



air pollution control district
SANTA BARBARA COUNTY

HEARING BOARD STAFF REPORT

TYPE: REGULAR VARIANCE

CASE NO: 2022-03-R

DATE: May 4, 2022

1.0 GENERAL INFORMATION:

- 1.1 **PETITIONER COMPANY NAME:** California Power Partners Santa Barbara (Calpower)
- 1.2 **EQUIPMENT LOCATION:** El Estero Wastewater Treatment Plant, 520 E. Yanonali Street, Santa Barbara, California
- 1.3 **PERMIT NUMBER(S):** Permit to Operate 13862-R2
- 1.4 **FACILITY NAME/ID:** Calpower/FID 11391
- 1.5 **FACILITY DESCRIPTION:** The El Estero Wastewater Treatment Plant (WWTP) is owned and operated by the City of Santa Barbara. The WWTP receives wastewater from the City of Santa Barbara where it is processed for disposal. One of the biproducts of the wastewater treatment process is biogas. The biogas is routed to the WWTP digester heaters and flare. The primary, and preferred disposal method is routing the biogas to the Petitioner's (Calpower) 896.00 bhp Gausor cogeneration engine to convert the biogas to electricity.

The facility is located at the City of Santa Barbara El Estero WWTP located at 520 E. Yanonali Street in Santa Barbara, California.

- 2.0 **REASON FOR THE VARIANCE REQUEST:** At the beginning of the COVID-19 pandemic, the Petitioner observed a decrease in the influent at the WWTP, thus decreasing the effluent digester gas production, and the digester gas production has not yet returned to pre-pandemic levels. The cogeneration engine relies on biogas to produce electricity. Because the California Energy Commission considers the cogen engine to be a renewable source, it may only operate on up to 25% natural gas. In order for the cogen engine to remain renewable project, the fuel source may not exceed the 25% natural gas threshold.

On January 27, 2022, annual source testing was conducted on the cogeneration engine. On March 2, 2022, the District received the source test report indicating a failure (limit 0.183 lb/MMBtu NO_x, 0.549 lb/MMBtu CO, reported 0.221 lb/MMBtu NO_x, 0.639 lb/MMBtu CO) of the emission rates (lb/MMBtu) for NO_x and CO; and passing results for all other parameters. According to the Petitioner, the cogen engine must operate at 425 kW with 140 scfm of at least 61% methane content biogas with a higher heating value of 615 BTU/ft³ to achieve passing results. Review of the 2018 through 2021 Annual Reports for the WWTP, indicated biogas production routed to the cogen engine decreased by approximately 1,000,000 ft³ per month for 2021. The average higher heating value for this date range was 617 BTU/ft³.

At this time, the WWTP is unable to provide biogas of the necessary quality and quantity for the cogen engine to comply with the permitted emission rates (lb/MMBtu) for NO_x and CO. While the HHV meets one of the operating requirements, there are other considerations for the cause of the poor emissions performance. Methane content (quality) and flow (quantity) are the driving forces for poor emission performance. These are outside the control of the

Petitioner. Therefore, conducting additional source testing would have similar results. As such, the Petitioner has applied for Interim and Regular Variances.

Without Variance coverage, the Petitioner will be in violation of District Rule 206, and Conditions 1.a, 6, 7.a and 7.c of Permit to Operate 13862-R2.

3.0 BACKGROUND: A Petition for Variance Order 2022-03-R was submitted on March 17, 2022 by California Power Partners Santa Barbara. If granted, 2022-03-R would grant enforcement relief from the date a decision is made through March 16, 2023, or the date compliance is achieved, whichever occurs first.

4.0 PERMITTING HISTORY: The equipment operated by the Petitioner was initially permitted on January 14, 2013. The equipment is in the second reevaluation process and is currently operating under Permit to Operate 13862-R2, issued on June 10, 2020.

5.0 COMPLIANCE HISTORY: In the past three years, there have not been any Notices of Violation issued to California Power Partners Santa Barbara.

6.0 REGULATORY ANALYSIS: The Petitioner has requested the below permit conditions and rules to be included in the Variance Order.

- **Permit to Operate 13862-R2, Conditions:**

- 1.a

- *BACT Emissions Limits.* Emissions from the Generator Engine (Device ID: 115220) shall not exceed the BACT limits of:

NO_x¹ 0.60 g/bhp-hr, 73 ppmvd @ 15 percent O₂

ROC 0.24 g/bhp-hr, 83.5 ppmvd @ 15 percent O₂ (as methane)

CO 1.80 g/bhp-hr, 359 ppmvd @ 15 percent O₂

Compliance with the BACT limits ensures compliance with NSPS emission limits.

Compliance with the requirements of this condition shall be based on the operational, monitoring, source testing, recordkeeping and reporting conditions of this permit.

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- **BACT.** The permittee shall apply emission control technology and plant design measures that represent Best Available Control Technology (BACT) to the operation of the equipment/ facilities as described in this permit and the District's Permit Evaluation for this permit. Table 4 and the *Emissions, Operational Restrictions, Monitoring, Recordkeeping, and Reporting* conditions of this permit define the specific control technology and performance standard emission limits for BACT. The BACT shall be in place, and shall be operational at all times, for the life

¹ NO_x as NO₂

of the project. BACT related monitoring, recordkeeping and reporting requirements are defined in those specific permit conditions.

- 7.a
 - The permittee shall conduct source testing of air emissions and process parameters listed in Table 3 of this permit. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the District, occur. Source testing shall be performed on an annual schedule using February 6th as the anniversary date.
- 7.c
 - Source test results shall be submitted to the District within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall document the permittee's compliance status with mass emission rates in Table 1 and applicable permit conditions and rules. For determining compliance with daily emission limits, the applicable pounds per day value in Table 1 shall be divided by 24 to convert to a "pounds per hour equivalent limit". If the source test "pounds per hour" result for a pollutant exceeds the "pounds per hour equivalent limit", then the source is not in compliance with the pounds per day permitted limit for the applicable pollutant. All District costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by the permittee as provided for by District Rule 210.

7.0 **EMISSIONS ANALYSIS:** At this time, excess emissions are not expected. However, the Petitioner will report any excess emissions associated with the granting of this Variance.

8.0 ***RESERVED***

9.0 **OTHER FACTORS:** None.

10.0 **DISTRICT RECOMMENDATION:** The District supports the Petitioner's variance request.

11.0 **ATTACHMENTS:**

- Attachment 1 – Draft Regular Variance Order 2022-03-R



Aimee Long, Air Quality Specialist
Compliance Division

April 27, 2022
Date