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

N357062882

FACILITY: GENESEE POWER STATION LIMITED PARTNERSHIP		**SRN / ID:** N3570
LOCATION: G 5310 NORTH DORT HIGHWAY, FLINT		**DISTRICT:** Lansing
CITY: FLINT		**COUNTY:** GENESEE
CONTACT: Thomas Andreski , Plant Manager		**ACTIVITY DATE:** 04/11/2022
STAFF: Julie Brunner	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Compliance inspection as part of an FCE		
RESOLVED COMPLAINTS:		

On April 11, 2022, I conducted a scheduled inspection of Genesee Power Station (N3570) in coordination with an EPA inspection. This inspection is part of a Full Compliance Evaluation (FCE). This facility was last inspected on May 16, 2019.

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Facility Description:

The Genesee Power Station (GPS) is a 35 Megawatt (MW) electric generating facility consisting of one spreader-stoker boiler with a maximum heat input rating of 523 MMBtu/hr, steam turbine(s), and associated electrical equipment. GPS is owned by partners CMS Enterprises (subsidiary of CMS Energy) and Fortistar. There are 27 full time employees at the facility.

GPS is a dispatch plant. The power plant is on all the time but dispatched at either 10 MW or 35 MW depending on demand. When called on, the plant has approximately one (1) hour (minimum of two (2) hours to stabilize) to get up to load. When brought up, the boiler generally stays up for 8 hours (or 4 – 6 hours). A dispatch plant is rare (based on the power purchase agreement), but CMS has a few.

The boiler is permitted to fire wood-waste including demolition wood, natural gas (for startup), and tire derived fuel (TDF). The facility was permitted to combust animal bedding but has not combusted animal bedding as a fuel since December 3, 2013. References to it were removed from the Renewable Operating Permit (ROP) with the 2018 renewal. Also, GPS has not fired any type of demolition wood since September 23, 2000.

Emissions from combustion of the solid fuels are controlled by a multi-cyclone separator, an electrostatic precipitator (ESP) and a selective non-catalytic reduction system (SNCR). Emissions of carbon monoxide (CO), nitrogen oxides (NO_x), and sulfur dioxide (SO_2) are monitored using continuous emission monitoring systems (CEMS). Opacity is monitored using a continuous opacity monitoring system (COMS).

Ancillary equipment include fuel and fly-ash handling systems and storage, a diesel fuel-fired emergency generator, a diesel fuel-fired emergency fire pump, and a parts washer.

The wood-waste fuel which primarily consists of brush and tree trimmings is stored uncovered on seven (7) acres with a six-foot deep clay liner underneath, and is managed in a two-pile system to minimize any potential odors. Bulldozers are used to move the pile of fuel to be processed and fed to the boiler.

The power plant is located in the Dort Carpenter Industrial Park, Genesee Township, Flint. The industrial park is joined by commercial and industrial property at its western boundary. To the north and east is agricultural and residential property. On the southern boundary begins the City of Flint which is urban residential.

Regulatory Overview:

GPS is a major source of NOx, CO, and hazardous air pollutants (HAPs). It is considered a major 40 CFR 70 source and is operating per the conditions contained in Renewable Operational Permit (ROP) No. MI-ROP-N3570-2018.

EU-BOILER at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR 63, Subparts A and DDDDD as an existing source. The effective date of the regulation was January 31, 2016.

EUEMERGGEN and EUFIREPUMP at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. This subpart establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. 40 CFR 63, Subpart ZZZZ applies to the RICE located at GPS which is a major source of HAPs.

Emission Unit (EU) Descriptions:

EU-BOILER	**The 35 MW electric generation group consists of the wood waste boiler, a selective non-catalytic reduction (SNCR) system, a mechanical multi-cyclone separator (MMS), and an electrostatic precipitator (ESP). The boiler has a spreader-stoker design and is rated at 523 MMBtu/hr, and able to produce 345,000 pounds steam/hr.**
EUPARTSWASHER	**Parts washer with an air / vapor interface of not more than 10 square feet.**
EUFIREPUMP	**Emergency diesel fuel-fired engine for backup power to a fire pump (265 hp, 7.0 liters/cylinder) located at a major source of HAP emissions, existing emergency, combustion ignition (CI) reciprocating internal combustion engine (RICE) less than 500 brake hp.**
EUEMERGGEN	**500 kW emergency backup generator (750 HP) located at a major source of HAP emissions, existing emergency, combustion ignition (CI) reciprocating internal combustion engine (RICE) greater than 500 brake hp.**

Michigan Air Emission Reporting System (MAERS):

The facility reports to MAERS. It is considered a Category B fee subject source. The 2020 MAERS reporting was audited and the following emissions were reported:

Pollutant	Tons per Year (tpy) or Pounds per Year (ppy)
CO	**134 tpy**
Lead (Pb)	**3.8 ppy**
NO_x	**147 tpy**
PM10*	**5.4 tpy**
SO_2	**66 tpy**
Volatile Organic Compounds (VOC)	**15 tpy**
Hydrogen Chloride (HCl)	**9.6 tpy**
Mercury (Hg)	**1.2 ppy**

*** Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers. (Number reported is PM as PM10.)**

Inspection:

Arrived: 12:55 pm

Departed: 5:10 pm

Weather: 65°F, wind SW @ 13 MPH, UV Index 5

Upon arrival, I detected no odors around the facility. There were no visible emissions from any exhaust stack vents.

We were met by Tom Andreski. Tom is the new general manager having started in mid-January of 2022. We were also joined by Matt Uren (GPS). Roxanna Day (GPS EH & S Coordinator) was not available on the day of the inspection. We discussed the purpose of my visit and the EPA inspection. EPA lead with general questions about the facility and major maintenance done at the facility. Maintenance done at the facility include superheaters replacement (2011), tubular air heater replacement (2019), generation heat tubes, replacement of portions of the interstack liner, and

various tube leak fixes. GPS has a proactive maintenance system of 2 planned outages per year to check tubes, clean out ash and check the fuel trains to maintain boiler efficiency and reliability.

A plant tour was taken after the general discussion. EU-BOILER was on-line set at 30 MW output capacity, and sending electricity to the grid during the inspection.

EU-BOILER -

The boiler is a shaker-stoker where wood is feed from the top at the end of the boiler, and air is added to feed the combustion process. A shaker screen moves off the ash that falls to the bottom. CO spikes when the screen is shaking. The boiler hangs from the ceiling. This is to allow for expansion in the boiler due to heat. Two (2) steam turbines used to generate electricity are located right across from the boiler.

The tags on the boiler show that it was assembled by Northern Boiler Mechanical Contractors, Inc. in 1995. The boiler was certified by Combustion Engineering Inc., ABB Combustion Engineering Systems with a rated capacity of 330,000 lb/hr. Year built is 1995.

A multi-clone separator (MMS) followed by a 3-field ESP is used for particulate control. A programmable logic controller (PLC) is used to continuously monitor ESP performance. The following information was collected from the screen readouts for the 3-field ESP:

Field #1 (collects 85% of the ash*)	**Primary: 391 amps**
	Secondary: 1.5 amps
	Response: 15 sparks/min
Field #2	**Primary: 150 amps**
	Secondary: 0.63 amps
	Response: 58 sparks/min
Field #3	**Primary: 63 amps**
	Secondary: 0.30 amps
	Response: 16 sparks/min

*** Fields can be switched if there is an operating problem with any field.**

An operator checks on the ESP performance as part of the plant operator (PO) rounds once per day. A copy of the operator log for 4/11/2022 was sent and showed all the systems checked in the CEMs Room at 9:05 am. Field 3 on the ESP was not showing data as it was not in operation during this time. During the time of the inspection, it was in operation.

Continuous Monitoring Systems - The continuous monitoring systems measure NOx, SO_2, and flow per 40 CFR Part 75, and CO and opacity per 40 CFR Part 60. The CEMS were installed in 2010 replacing a previous system. For opacity and flow, new monitors were installed in 2015. The latest monitor replacement has been for the CO and O_2 analyzers. The tags on the CEMS are as follows: Serial No. 1127349917, Model Code. 43IHL-AHAB; Serial No. 12035010118, Model Code. 48IQ-ABN. Annual Relative Accuracy Test Audit (RATA) for the CEMS are performed as required. The CEMS and COMS are operating properly as required by Special Condition (SC) VI.2 and SC VI.3.

In the control room, three (3) operators are at any one time overseeing the boiler operations. There is a controls operator, a fuel operator, and a yard operator. Boiler operations are monitored using multiple screens showing stack flow, load, boiler operating parameters, CEMS output, steam turbine output and pressure, and other system pressures and flows. At 4:04 pm, the screen readout showed that the boiler was generating 32.8 MW and plant output was 30 MW. The CEMS monitoring screen showed the following results:

Pollutant	Permit Limit	Monitor Results
NOx	0.20 lb/MMBtu (24-hr rolling average)	0.155 lb/MMBtu (24-hr rolling average)
NOx	104.6 lb/hr (24-hr rolling average)	51.3 lb/hr (24-hr rolling average)
CO	0.35 lb/MMBtu (24-hr rolling average)	0.245 lb/MMBtu

Pollutant	Permit Limit	Monitor Results (24-hr rolling average)
CO	183.1 lb/hr (24-hr rolling average)	84.5 lb/hr (24-hr rolling average)
SO_2	35.4 lb/hr (24-hr rolling average)	9.3 lb/hr (24-hr rolling average)
Opacity	10% (6-min average)	1.9% (6-min average)

SNCR -

For NOx control, urea is injected into the boiler at 3 injection points or levels using a total of 12 lances. The injection points are feed from a urea tank that sits outside the plant wall. Operations staff determine the amount of urea to feed by watching the NOx CEMS and adjust the injection as necessary.

Emission Limits (Section I) –

In addition to emission limits for NOx, CO, SO_2, and opacity which are monitored continuously, there are a number of emission limits (PM, VOC, HCl, and toxic air contaminants) where stack testing is used to demonstrate compliance. Stack testing will be completed at least once during the term of the ROP for regulated pollutants that are not monitored continuously.

Testing for toxic air contaminants was last completed on 5/20/2020. Acrolein was retested on 8/6/2020 because the detection limit exceeded the permit limit, and the retest was done at a lower detection limit. Compliance was demonstrated on the retest.

There have been no exceedances of the emission limits since the last inspection with the exception of CO. A Rule 912 24-hr notification was submitted on 7/15/2021 that Genesee Power Station (GPS) exceeded the 24-hour rolling average permit limit for

0.35 CO lb/MMBtu, which extended over a three hour period, from 10:00 am to 1:00 pm on 7/14/2021. A VN was sent and resolved on 8/3/2021.

The emission limitations for PM and opacity (as an indicator of compliance with the mass emission limit for PM) from EU-BOILER are subject to the federal CAM regulation under 40 CFR Part 64. Monitoring included in 40 CFR Part 63, Subpart DDDDD is considered to be presumptively acceptable monitoring for the PM emission rate and mass emission limit, and is included in the ROP in FGMACTDDDDD. The presumptively acceptable monitoring for CAM is as follows:

Pollutant	PTI 265-06C Emission Limits	Boiler MACT Limits	Monitoring Method
PM	3.0 x 10^{-2} lb/MMBtu heat input / 15.7 pph	3.7 x 10^{-2} lb/MMBtu heat input	Performance testing
Opacity	10% Opacity (6-minute average except one 6-minute average per hour of not more than 20%)	Operating limit of 10% opacity (daily block 6-minute average) or less as measured continuously	COMS

Fuel Handling and Procurement -

The fuel yard is clay-lined, 5 to 7-acres and is a two-pile system. The stack out pile is the in-coming wood fuel, and the feed pile is the oldest pile. A road divides the two piles. The facility moves the stack out pile to the feed pile within 48-hours to minimize odors. The piles are moved with dozers. The wood piles feed to the clarification building where large chunks of wood are screened out. The large chunks go down a chute, are piled up, and a grinder is bought in later. The grinder was on-site and operating the day of the inspection.

Mid-Michigan Recycling (MMR) provides the fuel. (They have staff on-site.) MMR gets waste-wood from Livonia and other mid-Michigan collection centers where utilities and residents can bring in brush and tree trimmings to the MMR yards.

Beside the wood piles is a TDF bunker. A backhoe is used to feed a hopper which feeds / blends 2% tire chips with the wood. The system automatically shuts down

when the 20 tons per calendar day permit limit is reached. The TDF is pre-sized and contains some sidewall wires. Not all metal can be removed from the tires in processing. The TDF has a higher Btu content then wood, and will cause spikes in CO. So, the feed rate of TDF is closely controlled and monitored.

Fuel Procurement and Monitoring Plan (FPMP) –

The FPMP current revision is dated 1/11/2016. The facility has not accepted demolition wood since September of 2000 but the procedures for inspection and sorting are still in place and maintained in the plan. Monthly fuel sampling for moisture, ash, BTU content, chloride and sulfur is conducted by the facility. The FPMP is fully implemented as required by SC III.2.

I last collected samples of wood-waste and tire derived fuel (TDF) during my inspection on May 24, 2017. An analysis of the fuel parameters, proximate and ultimate analysis, metals and chlorine was done. Sampling results from Spurt Industries and Brink Wood Products (both fuel suppliers to GPS) are included for comparison. They provide scrap wood from cabinet and furniture manufacturers that could include particle wood and wood laminates containing glues, binders or resins, pressed board or any other wood product mixed with glue or filler and not treated with creosol or pentachlorophenol.

Material Handling Systems –

The bottom ash (wet) removed from the boiler and fly ash from the ESP and MMS ash go to separate bunkers. The fly ash is conveyed through covered conveyors to a fly ash "house". Fly ash is mixed/sprayed with water and dropped into a trailer below the mixing system in the fly ash "house". The ash is moved to a separate covered storage building where all ash is mixed. A backhoe is used to move the ash between the bunkers and storage building. If the ash gets dry it becomes concrete like. A waste hauler empties the ash out of the building. If the boiler is producing 35 MW, ash is hauled 2 to 3 times a week, 4 to 6 truckloads. There were no ash piles or visible emissions in the yard observed during the inspection. The program for continuous fugitive emission control for material handling operations required by SC III.4 is fully implemented.

Preventative Maintenance and Malfunction Abatement Plan (PM/MAP) –

The PM/MAP current revision is dated 4/30/2019. Outages are scheduled twice a year in the spring and in the fall.

The records of the Operations Daily Report for February and March 2022 show the derate and the reason why. Reasons during this time included combustion issues and various equipment issues such are wood feeder chute plug, fan issues, etc.

There were no forced or scheduled outage hours in February and March. This is all part of the PM/MAP required for EU-BOILER in SC III.3 and the monitoring/recordkeeping required in SC VI.6.

Emergency Generators Exempt per Rule 285(2)(g) –

The engines are exempt from Rule 201(Permit to Install) but subject to 40 CFR 63, Subpart ZZZZ and included in ROP program per Rule 212(4).

EUFIREPUMP - The diesel fuel-fired fire pump generator sits in the main plant building.

EUEMERGGEN – The diesel fuel-fired emergency backup generator sits on the east side of the main plant building in its own housing.

The following is a list of specifics for each generator:

Generator	Unit / Engine	Operating Hours	Notes
EUFIREPUMP - diesel fuel-fired	Detroit Diesel, 265 HP, Type #8100, 10x8x17 F size Model # 7064-7312, Serial # 6VA07/289, Pump # 951-95430-01-1	384.6 hours (Dec-2021)	Horizontal exhaust vent, Total run hours for year 2021 are 12.9 hours with 6.5 hours for maintenance and 6.4 hours for emergency (broken pipe in cooling tower).
EUEMERGGEN - diesel fuel-fired, Manf. 04/1995	Cummins Onan Power, 750 BHP, Model # KTTOA19G2, Serial # 62056	2275 hours (Dec-2021)	Vertical exhaust vent. (Not original engine to the facility.) Total run hours for year 2021 are 6.4 hours only for maintenance and testing (no emergency operation)

The engines can operate in non-emergency situations for up to 50 hours per year, and for EUFIREPUMP it is not to exceed 100 hours per year for maintenance checks and readiness testing. For emergency generators, it is assumed that they will

operate no more than 500 hours per year at worse-case. Both engines have non-resettable hour meters as required by SC IV.1.

The emergency generators are tested monthly and PM logs are kept for each engine. Logs of operating hours, fuel deliveries, and maintenance are kept as required in Section VII. Monitoring/Recordkeeping. A copy of the 2021 run hours and fuel deliveries are in the file.

The sulfur content of the fuel oil used in the generators is at maximum 0.0015% by weight with a minimum Cetane index of 40 as required by the NRLM diesel fuel standard in 40 CFR 80.510(c) and SC II.1. A copy of the Mobil Diesel Efficient Fuel Product Data Sheet is in the file.

The emergency engine and fire pump are subject to 40 CFR Part 63, Subparts A and ZZZZ as existing engines. No non-compliance with the requirements for 40 CFR 63, Subpart ZZZZ that are in the ROP were noted.

FGMACTDDDDD -

EU-BOILER is subject to Boiler MACT (40 CFR 63, Subpart DDDDD) in the existing stoker designed to burn wet biomass/bio-based solid fuel boiler subcategory.

EU-BOILER is subject to the following emission limits per the Boiler MACT:

Pollutant	Limit	Time Period/ Operating Scenario	Underlying Applicable Requirements
1. HCl	2.2 x 10^{-2} lb/MMBtu heat input	Hourly	40 CFR 63.7500 Table 2.1a
2. Hg	5.7 x 10^{-6} lb/MMBtu heat input	Hourly	40 CFR 63.7500 Table 2.1.b
3. CO	720 ppmvd @ 3% O_2	30-day rolling average except during periods of startup and shutdown	40 CFR 63.7500 Table 2.7.a

4. Filterable PM	**3.7 x 10^{-2} lb/MMBtu heat input**	**Hourly**	**40 CFR 63.7500 Table 2.7.b**

The Boiler MACT emission limits for Hg and HCl are lower than what was assessed in NSR permitting. The Boiler MACT emission limit for filterable PM is higher than what was assessed in NSR permitting.

There were no reported deviations from the requirements in SC I.5 for start-up/shutdown, and information was provided demonstrating compliance with Table 3 to Subpart DDDDD, No. 5 in the last Boiler MACT Semiannual Compliance Report.

The emission rates for PM, Hg and HCl tested in June 2016 and May 2017 were less than 75% of the emission limit. Testing frequency has been reduced to once every 3 years as allowed per 40 CFR 63.7515(b) and SC V.4. The testing for PM, Hg and HCl conducted May 20, 2020 were less than 75% of the emission limit. There have been no operational changes since the last performance that could increase emissions.

CO emissions are monitored using a CEMS and continually demonstrate compliance with the emission limit in SC I.3 and the monitoring requirements in SC VI.2. CO and performance test data is submitted to CEDRI as required by SC VII.11.

Process and operational restrictions demonstrating that the boiler, associated air pollution control equipment and monitoring equipment is operating in a manner consistent with minimizing emissions per SC III.1 and SC III.3 is verified. The last boiler turn-up was conducted on January 7, 2021 as required by SC III.2.

There were no reported deviations to the operating limit of 10% opacity (daily block 6 -minute average) as required by Table 4 to Subpart DDDDD, No. 4.a on the last Boiler MACT Semiannual Compliance Report. The COMS is operated in compliance with SC VI.3.

Fuel use as reported on the 2nd Boiler MACT Semiannual Compliance Report is as follows:

Biomass – 104,884 tons

TDF – 2,825 tons

Natural Gas (used in start-up) – 635 Mcf

All records are kept according to the requirements of Section VI. Monitoring/Recordkeeping.

FG-COLD CLEANER (EUPARTSWASHER) –

A small parts washer is located in the maintenance shop. The lid was closed at the time of the inspection and it was not in use. The solvent used is Safety-Kleen Premium Solvent (Virgin and Recycled). According to the Safety Data Sheet (SDS), the solvent contains distillates (petroleum), hydrotreated light (CAS No. 64742-47-8). The solvent used does not contain any of the materials listed in SC II.1. The parts washer is maintained by Safety-Kleen in compliance with SC III.2. The parts washer meets the applicable requirements in Section IV. Design/Equipment Parameter(s) including an air/vapor interface of no more than ten square feet, emissions only released into the in-plant environment, device for draining parts, and equipped with a cover that shall be closed whenever not in use.

Records Review Notes:

All records obtained during the course of this inspection are included with the electronic copy of this report.

EU-BOILER -

1. A copy of the record of the monthly and 12-month rolling SO_2 emissions from January-2020 to March-2022 was obtained. The 12-month rolling SO_2 emissions in March-2022 were 59.21 tpy. The highest 12-month rolling SO_2 emissions in this record was 70.31 tpy in October-2020 which is below the emission limit of 106 tpy in SC I.4. This record is required to be kept in accordance with SC VI.12 and is satisfactory.

2. A copy of the daily wood burnt/TDF record for October-2021 through March 2022 was obtained. SC II.2 limits TDF to 20 tons per day. According to the record, the highest amount of TDF combusted was 19.95 tons on 12/3/2021 which rounds to the permit limit of 20 tons/day. The record is kept in accordance with SC VI.8.

3. A copy of the record of the monthly and 12-month rolling Heat Input Capacity By Fuel Type from January-2020 to February-2022 was obtained. The record is kept in accordance with SC VI.8.

- **The annual capacity factor for natural gas as of February-2022 was 0.06%.**
- **The annual capacity factor for wood as of February-2022 was 70.84%.**
- **The annual capacity factor for TDF as of February-2022 was 2.19%.**

4. For February and March 2022, the following records were obtained, kept in accordance with SC VI.2, SC VI.3, SC VI.4, and SC VI.6:

Opacity – Hourly and 24-hour block (calendar day) – maximum 0% opacity on a daily block (limit 10%)

CO - Hourly and 24-hour rolling average in pph - maximum 96.7 pph (limit 183.1 pph 24-hr rolling average)

CO – Hourly and 24-hour rolling average in lb/MMBtu – maximum 0.29 lb/MMBtu (limit 0.35 pph 24-hr rolling average)

NOx - Hourly and 24-hour rolling average in lb/MMBtu and pph – maximum 0.18 lb/MMBtu and 69.0 pph (limit 0.20 lb/MMBtu and 104.6 pph both on a 24-hr rolling average)

SO_2 - Hourly and 24-hour rolling average in pph – maximum 20.4 pph (limit 35.4 pph 24-hr rolling average)

5. Records of the Operations Daily Report for MW produced, capacity, urea usage, NOx, CO, SO_2, and opacity for February and March 2022. For February, the capacity was 35.11% and net MW was 8,258.24. For March, the capacity was 36.68% and net MW was 9,550.92. Up to 5 years of operating data is kept on-site and then moved to storage. Compliance with the requirements of Section VI for EU-BOILER was demonstrated.

Quarterly reporting of "Excess Emissions and Monitoring Systems Performance" and "Data Assessment Report", semi-annual reporting of monitoring deviations and annual certification of compliance per the requirements of Section VII for EU-BOILER are all submitted in a timely and acceptable manner.

ROP Other Report - Annual ash testing results for 2021 were submitted. Ash was last sampled on 11/23/2021 in accordance with SC V.5 of EU-BOILER.

Summary:

The facility was in compliance with the applicable air quality rules and regulations, and ROP No. MI-ROP-N3570-2018.

NAME Julie L. Brunner DATE 5/17/2022 SUPERVISOR BM