



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Four Penn Center – 1600 John F Kennedy Blvd
Philadelphia, Pennsylvania 19103-2852

Report Title: Clean Air Act Inspection of Wheelabrator Baltimore, LP
Inspection Date(s): 09/07/2023
Regulatory Program(s): Title V, NSPS, MACT

Company Name: Wheelabrator Baltimore, LP
Facility Name: Wheelabrator Baltimore, LP
Facility Location: 1801 Annapolis Rd
Baltimore, MD 21230

Latitude: 39.26994 **Longitude:** -76.63041
County/Parish: Baltimore City

AFS/ICIS-Air Number: MD0000002451001886
Permit Number: 24-510-1886
NAICS Code: 562213 **SIC:** 4911, 4953
Unique Project #: 3E23CA025A

Facility Representatives:	Point of Contact
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EPA Lead Inspector

Signature

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Date

Supervisor

Signature

Kristen Hall

Date

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I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Wheelabrator Baltimore, LP (Wheelabrator or Facility) to verify compliance with applicable State and Federal regulations. The Maryland Department of the Environment (MDE) was notified of the inspection on August 21, 2023, via email. On September 6, 2023, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to Timothy Porter, prior to the inspection (see Attachment 1). These records are listed in the Records Review section of the report.

The inspection included an evaluation of the Facility's processes and its compliance with the CAA. All information included in this report is the result of statements by the Facility representatives, materials shown to the inspectors by the Facility representatives, and/or documents provided by the Facility representatives to the inspectors at the time of, or subsequent to, the inspection. In addition, information gathered prior to the inspection from a review of EPA and State records may be included in this report.

A. Summary of the Facility

The Facility is located at 1801 Annapolis Rd, Baltimore, MD 21230. Wheelabrator is a municipal solid waste resources recovery facility. The Facility generates steam using municipal waste combustors (MWC), which is either sold to Baltimore City or utilized to generate power via an on-site turbine. Wheelabrator is the second largest U.S. waste to energy business and is an industry leader in the conversion of everyday residential and business waste into energy.

The Facility received a CAA operating permit (Permit # 24-510-1886) from MDE issued on November 5, 2019.

The Facility is classified as a major source under the CAA for Carbon Monoxide (CO), Nitrogen Oxides (NOX), Sulfur Dioxide (SO₂). The Facility is subject to, or potentially subject to the following federal regulations:

- 40 CFR Part 60 Subpart Cb—Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994
- 40 CFR Part 60 Subpart Ea—Standards of Performance for Municipal Waste Combustors for Which Construction Is Commenced After December 20, 1989 and On or Before September 20, 1994
- 40 CFR Part 63 Subpart ZZZZ —National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

B. Inspection Opening Conference

At 9:10 AM on September 7, 2023, EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Wheelabrator was represented by Jim Robertson, Plant Manager and Timothy Porter, Director Air Quality Management. Also, Ronald Gorschboth

of Maryland Department of the Environment (MDE) was present. EPA inspectors, Parmatma Adhikari, Carly Joseph, and Scott Yanos, presented their credentials and explained the purpose of the visit was to conduct a CAA inspection to determine compliance with their permit and any applicable regulations. Additionally, EPA informed the facility representatives of their right to claim any confidential business information (CBI). At that time, Jim Robertson did not claim any photos or documentation obtained during the inspection as CBI.

II. Site Activity/Process Description

Wheelabrator started operation at the Baltimore site in 1985. Wheelabrator is a privately held company, and its headquarters is located in Portsmouth, NH. Wheelabrator has 14 sites in the US, including one in Pennsylvania and one in Virginia. Wheelabrator covers approximately 34 acres of area in the Baltimore location and operates 24/7 with 4 rotating shifts and employs 80 full-time workers. However, the maintenance team, which consists of 10 mechanics, including 6 electricians, only work Monday to Friday, 8 hours per day. The Facility has scheduled shutdowns twice a year: 6 days of shutdown during the fall seasons and about 10-13 days during the spring. Wheelabrator only shuts down one MWC at a time for maintenance while the remaining two units continue operating.

Wheelabrator receives approximately 2250 tons of waste every day from the City of Baltimore, the County of Baltimore, Waste Management, and a local commercial waste station. The City of Baltimore and the County of Baltimore are the facility's primary waste providers, each supplying 825 tons per day, or over two-thirds of total waste handled each day. The remaining one-third of the waste is collected by the Municipal Waste Management Facility and private collection service. The waste is carried to the Facility via truck and unloaded on the tipping floor after being weighed. The waste is then visually inspected by Facility employees to separate products such as refrigerators, air conditioners, washers, and dryers before being put into the fuel bunker. Wheelabrator does not have a shredder on site. If items such as a washer, dryer, and air conditioner are in the waste, Wheelabrator's employees load them back on the truck. Overhead cranes transport waste from the fuel bunker to a feed hopper, then to the boilers.

The Facility has three MWC's, each rated at 750 tons per day (tpd) and installed in 1985. Each MWC consists of five combustion zones with temperatures higher than 2000°F. The heat from the combustion zone is absorbed in the boiler, producing steam. The high-pressure steam produced in the boiler is either sold to the Baltimore City or used to generate electricity. The Facility has two turbines rated 60 Megawatt (MW) and 4.2 MW, generating about 64.5 MW of electricity.

NO_x in the flue gas generated by each MWC is controlled by a Selective Non-Catalytic Reduction (SNCR) System. After the SNCR, the flue gas passes through the Spray Dryer Absorber (SDA), which is designed to maintain the residence time for flue gas at 10 seconds, which helps to evaporate the moisture of the flue gas. In the SDA system, the powdered activated carbon and lime are injected to control mercury and acid gas, respectively. Finally, the flue gas passes through a fabric filter to control particulate matter (PM). Concentrations of SO₂, CO, Carbon Dioxide (CO₂), Oxygen (O₂), and NO_x are monitored using a Continuous Emission Monitoring System (CEMS) located in the exhaust stack. Each of the MWC's exhaust to the

atmosphere from a single combined stack. The wet scrubber controls PM emissions from the ash handling areas.

Wastewater created during the process is collected in a quench pit and piped to a wastewater tank before being discharged to a Publicly Owned Treatment Works (POTW) after being neutralized with Sodium Hydroxide. The ash from waste combustion is collected in an ash pit and treated to recover ferrous and nonferrous metals. Approximately 45 tons per day of metal is collected from the ash and sold to United Iron & Metal, a metal recycling firm situated in Baltimore, Maryland. The non-ferrous material is sold to Meldgaard Recycling Company. The residual ash, about a quarter of the weight of the initial waste, is then deposited in the Quarantine Road Landfill

The Facility used an electric fire pump (primary) and one diesel fire pump, Cummins N-855-F Diesel Engine rated at 240 BHP at 2100 RPM, Manufacture Date: October 1983, as a backup pump. The Facility does not operate additional combustion sources, such as emergency generators. The Facility also has no underground storage tanks; however, they have two wastewater tanks, one sulphuric acid tank (H_2SO_4), one sodium hydroxide tank, and four silos for lime and activated carbon.

The opening conference concluded at 10:07 AM.

III. Observations

EPA inspectors were led on a walkthrough of the Facility at 10:10 AM by Timothy Porter and Jim Robertson of Wheelabrator, and Ronald Gorschboth (MDE) was also present for the walkthrough. EPA inspectors noted photos would be taken by Scott Yanos during the Facility walkthrough (Attachment 2).

The inspection team headed towards the wastewater tank area through the underneath of the tipping floor. Mr. Robertson mentioned that trucks come to the scale house through one of the five bays and dump the waste on the tipping floor. The inspection team observed two 50,000 gallon wastewater storage tanks: one for regenerate water and the other for boiler makeup water. The inspection team also observed the H_2SO_4 and caustic tank (caustic soda, 50%) near the wastewater tank. Mr. Robertson explained that the amounts of these materials used depends on whether the wastewater is acidic or caustic and is used to maintain the pH value of wastewater before sending it to POTW.

The inspection team then passed through the side switch yard/down switch yard and observed the silos area. One of the silos (smallest silo) was an activated carbon storage silo, which is used to control mercury emissions, whereas the other three silos were lime storage silos to control SO_2 emissions. Mr. Robertson mentioned that all four silos are equipped with a common bin vent filter, and all silos dispense the materials in the SDA. The SDA is a closed system that minimizes potential fugitive emissions. Mr. Robertson then led the inspection team toward the turbine hall, where two turbines were observed. Mr. Robertson explained that the biggest turbine is the ABB turbine, which has a capacity of 60 MW, and the other turbine is a back pressure turbine with a capacity of 4.2 MW. Both turbines were operating at the time of inspection. The Facility only

uses 5 to 6 MW of the generated electricity, and the rest of the electricity is sold to the Pennsylvania-New Jersey-Maryland (PJM) Interconnection and Baltimore Gas and Electric Company.

The inspection team then observed the control room. The control room has a video monitor for Boiler fire, tipping floor, refuse pit, stack, bottom ash pit, etc. The control system can display the CEMS result for NO_x, SO₂, CO, and carbon feed rate. The inspection team noted slurry concentration; at that time, the specific gravity of the slurry was 1.11. The inspection team also recorded SO₂ inlet, outlet, and control efficiency as 46.4 ppm, 9.8 ppm, and 81.9 %, respectively.

The inspection team observed the refuse pit and headed toward the CEMS room. Mr. Robertson explained that the sample comes from the feed stream and passes to the analyzer. There was a separate analyzer for the inlet and outlet stream. The inspection team noted that each analyzer measures SO₂, NO, H₂O, CO₂, NH₃, O₂ and O₂ dry concentration and flow rate. When the EPA inspector asked about the analyzer's calibration, Mr. Porter explained that the system automatically does the daily calibration. Then, the inspection team was led towards the fire pump building. The Facility uses two fire pumps: one electric fire pump (primary pump) and another diesel fire pump as a backup pump. The fire pump building was divided into electric and diesel fire pump rooms. The diesel fire pump room is equipped with 300-gallon fuel storage tank. The inspection team noted the hours reading (255 hrs), took photos of the fire pump data plate and headed toward the boiler room on the 2nd story of the main building.

On the way to the boiler room, the Inspection team again observed the turbine room and took a photo of the turbine/generator data plate. Three boilers are in a row in the boiler room, left to right, boiler numbers 1 to 3, respectively. All three boiler were operating at the time of the inspection. After observing the boiler room, the inspection team observed the fabric filter area. Mr. Robertson mentioned that each baghouse has ten compartments, and each compartment has 169 fabric filters. Mr. Robertson mentioned that from the fabric filter, flue gas exhausts through the tall common stack with the help of induced draft fan.

The walkthrough concluded at 2:03 PM.

IV. Records Review

The records review commenced immediately after the plant walkthrough at 2:05 PM. EPA inspectors reviewed documents requested in the September 6, 2023, email to Timothy Porter (see Attachment 1). Records were provided at the time of the inspection by Timothy Porter. Below are the records requested and discussed during the inspection:

1. Plot diagram of the facility, including all the process units and emission points.
2. Process flow diagram for Emission Units (EU1 – EU3).

3. Records of quarterly carbon usage of the plant (kilograms or pounds) for each calendar quarter by two independent methods as mentioned in 40 CFR 60.58b(m)(3).
4. Copies of each performance test performed at the site on any unit.
5. Rolling 12-month emissions calculations from each source and facility-wide for the following pollutants: PM, SO₂, NO_x, CO, HCL, Dioxins /Furans, Cadmium (Cd), Lead (Pb), Mercury (Hg) and Fluorides. Include the emission factors used for each pollutant and source and the hours of operation for each unit on which the emissions are based.
6. Provide the potential to emit (PTE) on an annual basis for each regulated pollutant. Include the supporting emission calculations and the derivation of each emission factor used to calculate emissions.
7. Copies of the initial, semi-annual, and annual notifications are required by 40 CFR 60, 61, and 63.
8. Copies of a certificate issued by the Department to each incinerator operator who has satisfactorily completed an approved incinerator training course.
9. All visible emission (Method 9, Method 22 or other) survey records, including any corrective actions completed to alleviate the presence of VE.

Inspection team thoroughly discussed all the requested data with Mr. Porter and Mr. Robertson. Mr. Porter stated that the Facility had all the information except that requested in QN7. Mr. Porter requested that the document be submitted within one week since the environmental personnel, David Ruppert, had recently left the company. On September 25, 2023, Mr. Porter submitted all the above-mentioned documents to EPA inspector Parmatma Adhikari.

V. Closing Conference

After the records review, EPA inspectors, MDE Inspectors, Timothy Porter and Jim Robertson of Wheelabrator had a brief closing conference to ask additional questions and discuss observations. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final report do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within in 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The inspection concluded at 2:46 PM.

The following have been identified as *potential* issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by the Facility.

- While EPA did not identify any specific issues with Wheelabrator during the inspection, a thorough review of the records collected during and after the inspection is being conducted, and EPA may generate additional questions.

VI. List of Attachments

- Attachment 1: Email correspondence to Timothy Porter of records requested to review during inspection
- Attachment 2: Photo Log

From: [Adhikari, Parmatma](#)
To: tporter@win-waste.com
Subject: Clean Air Act (CAA) inspection_ Wheelabrator Baltimore
Date: Wednesday, September 6, 2023 12:00:00 PM

Hello Mr. Porter,

Per our recent conversation , EPA Region 3 is planning to conduct a Clean Air Act (CAA) inspection of the Wheelabrator Baltimore, L.P located in Baltimore, MD, on September 7, 2023. We will begin the inspection at 9:00 AM. It will be myself, Dean DeLuca, Carly Joseph from EPA and Roland Gorschboth from Maryland Department of the Environment. The inspection will consist of an opening meeting to discuss the facility operation, a walkthrough, records review and a brief closing meeting. EPA will also take photographs during the walkthrough. I wanted to confirm that the following PPE is required on-site: Hard hat, safety glasses, and safety shoes.

To expedite the inspection process, please have ready the following documents from January 1, 2020, to December 31, 2022.

1. Plot diagram of the facility, including all the process units and emission points.
2. Process flow diagram for Emission Units (EU1 – EU3).
3. Records of quarterly carbon usage of the plant (kilograms or pounds) for each calendar quarter by two independent methods as mentioned in 40 CFR 60.58b(m)(3).
4. Copies of each performance test performed at the site on any unit.
5. Rolling 12-month emissions calculations from each source and facility-wide for the following pollutants: PM, SO₂, NO_x, CO, HCL, Dioxins /Furans, Cadmium (Cd), Lead (Pb), Mercury (Hg) and Fluorides. Include the emission factors used for each pollutant and source and the hours of operation for each unit on which the emissions are based.
6. Provide the potential to emit (PTE) on an annual basis for each regulated pollutant. Include the supporting emission calculations and the derivation of each emission factor used to calculate emissions.
7. Copies of the initial, semi-annual, and annual notifications are required by 40 CFR 60, 61, and 63.
8. Copies of a certificate issued by the Department to each incinerator operator who has satisfactorily completed an approved incinerator training course.
9. All visible emission (Method 9, Method 22 or other) survey records, including any corrective actions completed to alleviate the presence of VE.

Please feel free to contact me if you have any questions regarding the inspection.

Thanks!

Parmatma Adhikari
Environmental Engineer
ECAD, Air Section
US EPA, Region III

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1600 John F Kennedy Blvd
Philadelphia, PA 19103
215-814-2161

Attachment 2: PHOTO LOG

Facility: Wheelabrator Baltimore, LP

Location: Baltimore, MD

Inspection Date: 9/7/2023

EPA Inspector(s): Parmatma Adhikari

Photographer: Scott Yanos

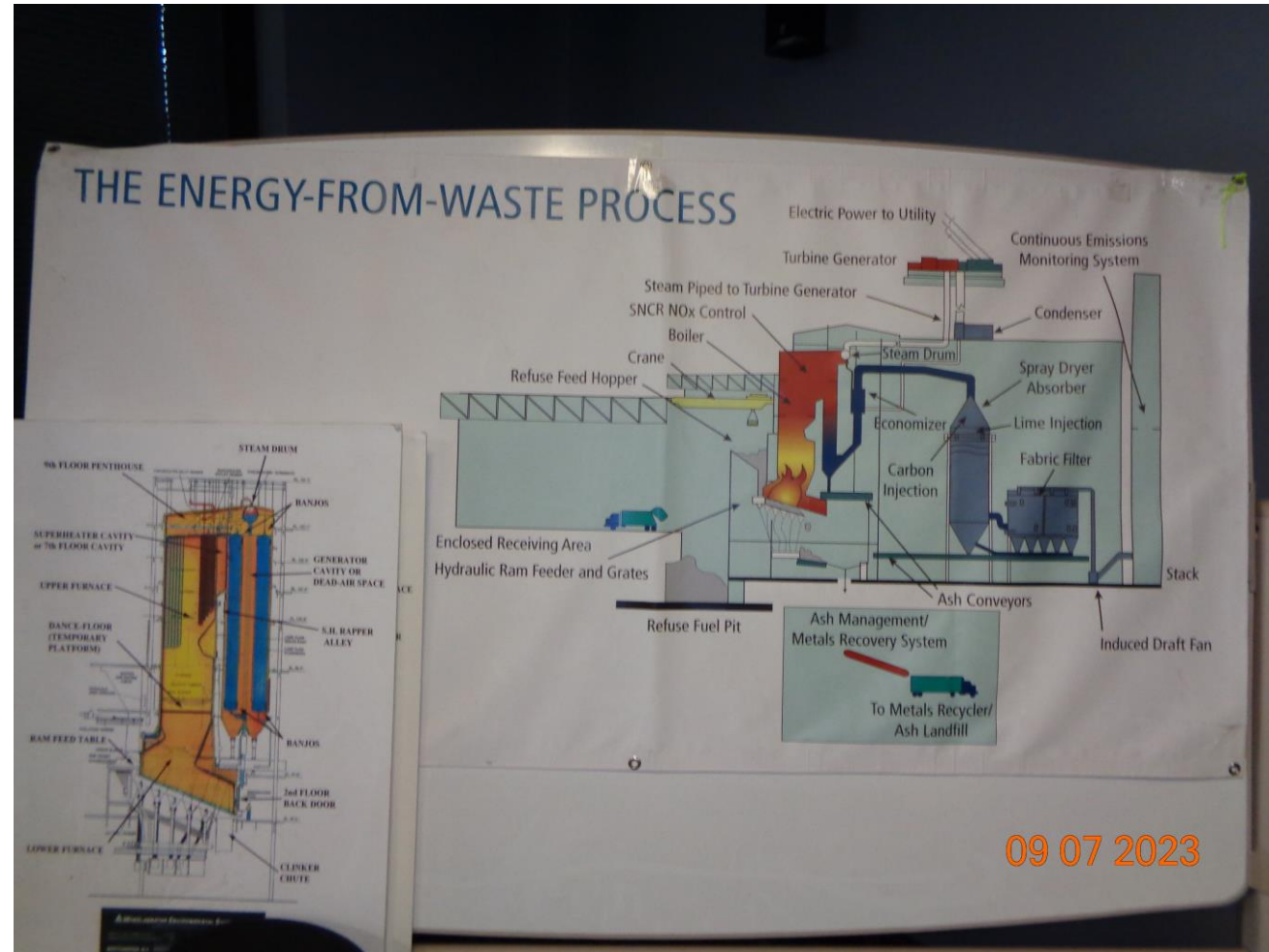


Photo Number: 1

Photo Description: Waste to Energy Process Diagram



Photo Number : 2

Photo Description: Wastewater Tank



Photo Number : 3

Photo Description: Caustic Soda Tank



Photo Number : 4

Photo Description: Caustic Soda Tank



Photo Number : 5

Photo Description: Sulphuric Acid Tank



Photo Number : 6

Photo Description: Urea Tank



Photo Number : 7

Photo Description: Down Switch Yard



Photo Number : 8

Photo Description: Activated Carbon Storage Lime Silos



Photo Number : 9

Photo Description: Power Generator/Turbine



Photo Number : 10

Photo Description: Back Pressure Turbine



Photo Number : 11

Photo Description: Control Room Monitor



Photo Number : 12

Photo Description: Control Room Monitor



Photo Number : 13

Photo Description: Control Room Monitor



Photo Number : 14

Photo Description: Furnace/Boiler in 2nd Floor



Photo Number : 15

Photo Description: Refuse Pit



Photo Number : 16

Photo Description: Refuse Pit



Photo Number : 17

Photo Description: Refuse Feed Hopper



Photo Number : 18

Photo Description: Refuse Feed Hopper



Photo Number : 19

Photo Description: Boiler # 1



Photo Number : 20

Photo Description: Common Stack

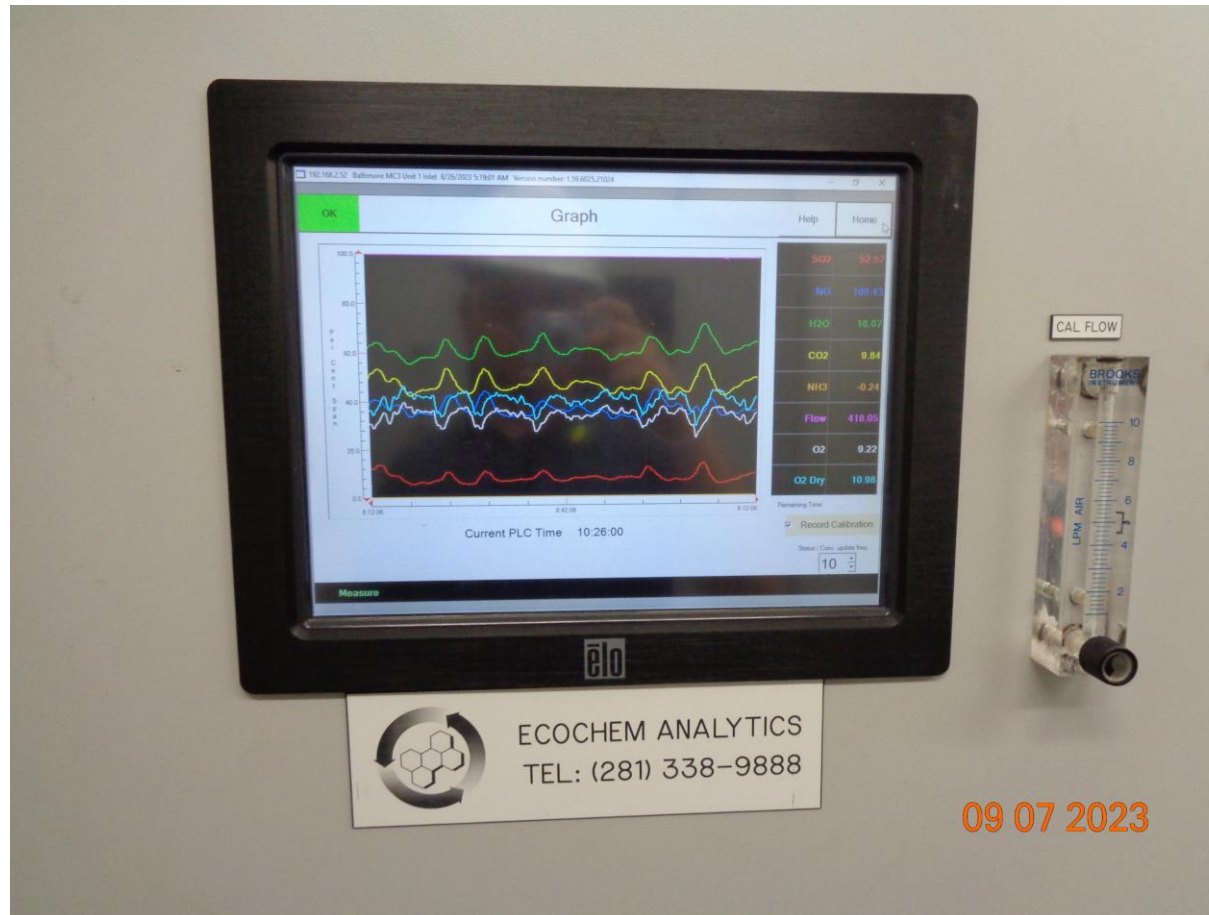


Photo Number : 21

Photo Description: Continuous Emission Monitor System (CEMS) Output Screen



Photo Number : 22

Photo Description: CEMS Equipment



Photo Number : 23

Photo Description: CEMS Equipment



Photo Number : 24

Photo Description: Induced Draft Fan

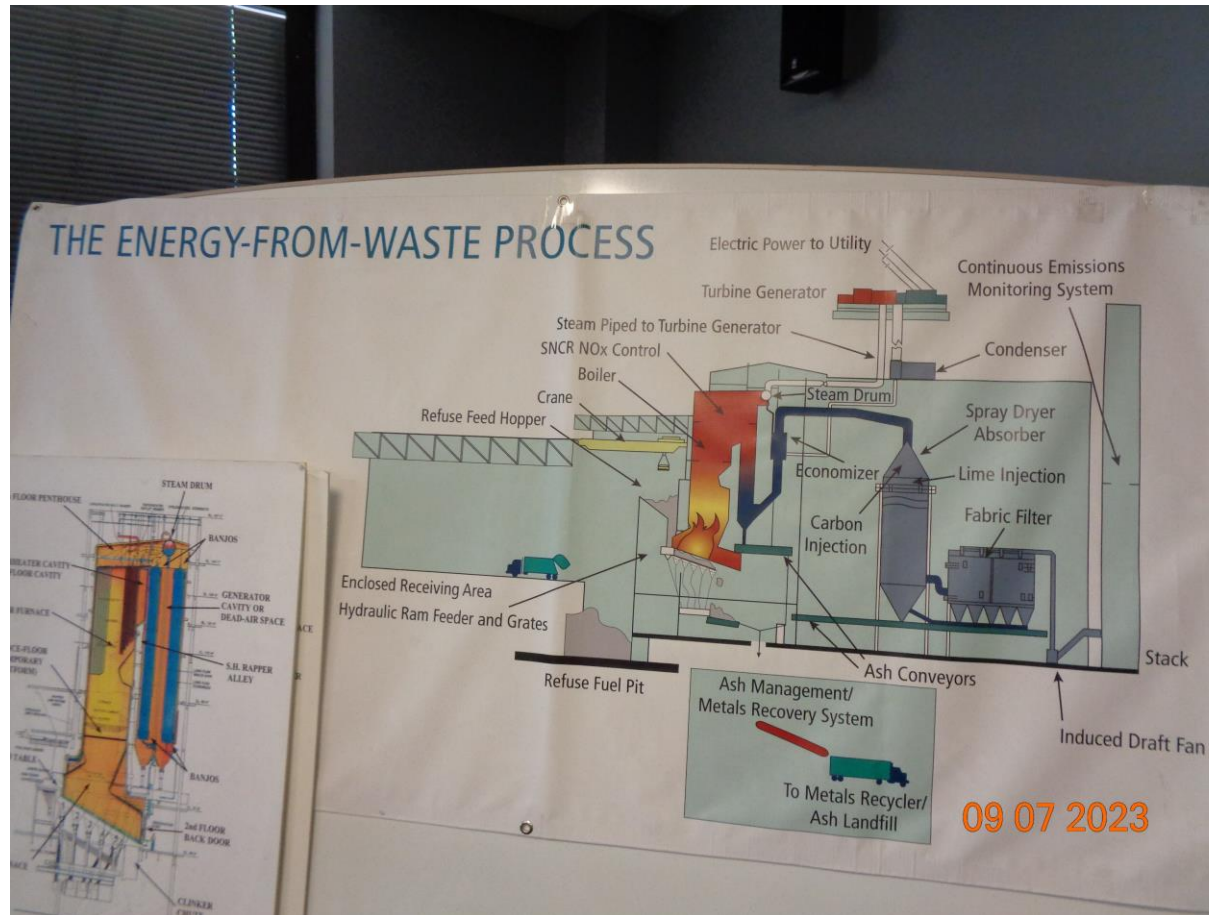


Photo Number : 25

Photo Description: Process Description Diagram



Photo Number : 26

Photo Description: Diesel Fire Pump Data Plate



Photo Number : 27

Photo Description: Diesel Fire Pump

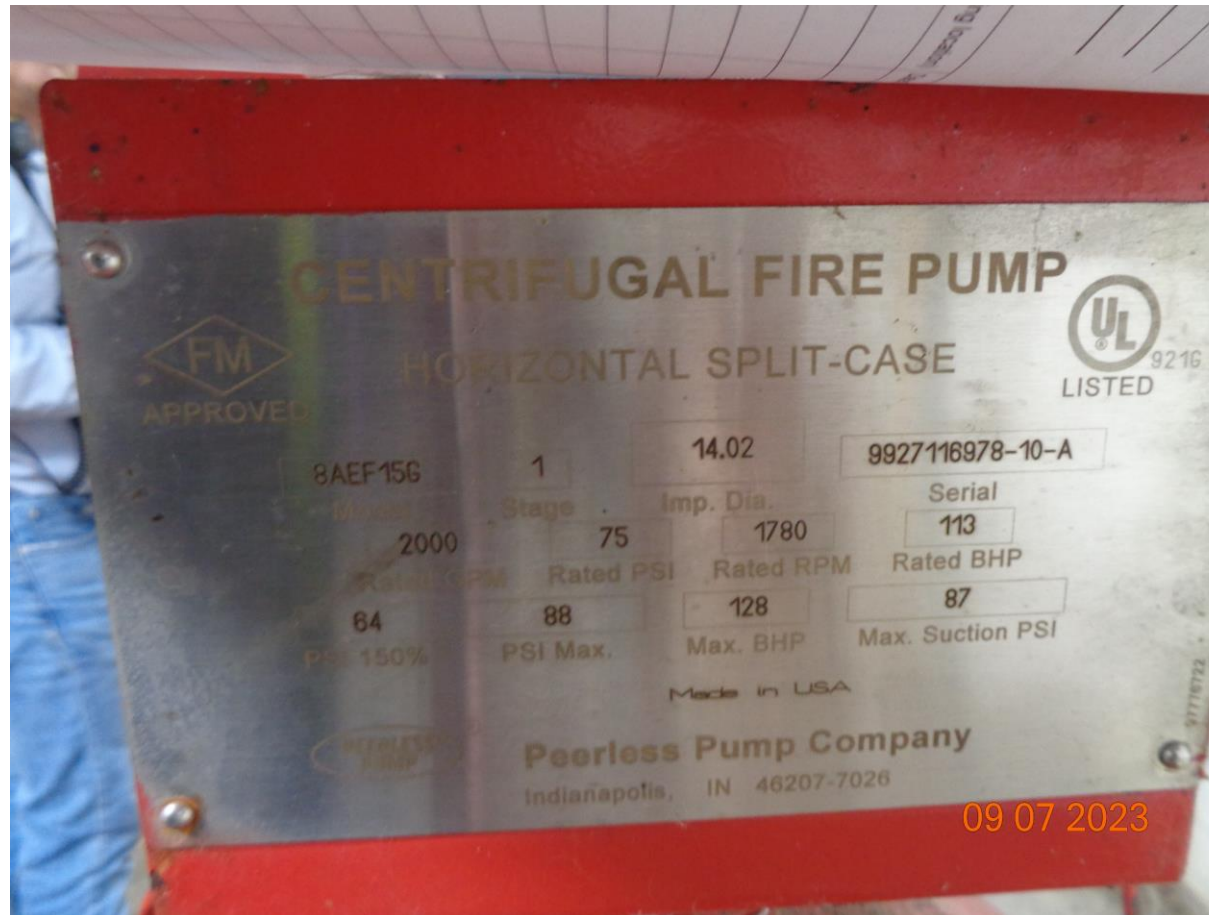


Photo Number : 28

Photo Description: Diesel Fire Pump Data Plate



Photo Number : 29

Photo Description: Electric Fire Pump



Photo Number : 30

Photo Description: BVC Generator Data Plate

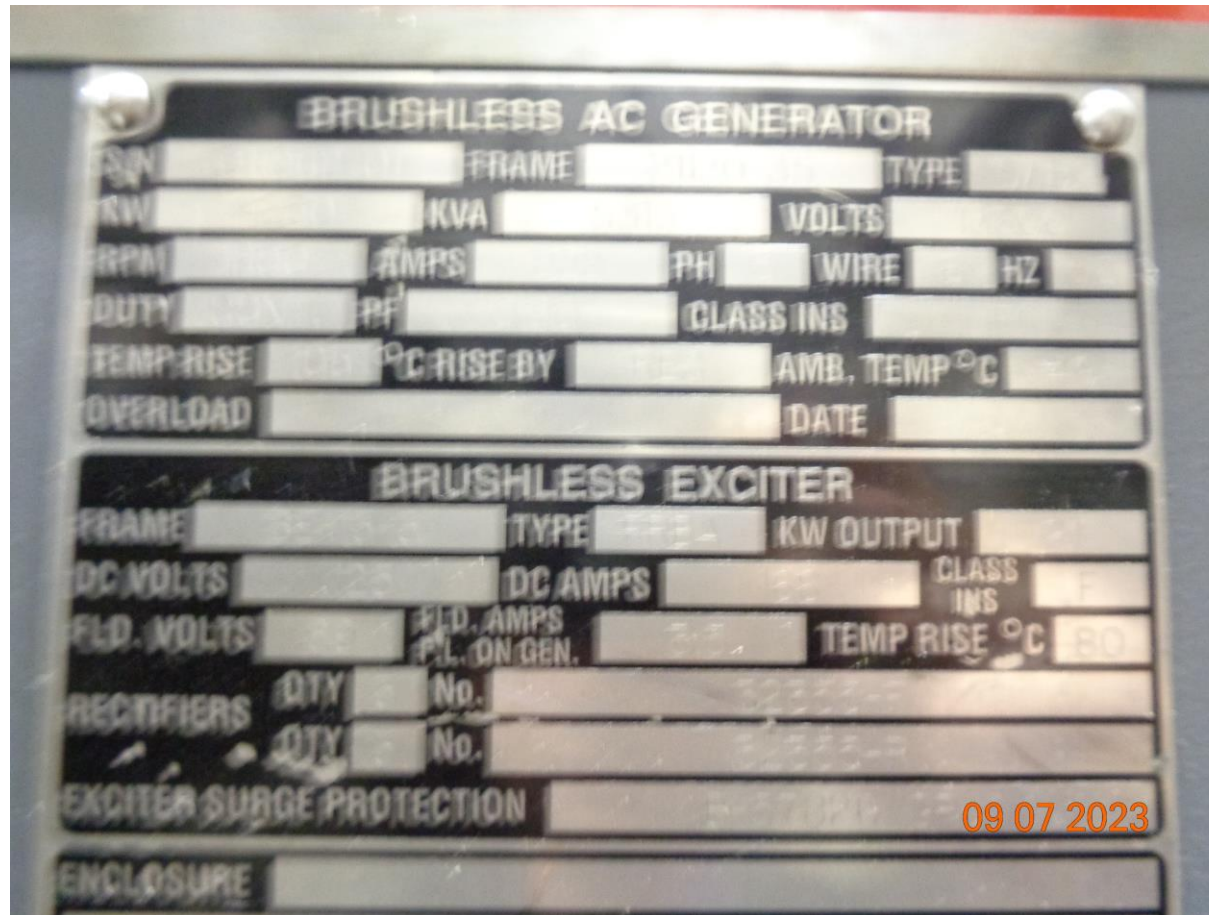


Photo Number : 31

Photo Description: AC Generator Data Plate



Photo Number : 32

Photo Description: Boiler Number 1 Data Plate

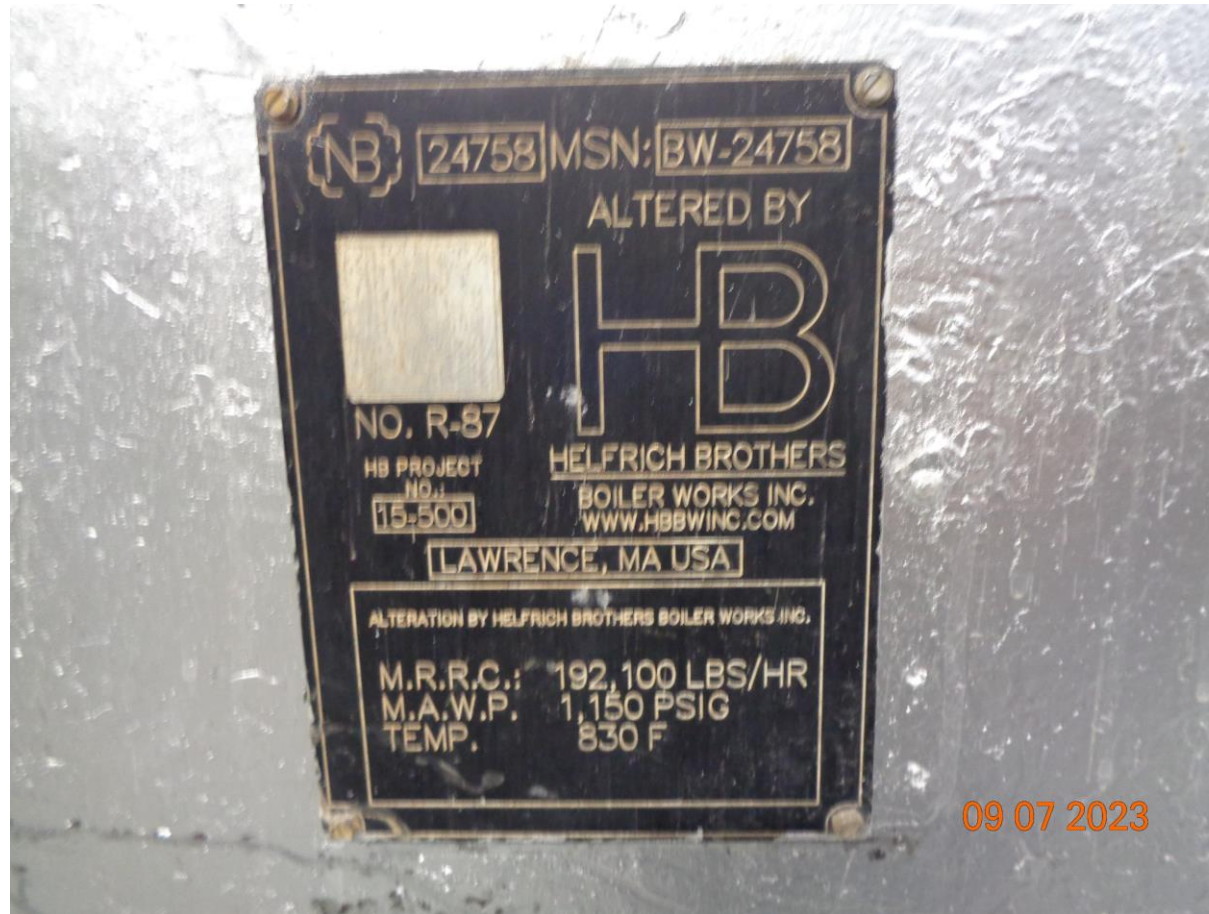


Photo Number : 33

Photo Description: Boiler Number 1 Data Plate



Photo Number : 34

Photo Description: Boiler Number 2 Data Plate



Photo Number : 36

Photo Description: Boiler Number 3 Data Plate



Photo 37:

Photo Description: Fabric Filter Bag House