Region 2 Enforcement & Compliance Assurance Division
Air Compliance Branch

CAA Inspection Report

Inspection Date:	8/22/2023
Facility Name:	Palo Seco Steam Power Plant
Facility Address:	State Road PR-165 Km. 30.8, Toa Baja, San Juan, Puerto Nuevo
ICIS-Air ID #:	PR0000007213700006
Facility Contact:	Bianca Lewis Santiago, Director HSEQ, 787-209-0646, <blewis@genera-pr.com>
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EPA Asst. Inspector:	Bryan Lange, 919-622-2374, <bryan.lange@erg.com>
State Inspector(s):	N/A
Other Inspector(s):	N/A

Summary of Observations

On August 22, 2023, EPA inspectors Ralph Lonergan, Julian Velez, Gloria Diaz-Galarza, and Bryan Lange (hereafter referred to as the inspection team) conducted an on-site inspection at the Palo Seco Steam Power Plant (hereafter referred Palo Seco).

On July 1, 2023, Genera PR, LLC (Genera) became the operator of Palo Seco.

Opening Meeting

At 1:28 pm the inspection team arrived at Palo Seco. The cloudy conditions created a poor background for measuring visible emissions. Alexandra Colon conducted a safety orientation.

Following introductions, Mr. Lonergan requested a facility overview followed by a facility tour to observe unit operations and review recordkeeping procedures.

Facility Overview

The following summarizes the topics discussed during the inspection.

Boilers

PS1 and PS2 are permanently out of service. PS4 was temporarily out of service for a fan repair.

On the day of the inspection, of the four oil-fired boilers only PS3 was operating. The output capacity of PS3 is 216 MW but was producing 100 MW; the output was consistent with the power requested by LUMA. Palo Seco representatives indicated that units PS3 and PS4 have operational limitations that prevent them from reaching full capacity:

- PS4 – The hydrogen cooler is leaking.
- PS3 – Water heater is out of service.

The Palo Seco boilers use soot blowing at least once per 12-hour shift. Soot blowing is the use of high-pressure super-heated steam, to remove accumulated particulate inside the boiler and comply with requirements in the consent decree (CD). If elevated opacity is observed, then the boiler operators initiate a soot blowing cycle.

There are particulate matter (PM) continuous emission monitoring systems (CEMS) and continuous opacity monitoring system (COMS) installed on these boilers. The PM CEMS units were not operational the day of the inspection. Facility representatives indicated the failure was with the Distributed Control System (DCS) interface.

The boilers have two black start emergency generators.

Fuel and Water Storage

There are three on-site diesel fuel (i.e., No. 2 fuel oil) storage tanks, three service tanks, and one tank is being repaired. The diesel fuel is delivered by pipeline. There are also three storage tanks used for bunker C (i.e., No. 6 fuel oil).

On-site, there are two demineralized water tanks.

MOBILEPAC Combustion Turbines

Three 27 MW model Pratt & Whitney FT8 MOBILEPAC dual fuel combustion turbines were installed in 2019 and were in-service, but not operating on the day of the inspection. These MOBILEPAC peaking combustion turbines units are identified as 1-1, 1-2, and 2-1. These turbines are diesel fuel fired and use water injection systems for nitrogen oxides (NOx) control.

Prior to Genera becoming the operator of Palo Seco, these units were operated by Hydro-gas (a division of PREPA).

US Army Corps of Engineers (USACE).

There are gas fired turbines on-site, capable of producing a total of 150MW, that are not owned by PREPA and are not operated by Genera. The USACE is the owner/operator of this equipment and is also responsible for the permitting. USACE is directed by Federal Emergency Management Agency (FEMA).

The USACE units fire natural gas from a storage tank. Gas is delivered by truck from the New Fortress terminal in San Juan. The USACE units have a portable demineralized water tank and the water is supplied by the utility company.

Plant Tour

A facility tour was conducted to confirm the information provided by the facility. ERG took photos of selected emission units and operational records (e.g., logbooks, checklists).

Boiler Control Room

Only boiler PS3 was operational on August 22, 2023. Facility representatives showed the inspection team a collection of boiler control room screens. The inspection team observed the following parameters:

- Control screen No.1 showed 100 MW of generated power and the measured opacity was one and four percent (the unit has two stacks).
- Control screens No.2 and No.3 showed the soot blowing sequence and location.
- Control screen No.4 showed fan power and fuel oil flow.
- Control screen No.5 showed the steam turbine and generator rpms and temperatures.

Facility representatives explained the ramp up capabilities of boiler PS3. Specifically, it can increase its power output by approximately 3 MW per minute. It is preferable that these units do not go below 100 MW. PS3 was shut down and performed a cold start last week.

Inspectors had a discussion with Mr. Jose Molero, the PM CEMS operator. Mr. Molero characterized the PM CEMS issues as “more than a communication issue.” He explained that the location of the units causes the high temperatures and they do not tolerate the heat.

CEMS Building

Each boiler had a dedicated continuous emission monitoring systems (CEMS) building. The inspection team visited the CEMS building for PS3, the operational boiler. On-site Teledyne monitors measure the following pollutants: Opacity and PM.

USACE Gas Fired Turbine

The inspectors observed the gas fired turbines operated by USACE from a distance.

MOBILEPAC

At the time of the inspection, none of the MOBILEPAC combustion turbines were operating. Facility representatives described the recent unit history as follows:

- August 22, 2023 – One unit ran for 5-hours.
- August 21, 2023 – Two units ran for 6-hours each.
- Week of August 14, 2023 – One unit ran for 24-hours because a steam plant was out of service.

The inspection team visited the control room space for that unit that operated on August 22, 2023; paper records of Watt-hour monitoring confirmed the operation on August 22, 2023.

The MOBILEPAC combustion turbines have a unit capacity of 27 MW. When they reach a power of 5 MW output then the water injection systems for NOx control engages.

Facility representatives explained some elements of the maintenance routine. Inlet air filters are replaced every 2-months and lubrication oil systems are checked frequently. The inspectors were shown a dirty air filter and observed the open panel showing a panel of air filters.

The representative also explained that Visible Emissions (VE) observations are taken every 15-days.

Black Start and Emergency Engines

In total, the lifetime hour counters and name plates for five engines were photographed. Their hours of operation are as follows:

- Black Start Generator 1 – 324.7 hours,
- Black Start Generator 2 – 292.6 hours,
- Black Start Generator 3 – 470.5 hours,
- Emergency Generator 1 – 951.9 hours, and
- Emergency Generator 2 – 819.1 hours.

Spare Parts Warehouse

The CD requires that Genera maintain facility specific inventory of certain spare parts. The inspection team verified that the quantity in stock of a chosen component was consistent with the count in the most recent July 2023 inventory. As requested, the warehouse staff collected and presented expected inventory of three auxiliary double bearing DRWG (i.e., No. 101-83796).

Closing Meeting

After the conclusion of the inspection, Mr. Lonergan expressed gratitude for all the assistance provided during the inspection and all the cooperation in providing the information needed to complete the inspection. Three areas of concern were discussed:

- No PM CEMS were operational.
- Although the MOBILEPAC units were operationally functional. Organizationally the staff responsible for this equipment seem disconnected from the overall facility. This operational gap/disconnect appears to be an artifact of previous ownership. Specifically, that Hydro-gas was a separate division within PREPA.
- Facility representatives were unable to locate the logbook for each emergency generator.

The inspectors concluded the inspection closing meeting on August 22, 2023 at around 4:35 pm.

Lead Inspector's Name: *for* Ralph Lonergan

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Lead Inspector

Assisting Inspector's Name: Julian Velez

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Assisting Inspector

Supervisor's Name: Joseph Cardile

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Supervisor