was replaced 11/20/1998 with two ESPs of more efficient design.	7-1-1970
EUCOAL	The process is a coal handling system that serves Erickson Station. It includes coal conveyors, coal bunkers, a coal pile, and equipment to apply dust suppressant to the coal.	July 1970

**Consent Order AQD No. 2021-13:**

Due to violation of 40 CFR 63, Subpart UUUUU, Utility MACT; 40 CFR 60, Subpart Y; and ROP No. MI-ROP-B4001-2015, the LBWL signed this Consent Order (CO) to resolve non-compliance issues. Specifically, LBWL exceeded the mercury emission limit from the pulverized coal-fired boiler identified as EU001 and failed to timely perform visible emissions (VE) testing for the coal handling equipment identified as EU001 in PTI 43-20, as cited in Violation Notices dated April 8, 2021, and May 11, 2021. (VE testing was completed on 6/29/2021 at the belt transfer house, and on 7/14/2021 at the rail dumper station and coal pile drop chute portions of EU001.) The CO was approved on 8/18/2021.

**Exempt Equipment:**

The cooling towers at Erickson Station are exempt per Rule 280(2)(d). There have been no changes in the operation of the cooling towers since the last inspection. No chromium compounds to treat the water are used in the cooling towers, therefore, they are not subject to 40 CFR 63, Subpart Q.

EUCOLDCLEANER (Cold Cleaner): Thirty gallon parts washer for cleaning/degreasing parts using Stoddard solvent/mineral spirits per Rule 281(2)(h) at Erickson Station.

A 1000 gallon double-walled above ground storage tank (AST) containing unleaded gasoline exempt per Rule 284(2)(g)(i).

A 15,000 gallon double-walled above ground storage tank (AST) containing urea exempt per Rule 284(2)(i).

Carbon silo (4,500 ft<sup>3</sup>) exempt per Rule 284(2)(k).

Two underground storage tanks (UST) and small ASTs containing No.2 fuel oil exempt per Rule 284(2)(d).

**Michigan Air Emission Reporting System (MAERS) - 2020 Reporting Year:**

Report submitted March 8, 2021 and was audited.

**Inspection:**

I inspected the facility in person on June 29, 2021. There were no odors from operations and no visible emissions from any stacks or operations observed upon my arrival.

**EU001 (PTI 43-20) – Babcock Wilcox pulverized coal-fired boiler:**

EU001 is a baseload boiler with a maximum operating capacity of 165 MW which is the high load limit but operates greater than 60% of the time in the low load range around 99 MW. The boiler combusts sub-bituminous from the Powder River Basin in Wyoming. Coal shipment frequency varies, but typically Erickson Station, on average, receives coal once every 1.5 to 2 weeks. The goal is to keep enough onsite for what they predict they will need. Coal deliveries increase during the summer months. Additionally, for startup, LBWL uses No.2 fuel oil in the boiler. The fuel oil used for startups is the same fuel oil that is used to run the emergency generator and auxiliary boiler, and is an ultra-low sulfur diesel with a sulfur content of no more than 15 ppm.

The conditions for EU001 are on PTI 43-20 (will be incorporated at renewal) and the requirements are reviewed as follows:

**Emission Limits**

PTI 43-20, Special Condition (SC) I.1, SC IV.1, and SC VI.2 – Visible emissions (VEs) are limited to 20% opacity (except for one average per hour of 27% or less) and compliance is monitored using a COMS. VEs are an indicator of particulate emissions and particulate emissions are controlled by a properly installed, maintained, and operated electrostatic precipitator (ESP). VEs measured in the COMS demonstrate continuous compliance and that the ESP is operating in a satisfactory manner. The COMS is also used for CAM.

PTI 43-20, SC I.2 and SC V.1 – PM is limited to 0.030 lb/MMBTU and compliance is demonstrated through an annual stack test. Stack testing for PM performed pursuant to 40 CFR Part 63, Subpart UUUUU can be used to satisfy this requirement. Stack testing was just completed on 8/3/2021 and results are pending.

PTI 43-20, SC I.3, SC IV.3, and SC VI.3 – NO<sub>x</sub> is limited to 0.170 lb/MMBTU based on a 30-day rolling average and compliance is monitored using a CEMS. NO<sub>x</sub> emissions are controlled by a low NO<sub>x</sub> combustion system and selective non-catalytic reduction (SNCR). NO<sub>x</sub> measured in the CEMS demonstrates continuous compliance, and that the combustion system and SNCR are operating in a satisfactory manner. LBWL tries to optimize the SNCR to maintain the NO<sub>x</sub> emission rate at 0.155 lb/MMBTU.

PTI 43-20, SC I.3, SC IV.4, and SC VI.4 – SO<sub>2</sub> is limited to 0.749 lb/MMBTU based on a 30-day rolling average and compliance is monitored using a CEMS. SO<sub>2</sub> measured in the CEMS demonstrates continuous compliance.

**Material Limits**

There are no material limits in PTI 43-20 as the limit on the coal ash content of no more than 14% by weight has been removed as obsolete with the issuance of PTI 43-20. Coal shipment data was provided as requested and summarized below in Table 1.

Table 1. Coal analysis

Sample Date	% Ash	% sulfur	Cl (ppm, dry)	Hg (ppm, dry)	HHV (dry, BTU/lb)
4/20/2021	4.55	0.24	8	0.066	12298
5/8/2021	4.84	0.27	5	0.075	12269
5/22/2021	4.95	0.26	10	0.06	12226

Sample Date	% Ash	% sulfur	Cl (ppm, dry)	Hg (ppm, dry)	HHV (dry, BTU/lb)
6/2/2021	5.57	0.2			12090
6/19/2021	5.11	0.26			12214

Records of the coal analysis for each delivery of coal are required per SC VI.5 (PTI 43-20). At a minimum, the records shall include percent ash by weight, percent sulfur by weight, percent moisture (H<sub>2</sub>O) by weight, and BTUs per pound. These records may include ASTM analyses provided by the vendor at the time of delivery, analytical results from laboratory testing, or any other records adequate to demonstrate compliance. The data is kept in a satisfactory manner, and the data in its entirety is attached with the file record.

**Process/Operational Restrictions**

LBWL is permitted to use coal and low sulfur No. 2 fuel oil in EU001 per SC III.1. It is the only two (2) fuels that are combusted in EU001.

A MAP for EU001 is required to be implemented and maintained per SC III.2. A “Particulate Matter MAP and CAM Plan” is implemented and maintained. It contains all the required elements including a preventative maintenance program, operating variables, and corrective procedures in the event of a malfunction. It was last updated in November 2019 to incorporate Neundorfer Control System into the plan. The Particulate Matter Malfunction Abatement Plan is reviewed on an annual basis and updated as needed.

A “NO<sub>x</sub> Control Malfunction Abatement Plan” is implemented and maintained. It contains all the required elements including a preventative maintenance program, operating variables, and corrective procedures in the event of a malfunction. It was last updated in March 2020. The NO<sub>x</sub> Control Malfunction Abatement Plan is reviewed on an annual basis and updated as needed.

A “Mercury Malfunction Abatement and QA/QC Plan” is implemented and maintained per the requirements of Rule 911 and 40 CFR 63, Appendix A - Hg Monitoring Provisions, 5.4. It contains all the required elements including a preventative maintenance program, operating variables, and corrective procedures in the event of a mercury control system malfunction. It was last updated April 29, 2020. The Mercury Malfunction Abatement and QA/QC Plan is reviewed on an annual basis and updated as needed.

Records of all maintenance and repair activities performed are stored in the Erickson electronic work order program. The following records are maintained: date, time, and description of any testing, adjustment, repair, replacement, or preventative maintenance action performed.

**Design/Equipment Parameters**

SC IV.1 requires that the permittee not operate EU001 unless the low NO<sub>x</sub> combustion system, SNCR, and ESP are installed, maintained, and operated in a satisfactory manner. Satisfactory manner

includes operating and maintaining each control device in accordance with an approved MAP as required in SC III.2. All submitted MAPs are considered approved and the APC is operating in a satisfactory manner.

Each of the two identical ESPs has 5 fields, and the first 2 fields can collect up to 80% of the fly ash entering the ESP. Arcing between the plates (spark) occurs when ash builds up on the plates. The sparking rate at the last of the 5 fields is lower than the first plate because less ash is collected at this last field. Each precipitator field is powered by its own High Voltage Transformer/Rectifier set controlled by a Neundorfer Control System. The precipitator collecting plates and discharge electrodes utilize a Neundorfer rapper control system. The Neundorfer Precipitator Control System includes the following to provide a unified precipitator control system designed to optimize the operation of the precipitator:

- MVC Micro Voltage Control
- MicroRap Rapper Control
- Precipitator Optimization Software Control System (POS)

A COMS which shall have an automated data acquisition and handling system for measuring and recording the opacity of emissions is required per SC IV.2 and 40 CFR Part 75. The primary way LBWL staff know the ESPs are operating properly is the opacity being emitted from the stack. An opacity of 5-6% is normal. Anything outside this range would be an indicator that the ESPs are not operating properly, in addition to other variables, such as seeing an increase in voltage to the plates or an increase in sparks per minute. Another indicator for determining whether the ESPs are operating satisfactorily is the voltage across the transformer/rectifier sets. The ESP transformer/rectifier sets are full automated, but can be manually adjusted.

LBWL is required to install, calibrate, certify, maintain, and operate CEMS for measuring and recording the gas flow, sulfur dioxide, carbon dioxide, and nitrogen oxides content of the boiler exhaust gases per SC IV.3 and 4, and 40 CFR Part 75. RATAs for the CEMS are conducted annually and verified by AQD’s Technical Programs Unit. The last RATA was completed 8/3&5/2021. Table 2 lists the current CEMS/COMS monitors that are installed at the time of this inspection. These are the same units that were installed in 2017.

**Table 2. CEMS & COMS Monitors and Real-time Data Snapshots**

Parameter	Manufacturer	Serial No	Model/ Year	Real-time Data 6/29/2021
CO <sub>2</sub>	Teledyne API	63	T360M/ 2011	12.4%
NO <sub>x</sub>	Teledyne API	337	T200/ 2012	0.145 ppm
SO <sub>2</sub>	Teledyne API	61	T100H/ 2011	0.573 ppm
Opacity	Teledyne	5602319	560 Light Hawk	3.52%



Gas Flow	Teledyne Ultraflow	1501157	150	382.8 ft <sup>3</sup>
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CEMS and COMS have QA/QC plans to ensure that the systems are maintained properly. All maintenance is logged in their electronic StackVision logbook. LBWL is required to maintain an inventory of parts for the COMS routine repairs. This list is kept electronically.

The CEMS and COMS self-calibrates for zero and span checks every day at 5:30 am. In the event that the daily calibration fails, an alarm is triggered calling for staff to investigate the issue. They may do manual calibrations to correct the system if necessary.

Whenever the COMS system detects opacity that exceeds the 20% requirement in the ROP, a light comes on (visual alarm) in the control room to signal the operators that opacity limits have been exceeded. They've instituted a practice for ensuring LBWL staff are aware of the monitored NOx, SO<sub>2</sub> and opacity values. Staff are required to write down the opacity, NOx, and SO<sub>2</sub> values once every hour.

Quarterly excess emission reports for SO<sub>2</sub> and listing all exceedances of 20% opacity are required per ROP No. MI-ROP-B4001-2015, SC VII.1 and 2, and semi-annual reporting of monitoring and deviations ROP No. MI-ROP-B4001-2015, SC VII.4. Also, LBWL is required to submit to EPA semi-annual reports including all information necessary to assess compliance with the requirements of the CAFO. In the last quarterly report (2<sup>nd</sup> Quarter of 2021), no excess emissions and monitor downtime for the COMS was reported. The highest daily SO<sub>2</sub> emission was 0.682 lbs/MMBTU and average daily for the quarter was 0.538 lbs/MMBTU.

### CAM

The COM-recorded opacity is an indicator of the proper operation of the ESP per ROP No. MI-ROP-B4001-2015, SC VI.4. The indicator range of opacity defining proper function of the ESP is 0 – 20%. A visual alarm shall occur for opacity equal to or greater than 20 percent. An excursion is defined as any 2 or more consecutive 1-hour block average opacity values greater than 20%. The COMS is required to operate with a range of 0-100% opacity, complete a minimum of 1 cycle of sampling and analyzing for each successive 10-second period and 1 cycle of data recording for each successive 6-minute period, in addition to conducting zero and span checks at least once daily. A semi-annual report of CAM monitoring and deviations is required per ROP No. MI-ROP-B4001-2015, SC VII.6. In the last semi-annual report (1<sup>st</sup> semi 2021), no CAM excursion/exceedances for EU001 were reported.

### EU001 – Records Reviewed:

The following records on a daily basis:

- a. Calendar date.
- b. Hours of boiler operation.
- c. The amount and type (coal, fuel oil, etc.) of each fuel combusted.
- d. The magnitude, in actual percent opacity, of all 6-minute averages of opacity for each hour of operation.

Summary of Records:

Fuel Oil Usage from May 1 to 31 was 2,561 gallons.  
Fuel Oil Usage from June 1 to 28 was 2,551 gallons.  
Heat input from May 1 to June 28: Avg – 1533.8 MMBTU, Max – 2103.6 MMBTU  
Hourly Opacity: Avg – 4.12%, Max – 7.67%

SC VI.3 (PTI 43-20) - The 30-day Rolling Average Emission Rates for NO<sub>x</sub> using NO<sub>x</sub> emission data obtained from the CEMS **for May 2021 through June 2021 to date**. The 30-day rolling average on 6/28/2021 was 0.153 lb/MMBTU in compliance with the emission limit.

SC VI.4 (PTI 43-20) - The 30-day Rolling Average Emission Rates for SO<sub>2</sub> using SO<sub>2</sub> emission data obtained from the CEMS **for May 2021 through June 2021 to date**. The 30-day rolling average on 6/28/2021 was 0.499 lb/MMBTU in compliance with the emission limit.

SC VI.5 (PTI 43-20) - Records of the coal analysis for each delivery of coal **for May 2021 through June 2021 to date**.

#### MATS – EU001

Compliance with 40 CFR Part 63, Subpart UUUUU for EU001 was required no later than January 31, 2016. EU001 is subject to MATS as existing coal-fired electric utility steam generating units (EGUs) designed to burn not low rank coal. Mercury (Hg) control was added to comply with this regulation. An activated carbon injection (ACI) system is used to control emissions of Hg. Powdered ACI is injected at a rate to keep below the Hg limit in 40 CFR 63, Subpart UUUUU of 1.2 lb/Tbtu (based on a 30-day rolling average). The ACI system is computer controlled but an operator checks the system (when operating) and notes system operation, silo levels, and other operating parameters to assure that the system is operating properly.

There are 4 injection ports for each ESP where the carbon is injected prior to the gas stream entering the ESP. The gas flow on the stack determines how much carbon is added to the system, but on average, 76 lbs of carbon is used per hour. Hg emission monitoring is done using a sorbent trap mercury monitoring system. Annual RATA of the Hg monitoring system is required and the last RATA was completed on 8/3/2021. Sorbent traps collect Hg for seven (7) days during normal operation and 3 to 4 days for startup. LBWL sends the sorbent traps to a qualified lab for analysis.

On July 20, 2020, AQD received verbal notification of an exceedance of the 30-day rolling mercury emission limit. From July 20, 2020 to August 20, 2020, verbal updates were provided by LBWL staff. A formal Root Cause Analysis (RCA) was conducted by LBWL of the ACI system used to control mercury and included the carbon provider and the injection system manufacturer. The investigation found that activated carbon powder had solidified in both feed augers that had been left in the system during a plant outage from April 7, 2020 to June 16, 2020. As a result of the RCA, the Mercury Malfunction Abatement and QA/QC Plan was revised. The approvable plan was submitted to the AQD on September 23, 2020. On March 11, 2021, the 2<sup>nd</sup> Semi-Annual MATS Compliance Report (7/1/2020 to 12/31/2020) was received including more details of the mercury exceedance and how it was addressed.

The 1st Semi-Annual 2021 MATS Compliance Report (1/1/2021 to 6/30/2021) submitted on 7/29/2021 indicated no deviations from the mercury emission limit of 1.2 lbs/Tbtu. The quarterly testing results for HCl indicated compliance. PM is LEE status as of October 2019 but due to the CAFO annual PM testing is required. The last HCl and PM testing per MATS requirements was completed on 8/3/2021.

The most recent boiler tune-up was conducted on September 16, 2020 per the MATS requirements. This boiler uses paragraph 1 of the definition of startup in 40 CFR 63.10042.

#### EU001 (PTI 43-20) – Coal Handling System:

Coal handling was included in the ROP permit conditions for EU001 on ROP No. MI-ROP-B4001-2015. For PTI 43-20, the coal handling system which includes coal conveyors, coal bunkers, a coal pile, and equipment to apply dust suppressant to the coal was separated into an

emission unit designated EUCOAL. Also, requirements for 40 CFR 60, Subpart Y were added after it was confirmed they were subject.

The coal comes in on trains and is unloaded in a covered railcar dumper station. The railcar dumper station flips the railcar over to dump the coal into a receiving pit/hopper. From the receiving pit it is transported via a conveyor, which is covered, to the crusher house for further transport into the plant to the coal bunkers for the boiler or to the coal pile. A telescopic drop chute to minimize drop height is used to feed the coal pile. A dust suppression is used at the coal loading and transfer points to minimize fugitive dust from the coal dumper and on the coal feed belts, and a crusting agent that minimizes fugitive dust emissions from the coal pile and haul roads is used. Benetech BT-205W (anionic surfactant blend) and BT-668 (polysaccharide surfactant blend) are used as dust suppressants. A material called Ramsorb 200 (crosslinked sodium polyacrylate powder) is applied when the coal is wet in order to absorb excess water when coal is coming off the coal pile and going to the boiler.

#### Emission Limits

PTI 43-20, SC I.1, SC V.1, and SC VI.2 – Visible emissions (VEs) are limited to 20% opacity (6-minute average) and compliance is monitored daily through VE observations.

#### Material Limits

NA

#### Process/Operational Restrictions

A program for continuous fugitive dust control for delivery, storage, handling, and use of coal is required to be implemented and maintained per SC III.1. A “Fugitive Dust Management and CAM Plan” is implemented and maintained. It contains all the required elements for dust mitigation and documentation. It was last updated in February 2020.

LBWL has tried multiple avenues for controlling coal dust and preventing it from leaving the property line, as a result of past complaints. To mitigate fugitive dust from strong prevailing westerly winds, they have been maintaining the pile at a lower height, while keeping a berm that forms in the coal pile (due to unloading from the bottom of the pile) higher than the tip of the coal pile. In addition to the berm, LBWL has also planted trees between the coal pile and ash handling at Millet Highway to create a wind break. The trees may assist in preventing coal dust, during wind events, from reaching the outside of the LBWL property.

The following demonstrates that LBWL is managing coal handling operations in accordance with their Fugitive Dust Control Plan:

- All conveyors are enclosed (3-sided)
- The telescopic drop chute is being used.
- Conveyors are inspected for buildup at least twice per month.

#### Testing

**Visible emissions testing for 40 CFR Subpart Y requirements per PTI 43-20, EUCOAL, SC V.1 was required within 180 days of PTI issuance. Testing was completed on 6/29/2021 at the belt transfer house with Michelle Luplow as the AQD staff observer, and on 7/14/2021 at the railcar dumper station and coal pile drop chute with Julie Brunner as the AQD staff observer. VE readings were completed by Nathan Hude (LBWL) in accordance with the testing protocol submitted on May 6, 2021. (The testing protocol was approved on May 10, 2021 by Julie Brunner.) At the belt transfer house, the highest 6-minute average opacity observed was 0%. At the railcar dumper station, the highest 6-minute average opacity observed was 1.0%. At the coal pile drop chute, the highest 6-minute average opacity observed was 3.8%. Any VEs observed from EUCOAL were below the 20% opacity (6-minute average) required by SC I.1.**

#### **EUCOAL – Records Reviewed:**

SC VI.2 (PTI 43-20) Records of non-certified visible emissions observations, USEPA Method 9 observations that are performed, the reason for any visible emissions observed, and any corrective actions taken shall be kept on file and made available to the Department upon request. **Records were obtained for May 2021 through June 2021 to date.** No VEs were observed for the time period requested.

SDS information for Benetech BT-205W and BT-668, and Ramsorb 200 were provided as requested and are in the file record.

#### **EUAUXBLR – Cleaver-Brooks CB Packaged Boiler:**

The auxiliary boiler is used when the plant has outages during the winter or periods of cold in the fall to keep in-plant temperatures in the range of 60°F, which is also needed to prevent the main boiler tubes from freezing when EU001 is not operating. The unit is ignited with liquefied petroleum gas (LPG), and runs on No.2 fuel oil (diesel). This unit is a Cleaver-Brooks CB189-500 boiler, Cleaver Brooks serial number: L52256, State of Michigan boiler serial number: M307U14M, manufactured in 5/7/1971.

The boiler is permitted as a “limited use” boiler with a federally enforceable heat input restriction. LBWL may convert the auxiliary boiler into a non-limited use boiler when EU001 is retired. It is recommended that a modification of the PTI for this boiler as soon as they know that conversion to a non-limited use boiler is imminent.

#### Emission Limits

NA

#### Material Limits

NA

#### Process/Operational Restrictions

At all times, the permittee must operate and maintain any affected source (as defined in 40 CFR 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions per SC III.1. To demonstrate this, records of monitoring, operation and maintenance, and inspection of the source is required per SC VI.7. Records of all maintenance and repair activities performed are stored in the electronic work order program. The following records are maintained: date, time, and description of any testing, adjustment, repair, replacement, or preventative maintenance action performed.

The maximum sulfur content of the No. 2 fuel oil shall not exceed 1.0% by weight per SC III.2 and records of the sulfur content shall be kept according to SC VI.1. An SDS (revision date 6/1/2016) for Marathon Petroleum No. 2 Ultra Low Sulfur Diesel was provided. The SDS shows on page 3 that it contains a trace amount of sulfur at less than 0.0015%. A fuel delivery “Customer Summary Report”

from Lansing Ice & Fuel was provided showing that 3,132.4 gallons of low sulfur fuel oil was delivered to the facility from 6-1-2021 to 7-12-2021.

The auxiliary boiler is limited to a heat input of 18,327,672,000 BTU/calendar year per SC III.3. Records of the monthly fuel use and calculations of the actual heat input to EUAUXBLR on a monthly basis to determine compliance are kept as required by SC VI.3 and 4. The LPG is used for boiler ignition purposes and is stored in a 150 lb cylinder. Monthly LPG usage is calculated at the end of the calendar year based on the quantity remaining in the cylinder at year's end, which is usually one cylinder used.

-  
Design/Equipment Parameters,

NA

Testing/Sampling

NA

Boiler MACT (Subpart DDDDD)

The initial Notification of Compliance Status for EUAUXBLR was submitted in November of 2015. Tune-ups of the boiler are required per SC III.4 and SC III.5. The initial tune-up was conducted on November 5, 2015 in accordance with the procedures in 40 CFR 63.7540(a)(10)(i) through (vi). The last tune-up and burner inspection was completed on October 23, 2020 and is required every 5 years per the requirements of the Boiler MACT (40 CFR 63.7515(d)).

EUAUXBLR, Records Reviewed:

SC III.2 Record of the sulfur content of the fuel oil used.

SC VI.3.a Actual heat input to EUAUXBLR for each calendar month

b. Gallons of fuel oil and LPG used by EUAUXBLR each calendar month

**Records for 2020 through June 2021 to date.** For 2020, the heat input to EUAUXBLR was 3,555 MMBTU. For 2021 up to June, the heat input to EUAUXBLR was 430 MMBTU. Compliance with the limited use restrictions and annual capacity factor of less than or equal to 10 percent as required by SC VI.5 was demonstrated.

EUFENGINE – John Deere CI Engine/Clark Fire Pump Emergency Engine:

EUFENGINE is used in instances where there are fire emergencies. However, it is also used for some non-emergencies (pumping water to clean off coal equipment), as evidenced by past reviews of the weekly maintenance operating logs. Maintenance/readiness testing is conducted on a weekly basis. The Model # for this unit is JU6H-UFADM8, Serial # PE6068L239697 with a manufacture date of 6/2013. The John Deere certification sheet for this specific model was provided during the 2017 inspection, which contains the EPA Family Name (DJDXL06.8120) and EPA Certificate Number (DJDXL06.8120-002). EUFPENGINE is listed as a certified engine according to the following EPA website:

<https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-engines-and-equipment#large>.

### Emission Limits

The NMHC + NO<sub>x</sub> and PM emission limits are listed in SC I.1 and 2, and verified using the methods listed in SC V.1, 2, and 3. The requirements per 40 CFR 60, Subpart III are being met by a certified engine, and installing and configuring the engine according to the manufacturer's emission-related specifications. Additionally, LBWL is required to operate and maintain the engine according to the manufacturer's emission-related written instructions to maintain the engine's certification, otherwise initial performance tests are required to be conducted.

### Material Limits

Diesel fuel containing a maximum sulfur content of 15 ppm (0.0015 wt%) and containing either a minimum cetane index of 40 or a maximum aromatic content of 35 vol% can only be combusted in the engine per SC II.1. The No.2 fuel oil (diesel) that is used in EUAUXBLR and EU001 is also the fuel oil that is used in this unit as verified by SDS (revision date 6/1/2016) for Marathon Petroleum No. 2 Ultra Low Sulfur Diesel.

### Process/Operational Restrictions

To maintain certification, the engine is to be maintained and operated according to manufacturer's emission-related written instructions per SC III.1. The Fire Pump Operating and Maintenance Record for June 2021 showed weekly test runs, 6-month maintenance completed on 4-29-2021, annual maintenance completed on 2-26-2021, and 2-year annual maintenance completed on 9-9-2020. The Instructions Manual for JU/JW/JX Models for Fire Pump Applications" was reviewed during the 2017 inspection. The maintenance schedule on p. 51 states that air filters and the exhaust system should be checked on a weekly basis; every year air filters should be cleaned, fuel and oil filters should be replaced, and the crankcase ventilation system should be checked; and every 2 years the air filters should be replaced.

This engine is allowed to be run for emergency operations, maintenance and readiness testing, and non-emergency situations per SC III.2, 3, 4, and 5. Non-emergency operations cannot exceed 50 hours per calendar year and is included in the 100-hour allotment for maintenance/readiness testing. Therefore, maintenance and readiness testing operations are allowed up to 100 hours per calendar year if they are recommended by certain entities, such as the manufacturer. The condition that allows them to operate for emergency demand response and for periods with voltage and frequency deviations has been vacated as of May 1, 2015. Records of the operation of EUPENGINE in emergency and non-emergency services, including the hours of operation and the reason the engine was in operation are required to be kept per SC VI.1.

### Design/Equipment Parameters

A non-resettable hours meter has been installed on the unit as required by SC IV.1. Total operating hours as of the 6/29/21 inspection was 456.5. All engine operating hours are recorded (via logging the start and stop hours from the meter), as well as reason for operation. Per page 16 of the Operation and Maintenance Instruction Manual, weekly testing periods should not exceed 30 minutes per test, for a total testing hours of 2 hours per month. The majority of the operational hours were conducted for weekly testing on the engine (maintenance/readiness testing) which are conducted for approximately a half-hour.

**Testing**

Per SC V.1 compliance with the emission standards can be demonstrated through the usage of a certified engine. Otherwise, testing will be required (SC V.2 and 3) in order to demonstrate compliance. EUPENGINE is considered a certified engine.

**EUPENGINE – Records Review:**

SC VI.1 - Records of the operation of EUPENGINE in emergency and non-emergency services (as recorded through the non-resettable hour meter) including the hours of operation of EUPENGINE and the reason the engine was in operation during that time. Records for July 6, 2020 through June 24, 2021 show a total of 29.1 hours of which there were 23.9 hours for maintenance/readiness testing, 5.2 hours for non-emergency use, and 0 hours for emergency. EUPENGINE is meeting the 100-hour limit for non-emergency operations and maintenance.

SC VI.2 Fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in EUPENGINE, that contain, at a minimum, the weight % sulfur and either the cetane index or volume % of aromatics in each delivery of diesel fuel oil. SDS and a fuel delivery “Customer Summary Report” from Lansing Ice & Fuel was provided.

**FGASHHANDLING (EUASHDC1, 2, 3, 4, 5 –Fly Ash Handling):**

The LBWL Erickson Station has ash handling at both the power plant and ash handling off of Millett Highway, which is located approximately a quarter mile northeast of the Erickson Station. Ash is transferred from EU001 to the Millett facility through a series of pneumatic pipes to the mass storage building and is used as a marketable product or is disposed of. There are five (5) baghouse fabric filters in the process designated as follows: EUASHDC1 (main dust collector), EUASHDC2 (load-out silo bin vent), EUASHDC3 (truck unloading dust collector), EUASHDC4 (mass storage dust collector), EUASHDC5 (Erickson fly ash system baghouse).

Table 3. Fly ash dust collectors

Emission Unit	Description	Installation/Mod Date
EUASHDC1	Located between the east and west storage silos at the Millett facility	10-1-1978/ 12-28-1991
EUASHDC2	Load-out silo bin vent	7-1-1970 / 11-2017 (still following up / requested information on the replacement)
EUASHDC3	Truck unloading chute baghouse, and only operates when there is truck loadout	10-1-1970 / 10-12-2017 (replaced under Rule 285(2)(f), PTE estimated at 0.23 tpy of PM)

Emission Unit	Description	Installation/Mod Date
EUASHDC4	Mass storage building dust collector	7-1-1970
EUASHDC5	Erickson Station fly ash system baghouse	7-1-1970

There was no commercial truck loadout of the fly ash during the inspection. During loadout of fly ash, the loadout chute connects and seals directly to the truck prior to loading. There should be no visible emissions from this seal during loadout, and none were witnessed during the 2017 inspection when AQD staff observed a truck loadout process.

Once trucks are loaded with fly ash, the truck driver drives over to a platform where he climbs to the top of the truck to close the “lids” where fly ash is loaded into the truck. There is some fugitive dust from this process (as witnessed during a 6/27/16 visit). The platform is required by OSHA.

In response to past complaints and a violation notice, LBWL has changed their practice of handling and disposing of the non-marketable fly ash. All non-marketable fly ash is now supposed to be wetted with a water/surfactant mix prior to removing it from the mass storage building. From the mass storage building, front end loaders will dump the fly ash into a landfill roll-off bin located outside the mass storage building. When ash is being dumped into the dumpster, water spray will be used to mitigate ash dispersal into the environment. The ash accumulation in the dumpster shall not exceed the height of the dumpsters rim at any time. The bin was required to have a lid that was kept closed when not dumping fly ash into the container (to prevent fugitive dust from being re-entrained into the ambient air) but the lid kept disappearing. During the inspection, it was noted that the dumpster was empty and a plastic tarp was on the lip of the dumpster in case needed.

#### Emission Limits

SC I.1 – Particulate matter (PM) is limited to 0.10 lb. per 1000 lbs. of exhaust gases, calculated on a dry gas basis from EUASHDC1, EUASHDC2, EUASHDC3, EUASHDC4, and EUASHDC5. PM emissions are controlled by a properly installed, maintained, and operated baghouse fabric filters. VEs and pressure drop monitoring demonstrate continuous compliance, and that the baghouse fabric filters are operating in a satisfactory manner. VEs and pressure drop monitoring are also used for CAM.

#### Material Limits

NA

#### Process/Operational Restrictions

A MAP for FGASHHANDLING is required to be implemented and maintained per SC III.1 and 2, and a Fugitive Dust Control Program for minimizing fugitive dust from the delivery, storage, and handling of fly ash is required per SC IX.1. A “Fugitive Dust Management and CAM Plan” is implemented and maintained meeting the requirements of these special conditions. It contains all the required



elements for dust mitigation, APC operation, and recordkeeping documentation. It was last updated in February 2020.

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During the inspection it was noted that cracks had been sealed on the Mass Storage building's vehicle entrance overhead doors and the yard was clear of ash piles or spillage due to operations. Housekeeping throughout the plant yard and in the truck loadout area has improved from previous inspections. Also, as of 9/20/19, the unpaved roadways throughout the fly ash handling site have been scraped (top layer of the unpaved yards/roadways removed) and replaced with crushed asphalt in order to minimize fugitive dust from the roadways.

#### Design/Equipment Parameters,

NA

#### Testing/Sampling

LBWL is only required to verify compliance with the PM emission rate per request from the AQD. There has not been a consistent concern (VEs from the baghouses) at the facility to require verification of emission rates. If no visible emissions are seen from the baghouses, it can safely be assumed that LBWL is meeting their PM limits.

#### CAM

For CAM, continuous monitoring of differential pressure across the FGASHHANDLING particulate control devices and recording at least once daily is required. An excursion is defined as operation of the particulate control devices outside of specified ranges and shall require an immediate visible emission observation. A semi-annual report of CAM monitoring and deviations is required per ROP No. MI-ROP-B4001-2015, SC VII.6. In the last semi-annual report (1<sup>st</sup> semi 2021), CAM excursion/exceedances for EUASHDC1, 4, and 5 but no VEs observed (maintenance or other resolution) and no monitor downtime were reported.

#### **FGASHHANDLING - Records Review:**

SC VI.2 - The differential pressure reading recorded for each particulate control device at least once on a daily basis when FGASHHANDLING. For May 31<sup>st</sup> to June 25<sup>th</sup>, "Millet Road Ash Handling Facility EUASHDC1, EUASHDC2, EUASHDC3, and EUASHDC4 and EUASHDC5 Ash Handling Daily Differential Pressure Readings, Visible Emission Checks, and Fugitive Dust Checks" were all completed if operating.

SC VI.3 - Visible emission observations taken randomly throughout the day when FGASHHANDLING is in operation, and the results of a visible emission reading shall be recorded for each particulate control device at least once on a daily basis. **Records for June 2021 to date.** No VEs observed for the records reviewed.

SC VI.8 - Conduct semi-annual inspections of all particulate control devices and loadout equipment, including loadout seals, loadout chutes, baghouses, and any other locations throughout FGASHHANDLING that would be potential sources of fugitive dust. Records of bag replacement and

any other maintenance activities conducted on these pieces of equipment shall be maintained and made available to the department upon request. **Records reviewed for the last semi-annual inspections.**

#### **FGCOLDCLEANERS:**

Erickson Station currently has 1 cold cleaner in the maintenance room that was installed in 1998. Crystal Clean solvent is used in this unit. It is not a heated unit, and has approximately 7.5 square feet of surface area. This unit is exempt from a permit to install per Rule 281(2)(h) because the air/vapor interface is less than 10 ft<sup>2</sup>. The Reid vapor pressure for the mineral spirits (CAS 64742-47-8) is less than 0.1 psia at 38°C/100°F, which means that a mechanically-assisted cover is not required because the Reid vapor pressure is less than 0.3 psia. Compliance with the Part 7 Rules for New Cold Cleaners was demonstrated.

#### **ROP Reporting**

LBWL is required to submit Excess Emissions and Monitoring Systems Performance Reports and Summary/CAM Reports for the COMS on a quarterly basis. All reports have been submitted timely and reviewed for compliance to-date, in addition to the annual and semi-annual reporting. All reporting and records obtained for this compliance inspection are in the AQD file system.

#### **Delta Energy Plant (DEP) Status:**

Initial testing for DEP is scheduled for the first week in November 2021. The following notifications have been received for DEP:

- On 6-23-2021 received notification of completion of construction and actual startup date of EUCTGSC1, EUCTGHRSC1 (simple cycle mode only), and EUCTGHRSC2 (simple cycle mode only) per PTI 74-18A, SCs VII.1, VI.3, and IX.1 - 5. Actual startup date of EUCTGSC1 was May 27, 2021, EUCTGHRSC1 (simple cycle mode only) was May 27, 2021, and EUCTGHRSC2 (simple cycle mode only) was May 28, 2021.
- On 6-30-2021 received notification of completion of installation and the trial operation for EUEMGD per PTI 74-18A per SC VII.1. Installation of EUEMGD was completed April 21, 2021. Trial operation was completed on April 21, 2021.
- On 6-30-2021 received notification of completion of installation and the trial operation for EUFPRICE per PTI 74-18A per SC VII.1. Installation of EUFPRICE was completed April 6, 2021. Trial operation was completed on April 6, 2021.

#### **Summary:**

The facility appears to be in compliance with ROP No. MI-ROP- B4001-2015, PTI 74-18A, and all applicable state and federal regulations at this time.



**Image 1(0215)** : Railcar dumper



**Image 2(0221)** : Exit side of railcar dumper house





**Image 3(0224)** : Coal unloading to pile



**Image 4(0186)** : Urea tank



**Image 5(0188)** : Gasoline storage tank



**Image 6(0191)** : DEP under construction

NAME Julie L Brunner

DATE 8/23/2021

SUPERVISOR HH