Region 2 Enforcement & Compliance Assurance Division
Air Compliance Branch

# CAA Inspection Report

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| **Inspection Date:** | 8/24/2023 |
| **Facility Name**: | PREPA Costa Sur – South Coast Steam Power Plant |
| **Facility Address**: | PR-127, Km. 15.7, Guayanilla, Puerto Rico |
| **ICIS-Air ID #:** | PR0000007205900010 |
| **Facility Contact**: | Bianca Lewis Santiago, Director HSEQ, 787-209-0646, <blewis@genera-pr.com> |
| **EPA Lead Inspector**: | Ralph Lonergan, 212-637-3516, <Lonergan.ralph@epa.gov> |
| | Julian Velez, 212-637-3464, <velez.julian@epa.gov> |
| | Gloria Diaz-Galarza, 787-977-5882, <diaz-galarza.gloria@epa.gov> |
| | Alex Rivera, 787-977-5845, <Rivera.Alex@epa.gov> |
| **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 24, 2023, EPA inspectors Ralph Lonergan, Julian Velez, Gloria Diaz-Galarza, Alex Rivera, and Bryan Lange (hereafter referred to as the inspection team) conducted an on-site inspection at the South Coast Steam Power Plant (hereafter referred Costa Sur).

Prior to arriving on-site, the inspectors investigated real-time PR power generation details.[1]

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| System Total: 2,421 MW | San Juan: 411 MW |
| Aguirre: 288 MW | Costa Sur: 340 MW |
| Palo Seco: 150 MW | EcoElectrica: 448 MW |
| AES: 429 MW | - |

On July 1, 2023, Genera PR, LLC (Genera) became the operator of Costa Sur.

## I. Opening Meeting

At 10:30 am the inspection team arrived at Costa Sur.

[1] https://genera-pr.com/data-generacion

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

# II. Facility Overview

The following is a summary of the three power blocks:

## A. Boilers

Originally, Costa Sur had six boiler units. Below is some information about unit operations:

- Units 1 and 2 – In the demolition process.
- Unit 3 – Was in service until August 7, 2016; no expectations to restart.
- Unit 4 – Was in service until December 27, 2016; no expectations to restart. Units 3 and 4 had a maximum capacity of 85 MW each.
- Unit 5 – Has been out of service since July 8, 2023; a major repair is scheduled, and an environmental outage will occur before it returns to service. The unit is expected to return to service on October 14, 2023.
- Unit 6 – In service, available for 350 MW.

Units 5 and 6 have the maximum capacity of 410 MW each and function on dual fuels (i.e., natural gas and bunker C). Fuel blending can occur, but natural gas is the predominant fuel at this time. There is an agreement with EcoElectrica for natural gas that is renewed every 3-months; the current agreement will expire in November of 2023. Facility representatives indicated that LUMA had been notified of this planned outage. There is no natural gas on site, only the pipeline from EcoElectrica.

Inspector Alex Rivera discussed a recent opacity emissions event (approximately April 2022) when a boiler was burning 100 percent bunker C fuel and it experienced an operational challenge (i.e., a protection device failed causing a pair of fans to shut down). Facility representatives indicated that emergencies like this are uncommon and that low opacity emissions are a priority.

Unit 6 has limitations; tube leaks prevent it from reaching its full capacity. When those repairs are made it should operate at 410 MW. Unit 6 is scheduled for a 6-week environmental outage at the end of November 2023. At that outage the boiler tubes will be repaired. The specifics environmental outage inspections are detailed in the Consent Decree (CD). Unit 6 was last offline in February 2022 for 2-weeks.

Inspector Alex Rivera asked a hypothetical question i.e., does the operational performance of a boiler suffer if it misses its scheduled environmental outage? Facility representatives emphasized that environmental outage should be accomplished in a manner that is consistent with the CD. The representatives indicated that because the boilers fire natural gas, efficiency would not suffer if an environmental outage was delayed.

Soot blowing cycle occurs every 4.5 hours (or 5 to 6 times per day). It happens on this schedule regardless of the fuel that is fired.

## B. Black Start and Fuel Storage

Two (2) GE Frame 5 gas turbines, each with the max capacity of 220 MW. The voltage regulator must be repaired before one of the turbines can operate. They were last operated during hurricane Maria. Since 2017, the electrical grid has provided the black start function (i.e., power is transmitted from electric generating units at Mayaguez, Aguirre, EcoElectrica).

The US Army Corps of Engineers (USACE) is considering replacing these black start turbines. The proximity to EcoElectrica natural gas is an important advantage.

On site, there is two bunker c storage tanks (i.e., 2R and 3R); their combined capacity is 280,000 barrels. There is also a single storage tank for light oil.

### C. Emergency Generators

There are four emergency generators onsite that provide electricity for critical functions (e.g., lighting, fire protection).

### D. Particulate Matter (PM) Monitoring

Each boiler is equipped with an opacity monitor.

The January 2020 earthquakes disturbed the communication between the PM Continuous Emissions Monitoring System (CEMS) and the control room; that same problem persists today. Approximately 1-month ago, Teledyne visited this site and will provide a quote to fix the existing problems.

Inspector Alex Rivera noted, if it is decided that Teledyne will fix the problems that will take time.

## III. 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).

### A. Boiler Control Room

At the time of the inspection, only boiler Unit 6 was operational. Soot blowing was occurring. The inspection team observed the following parameters:

- Control screen No.1 showed the 8 soot blowing zones and the individual lance ports.
- Control screen No.2 showed tank levels including fuel, demineralization, and condensate.
- Control screen No.3 showed the boiler system and the 337 MW of generated power.
- Control screen showed opacity and particulate emissions at unit 6 stacks. It should be noted that stack 6A (likely 6-1) measured zero opacity.

### B. 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 the identified item. There were three plugs (Catalogue No. 577-84860) and there was agreement between the quantity on hand and inventory.

### C. Emergency Engines

Photographs of lifetime hours and nameplates for representative engines were taken. Hours of operation are as follows:

- Marathon generator, 350kW: 136 hours,
- Synchronous AC Generator, 600 kW: 454 hours, and
- MTU Onsite Energy, 1,250 kW: 145 hours.

### D. Unit 6 Stacks (i.e., 6-1 and 6-2)

The following monitoring equipment was observed at both stacks:

- Teledyne LaserHawk,
- Zirconia oxygen and temp analyzer (model ZR22G), and
- Durag (model D-SK 280MA).

Facility representatives indicated the Teledyne LaserHawk was the PM CEMS. The LaserHawk located on stack 6-1 did not appear to be operational. When the inspectors arrived at that location the cover was off, and a repair seemed to be underway. The LaserHawk on stack 6-2 seemed to be in working condition, but there was no digital display.

The Durag monitors located on both stacks appeared to be operational. The inspectors read the digital display for the Durag on stack 6-2, but the unit for measurement 965 were unclear.

### D. Black Start

The inspection team reviewed the logbook and found a large gap in operation of the John Brown unit. Specifically, it was operated in June of 2017 and not again until July of 2023.

## IV. Closing Meeting

After the conclusion of the plant tour, the inspectors expressed gratitude for all the assistance provided during the series of Genera inspection and all the cooperation in providing the information needed.

The inspectors explained that the CAA Section 114 request for information letter ("114 RFI") issued on May 17, 2023 is currently under review and comments should be expected.

The following topics were discussed during the closing meeting:

1. Inspector Alex Rivera stressed communication given the number of stakeholders involved in providing power to Puerto Rico i.e., PREPA, LUMA, Genera. Inspectors also noted the value of communication within Genera. Organizationally, the staff responsible for the Palo Seco MOBILEPAC units and the Aguirre combined cycle turbines are operationally disconnected.

2. In the opening meeting, Genera indicated that meetings had been held with Tetra Tech about environmental performance tests across the Genera fleet. Further, EPA has been notified of upcoming testing of the Palo Seco MOBILEPAC units. EPA emphasized that all testing protocols must be submitted for approval. The electric generating units (EGU) operating range must fall within the range of load conditions observed during performance testing.

3. EPA has received a force majeure request from PREPA about delaying the environmental outage for the Costa Sur Unit 6. EPA explained that any delays must be approved.

4. EPA has received complaints from citizens about opacity emissions. Genera was not aware of these complaints.

5. This week's inspections included spot checks of spare parts at Aguirre, Palo Seco, and Costa Sur. EPA acknowledges the consistency in the paper submissions and the warehouse counts.

6. This week's inspections also include review of emergency generator records. In addition to tracking maintenance the hours of operation must be consistent with engine hour counters. At the Palo Seco facility, staff were not able to locate certain records.

The inspectors explained that individual inspection report will be delivered within 60-days. The closing meeting concluded on August 24, 2023, at around 3:40 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

X Cardile, Joseph Digitally signed by Cardile, Joseph Date: 2023.10.18 13:27:07 -04'00'

Supervisor